

Adani [related] phone hookup 5/4/19 [James Johnson's notes]

[DoEE]: Dean Knudson, Finn Pratt, [REDACTED], [REDACTED], Greg Manning

[GA]: Richard Blewett, Stuart Minchin J[ames] J[ohnson]

- 1) DoEE [to] tell us howhow they've addressed the issues we have raised.

Greg Manning

3 Main areas [to address]

- 1) Adequacy of monitoring to meet approval requirements
- 2) How [to] monitor the trigger for management [actions]
- 3) Adequacy of the modelling for basing monitoring [system] design on

[REDACTED]
First point

- **Model** was not fit for purpose due to 3 limitations
- a) River representation
- b) Parameters on 2 formations
- c) change in bore reference level
-
- DoEE asked them [Adani] to address all of those limitations within 2 years of boxcut
- Adani agreed to that
- Minimal risk in that 2 year time frame.

Suitability of model for monitoring purposes

DoEE suggested they change trigger levels to be less stringent – but Adani declined to do it.

[REDACTED] Advice on Monitoring

- Critical asset – Doo[ng]mabulla springs
- We [GA] suggested more monitoring bores into deeper horizons as possible sources of [the] springs
- Go beneath [the] Clematis [Sandstone]
- Adani have committed to 2 sets of nested bores and [to] going deeper, and to one additional site
- DoEE says their commitments are adequate for early warning systems.
- [this] will lead to [a] much more robust model in 2 years

- Locations [will be] based on consultation with GA

Rec[ommendation] – do stream flow gauging [for] monitoring [flow]

- Action –require process [whereby] Adani committed [to] 2 existing gauge locations and 3 new ones.
- Locations upstream, downstream, E[ast], W[est], and centre

More sophisticated chem[istry] assessment for understanding sources of [Doongmabulla Springs] - add in to research plan.

[3] Management Approaches

- [there are] limitations in model. Therefore drawdown could be worse and sooner than [the] model [suggests]
- DoEE response was to set a more conservative rate[-based] trigger until [the] model is updated
- [This] gives early warning because it is v[ery] conservative
- [the] consequence of [a] breach is investigation and could hold up mining.
- Triggers relied on [the] source being [the] Clematis [Sandstone] but [there] could be other sources
- Adani agreed to deeper bores to determine [the] source[s]
- set triggers for indiv[idual] bores

Investigation procedure for exceeding [the] trigger...

Adani [has] agreed [to]:

- Recommend[ation] [to] investigate each exceedance
- Make investing[ations] time-bound; 3 months
- Present mitigation actions in [the] plan itself

[They] agreed to set a new baseline from [the] nested bores

-collect baseline data before starting drawdown

Qld legislation says [to] acquire 2 years of baseline data

This is a watch point

Advice to Adani that they refused:

- Acknowledge [the] model is not fit for purpose
- New model could revise impacts [to be] greater than [what] has been approved
- So told Adani – if new model shows greater impact than current model, they have to sort it out [with] corrective [actions]
- They refused

- But [it will be] their problem because [the] trigger[s] will be on Actual impacts – the new bores will pick that up
- They're standing by their actual impacts
- So integrity totally relies on the regulatory regime of monitoring
- -every 6 months update [the] monitoring data on website

Last advice from us [GA] was on water quality – [this is] not DoEE's remit – [it] goes to DES (Qld)

Next Steps

- 1) Have conversation with CSIRO (Jane)
- 2) Gov(ernment) is keen for assurance; ideal for gov[ernment]....a letter from me to Mr Finn Pratt saying based on extensive briefing from DoEE on Adani [commitments, GA is of the view that this] addresses [the] concerns [we] raised [in our advice of 22 February]

Adani phone hookup

5/4/19

Dean Knudson
Finn Pratt

Richard Blewett
Stuart Minchin



~~Scott~~ Manning
Greg

- 1) - Do EE ~~say~~ tell us how they've addressed the issues we have raised.

Greg Manning

3 main areas

- 1) Adequacy of Monitoring to meet approval requirements
- 2) How monitor the trigger for monitoring management
- 3) Adequacy of the modelling for basing monitoring design on

First point

- Model was not fit for purpose due to 3 limitations

- a) River representation
- b) Parameters on 2 formations
- c) change in base reference level

- DoEE asked them to address all of those limitations within 2 years of boxcut

- Adani agreed to that.

- minimal risk in that 2 year time frame.

- suitability of model for monitoring purposes

- DoEE suggested they change trigger levels to be less stringent

- but Adani declined to do it

Advice on Monitoring

- Crit asset ^{Donetsk} - springs

- we suggested more monitoring boxes into deeper horizons as possible sources of springs

- go beneath Clements

Adani have committed to 3 sets of nested boxes & going deeper ^{to one additional site}

- DoEE says their commitment are adequate for early warning systems

- will lead to much more robust model in 2 years

- locations based on consultation to GA.

- Breach - ~~test~~ do stream flow gauging monitoring
 - action - require process
- Adani committed a 2 existing gauge locations + 3 new ones, between upstream, downstream, E, W & centre
- More sophisticated chem assessment for ^{understanding} sources of
 - add in to research plan.

Management Approaches.

- limitations in model. ∴ drawdown could be worse & sooner than model
- DoEE response was to set a more conservative ^{rate} trigger until model is updated
- gives early warning cos it v. conservative
- consequence of breach is investigation & could hold up mining.
- Triggers relied on source being Cleveite but could be other sources - Adani agreed to deeper bores to determine source
- set triggers for indiv bores

Investigation procedure for exceeding trigger.

- Adani agreed {
- recommended investigate each exceedance
 - Make investig. time ^{bound} 3 months
 - present mitigation actions in plan itself
- agreed to set
- a new baseline from nested bones
 - ~~no~~ collect baseline data before starting drawdown
 - Old legislation says acquire 2yrs of baseline data
 - no ops that threaten that baseline data
 - this a watchpoint

Advice to Adani that they refused

- acknowledge model is not fit for purpose

- new model could revise impacts greater than has been approved
- So told Adani - if new model shows greater impact than current model they have to sort it out - correction
- They refused.
- But ~~they~~ their problem coz trigger on Actual impacts - the new bones will ~~test that~~ pick that up
- they're standing by their actual impact.

- So integrity totally relies on the regulatory regime of Monitoring
 - every 6 months update Monitoring data on website.
- Last advice from ^{was} ~~US~~ ^{Non} water quality - not ~~DOEs~~ remit - goes to DES (Qld)

Next Step

- 1) - have conversation \bar{c} CSIRO (Jane)
 - gov is keen for assurance
 - ideal for Gov.
 - ~~on the basis of the above~~
 - letter from me saying extensive briefing from
 - based on ~~discussion~~ ^{DOEE on Aben}
 - Mr Finn Pratt
 - ~~with the above~~
- adequately addresses the concerns raised

Friday 5th April- Teleconference: James Johnson, Stuart Minchin, Richard Blewett (GA), Finn Pratt, Dean Knudson, James Tregertha et al from DoEE.

Notes from Adani briefing:

Issues broadly fall into 3 buckets: modelling, monitoring and management approaches

Modelling: CSIRO and GA Advice highlighted model proposed best available but not fit for purpose for monitoring or management of drawdown impacts or conditions.

3 primary shortcomings- representation of river recharge in model, Parameterisation of model, Bore reference levels.

Adani has committed to updating the model with these issues addressed in the 2 year timeframe.

Monitoring: impact on Doongmabulla Springs. Adani committed to installing extra nested bores at 3 existing bore locations (monitoring different aquifers) and also at 1 additional site. Will provide measurements of Rewan Formation and Dunda beds.

3 additional stream gauges with calibrated stage:discharge relationships. Installed upstream and downstream to gain proper handle on gaining/losing stream.

Suggested additional monitoring of hydrochemistry (isotope tracing) to narrow uncertainty around source aquifer will be addressed in research plan.

Management Approaches:

Where drawdown may occur sooner than modelled, triggers may be reached sooner. A more conservative approach agreed to setting triggers. Have agreed to rate based trigger, so even if trigger hasn't been reached, a trend towards early triggering would trigger action. Have agreed to max timeframe of 3 months for investigation if triggered. More specifics have been inserted about monitoring these issues.

Adani chose to keep including bores that will trigger early/immediately eg. The one that is already dry.....a bit strange but definitely precautionary principle and conservative.

Management approaches to WQ trigger advice referred to QLD as responsible regulator for this issue.

Next steps: Write to confirm these actions would address the issues raised in GA's advice.

Doyle Wilson

o Dean. He

Fin Pract.

[redacted]

Grey
recovery.

* model + estimates.

How best reflect. in DoEE.

Same level of assurance.

3 main areas.

- 1) Monitoring arrangements
- 2) ~~proper~~ Advice of trigger
- 3) adequacy of gas model + its suitability to design + implement the monitoring

have back to Advice to make changes to address.

2 matters to Old regulators.

1) Modelling.

Model underpinned GW MP, not suitable to the 3 limits a) rivers represented b) parameters of bore + elements c) change in bore ref levels not calibrated.

3) Advice. commit to update model all limits & the next scheduled re-run w/in 2 years of bore out. ✓

This is fit for purpose minimal risk to GDE in short term in this period.

If no room of model the trigger may exceed almost immediately. exceeded rapidly in point of failure

Advice Advice to change trigger values - they did not agree to do so. ??
- they will have to make changes

they stand behind model

have higher protection of cardio.

2) Monitoring. - Doonaballa Springs

additional bores to west of mine & deeper aquifers which could be alternate sources to spring. as early warning.

Advice have committed to 3 nested bores (a) 2 existing. (b) Donkha Sels + Keweenaw Fm. + additional bore site

Investigate into deeper into Province for research plans

DoEE agree this will meet requirements.

with stronger case for remedial such better constraints.

Dept advice in consultation w/ Govt

6) Stream Flow gauging - a sep.

- inputs now + future returns

|| • precise location of station
• height in river

Admin update surveys @ 2
infall collection

- Upstream of river
 - ant barium
 - middle reach
 - (downstream)
- } - good understanding
of the basin /
going

if more sophisticated hydro dom of source, not get agreement

↑ (into research plan. not required under management plan)

Research input at input. Data apply advice to relevant conditions.

3) Monitoring & Investigation

Draw down and

- more conservative approach for triggers until the model
- apply rate-based triggers for draw down
- if at any point the draw down varies from prediction \Rightarrow triggers
- triggers exceed frequently

Types

- they have to investigate
- then mitigate
- stop mining.

Triggers related only on same of going being character
so if new bases we will monitor for
potential alternate sources.

Comments for specific bases - future conservative approach.

Admin. & policy conservation. any trigger asp
& commit to new time frame for investigation

X Admin wanted what test for monitoring from mining. & should be able to supply material.

It's guaranteed under contract. + for under contract.

& added this to management plan

Research plan is where the tests are designed

#

Baseline.

- need bases agreed to add to baseline ~~monitoring~~ data.

need to pass pre-input

Need to get in asap. for baseline.

Advice not accepted by Harrow.

Model not fit for purpose.

- series not 2 years.

the surplus could be larger than those approved.
if ^{current} model predicts an impact from that which
be a trigger.

We are relying on the actual capacity.

0-2 M. @

(
relating on the road
posted

when delays
capacity constraints

starting behind actual we are
used as to add

how it
probably

model will give some indication of likely triggers.

water quality triggers, — B&E approach not
relevant, to free actual
requirements.

—
first step. Some consideration of the @ giving

(
to we have not seen the revised plan.
to ~~for~~ we have to free the active
to locate growth: (Mr Pratt).