10 February 2005

Review of National Competition Policy Arrangements
Productivity Commission
BELCONNEN ACT 2616

Dear Sir/Madam,

EEMAG members wish to submit additional information on the need for an affordable and impartial merits review and appeals process under Federal administration of Water Reform/National Water Initiative processes.

We refer to our submission of 8 November 2004 regarding alleged inaccuracies in a DNR&M Assessment of the East End mine's impacts on a Bracewell farm that is relevant to Queensland decisions on Water Reform. We wish to bring forward evidence of errors in DNR&M's "peer review" of that Assessment, and our allegations that the peer review was shaped to reinforce the DNR&M Arbiter's negative Assessment instead of a proper merits review to ensure the Assessment was accountable.

<u>Events leading up to delivery of DNR&M's assessment</u>

1 DNR&M Senior hydrologist completed his initial assessment dated 31 May 2004. (obtained under FOI)
2 The 31 May 2004 Assessment was received by a senior DNR&M officer who then requested that a hydrologist of the Water Assessment Branch of DNR&M at Indooroopilly conduct a peer review. (Information verbally disclosed by the senior officer.)
3 Material since obtained under FOI from an application lodged in July 2004, has established that pages 239- 244 and attachments compiled by the Principal Project Officer at Indooroopilly and released under FOI "more or less" constitutes the peer review. (Copy of FOI Attached)
4 Most of the Principal Project Officer's "peer review" recommendations were included in the DNR&M assessment dated 12 August 2004 . (DNR&M Assessment dated 12 August 2004 provided with our submission of 8 November 2004 as *Attachment 2*).

In our view there are a number of serious discrepancies in DNR&M account of the matter, not least being that the senior DNR&M officer had constantly asserted that a certain hydrologist conducted a peer review. However the senior DNR&M officer recently admitted that the "peer review" was not conducted by that individual but by the Principal Project Officer at Indooroopilly whose recommendations may not constitute a proper peer review. Documents obtained under FOI lead us to conclude that the Department instigated the "peer review" not out of any desire to ensure the assessment would be accountable but out of concern that the Director General might not otherwise sign the Assessment.

DNR&M'S "Peer Review"

We consider that the "peer review" is discredited by its lack of balance, lack of any detectable attempt to properly examine and weigh the relative merit of **all** the evidence and thus lacks quality assurance. We believe that the recommendations by the Principal Project Officer are totally focussed upon reinforcing the DNR&M Arbiter's negative findings and stamping the full weight of the Department's predetermined position on the Assessment. In any "normal" assessment there will always be points for or against. We cannot detect any such even-handedness in the Principal Project Officer's work and rebut his alleged falsely constructed and erroneous conclusions in the following critique.

Extract from critique of input by DNR&M's Principal Project Officer
FOI Page 144 4.0 Conduit Connection to East End (Attached)

Quote "Reference is made to poor recovery after pumping. May need to be expanded, with something like, "It has been observed, that for nearby bores in similar fractured rock terrains, the water level in those bores do not recover to the original water level, once pumping has ceased. With continuous pumping the water level in the bore continue to fall. With out local recharge, the supply form the bore eventually fails. This indicates there is poor interconnection of the solution joints etc ".

Comment: ***by an independent Hydrogeologist on DNR&M's Assessment/ Arbitration of 12 August 2004 Quote****: "[DNR&M's Senior hydrologist] suggests that the solution channels at depth are not continuous and cites the presence of yellow clay in the limestone "voids" as significant in this respect. However such clays are virtually ubiquitous in all solution channels in limestone, being deposited by the flow of water in the channels. The fact that bores may clog up from this clay is purely a local problem and irrelevant to the larger problem of aquifer depletion. If [DNR&M's hydrologist] considers the channels to be discontinuous, how does he explain the universally accepted (East End) aquifer depletion extending from the mine for many kilometres to the north. Furthermore, if the boreholes intersect only discontinuous channels, how then can [DNR&M's hydrologist and QCL's modelling consultant] justify their contention that past irrigation pumping has been the real cause of aquifer depletions?" (The independent Hydrogeologist's Technical Critique is Attachment 15 in our Submission of 8 November 2004)*

4. Conduit Connection to East End continued….

Quote: "A feature of …. is sinkholes. This para reinforces the concept of the terrain belonging to the superficial group with minimal to no conduit flow."

EEMAG Comments: *There is no foundation for such claims. We would welcome an opportunity to arrange practical pumping trials of sink holes accepting large volumes of water. (Please also refer to findings/evidence of Karst development type (2) in our submission of 8 November 2004 on Pages 4 to 9 inclusive and to relevant attachments.)*

Quote "Can any base flow be identified in the spring hydrograph to distinguish between inert surface flow or groundwater discharge."

Comment: There are no hydrographs of the springs. None of the parties including the water monitoring operator, DNR&M nor Cement Australia have generated any data whatever. EEMAG is the only party with quantifiable measurements of the springs' contribution which we call "the free lunch". When these additional measurements are added to the otherwise seemingly modest loss of level in the alluvium around Weir 2 ***continuity*** *of mine drawdown*

through the Weir 2 system to the so called "localised depression" in Lower Bracewell can be demonstrated.
Formula a = alluvium levels; b = spring flow
c = drawdown level in Lower Bracewell limestone
a + b = total drawdown comparable with c.

In their assessment to the landholder DNR&M accepts that there is a shortfall of 1 m or more at RN 97931. This ***permanent*** *shortfall is due to the failure of the Bracewell limestone aquifer to fully recover thereby resulting in the loss of discharge from the limestone based springs that pre-mining used to flow continuously to supercharge the pooled alluvium area above Weir 2.*

On the 1 December 2003 the measurements of SWL's of representative Bores 57105 (B35) in Lower Bracewell limestone was 14.74 m and 97931 (98-1) in alluvium above Weir 2, 4.14 m. These measurements coincided with the cessation of the surface flow of Machine Creek at the bridge on Bracewell Road due to the spring flow once again ceasing between the bridge and the first householder above the bridge. Between 23 and 28 January 2005, 135mm of rain caused the spring above the bridge - without the support of any upstream surface flow - to recommence. On the 8 February 2005 Bore 57105 (B35) has a SWL of 15.89m and 97931 (98-1) 3.82m. The progressively weakening and transient flow at the bridge is in this instance entirely alluvium based. On the basis of this knowledge it is therefore possible to devise a formula to extrapolate the contribution of the alluvium spring flow. Disregarding the permanent shortfall at B 97931of approximately 1m.

Method

When SWL's at B 97931 reach 4.14 m or 67.07m AHD all alluvium spring flow ceases above the bridge. Pre-mining the SWL at W43, (replaced by nearby B 97931) was on occasions recorded as flowing from the surface at 70.14m AHD.
The ***amount of alluvium based spring contribution*** *can therefore be calculated at 70.14 – 67.07m =* ***3.07m.*** *The combined rate of discharge of spring surface flow and alluvium discharge through the steepened Weir 2 constriction is crippling with outflow mostly exceeding inflow. The 3.07 m figure represents the amount of discharge that exceeds the Weir 2 section alluvium outflow capacity. Once the SWL at B 97931 reaches 4.14 m all surface flow above Weir 2 ceases.*

Other than being guided by the historical knowledge that the once permanent limestone based springs above the bridge and at the tee trees ceased to flow in the early 1990's it has not yet been conclusively proven that the Lower Bracewell limestone aquifer has at any time sufficiently recovered to cause the spring flow above the bridge to resume. However a major rainfall event in February 2003 bought recovery of the alluvium and a 40% recharge in the Lower Bracewell limestone aquifer. The deterioration of Machine Creek conductivity levels were highly indicative of a joint spring flow to that section of the creek infiltrated by the alluvium. ***The limestone based spring flow contribution would be much greater than that calculated for the alluvium which by itself, cannot sustain the pooled area above Weir 2.***

FOI Page 243 Quote "With reference to the East End mine, you may need to confirm that drilling by the QLD Cement did not locate any nearby karstic terrain, and that the existing mine is not favourably located. Ie in normal mining operations, it is highly desirable to locate a limestone quarry in massive, unstructured and relatively unweathered material."

*Comment: When drilling a replacement bore under injurious affection QCL **drilled into major cavities** on the adjoining Davis Road property and struck a major supply of water. All experts agree that the local hydrogeology is highly complex. For confirmation of a constriction and a steep drawdown cone within 500 m of the mine see Figure K from DNR&M's Groundwater Position East End & Bracewell June 2001 (provided wih our submission of 8 November 2004 as Attachment 24). Contrary to the assertions by DNR&M's Principal Project Officer, Cement Australia's East End mine **is favourably located** to the extent that the mine pit exhibits less karst aquifer characteristics and much less permeability than the neighbouring cavitious area and the severely depleted East End aquifer that has a gentle gradient for a distance of 8 kms from the north draining to the Davis Road property adjacent to the mine on the cusp of the steep drawdown cone at the mine.*

DNR&M Principal Project Officer / 5.0 Alluvial Connection between Bracewell and East End.

We interpret that in this section the DNR&M senior hydrologist is encouraged to dispute and discredit the East End Mine Community Liaison Group Consultant's permeability values. DNR&M's Principal Project Officer states that no pump tests were undertaken in the vicinity. Using mapping provided by the Rockhampton Senior Hydrologist, the Indooroopilly Principal Project Officer estimates the catchment area upstream of the Weir at 5 sq kilometres and uses Darcy's Law to arrive at a nominal outflow of 17.52ml/year through the constriction. Depending upon the yield, his table provides for a drop in the water level (he does not state what aquifer. Does he mean alluvium or limestone?) of between 0.02m and 0.35 m per/ year assuming no recharge.

*Comment: Pumping tests **have been conducted and documented** under both QCL's modelling Consultant's instructions and by EEMAG with vastly different outcomes / interpretations. Locality Plan Figure 1 and Bore Locations Figure 2 (attachments to the DNR&M assessment) show extensive areas in white marked as alluvium. In the absence of any alternative explanation these areas must be interpreted as defining the extent of alluvium. If this is intended, then the alluvium aquifer is **vastly overstated.** It is highly improbable that a case can be made for the alluvium aquifer above Weir 2 exceeding 1.5 -2 sq kms. If, on the other hand, the area marked as alluvium is meant to define the **catchment** above Weir 2 then DNR &M's Principal Project Officer's estimate **grossly underestimates** the catchment. In either respect, the mapping is highly misleading and entirely unrealistic. A valid interpretation of the catchment area above Weir 2 is contained in each year's Cement Australia Annual Water Monitoring Report. A figure of beyond 15 sq kms for the catchment area above Weir 2 is justified. We interpret that the DNR&M senior hydrologist and the Principal Project Officer both incorrectly used volcaniclastic permeability values for Weir 2 and its associated bores and then minimised the drawdown componentt by overstating the size of the alluvium aquifer.*

Landholder pumping from the alluvial aquifer above Weir 2 is extremely limited, yet in the period from 11 February 2004 to 23 January 2005 (347 days) alluvium Bore 97931 (98-1) the closest bore above Weir 2 declined 2.18m.despite periodic transient recharges. (Please compare that with DNR&M's estimate 0.02 or 0.35 m per annum decline due to outflow assuming no recharge. DNR&M's alleged erroneous categorisation of the subset of bores associated with Weir 2 as volcaniclastic means DNR&M's permeability values are grossly underestimated and their rates of transmission through the Weir section are accordingly , crucially inaccurate.

FOI DNR&M Principal Project Officer's recommendations / 5.0 continuing….Page 242

Quote "The main strength to the analysis is the data from bore 97931. To assist the analysis I have drawn water level contours from 1977 to 2000 (see my figures 1 and 2). **These contours ignore the alluvium,** and would indicate that **there is an overall gradient towards the pit**. …etc" My bold.

C*omment: It is agreed by all parties that **all** Bracewell gradients drain to Weir 2. It is also agreed that bore 97931(local number 98/1) is a pivotal bore in any analysis but we allege that DNR &M's references to bore 97931 are * **fallacious.** Chambers Compact Dictionary quote "a mistake in reasoning that spoils the whole argument." On the weight of evidence it is indisputable that the water source in bore 97931 is in alluvium, **yet DNR&M "ignore the alluvium."** DNR&M cannot therefore use this bore in the way that they have. It is in a different aquifer. (Please refer to the Bore log for bore 97931 to authenticate the bore's alluvium source. The bore log was supplied as Attachment 27 for our submission of 8 November 2004 and this issue was documented on Page 13.)*

Re: EPA's "Independent" Assessment

EEMAG members wish to revisit Page 16 of our submission of 8 November 2004 'Alleged inaccuracies in Reports by EPA's "Independent" consultant….' and the lack of a process to **correct** the alleged obvious inaccuracies.

A Workshop was proposed for EPA's Consultant to present his findings as a fait accompli - **not** for correction of alleged errors. EEMAG was in strong dissent with the EPA Consultant's findings and were unable to reach an arrangement that we could trust. Our view of the EPA Consultants Reports was that they contained glaring inaccuracies and were shaped to support EPA's/the Company's position. It would not have been helpful to our case to participate in a process to legitimize/accept the EPA consultant's allegedly flawed findings. We believe it would have brought closure to the dispute on Government's terms.

During discussions on the Workshop process we came to realize that the process for EPA's "Independent" Technical Assessment was really an Arbitration although EPA did not inform us that this was their intention. Our view is supported by FOI obtained in February 2004 quote:

'While I am in no position to comment on the expertise of [EPA's Consultant], I was shown a number of issues in his report that are being challenged. Clearly his report will not be accepted by the EEMAG and will lead to ongoing criticism. The EEMAG's trust in the EPA is also dissipating. **It seems [the EPA's Consultant's] role was either misunderstood or not clearly articulated in that the group thought his role would be that of an expert inquirer rather than an arbiter.'** (My bold)

Our experience was (and still is) that no matter how factual, justifiable or relevant our evidence or how authoritative our independent technical assessments, our dissenting voice is disregarded by Queensland Government agencies since there is no affordable/ available mechanism to require integrity in their technical assessments or require them to properly take into account the independent findings.

- We understand that appeals processes are a basic part of a number of Federal procedures. To the best of our ability EEMAG has documented our case on the need for an inexpensive and impartial merits review and appeals process under Water Reform and the National Water Initiative. Technical assessments must be credible if the decisions on which Water Resources Plans are based are to serve the interest of the broader community and to protect the rights of individuals and the smaller

operator. We respectfully request the Productivity Commission to recommend such a process in your final report.

Yours sincerely,

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