

AgForce Projects



MOURA CSG GROUNDWATER FIELD DAY

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Workshops are delivered by AgForce Projects' CSG team with the support of the Queensland Government, the GasFields Commission Queensland and Australian Petroleum Production and Exploration Association.

Topics

- **CSG activities across QLD and CQ region**
- **Make Good framework - what it means in the Surat and Bowen Basins**
- **Landholder rights under Make Good framework**
- **Difference between Make Good under CSG vs mining**
- **What to consider if negotiating an agreement for CSG**

Note: these sessions provide an overview of information and should not be used in lieu of legal and other professional advice.

CSG development in Qld

7010

Number of CSG wells in Qld (including production/development, appraisal and exploration wells)



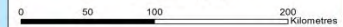
20,000 - 40,000

Estimate of total number of wells drilled over life of the industry.

	2011	2012	2013	2014
Production wells (development)	1,936	2,567	3,833	4,190
Appraisal wells	1,081	1,342	1,589	1,628
Exploration wells	949	1,102	1,182	1,192
Total	3,966	5,211	6,604	7,010

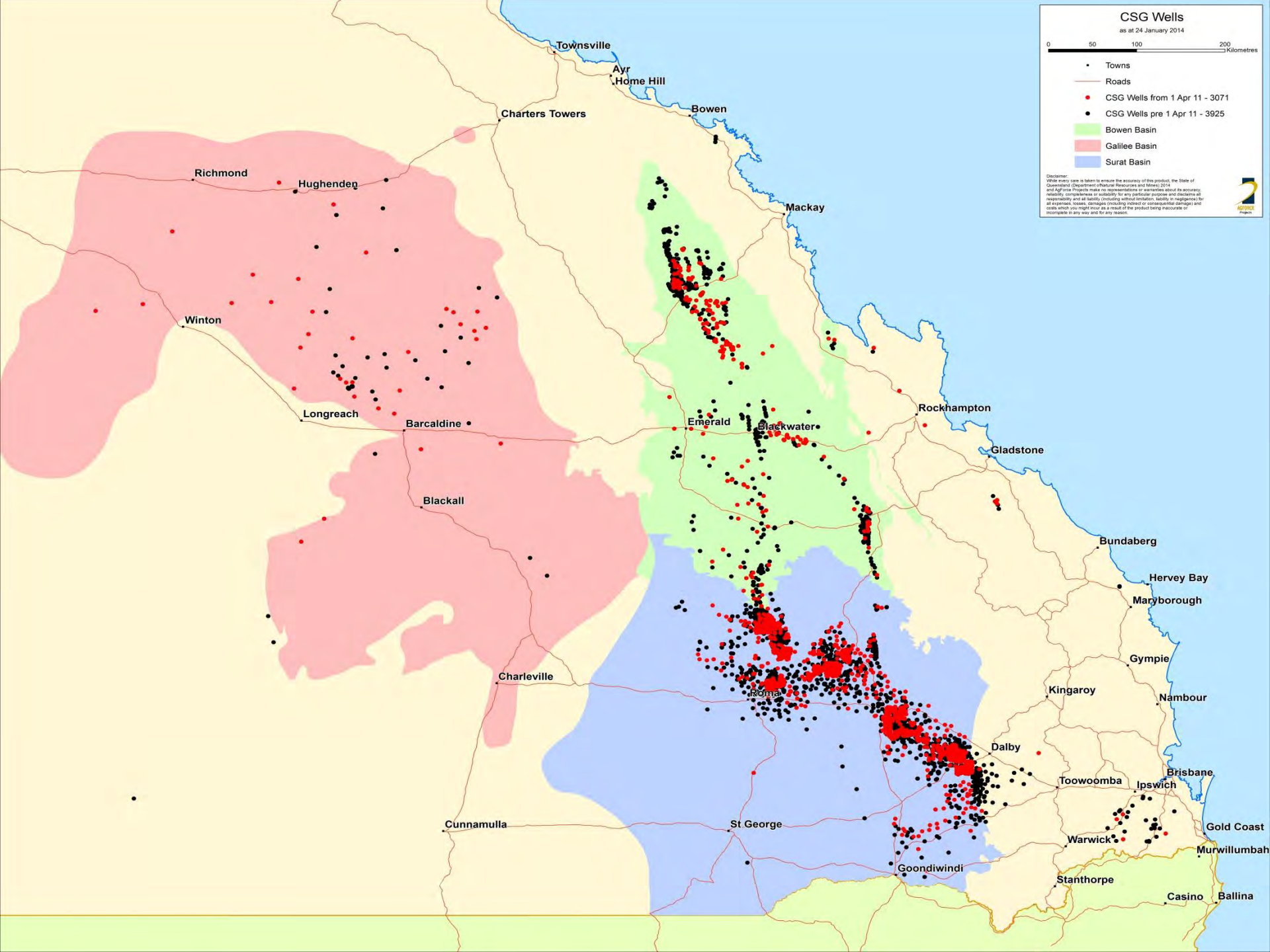
CSG Wells

as at 24 January 2014

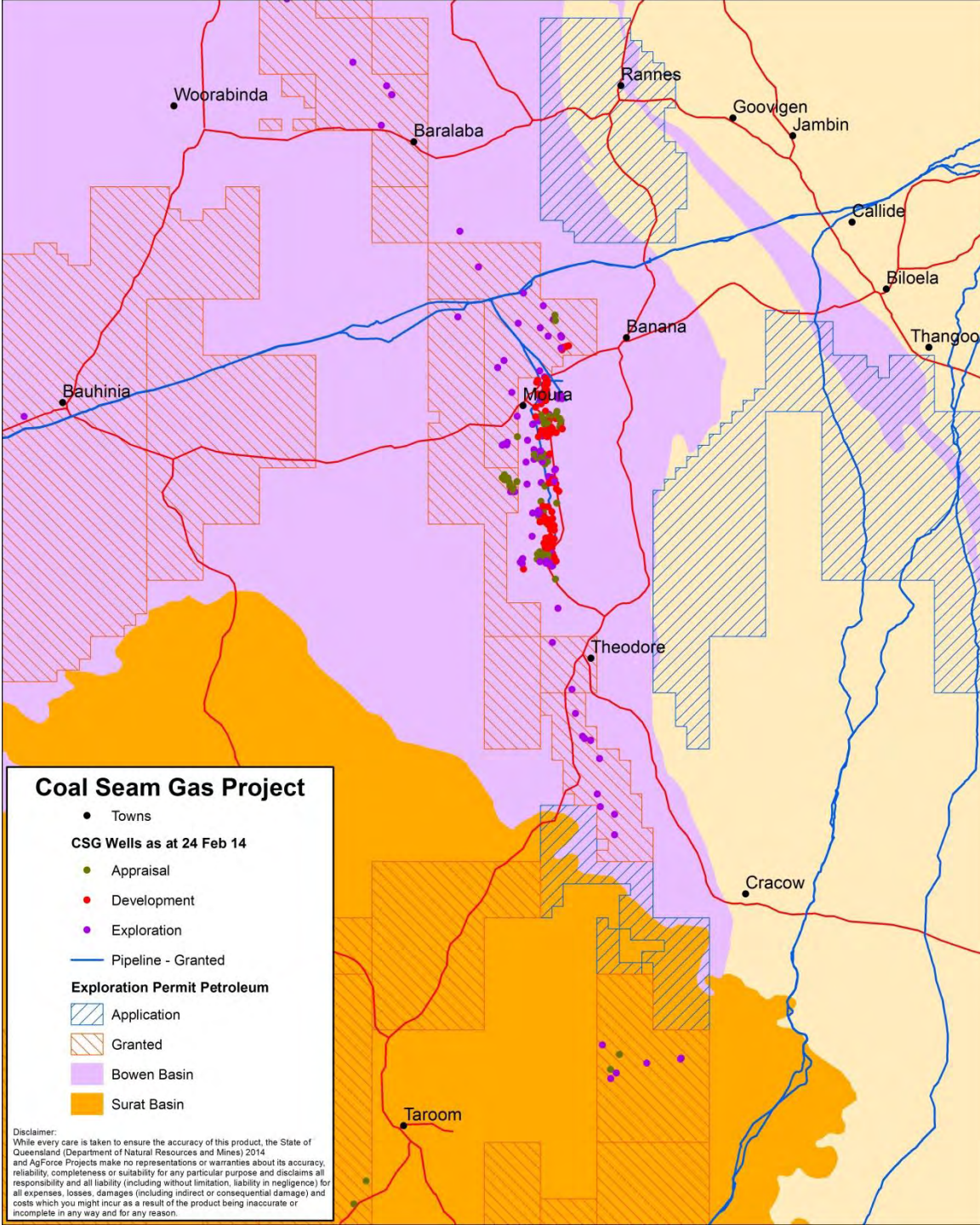


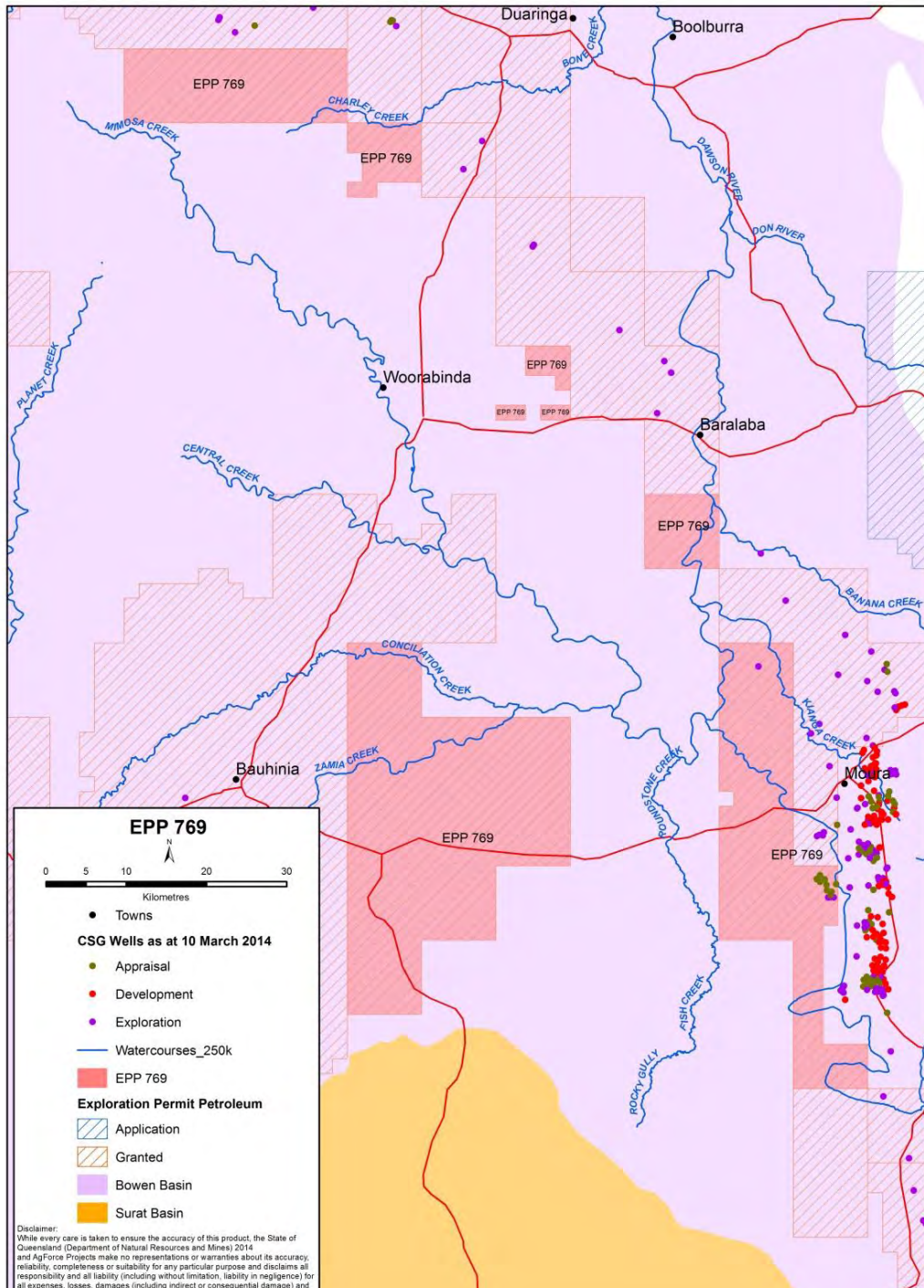
- Towns
- Roads
- CSG Wells from 1 Apr 11 - 3071
- CSG Wells pre 1 Apr 11 - 3925
- Bowen Basin
- Galilee Basin
- Surat Basin

Disclaimer:
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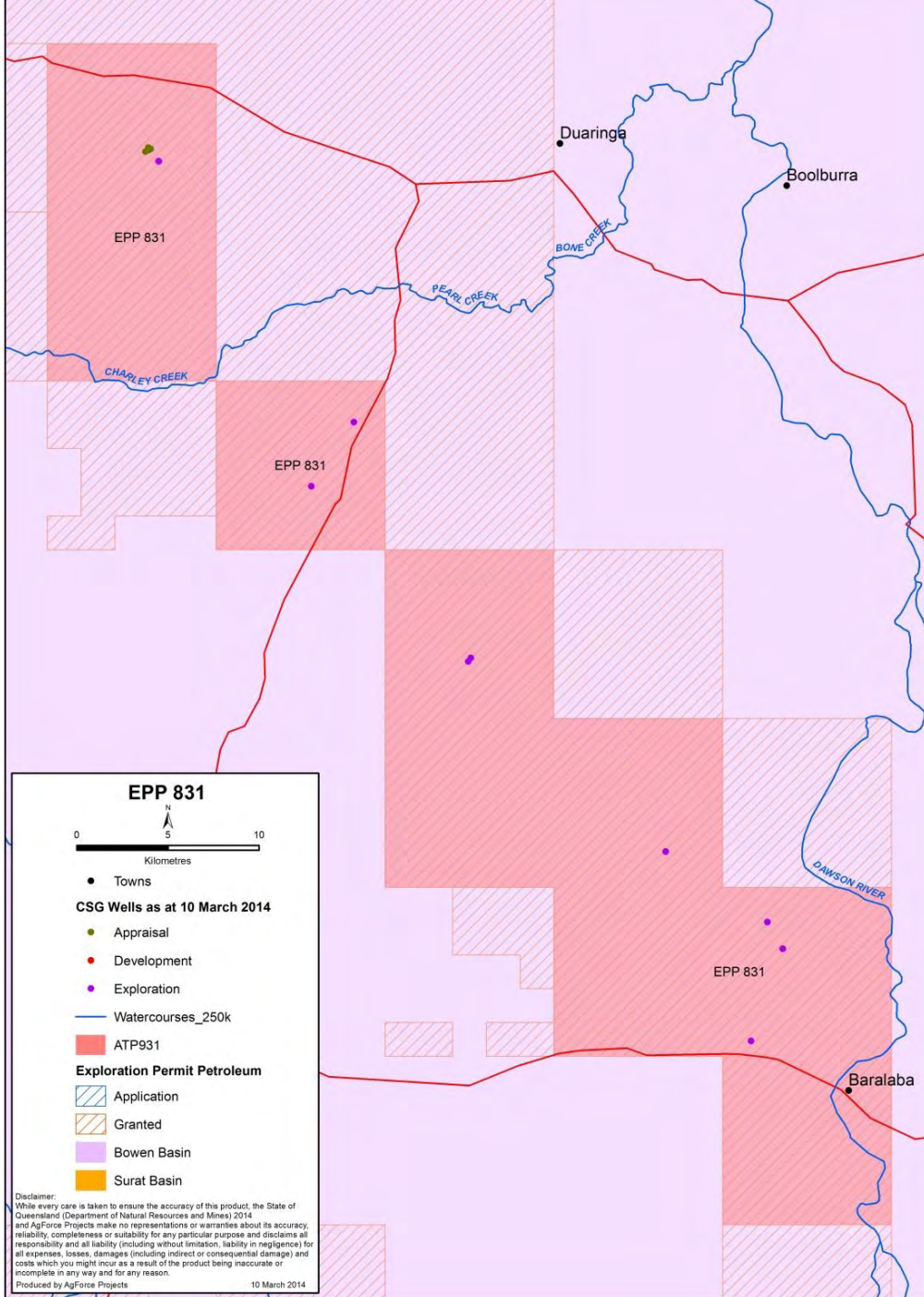
Moura region CSG activity





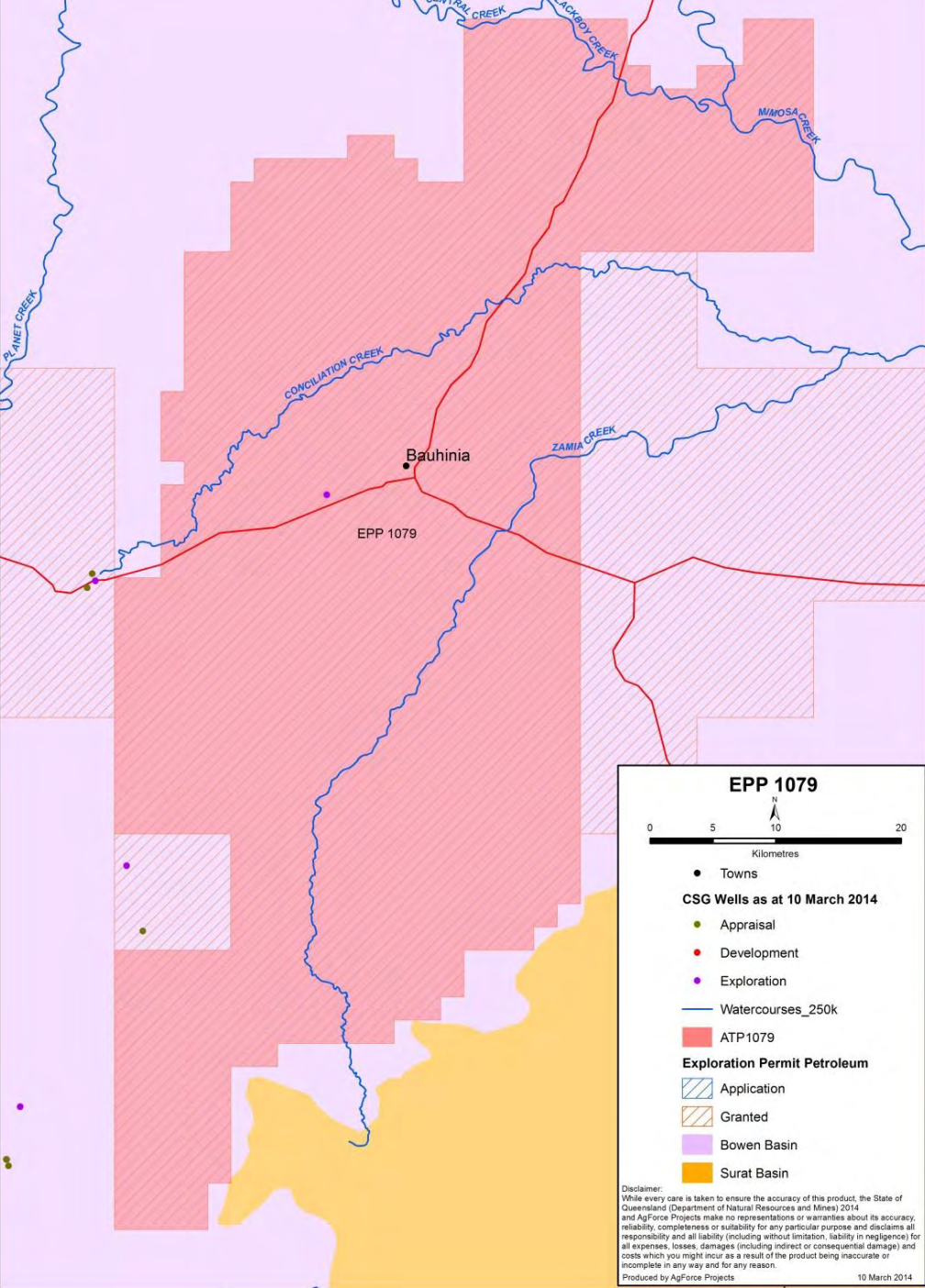
EPP 769:

- Westside
- Currently 5 well pilot program
- Approval for 4 tight gas wells
- Coal seam 550-950m



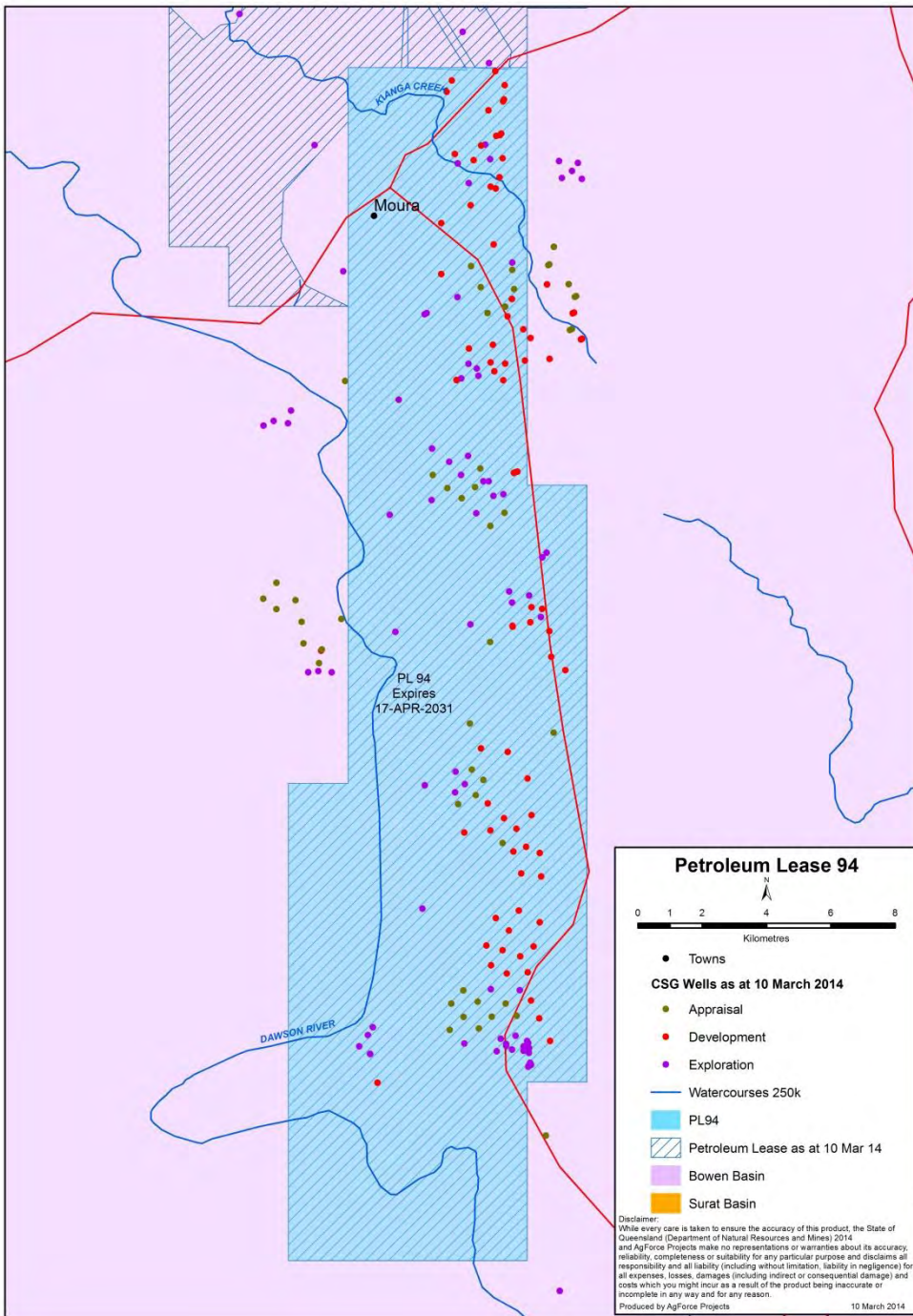
EPP 831:

- Arrow Energy
- Granted an EA in October 2012 for:
 - 124km of seismic surveys
 - 4 appraisal CSG wells
 - 1 dam (max 10ML)



EPP 1079:

- Santana Resources Company LL
- EA approved sept 2011
- The EA provides approval for:
 - Up to 40 CSG wells
 - 60km of 2D Seismic surveys
 - 4 camps (100x100m)



PL 94:

- Westside
- Currently 30 operational production wells and approval for another 49 wells
- Total of 148 wells are expected across the region (PL94 and sub-lease area).

Groundwater management

- Surat Basin CMA
- Make good outside CMA
- Make Good - Landholder rights
- UWIR groundwater impacts
- Baseline assessments

Surat Basin Cumulate Management Area



- Surat Basin CMA declared in 2010
- Covers a boundary of 50km outside nearest CSG tenure
- Landholder rights on tenure are the same as those off tenure inside CMA

Groundwater management – Inside CMA

CMA

- Declaration of cumulative management area (CMA)
- Requires UWIR be developed by OGIA with data from CSG companies and DNRM

UWIR

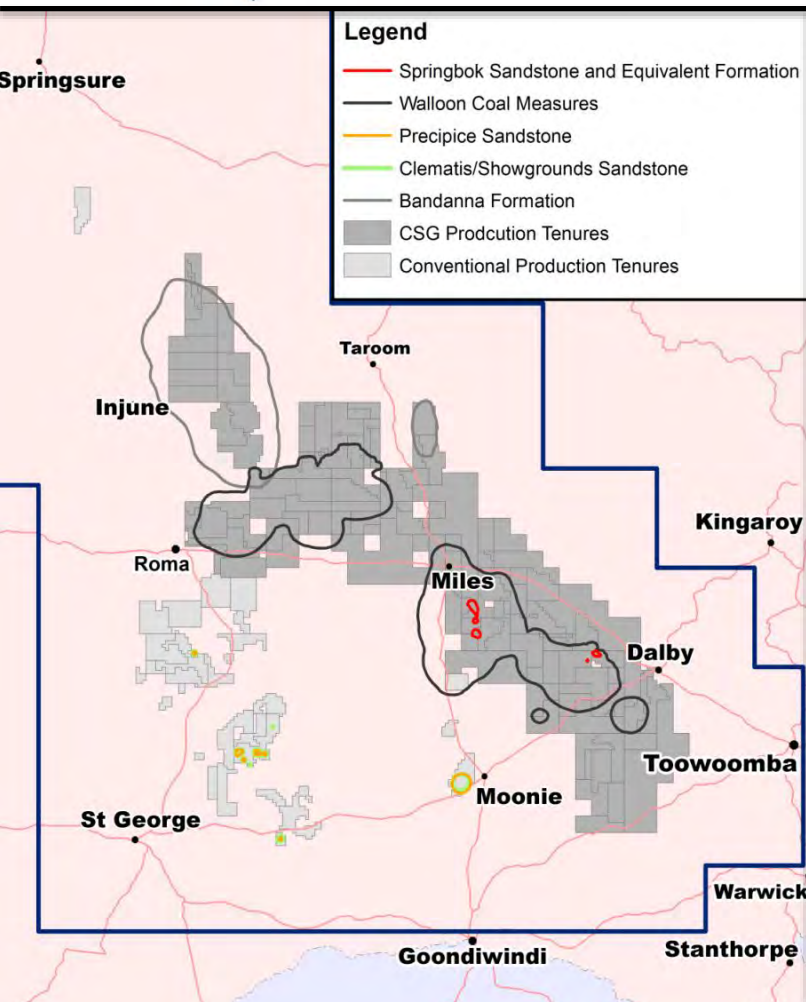
- Immediately affected area (IAA)- impacts within 3yrs
- Long term affected area (LTAA)

Make Good

- IAA bores must have a make good agreement now
- LTAA bores need to develop a MG before impacts occur

UWIR is reviewed every 3 years with a new model due in 2015

Groundwater impacts and make good



The **Immediately Affected Area (IAA)** for an aquifer is the area within which water level impacts are predicted to exceed the trigger threshold within three years.

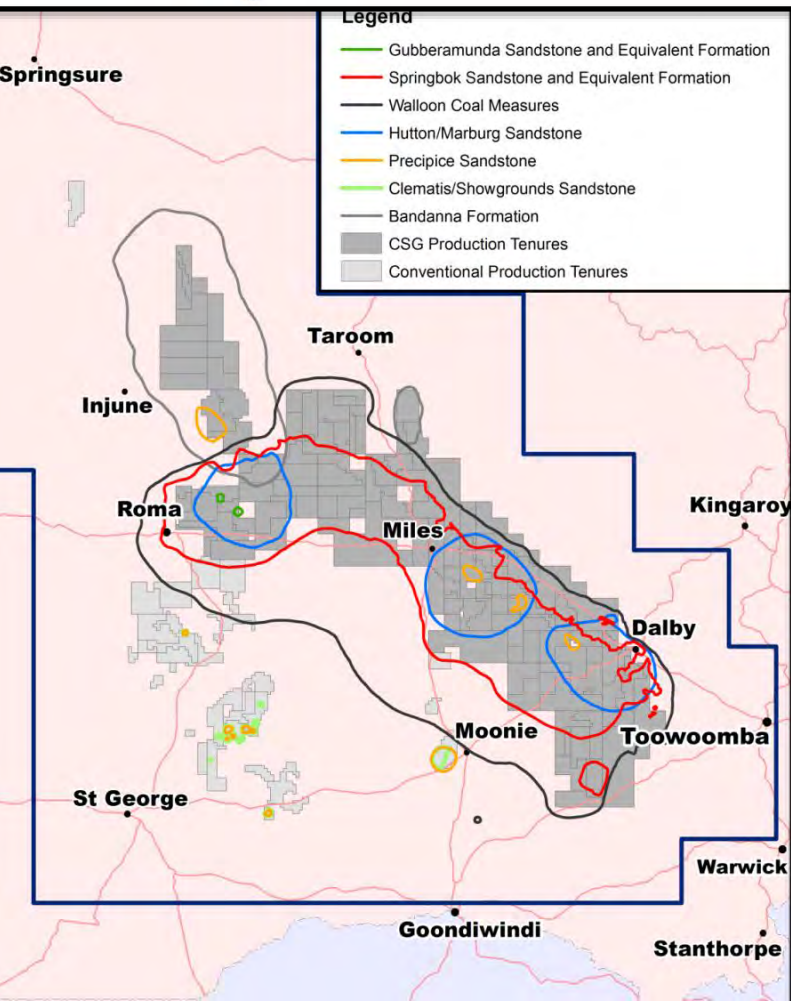


85 registered bores identified in UWIR to be in **IAA**. Water sourced from Walloon Coal Measures.



MG agreements will be entered into and further bore assessments completed. Seek legal advice.

Groundwater impacts and make good



The **Long-term Affected Area (LTAA)** for an aquifer is an area within which impacts are predicted to exceed trigger threshold at any time in the future.



528 registered bores identified in the **LTAA**. These bores are in the Walloon Coal Measures, Springbok Sandstone and Hutton Sandstones.



In LTAA the tenure holder can be directed by the regulators (DEHP) to undertake a baseline assessment and if necessary enter into a 'Make Good' agreement with the bore owner.

Make Good- Inside CMA

A **'Make Good'** agreement is separate to a CCA and refers to a resource company's obligation to make good where there is, or predicted to be, **impaired capacity** of a bore due to CSG activities.

For example, MG provisions could include:

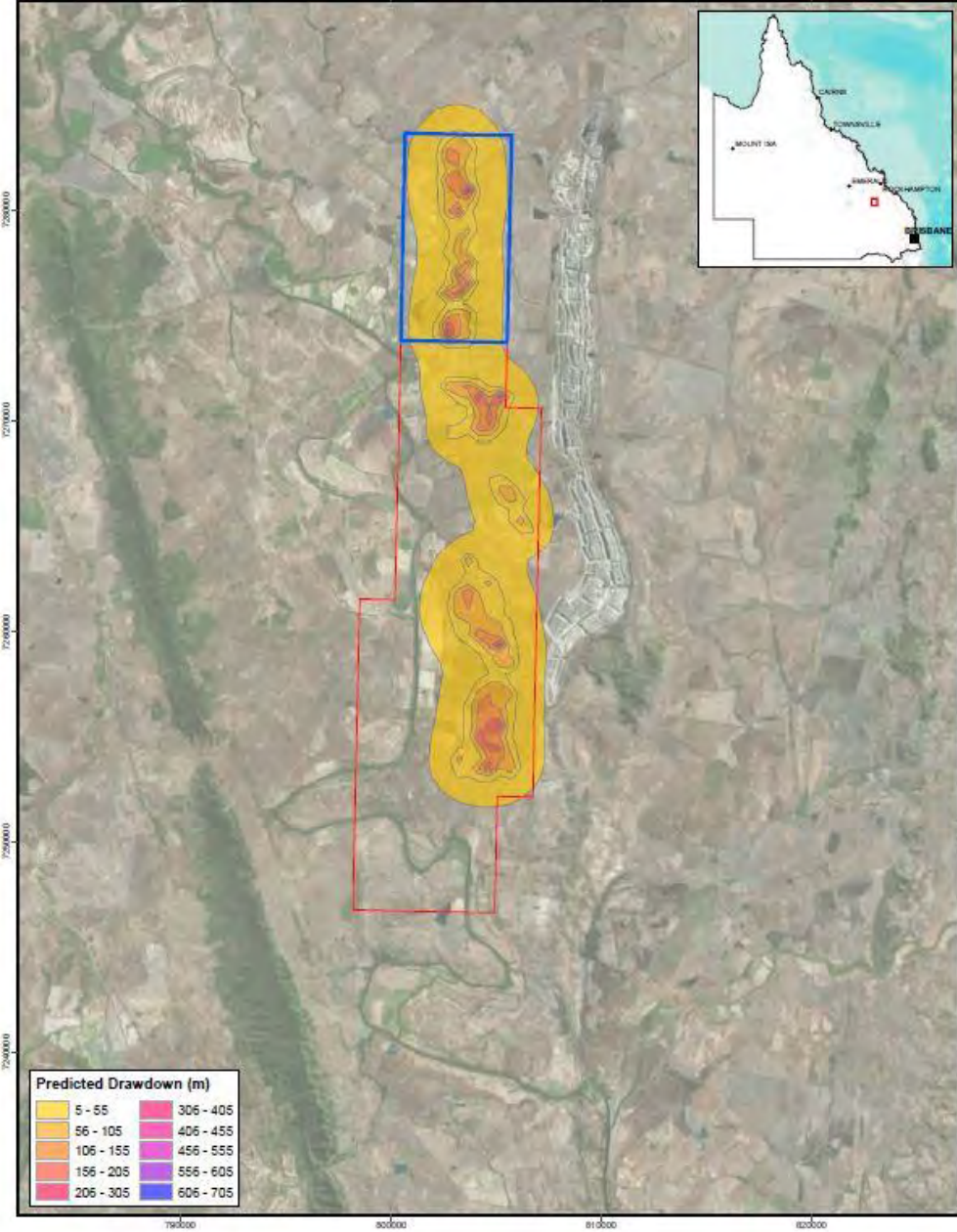
- Deepening the bore
- Drilling a new bore into another aquifer
- Compensation
- Lowering the pump
- Increasing pump size/capacity
- Surface water

Make Good- Outside CMA

- *Water Act* requires company to develop its own UWIR covering its activities (currently 14 approved UWIRs across QLD)
- All UWIRs include IAAs and LTAAAs
- *The Water Act* requires tenure holders to enter into a ‘Make Good’ agreement if after an investigation by the regulators (DEHP and/or CSGCU) the tenure holder is deemed responsible for adverse impacts due to CSG activity.
- Baseline bore assessments undertaken by landholders prior to CSG activity will help to provide baseline information for future reference.


Westside UWIR

- Westside reported in their UWIR (approved by DEHP in August 2013) that they expect the predicted peak extraction of water to be 90 ML/year, which is expected in 2018-2019.
- Draw down modelled to be restricted to Baralaba Coal Measures and some decline in overlaying Rewan Formation/Group



Westside Corporation - Underground Water Impact Assessment
Figure F6, Predicted Groundwater Drawdown in Baralaba Coal Measures
(Highest Impact Scenario) - Existing Gas Wells

DEHP Approved UWIRs

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Approved Underground Water Impact Reports

Under section 385 of the *Water Act 2000* (Water Act), the chief executive has approved the following underground water impact reports (UWIRs). The decision to approve these UWIRs has been made following an assessment of the UWIRs against the requirements of the Water Act to ensure that the modelling, strategies and obligations in the UWIRs are appropriate.

Report	Responsible entity	Tenures	Decision date	Decision	Effective date
Underground Water Impact Report for the Surat Cumulative Management Area	Former Queensland Water Commission (now Office of Independent Groundwater Assessment)	Surat Cumulative Management Area (PDF, 1.0M) **	12 October 2012	Approved with conditions (PDF, 108K) ^{**}	1 December 2012
Underground Water Impact Report for ATP 814P (PDF, 16M) ^{**}	Blue Energy Limited	814P	23 October 2012	Approved with Conditions (PDF, 12K) ^{**}	1 December 2012
Underground Water Impact Report for PL 98 (PDF, 3.5M) ^{**}	Bridgeport Energy Limited	PL 98	14 November 2012	Approved with Conditions (PDF, 24K) ^{**}	21 November 2012
Underground Water Impact Report for PL 214 (PDF, 2.7M) ^{**}	Bridgeport Energy Limited	PL 214	15 November 2012	Approved with conditions (PDF, 16K) ^{**}	21 November 2012
Underground Water Impact Report for ATP 529P (PDF, 4.3M) ^{**}	AGL Energy Limited	ATP 529P	15 January 2013	Approved with conditions	1 February 2013

<https://www.ehp.qld.gov.au/management/non-mining/approved-uwir.html>

Make Good Agreement- inside or outside CMA

1. UWIR identifies IAA bores

- Bores identified by the model
- Affected landholders to be contacted by responsible company

2. Bore assessments

- Confirming baseline bore test results
- Not necessarily undertaken unless requested by the landholder
- Intent is to confirm modelled UWIR impact
- Landholder needs to ensure adequacy of bore assessment

3. Negotiations

- Get legal advice
- Legal and other professional costs “necessarily and reasonably” incurred are met
- Utilise groundwater expertise within the CSGCU
- Need to understand modelled impact in order to negotiate remedial provisions
- Consider enforcement mechanisms
- ADR mechanism in place

4. ‘Make Good’ agreement made

- If bore assessment models no future impact – a ‘Make Good’ agreement will be signed to confirm this
- If impacted then impacts/projections reviewed every 3 years upon update of UWIR
- Enforcement mechanisms contained in legislation and UWIR

5. Considerations

- Release company of future liability – if plug and abandon, removed from UWIR
- Monitoring and review clauses for future impacts, develop your own triggers
- Licensing requirements for new bores
- ‘Make Good’ agreements are not listed on title and are binding on potential future parties
- Increased costs and infrastructure required for changes to bores due to agreement

Make good framework Mining

- Prior to development a mining company must obtain a Water Licence (WL), from DNRM, to dewater the mine site and to use that water produced onsite.
- WL's include (where applied) conditions the company must comply with, including groundwater monitoring, reporting requirements to government and make good provisions.

Before a company is granted a water license the company must:

- develop and submit for approval underground water modelling including any predicted impacts as a result of their activities
- Obtain approval for a groundwater monitoring plan
- Develop approved reporting regime to government on groundwater results and effectiveness of monitoring.

Minister Cripps currently looking into Make Good under the MR Act and working with AgForce

Water Licence (de-watering, industrial, mining)

Existing water supplies to be protected

- Existing bores under the *Water Act 2000* – considered a “Pre-existing” bore
- Impact on pre-existing bores regarded as “Unduly affected”
 - Reduction in supply
 - Increased cost of maintaining supply

Unduly affected pre-existing supplies to be made good

- Measures by licensee to make good to affected bore owner
- Licensee considered to have “made good” if
 - Supply, reliability, quality and cost of water is equivalent to that prior to commencement of water licence.

Measures to make good pre-existing supplies

- Measures to make good affected bore(s) (i.e. deepening or replacing bore, replacing or modifying water supply equipment etc.).
- licensee and bore owner must agree on make good measures
- if agreement cannot be reached after all reasonable attempts have been made, chief executive to step in

Urgent Restoration

- Chief Executive may issue licensee with notice to carry out restoration measures (within 48hrs of receipt of notice).
- If licensee fails to adequately comply, Chief Executive will carry out restoration measures

Monitoring and Assessment

- Licensee must implement monitoring program in accordance with recommendations
- Chief Executive to be provided with annual monitoring reports
- Licensee must, if directed by Chief Executive, make amendments considered necessary to ensure monitoring program is adequate to assess effects of extraction of water
- Licensee to provide Chief Executive a performance review report of dewatering works and monitored bores

Frequency of Reporting

- Performance review reports to be provided at the end of specified years (usually annually for first 5 – 10 years and then less frequently)
- The Chief Executive may call for an unscheduled performance review report at any time if of the opinion that impact of dewatering works is greater than predicted.

Closure of Mine operations

- 1 yr prior to closure of mine, the licensee will –
 - Provide Chief Executive with a pre-closure report
 - Enter arrangements to maintain a water supply to unduly affected owners.

Baseline Assessments

Stage of development	Responsibility for assessment
Before there is any activity in your area/on property	Recommended landholder undertake assessment- consider regional activities i.e. CSG field down the road or 100kms away
CSG company is granted an Authority To Prospect (ATP) (i.e. is conducting exploration)	Landholder should negotiate with CSG company to conduct or pay for baseline assessment prior to gaining access and negotiate ongoing monitoring/testing
CSG company obtains a Petroleum Lease (PL) (i.e. is going into production)	CSG company has an obligation to undertake a baseline assessment of each water bore in the tenure area. Company must, at least 10 business days before undertaking the assessment, give the landholder a notice and 30 days after completion, a copy of the report

QLD CSG Globe

- **CSG Globe**
 - CSG tenure information
 - CSG well data
 - Groundwater data

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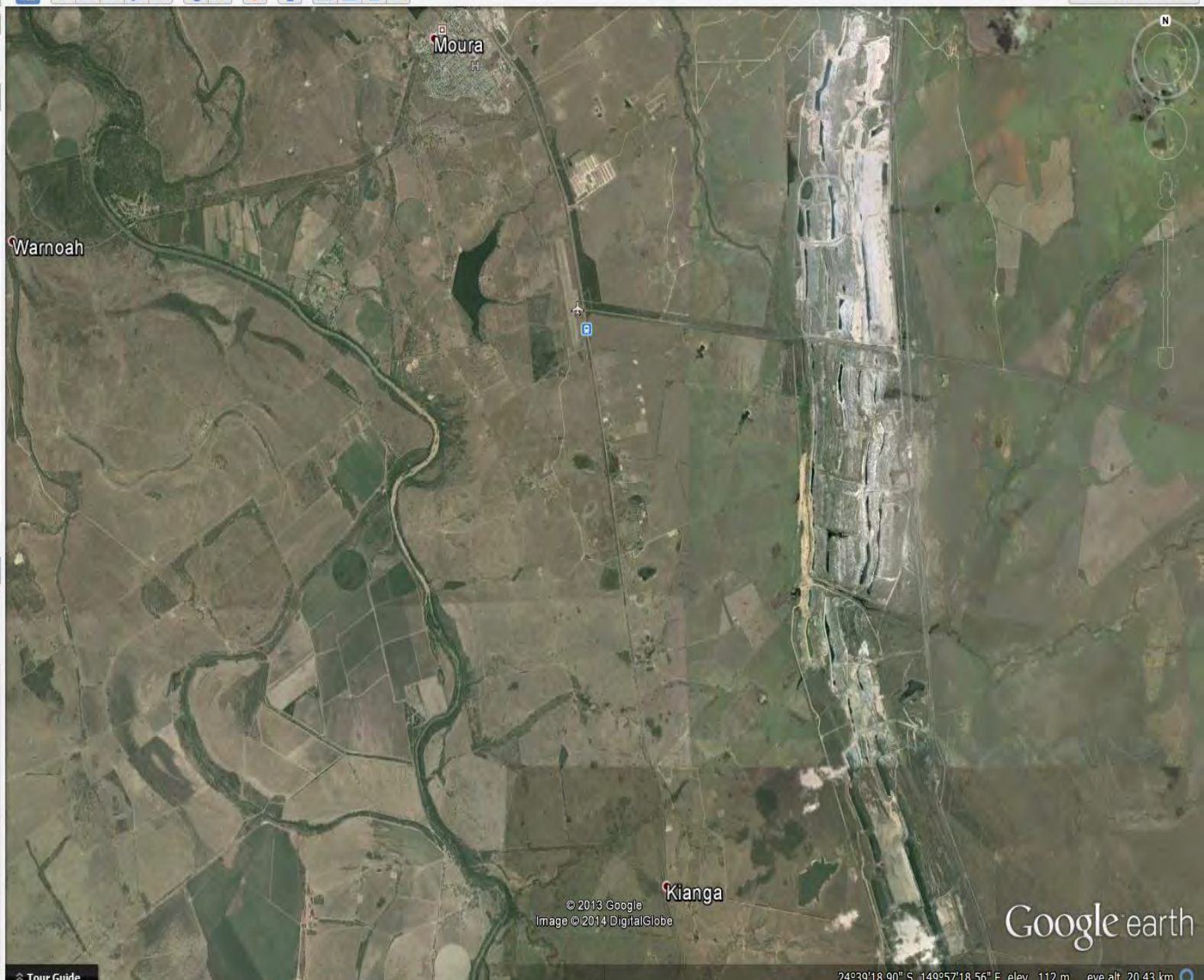
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 - Data acquisition area
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- Surat cumulative management area (O...



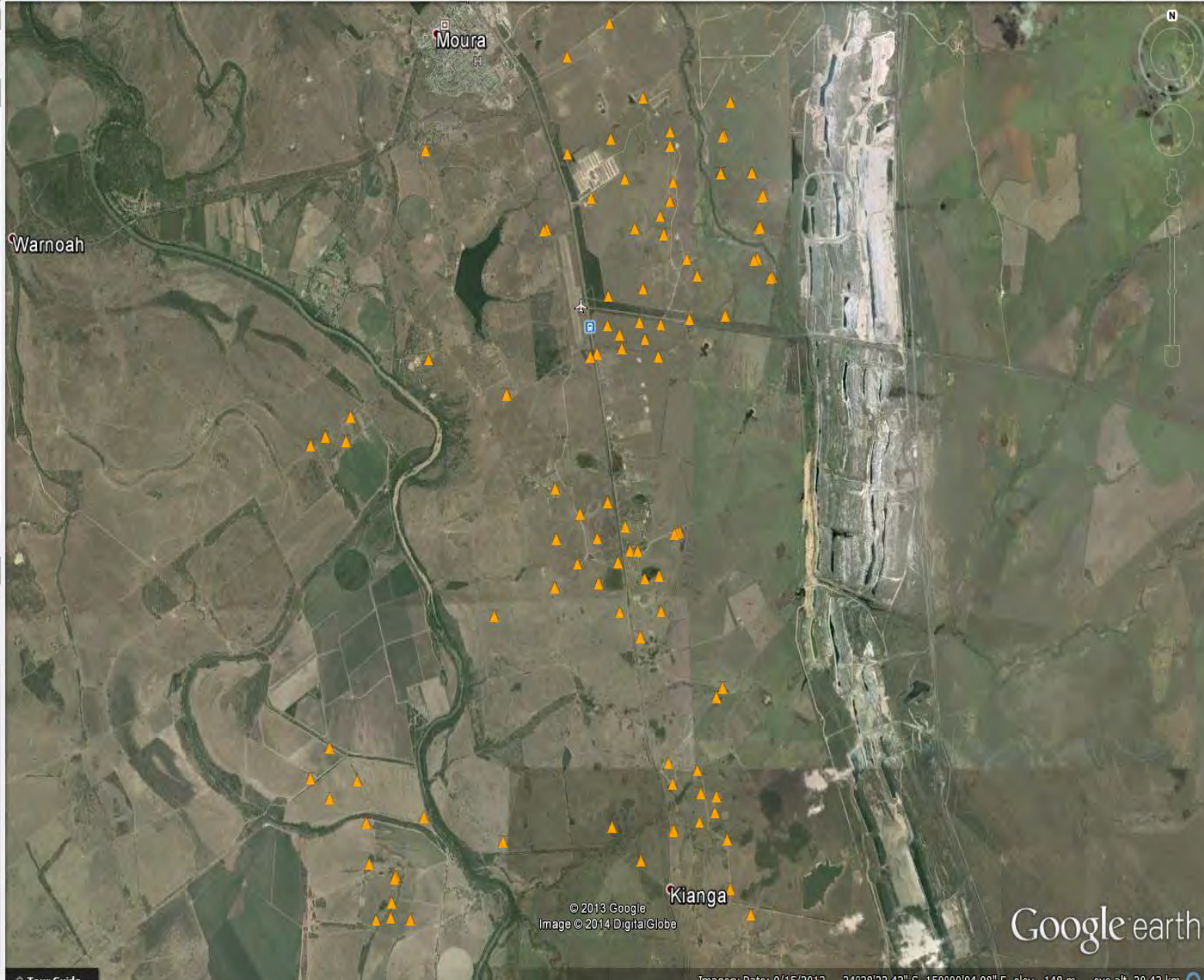
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Google earth

Tour Guide

Imagery Date: 9/15/2012 24°38'22.42" S 150°00'04.98" E elev 148 m eye alt 20.43 km

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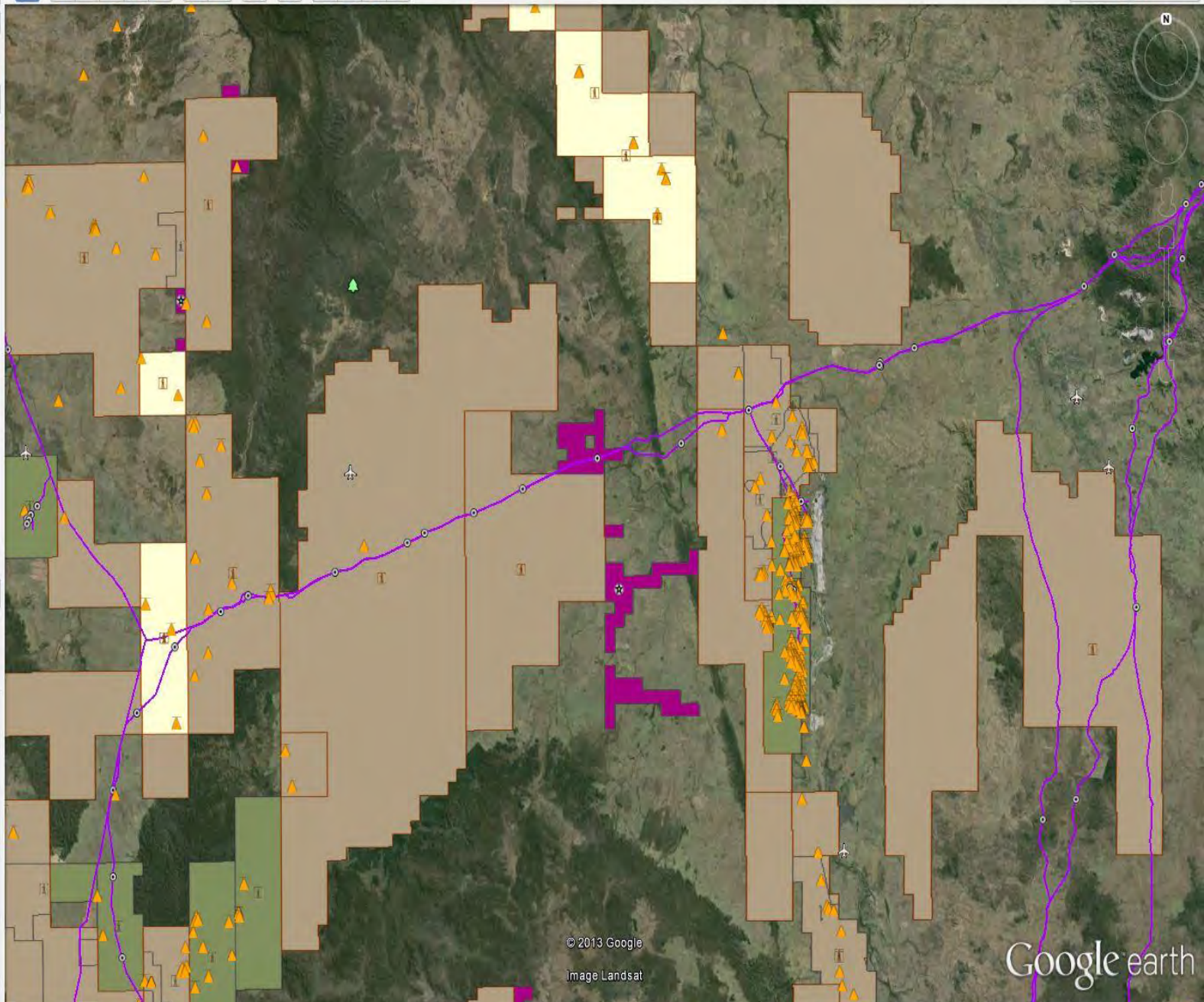
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Image Landsat

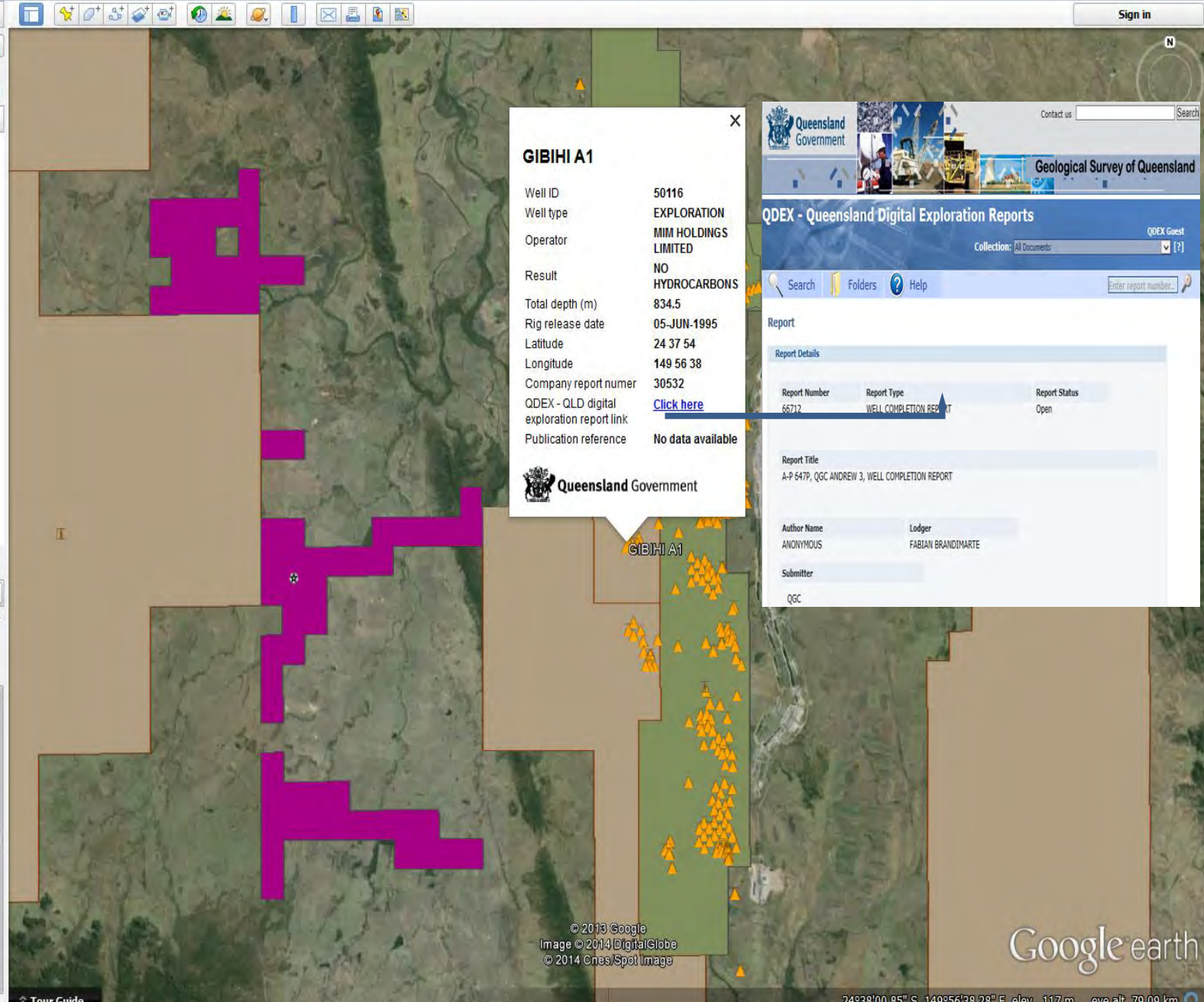
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Tour Guide

Imagery Date: 4/10/2013 24°33'19.96" S 149°40'04.62" E elev 128 m eye alt 188.61 km

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GIBIHI A1

Well ID: 50116
 Well type: EXPLORATION
 Operator: MIM HOLDINGS LIMITED
 Result: NO HYDROCARBONS
 Total depth (m): 834.5
 Rig release date: 05-JUN-1995
 Latitude: 24 37 54
 Longitude: 149 56 38
 Company report number: 30532
 QDEX - QLD digital exploration report link: [Click here](#)
 Publication reference: No data available

Queensland Government

Queensland Government

Geological Survey of Queensland

QDEX - Queensland Digital Exploration Reports

Collection: All Documents

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Report

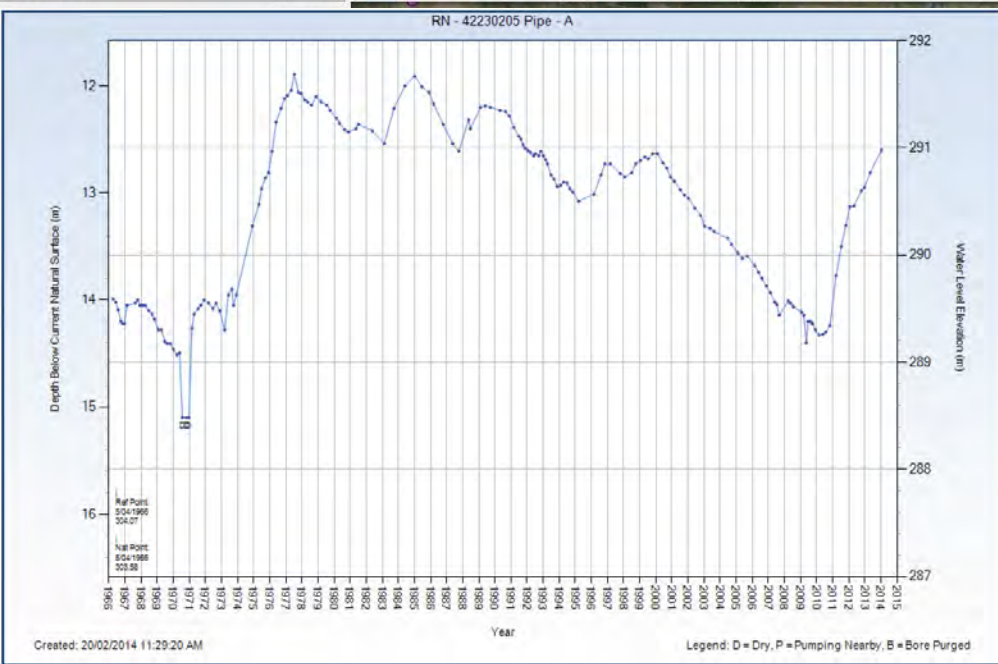
Report Details

Report Number	Report Type	Report Status
66712	WELL COMPLETION REPORT	Open

Report Title
A-P 647P, QGC ANDREW 3, WELL COMPLETION REPORT

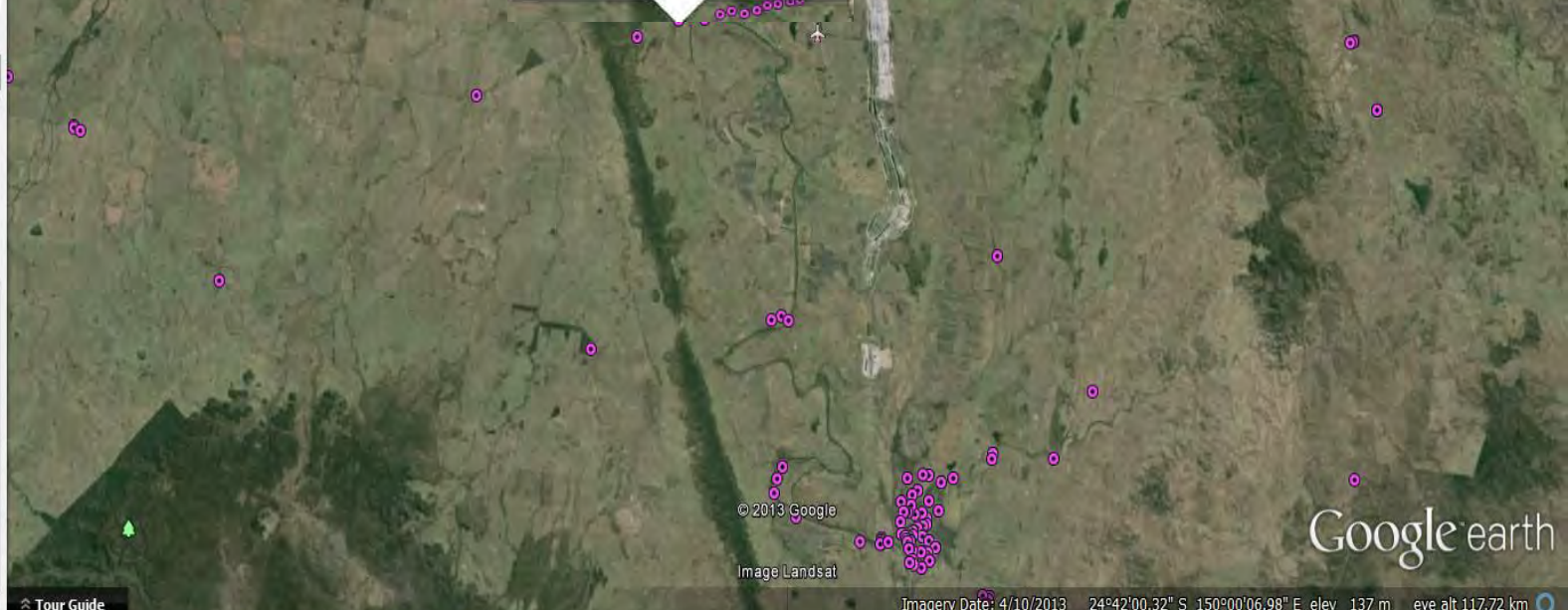
Author Name	Lodger
ANONYMOUS	FABIAN BRANDIMARTE

Submitter
QGC

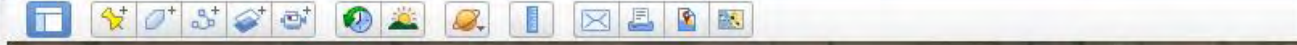


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Sub-Artesian Facility
SITE 5
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 - Registered water bores (DNRM and ...)
 - Current water level monitoring bore...
 - Past Water Monitoring and Investiga...
 - Water monitoring bores with near re...
 - Surat cumulative management area (O...
 - Surat CMA boundary
 - Immediately affected areas
 - Long-term affected areas



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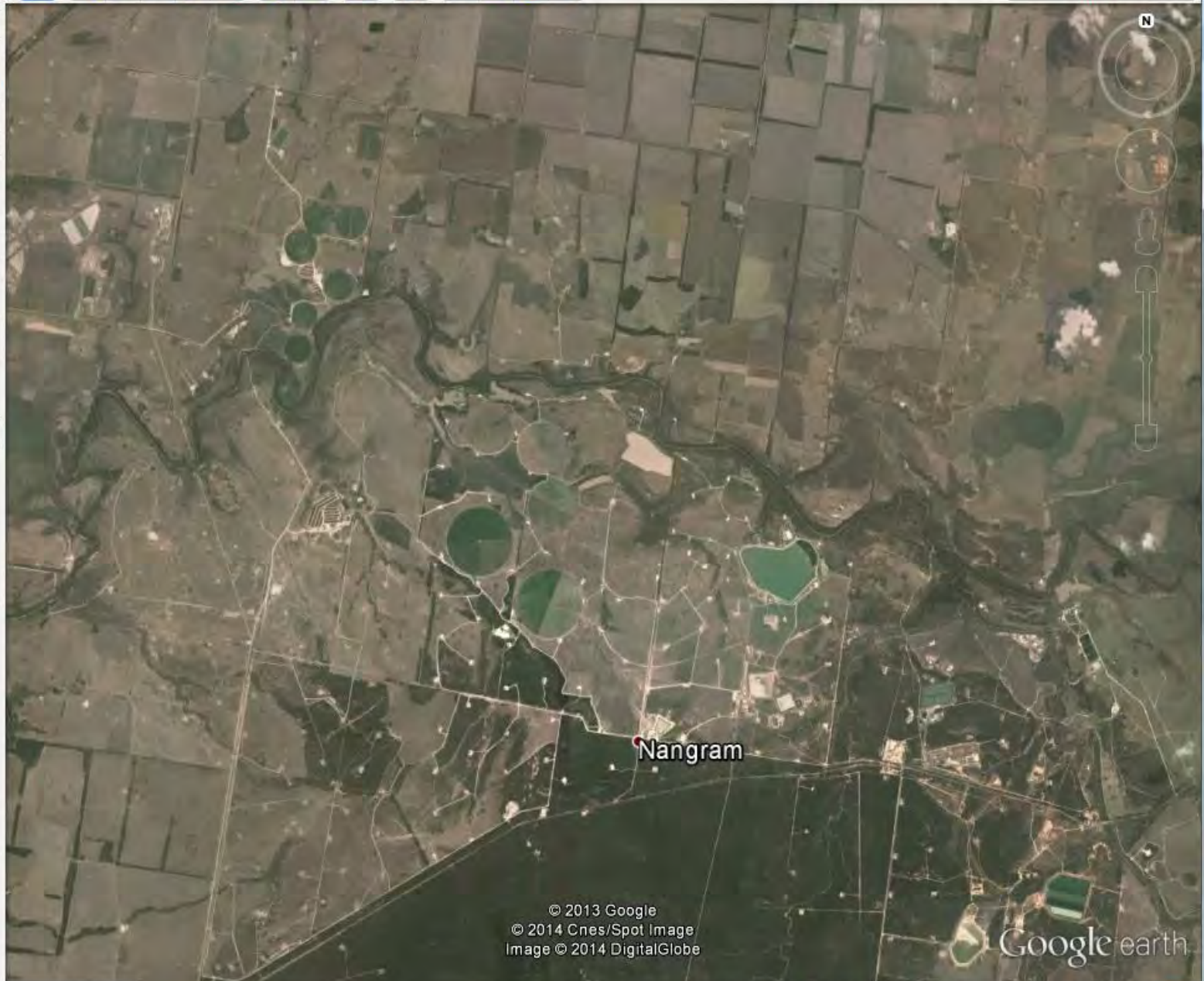
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Negotiation stage

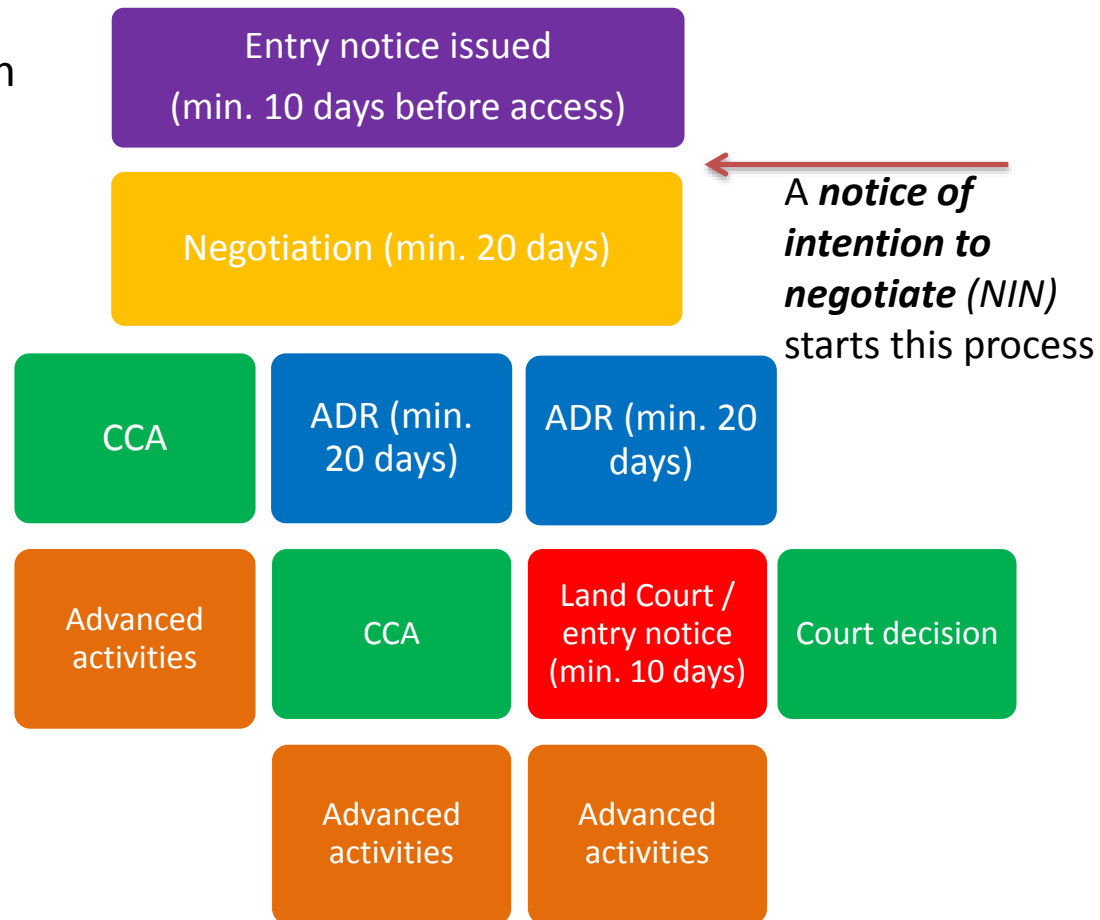
Advanced activities – likely to have an impact.

Examples:

- Track construction
- Drilling a CSG well
- Realigning fences
- Some seismic operations

A CCA must be signed before ‘advanced’ activities can be undertaken.

Seek professional advice before signing a conduct and compensation agreement.



Conduct and compensation agreements

Recall that CCA's have two distinct components

Conduct

Compensation

- Your CCA is **attached to your land** for the term of the agreement
- Negotiate a timeframe and/or **review period** for CCA
- **Necessary and reasonable** legal, accounting and valuation **costs** you incur to negotiate or prepare a CCA are **reimbursed**
- Consider **additional provisions** specific to your property and your lifestyle
- A resource company is **liable to compensate** an owner or occupier of any private land for any **"Compensatable effects"**. Compensatable effect means all or any of the following relating to the eligible claimant's land:
 - deprivation of possession of its surface
 - diminution of its value
 - diminution of the use made or that may be made of the land or any improvement on it
 - severance of any part of the land from other parts of the land or from other land that the eligible claimant owns
 - any cost, damage or loss arising from the carrying out of activities under the petroleum authority on the land

Biosecurity CCA considerations

- Have you considered/negotiated conducting a weed baseline assessment?
(Completed prior to access to property being granted)
- Consider the time of this inspection in relation to seasonal conditions/growth periods
- Where are the high risk weed areas and are these mapped by you or the company?
- Do you have an existing property weed management plan?
- If there is a weed seed bank but the company disturbs this through their activities, who is responsible for any outbreak?
- Have you negotiated a rehabilitation process? Do you sign off on this? How long after the company leaves site are they held liable?
- Does the vehicle wash-down certificate have:
 - Km reading
 - Date washed down
 - Who inspected
 - Area vehicle has travelled

Reviewing signed CCAs

- If there is a material change in circumstances a CCA must be updated to reflect activities and impact.
- Understand the term of the CCA: specific time or is it for life of tenure?
- What activities does the CCA cover?
- If signed years ago does it reflect current practices or could company improve?
- Consider discussing with company rep to review effectiveness of:
 - Weed strategies
 - Site remediation/rehab
 - Access times and arrangements
 - Any ongoing activities
- If renegotiating or developing a new CCA what would you do differently?

Monitor and review

- **Review impacts**
- **Utilise professional advice**
- **Stay informed**