J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

Correspondence to:
[redacted]

7th July 2011

Jane Moynihan
Executive Director
Queensland Floods Commission of Inquiry
GPO Box 1738
BRISBANE 4001

Dear Ms Moynihan,

Thank you for your letter of the 1st July 2011 received today. I appreciate that you are having a very busy time. Your letter crossed with this letter about to be sent. I believe that you will find the content provides a major solution to flooding, drought and water security well into the future.

At the time of lodging my submission no response had been received from the QWC in relation to my letter of the 29th January 2011 contained in section "D" of the submission

A response has now been received dated 20th June 2011 and is enclosed with its attachment ***DA1.***

Enclosed is a copy of my observations on the response to Commissioner Boydell and dated 7th July 2011. You will notice that [redacted] has not responded to the substance of the letter. He has placed the QWC well back in August 2009 ignoring considerable information that has transpired since. Attachment ***DA2***

Drafting error in the Water Resource (Moreton) Plan 2007

At the heart of my submission to the Inquiry is the 66% requirement of the Wivenhoe/Somerset water that is to reach the Brisbane River mouth for Ecology purposes. I have no argument with this percentage.

The argument is with the permanent base on which the 66% calculated. The drafting of the Water Resource (Moreton) Plan 2007 did not conform to the advice of the Technical Advisory Panel. This erroneous drafting has ensured that the percentage of 66%, when applied to the 113 years 1894 to 2006 as a practical application, has increased to 75% with a miss-allocation to the Ecology of 130,568ML annually. It rises to 78% and 160,810ML annually if the 1974 flood is taken out.

This is a major volume of water that distorts the dynamics of SEQ water supplies.

Flood proofing Brisbane

When this matter is clarified, if the advice were followed the linking of Wivenhoe/Somerset and the Borumba Dam expanded to a capacity larger than the combined Wivenhoe/Somerset could become a reality. It could provide storage capacity from the Wivenhoe/Somerset up to 1,500,000ML with a further capacity of 500,000ML for the Mary Valley residents for control over their water supplies through the Yabba Creek catchment.

With reserve supplies of this magnitude, the releases of the FSL in the Wivenhoe could be made up to 100% if necessary. The entire Wivenhoe/Somerset system could be utilized to accommodate the volume of the largest known flood being 1893(1st). Flood damage in Brisbane would be eliminated to the point of extinction and mitigation would occur in Ipswich and Gympie.

Drought provisions/Water security

The present "drought" provisions are inadequate. The current main provisions are the Desalination Plant at Tugun which would take 34 years to fill the joint Wivenhoe/Somerset from scratch if no water is taken out. Based on recent pronouncements, recycled water would take about the same time. With a backup water supply those shortages can be fully overcome. Even under very difficult circumstances the FSL can be maintained at not less than 40%. A copy of our submission forwarded to [redacted] of the QWC after the demise of the Traveston. The letter is enclosed ***DA8.*** To save space, the submission may be viewed on my website WivenhoeSomersetRainfall.com/borumba_proposal and also Borumba_appendix

Water security is strengthened. The construction costs associated with it, on engineering advice, is a little more than the cost of one desalination plant the Tugun size.

Flows "above" and "below" the dams. Evidence at the Inquiry

You may be interested to observe that evidence presented at your Inquiry has the "above dam" water at 50%. The pre-development flows supplied by [redacted] DERM Principal Hydrologist, show the average over 111 years at 56.5% of above dam water attached ***DA3.***

On the basis of evidence presented to your Commission the "above dam water" for the 2011 flood was 62.5%. The calculations are contained in page 5 of my letter to the QWC of 8th July 2011 under the heading "The 2011 Flood". This is a significant factor in determining the damage, if any, from all remaining tributaries and the Brisbane River itself.

Mathematics

Mathematics is central to the problem

This matter of the 66% becoming 75% and beyond is a mathematical certainty. It occurs because the permanent base on which it is calculated, the "simulation period" (attached ***DA4***), includes all major floods and "skews" the result as warned by the Technical Advisory Panel in their notes (attached ***DA5***).

The intention can be cleared up if the two well credential members of the Technical Advisory Panel would reveal their intention when the Panel sounded its warning. They are Professors Arthington, Griffith University, and Paul Greenfield AO, Vice Chancellor of the Queensland University. Our attempts to have the matter clarified have met with no response or recognition. Letters that received no response are attached ***DA6***, ***DA7***

Who we are

It is worth reiterating that we represent no one or organization other than the citizens of SEQ. The "we" is Trevor Herse, retired, of the Gold Coast, Mr Ron McMah, grazier, of Imbil and myself. We persist as the critical question on the allocation between the Ecology and our Citizens has not been answered.

Sincerely [redacted]

J. V. Hodgkinson F.C.A.

Queensland Water Commission

Securing our water, together

Our ref: D/11/019442

DA 1

20/6/11

Mr John Hodgkinson
[redacted]

Dear Mr Hodgkinson

Thank you for your letter of 29 January 2011 which in summary highlights:

- your concerns relating to linking of low dam levels in the Wivenhoe and Somerset system to "drought" severely damaging the credibility of the Water Strategy; and
- a proposal to increase the storage capacity of Borumba Dam to 2,000,000ML.

I apologise for the delay in responding. Your letter was complex and needed to be viewed in the context of considerations of the Queensland Floods Commission of Inquiry.

I understand from the attached correspondence dated 6 August 2009, the then Minister for Natural Resources, Mines and Energy and Minister for Trade, the Honourable Stephen Robertson MP had addressed the matters relating to your Borumba Dam proposal and provided reasons as to why the proposal will not be considered further.

I also note the outcomes of the Queensland Floods Commission of Inquiry may have a significant impact on the opportunities for operating the Wivenhoe-Somerset system. However at this stage the Queensland Water Commission's position remains the same as previously advised by the Minister.

Thank you for your considerable effort to explain your case. Should you require further clarification please do not hesitate to contact me on [redacted].

Yours sincerely

[redacted]

A/General Manager
Regional Planning and Policy

Enc (1)

Queensland Water Commissio
PO Box 15087 City East Qld 40C
Ph: +61 7 3227 8207 Fax: +61 7 3227 822
ABN: 65 242 908 036 **web: www.qwc.qld.gov.a**

Hon Stephen Robertson MP
Member for Stretton

Queensland Government

Minister for Natural Resources,
Mines and Energy and
Minister for Trade

Ref NR/03/0348, NR/09/1142
CTS 03266/09

6 AUG 2009

Mr John Hodgkinson
PO Box 41
STONES CORNER QLD 4120

Dear Mr Hodgkinson

I refer to:

- your letter of 25 May 2009 to the Honourable Stirling Hinchliffe MP, Minister for Infrastructure and Planning, regarding the consideration of 'uncommon events' (uncommon meteorological events) in the hydrologic assessments of Wivenhoe Dam and Borumba Dam as related to your proposal to transfer water (via a new pipeline) from Wivenhoe Dam into a raised Borumba Dam;
- your letter of 31 May 2009 to Minister Hinchliffe's Principal Advisor, [redacted] regarding the consideration of "uncommon events" and other matters; and
- your letter of 30 January 2009 to Minister Hinchliffe, the then Parliamentary Secretary to the Deputy Premier, regarding matters that were discussed at a meeting with the Parliamentary Secretary on 21 January 2009.

Minister Hinchliffe forwarded your letters to my office for consideration and response in relation to your proposal to pump water from Wivenhoe Dam to Borumba Dam, as these matters fall within my portfolio responsibilities. I am advised that Minister Hinchliffe's Principal Advisor will respond to your letter of 31 May 2009 regarding the Coordinator-General's role.

The Queensland Water Commission's advice in regard to a number of the critical points that have been raised in regard to your proposal is set out below.

Availability of water for transfer to Borumba Dam
The primary constraint to your proposal is the availability of water from the Brisbane River system for transfer to Borumba Dam.

The Moreton Water Resource Plan (the Moreton Plan) provides existing urban, industrial and agricultural users with certainty about water entitlements at a specified level of supply security.

Level 13
61 Mary Street Brisbane Queensland
GPO Box 2454 Brisbane Queensland 4001
Australia
Telephone +61 7 3225 1861
Facsimile
Email

Given the extent of current water development in the Moreton Plan area, provision was made for only a minimal increase in future water extraction from this area, to protect environmental flow requirements for the Brisbane River and Moreton Bay. A large portion of the water that flows over the spillway of Wivenhoe Dam is not just excess flood water, but a necessary contribution to the flows required to sustain the environment.

Water Resource Plans contain environmental flow objectives relating to mean annual flows at various locations. Table 1 outlines the percentage of mean annual flows, in an undeveloped state, that must not be jeopardised at the end of river systems by future water resource planning decisions in South East Queensland (SEQ).

The Moreton Plan enables mean annual flows at the mouth of the Brisbane River to be reduced to 66 per cent of pre-development levels, in recognition of the extensive water infrastructure already in existence in these systems and the limited potential for further extraction. In comparison, mean annual flows at the mouth of the Mary River will be at 90 per cent of pre-development levels, even after allowing for the proposed Traveston Crossing Dam Stage 1, and will exceed the minimum mean annual flow objective. These required mean annual flow percentages have been derived in consultation with a technical advisory panel, comprised of independent ecological and other experts, for each Water Resource Plan area.

Table 1 Mean annual flow objectives at River mouth

	Mary Basin Water Resource Plan	**Moreton Water Resource Plan**	**Logan Basin Water Resource Plan**	**Gold Coast Water Resource Plan**
Location	Mouth of the Mary River	Mouth of the Brisbane River	Mouth of the Logan River	Mouth of the Nerang River
Mean Annual Flow as a proportion of pre-development flows	85%	66%	76%	66%

In regard to your reference to the yield information contained within the June 2006 GHD report *Desk Top Review of Identified Dam and Weir Sites*, you were advised at the 21 January 2009 meeting that the GHD report did not consider environmental flow requirements which act to significantly reduce the yield of a dam.

Given the limited opportunity for further water extraction from the Moreton system, the Commission considers that the development of new local water storage infrastructure, or minor changes to the operating level of Wivenhoe Dam to increase its storage capacity, would be a far more efficient way to utilise any additional water available from the Brisbane River system, as opposed to pumping a small amount of additional water to a raised Borumba Dam.

Consideration of 'uncommon events'
The Commission refutes any inferences that large uncommon meteorological events have not been correctly or adequately considered.

Both the Moreton Plan and the Mary Basin Water Resource Plan were based on detailed daily time step hydrologic assessments that consider streamflow and rainfall data over the full period of historic record, including all major flood events (uncommon events) in these periods.

The Commission recommends that you seek the advice of a qualified hydrologist to assist with your understanding of the hydrologic assessments and processes employed in the development of Water Resource Plans.

Dynamics of the Moreton Area
The connection of Hinze Dam and the Tugun Desalination Plant to the SEQ Water Grid have not changed the dynamics of the Moreton Area to such an extent as to require amendments to the Moreton Plan.

New regional infrastructure, such as the raising of Hinze Dam, Tugun desalination plant and the SEQ Water Grid, was needed to account for the reduced yield arising from more robust hydrologic assessments including consideration of climate variability and change, levels of service and the effects of increasing demand. These projects have not made new water available for transfer from Wivenhoe Dam to a raised Borumba Dam.

In reference to your comments about the transfer of water from Hinze Dam to Wivenhoe Dam, the Commission advises that there is no proposal to transfer water from Hinze Dam to Wivenhoe Dam. Subsequent to treatment, water from Hinze Dam will be transported to treated water reservoirs across the region via the SEQ Water Grid.

Other development considerations drawing water from the Brisbane River
Government actions in regard to providing water to Toowoomba via a pipeline from Wivenhoe Dam, and investigations into a desalination site at the Brisbane River mouth and an emergency barge mounted desalination plant do not conflict with the Moreton Plan. Toowoomba will be supplied from the existing Moreton Plan entitlement, reducing the potential take from the Mt Crosby Water Treatment Plant. Desalination plants located near the mouth of the Brisbane River would draw seawater rather than run off the river flows.

Impact on flood immunity downstream from Wivenhoe Dam
The second key constraint to your proposal for storage of floodwater in Wivenhoe Dam, and subsequent transfer to Borumba Dam, is the potential impact on flood immunity downstream from Wivenhoe Dam. It is understood that your proposal involves the temporary storage of water in the flood compartment of Wivenhoe Dam and gradual transfer of this water into a raised Borumba Dam. The use of a significant portion of the Wivenhoe flood compartment for extended storage and transfer is not considered to be a viable alternative water supply option, due to increased flood risks to downstream areas and risk to the integrity of the structure of the dam itself.

Historical records show that there is a significant probability of two or more flood producing storms occurring in the Brisbane River system within a short time of each other. In order to be prepared to meet such a situation, the stored floodwaters from one storm should be discharged from the dams as quickly as possible, with flood discharge operations to be consistent with other dam operation principles.

The flood mitigation manual for Wivenhoe Dam states that typically the floodwaters should be cleared within seven days after the flood peak has passed through the lower reaches of the Brisbane River. In a major flood this timeframe may not be achievable because of downstream flood conditions and it may be necessary to extend the emptying period by several days.

The draft *South East Queensland Water Strategy*, released in March 2008, identified a change in the operating level of Wivenhoe Dam as a potential source of supply beyond existing commitments. This option is yet to be investigated in detail, but only a minor change is anticipated to be acceptable, due to flood risks. A preliminary investigation is available on the Commission's website at: <www.qwc.qld.gov.au/SEQWS+supporting+documents>.

Based on this advice, it has been determined that any investigation into the engineering requirements and capital and operating costs of pumping water from Wivenhoe Dam to a raised Borumba Dam would be ineffectual, given there is insufficient available water to transfer, coupled with increased flood risks to the community.

You acknowledge in your letter of 30 January 2009 that a 2 000 000 ML Borumba Dam sourcing water solely from its own catchment would fail in both cost and water supply.

Therefore, the Government is not in a position to further investigate your proposal.

It is requested that any further correspondence on this matter be provided directly to:

[redacted]
Acting Chief Executive Officer
Queensland Water Commission
PO Box 15087
CITY EAST QLD 4002

Should you require any further information please do not hesitate to contact [redacted] on telephone [redacted]

Yours sincerely

[redacted]

STEPHEN ROBERTSON MP

DA2

Refer to section enclosed with this letter

DA 3

John Hodgkinson

From: [redacted]
To:
Cc:

Sent: Wednesday, March 03, 2010 11:43 AM
Subject: RE: Minor refresher queries

Dear John,

Sorry I could not get back to you earlier. I hope you enjoyed your break.

I will reply to your first questions in this e-mail and I will cover other issues later on.

(1) You are right, the mean annual flow at the Brisbane River mouth for pre-development scenario is 1,641,331 ML/a. This value is based on data from 01/07/1889 to 30/06/2000.

(2) I remember us comparing flows at different sites for various scenarios, but I can not exactly reproduce this figure. I will provide a comparison of flows for a certain site for different scenarios for you and I will also provide a ratio of flows simulated at a particular site and the Brisbane River mouth for a particular scenario. Hope that will answer your question.

- Ratio of flow volume downstream of Mt Crosby Weir simulated for future development scenario and pre-development scenario expressed as is percentage is 58.0%
- Ratio of flow volume downstream of Mt Crosby Weir simulated for existing development scenario and pre-development scenario expressed as is percentage is 58.62%
- Contribution of catchment upstream of Wivenhoe Dam as a percentage of the flow at the river mouth for pre-development scenario is approximately 56.5%.
- Percentage of flow simulated downstream of Mt Crosby Weir compared to the flow simulated at the Brisbane River mouth for future development scenario is 62%.

I am not sure which graph you would like to see. I have provided graphs showing annual flow volumes at Wivenhoe Dam tailwater for different scenarios for the period 01/07/1889 to 30/06/2000 in my first e-mail. Would you like to see similar information for another site?

I will check the period of data used in assessments that Gilbert and Assoc. conducted for the Mary catchment and get back to you next week.

Let me know if you have any other questions.

Regards,

[redacted]

Principal Hydrologist, Water Planning Sciences
Environment and Resource Sciences
[redacted]

Department of Environment and Resource Management
Location: South Wing - CSIRO, 120 Meiers Rd, Indooroopilly

Schedule 15 (continued)

SEQ regional plan see the *Integrated Planning Act 1997*, section 2.5A.10.

simulated mean annual diversion, for a water allocation or group of water allocations, means the total volume of water simulated to have been taken under the allocation or group, if the allocation or group were in existence for the whole of the simulation period, divided by the number of years in the simulation period.

simulation period means the period from 1 July 1889 to 30 June 2000. DA 4

started, for an existing water bore or existing overland flow works, means—

(a) construction of the bore or works had physically begun or, if construction had not physically begun, a contract had been entered into to begin construction; and

(b) an independently verifiable construction program existed for progressive construction towards completion of the bore or works; and

(c) detailed design plans existed showing, among other things, the extent of the bore or works; and

(d) if a permit under the *Local Government Act 1993*, section 940, was required for the bore or works—the permit had been issued; and

(e) if a development permit was required for the bore or works—the permit had been given.

subcatchment area see section 6.

SunWater means the entity continued in existence under the *Government Owned Corporations Regulation 2004*, section 34.

supplemented groundwater means groundwater that is recharged by water supplied under an interim resource operations licence, resource operations licence or other authority to operate water infrastructure.

supplemented groundwater area, for groundwater unit 1 in an implementation area, means the part of the groundwater unit

Schedule 15 (continued)

IQQM computer program means the department's Integrated Quantity and Quality Modelling computer program, and associated statistical analysis and reporting programs, that simulate daily stream flows, flow management, storages, releases, instream infrastructure, water diversions, water demands and other hydrologic events in the plan area.

irrigation purposes means any of the following purposes—

(a) aquaculture;

(b) dairying;

(c) irrigation;

(d) piggery;

(e) stock or domestic purposes;

(f) water harvesting.

low flow regime, for a watercourse, means the minimum flows that provide a continuous flow through the watercourse.

management area—

(a) for part 6, division 2, see section 63; or

(b) for part 6, division 3, see section 66; or

(c) for part 6, division 4, see section 76.

mean annual flow, for a node, means the total volume of flow, at the node, in the simulation period divided by the number of years in the simulation period.

medium priority group means the water allocations in a water supply scheme that are stated to be medium priority group in the water allocations register.

monthly supplemented water sharing index, for water allocations in a water supply scheme, means the percentage of months in the simulation period in which the allocations are fully supplied.

However, levels of risk, particularly in non-tidal reaches, are more directly related to the timing and magnitude of flows affected rather than total volumetric change. For example, extraction of a given volume of water under low flow conditions would have greater ecological implications than extraction of the same volume of water under high flow conditions, all other things being equal. Thus, total flow volume indicators are useful for descriptive purposes and for calculating catchment loads, but are too insensitive to changes in key aspects of the flow regime to be useful for predicting ecological impacts other than in general terms.

Long-term Indicators

Three of the statistical indicators in Table 5.1 relate to total flow volumes:

- mean annual flow;
- median annual flow; and
- APFD.

Mean annual flow is a measure of the total volume of flow carried by a river or stream at a particular site. It is a useful and easily understood communication tool for summarising net flow regime change in volumetric terms. However, it can be skewed by years with very large flows. Impacts of water resource development can be hidden if there is little change in high flow regime or the water stored in a dam is transported via supplementation of the river channel, particularly if evaporation rates are low. For example, the flow regime of Brisbane River below Wivenhoe Dam is highly modified, yet mean annual flow is 86% of pre-development (Brizga et al. 2006a).

Median annual flow is another measure of central tendency in annual flows, which, unlike the mean, is not skewed by wetter years and thus is more informative about typical flow conditions, particularly in river systems with highly variable flow regimes. Unlike the mean, it does not provide information about the total flow volume carried by a stream at a particular site. In supplemented streams, it is a less sensitive measure of flow regime change than the mean as it can be made to appear more "natural" by increasing levels of flow supplementation. Thus, it is considered a useful indicator only in unsupplemented rivers/streams.

APFD is a composite measure of deviation from the natural (or pre-development) flow regime with regard to total flow volumes, interannual variability and seasonality based on monthly timestep data. A drawback of this indicator is that, on its own, it does not enable differentiation of the relative contribution of these components to flow regime change. However, unlike the other statistical measures proposed as key flow indicators, APFD is based on comparisons of simulated flows in specific months (for example, developed and natural flows in June 1995) rather than long-term averages. It is thus more sensitive to natural variability in its definition of baseline condition. A totally natural flow regime will result in an APFD score of zero. The greater the deviation from the natural flow regime, the greater the APFD score.

A correlation between APFD and fish species diversity was identified by Gehrke et al. (1995) based on work in the Murray–Darling River system. Statistical relationships between APFD and fish species diversity have not been assessed in the Moreton and Gold Coast WRP areas or any other Queensland coastal rivers. A statistical correlation does not necessarily imply a causal relationship and the ecological processes underlying the

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

Correspondence to:
[redacted]

30th April 2010

[redacted]

Copy *DA6*

Centre for Riverine Landscapes
Griffith University
BRISBANE

Copy: [redacted] **(Peer review)**

Dear [redacted]

Re: Water Resource (Moreton) Plan 2007

On the 19th March 2010 I wrote to you for the answer to what appeared to be a straight-forward question. It reduces to "Was it the intention of the Technical Advisory Panel (TAP) to include the 1890 and 1893 floods in the calculation of the "Mean Annual Flow?".

This is most unlikely as the TAP supporting information on page 52 quite clearly points out that, being very large floods, their inclusion would "skew" the result. Never-the-less they were included in the "Mean Annual Flow" calculation. (attached)

The enclosed graph of the inflows into the Wivenhoe/Somerset system visually shows the influence of these floods. The 1890 flood is a little hard to see and is the first year from the left. The graph was prepared by the IQQM model incorporated in the Act.

The IQQM model also calculated that the Wivenhoe/Somerset system provided 58.2% of the pre-development flows. It is agreed by hydrologists that large floods generally cover the whole of SEQ so that percentage serves as a base for the whole of catchment.

In addition the IQQM model calculated the "Mean Annual Flow" of the pre-development flows for the period 01/07/1889 to 30/06/2000 at 1,641,331ML for the mouth of the Brisbane River. (Attached)

All of the above official evidence permitted the calculations that I now enclose for your consideration. The detailed calculations were not included in my letter to you dated the 19th March 2010.

The essence of the calculations is that using the procedure laid down by the Act, in the period 1894 to 2006, the Brisbane River mouth would have received slightly in excess of 75% of the flows at a cost to SEQ citizens of 130,000ML/a. Your 66% advice accepted by the Minister was effectively over-ridden.

I appreciate that you may be attempting to get to the bottom of this query. In the mean time, would you please acknowledge the receipt of this second letter.

Sincerely

.....
John V. Hodgkinson F.C.A.

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

[redacted]

Correspondence to:
[redacted]

30th April 2010

COPY DA7

[redacted]
Vice Chancellor
University of Queensland
BRISBANE

Copy to [redacted] Griffith University

Professor,

At a recent meeting with Departmental Directors of DERM and the QWC, two very senior members mentioned in discussions that they were unhappy with the determination that only 66% of all pre-development water must flow to the Brisbane River mouth. That determination was made by the Minister on the advice of the Technical Advisory Panel (TAP) and conveyed by the Minister to me on the 6th August 2009. These senior members openly told Mr Trevor Herse and I that the system had been "tweaked" to obtain an increased flow.

I was aware before the meeting that the inclusion of the 1890 and 1893 floods in the "Simulation period" would influence this once only and permanent calculation of the "Mean Annual Flow (MAF). That they were included by commencing the period at 01/07/1889, and then concluding it at 30/06/2000 to exclude the then recent "dry" period, which further marginally influenced the result, does not appear, on the face of it, a very honest or ethical method to utilize in that exercise.

Your literature, being the TAP literature, on which the percentage was based, reveals the following:

- That there was no precision in setting down the simulation period. Refer page 42 attached. It dealt with approximations.
- That the inclusion of the 1890 and 1893 floods would "skew" the result. Refer page 52 attached.

The practical application of the procedure laid down by the Act for the 113 year period 1894 to 2006 increases the percentage to slightly above 75%, with the corresponding decrease available to the SEQ citizens. This amounts to a 9% variation from the intended 66% and a quantified annual decrease of 130,000ML/a available for allocation.

Needless to say, based on the West Australian plant experience and publicly stated comments, this forces us into three desalination plants with infrastructure in the billions of dollars and ongoing costs with electricity approaching 60,000 homes requirements.

It is reasonable to assume that the floods of 1890 and 1893 were included without your full knowledge due to the sequence of the admissions. Professor Angela Arthington and yourself would not be in your relative positions without high ethical standards, superior technical knowledge and high organizing ability. As this "tweak" appears to have seismic force of a shift of around 9%, I request that you reconsider the situation.

My calculations are enclosed for your critical analysis. The information on which the calculations were based to year 2000 together with the accompanying inflow chart into the Wivenhoe/Somerset were provided by DERM and subsequently confirmed by e-mail on the 3rd March 2010. The information from year 2000 to 2006 was publically provided and confirmed to us by the CEO of the QWC.

Mr. Trevor Herse, retired, of the Gold Coast and myself request an interview to discuss these matters. It is difficult for our third member to attend as he resides in Imbil. We initially lodged an EIS alternative to the Traveston and have some knowledge of how SEQ water works. We represent no others but have the interest of SEQ residents at heart.

Sincerely

.....
John V. Hodgkinson F.C.A.

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

Correspondence to:
[redacted]

22nd November 2009

COPY *DA8*

[redacted]
Acting Principal Executive Director
Queensland Water Commission
PO Box 15087 City East Qld 4002

Dear [redacted]

[redacted] since writing on the 8th November 2009 the fate of the Traveston dam has been determined.

According to press reports, submissions are being sought from the public. I now enclose my submission. The attachments mentioned in the submission are now on my website WivenhoeSomersetRainfall.com under the tab labeled "Desal v Borumba".

You will see that my considered view is that the "Millennium drought" issue is blocking the eventual solution. The solution is the use of the remaining natural storage containment in South East Queensland that is not a National Park. The Borumba Dam can be expanded to 2 million megalitres and is a natural amphitheatre.

You are aware of my detailed observations on the "Millennium Drought" of the 6th September 2009 forward to your Commissioner. They point out that there was no "drought" in the catchments. The depleted dams were the result of the random activities of our main water supply "large scale rainfall events" known by SEQWater as "uncommon events".

The short history of the Wivenhoe dam reveals that it was understood by the hydrologists and engineers of the recent past who had experienced the longest gap in their random activities (1975 to 1988). They had introduced the Wolfdene dam **after** the completion of the Wivenhoe. They understood that summer rainfall was inadequate even then.

The cancellation of the Wolfdene dam, with the Wivenhoe filled by the "large scale rainfall events" of April 1988 and April 1989, was the start of the problem. A review of the Wivenhoe dam level chart reveals that the current hydrologists have to face up to the fact that dam failure was inevitable as far back as 1992. Nothing was done and we endured the panic of 2005/06 which was incorrectly blamed on the "worst drought".

The flimsy supporting evidence used was a "decile map". Decile maps are prone to statistical aberrations in stable rainfall areas such as our catchments. The 6 years under review, 2001 to 2006, saw "close to 80% of the long term average" placed in decile 1, that being the "lowest on record." Closer examination showed that the **summer** rainfall had been very close to normal with 99.7% in the Wivenhoe and 91.3% in the Somerset. The 20% **deficiency was in** the low water producing **non-summer months**.

In my view, history is being ignored and our residents of the future must face a similar predicament. The last gap was 6 years. They can, and have, extended for 14 years, and it is for a period of that length at least that we must provide.

The main block that the Ministers provided in their letters is the requirement of 66% of water, calculated in pre-civilization conditions, is to reach the Brisbane River mouth. The recent floods, which are our main water supply, have produced a reputable report that they substantially degrade the water quality in Moreton Bay. In addition, our proposal has always envisaged storage of "large scale rainfall events" for later use for the ecology and ourselves. This has not been considered in the Water Resource (Moreton) Plan 2007.

The additional 80,000ML recognized by engineers GHD when considering raising the Wivenhoe Dam wall requires an EIS. This fits in with our original request to the Government that our plan be subject to an independent review on the basis that if there is anything in it, then a more detailed review be undertaken. This review linking the Borumba to the Wivenhoe/Somerset has not been undertaken because of the 66% block, which, in the Ministers' opinion, excluded water from the Wivenhoe/Somerset.

The narrow review that was undertaken focused mainly on Weirs in the Mary Valley which were deleted in November 2007 in Mr McMah's alternate EIS. This was followed by a letter to the Coordinator General pointing this out. An EIS, in arriving at a conclusion, will publicly examine all aspects including the construction and decision making process of the Water Resource (Moreton) Plan 2007.

Now that the fate of the Traveston has been decided, I am writing today to your personal assistant to make an appointment for the meeting with the hydrologists that you were good enough to initiate. It is much appreciated.

Regards

.....
John Hodgkinson F.C.A.

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

[redacted]

Correspondence to:
[redacted]

7th July 2011

DA2

copy

Ms Mary Boydell
Commissioner
Queensland Water Commission
PO Box 15087 City East 4002

Dear Commissioner,

Re: Flood proofing Brisbane, mitigating flooding in Ipswich and Gympie, putting real meaning into the words "Drought-proofing SEQ" and increasing our water supply to the percentage intended by the Technical Advisory Panel.

The heading has changed as it now indicates the triple purpose of the Borumba Dam after the collapse of the Traveston Dam proposal. It also improves the water requirements of those dependent upon the Mary River.

Mr. [redacted] response of the 20th June 2011

Mr. [redacted] response was quite brief and did not address the issues I had raised in my letter to him. He did not indicate that a copy had been forwarded to you so I have attached a copy for your information.

Mr. [redacted] has placed the Queensland Water Commission in the position as outlined in the 6th August 2009 letter from Minister Robertson to me. The letter was the result of consistent pressure by us to disclose the objections to an expanded Borumba Dam in the place of the Traveston dam. A great deal of very relevant information has been forthcoming from DERM since that position was established.

In addition my written warnings to Deputy Premier Bligh and Minister Hinchliffe that with full dams significant overflow occurred twelve times within one year since 1841, were ignored. The dates of these warnings were 18th January 2008 and 23rd April 2009 respectively.

The letter to Mr. [redacted] specifically related to the so-called "drought" in the Wivenhoe/Somerset catchments. The letter outlined our view that our water supply has not been understood commencing with the cancellation of the Wolfdene Dam, a dam commenced after the Wivenhoe dam was completed. There was not a single line in his answer addressing this issue. The answer is attached (***DB1***).

Mr. [redacted] states that my letter to which he is responding is complex. The complexity lies principally in the drafting of the Water Resource (Moreton) Plan 2007 relating to the allocations to the ecology and ourselves. It does not adhere to the recommendations of the Technical Advisory Panel and that departure is again explained in this letter. Add to that the perceived lack of understanding of the manner in which

our water supply is created. Alternatively, the establishment of a bulk water supply, as we propose for the Borumba Dam upgrade, is straight forward logic in Water Security, Flood control, Drought control and costing.

Origin of Minister Robertson's letter. First definitive answers from Ministers Robertson and Hinchliffe.

Because of split Ministries a copy of the same letter was forwarded to Mr. Ron McMah by Minister Hinchliffe and it is also attached (***DB2***). Mr. Mc Mah was the originator of the Borumba proposal to replace the proposed Traveston. At a public meeting in Gympie he had received an iron clad guarantee from then Deputy Premier Bligh that would be the way they would go if it "stacked up".

Both the Hydrologists' and Engineers' at the very start of their reports stated that they did not consider the transfer of water for later return from the Wivenhoe/Somerset which rendered the Borumba proposal inoperable. They had received "advice" from the Department that there was no water available from that source. However, they proceeded on the demonstrably useless endeavour on terms of reference that were not agreed by Mr. McMah. The circumstances are outlined in the letter to Mr. Harris attached (***DB3***)

Those letters from the Ministers were the first definitive answers as to why the proposal was blocked. We engaged the support of the Prime Minister (Kevin Rudd). His chief policy advisory, Mr [redacted] spent some time with Mr. Trevor Herse and myself examining our proposal. He informed the Minister that he supported an independent review. This culminated in a meeting with Minister Hinchliffe (Then Cabinet Secretary) and QWC officials. At that meeting Minister Hinchliffe declined an independent review.

Subsequent to the meeting

We then submitted to Minister Hinchliffe a comprehensive review of the meeting with a copy to [redacted] email response is attached (***DB4***). The principal feature of the meeting review was that, with the authority of the Minister, water can be transferred out of the Wivenhoe/Somerset system for later return.

This Review resulted in the letters from the Ministers defining the objections to the Borumba proposal. The Traveston Dam proposal was very much the Queensland Government objective. Its cancellation by Federal Minister Peter Garret was in November 2009.

THIS IS THE POINT AT WHICH MR [redacted] HAS PLACED THE QWC (Qld Water Commission)

Examination of the "primary constraint" to the proposal

The letters of Minister Hinchliffe and the then new Minister Robertson are clear that due to their interpretation of the 66% requirement for the Ecology, then no further water can be allocated from the Wivenhoe/Somerset system.

The Wivenhoe/Somerset system is reduced from the annual yield of 446,900ML attached (***DB5***) established in the SEQWater Corporation's annual reports of years 2000 and 2001 to a yield of 286,000ML being the current allocations referred to in their letters but not defined. This massive reduction reduces this infrastructure to the equivalent of the output of just six desalination plants of the Tugun size and, as a consequence, increases the cost of water from this source.

Examination of the "primary constraint" to the proposal, as outlined in the letters being the 66%

requirement at the Brisbane River mouth, showed two matters.

- The first being that the **permanent base** being the "simulation period" on which the "mean annual flow" is calculated was extended from the "approximate 110 years" outlined in the Technical Advisory Panel supporting notes to 111 years therefore including the major flood of 1890 being of similar size to the major flood of 1974.
- The second point is that against the advice of the Technical Advisory Panel (TAP) that "inclusion of major floods would "skew" the result", the major floods of 1890, 1893(1), 1893(2) and 1974 were included in the permanent calculation of the mean annual flow. This resulted in a skewed result, warned of by the TAP, involving up to 160,000 ML needlessly diverted to the ecology. It directly impacts on the feasibility of our Borumba Dam proposal.

To prove the extent of this drafting error I required the pre-development flows on which the calculations were based. I was well aware that the major floods had been included erroneously in the definition of "simulation period" on which the calculation of the "mean annual flow" is based. The 66% is a calculation of that "mean annual flow" but I needed to quantify the volumes involved.

There was considerable correspondence with Mr [redacted] CEO of the QWC, to obtain the pre-development flows that would show the extent of the error. It appeared major on the basis of my calculation using any available information that related to it. In the end it was agreed that the matter could not be resolved by correspondence.

I was most appreciative when he arranged a meeting with DERM on the 2nd February 2010. This was some seven months after Minister Robertson's letter.

The personnel present were Mr. [redacted] Director Water Planning (South East), DERM, currently on secondment to QWC in the role of Director Water Strategy. Mr. [redacted] Director Water Assessment ,DERM, Mr. [redacted] Principal Policy Officer, Water Planning (South East), DERM, Mr. [redacted] Principal Policy Officer, Infrastructure Implementation, QWC and Ms [redacted] Principal Hydrologist Water Planning Sciences. Mr. Trevor Herse and I also attended (see attached) with an apology from Mr. [redacted] due to a date mix-up.

You will see in the letter to Mr. [redacted] that Mr. [redacted] and Mr. [redacted] were of the opinion that the 66% to the ecology was not enough and that they had "tweaked" the system. They did not say how this had occurred and both Trevor Herse and I assumed that that they had the authority or authorization to do this.

However Ministers Hinchliffe and Robertson relied on the 66% of the "mean annual flow" (MAF) as defined in the Act Water Resource (Moreton) Plan 2007. They made no mention of the mechanics of the calculation of the "simulation period" which is the permanent base on which the "mean annual flow" is calculated. This is where the problem lies.

Subsequent to the meeting with DERM

Subsequent to the meeting the pre-development flows and other information that I had requested were forwarded to me by Ms [redacted], the Principal Hydrologist, with copies to all present at the meeting.

It was clear that the calculation, when applied in retrospect to the 113 years 1894 to 2006, increased the percentage from 66% to 75% with the 1974 flood still included in those years and 78% with it out. This is an annual volume of water of 130,568ML at 75% and 160,810ML at 78%

This 160,810ML together with the 286,000ML already allocated totals 446,810ML. This figure matches the yield of the Wivenhoe/Somerset in SEQWater's annual reports of years 2000 and 2001 446,500ML. SEQWater was then chaired by Mr. Bob Grice, Chartered Accountant and former President of our Institute. Those reports indicate that they were well aware of the ecological requirements above and below the dam. A most important matter in dam management is how much water you have to allocate and sell on a permanent basis.

The QWC yield calculation departed from the normal Historical Yield No Failure (HYNF) method to a "stochastic" approach. There is no need for net gain in that approach as a backup water supply can eliminate even the strongest "drought". This is comprehensively dealt with in our submission lodged with the QWC on the 22nd November 2009 after submissions were called for after the demise of the Traveston

Request for critical analysis of my calculations

This was put to Mr. [redacted] for critical analysis in a letter dated 25th February 2010 with copies to all present at the meeting. There was no response.

Efforts by me to obtain confirmation one way or the other from Professors Arthington and Greenfield of the Technical Advisory Panel did not receive recognition from them of any sort.

The letter to Mr. Harris, at the invitation of Minister Robertson, covers all of the detail relating to this most important matter.

Minister Robertson's responses

We wrote two letters to Minister Robertson dated 20th April 2010 and 16th November 2010 with a further letter to Mr. Harris at the invitation of the Minister dated 16th November 2010. Attached are (***DB6***), (***DB7***) and (***DB3***).

They deal with the all important "principal constraint" as outlined above.

There were two responses from Minister Robertson dated the 2nd June 2010 and the 25th January 2011. They are attached. (***DB8***, ***DB9***)

Minister Robertson's responses had two things to say.

- The first was that the ecology requirement had received exhaustive consideration from well credential people.

  We have no disagreement with their conclusions. **It is the departure from their conclusions and disregard of their warning on "skewing" by the inclusion of the major floods in the permanent base calculation of the mean annual flow where, in my view, a very serious error has occurred.**

  Our question on the arithmetical calculations has not been answered and this is where the problem lies.

- The second matter raised was that I should make a submission on this subject when the Water Resource (Moreton) Plan 2007 is up for renewal in year 2017.

  You would recognize that by that date the three desalination plants may be underway at a cost of

not less that $3.6 billion and the footings at the Borumba dam for the proposed raising of that dam to 350,000ML could well permanently preclude the raising of that dam to its full potential of 2,000,000ML.

Although Minister Robertson's letter responding to the letters to him and to Mr. Harris was dated after the 2011 flood, there was no recognition that the backup supply for drought we propose with the Borumba Dam could also be relied upon in flood management to lower the Wivenhoe/Somerset FSL levels to accommodate the largest known flood being the 1893(1) flood. Minister Robertson has since recognized that reduction of the FSL is required in the circumstances that we encountered by reducing the FSL of the Wivenhoe Dam to 76.2% subsequent to the 2011 flood. However that theory remains untested as the flood rains subsequently stopped.

Use of the expanded Borumba Dam to flood proof Brisbane to the point of known flood's extinction and mitigating flooding in Ipswich and Brisbane.

Without backup facilities that would allow the **full use** of flood compartments and FSL compartments of our dams, we witnessed the enormous damage again inflicted on the citizens of Brisbane, Ipswich and Gympie earlier this year.

We see partial recognition of this by the reduction by Minister Robertson of the FSL of the Wivenhoe to 75%.

The resolution of the mathematical calculation of the 66% was important with the elimination of the proposed desalination plants and reinforcing the current inadequate provisions for drought. In addition, the answer to this question assumes the mantel of major importance in the resolution of flooding in Brisbane and mitigation in Ipswich and Gympie. The use of the Borumba Dam backup is now recognized by some of those damaged by the flood and who have been in contact with me.

The 2011 flood

There has been general acceptance in evidence at the Inquiry that the inflow **above** the dams is 50% of the total inflow of the Brisbane River. This is incorrect and misleading.

The predevelopment flows of 1890 to 2000 provided by Ms [redacted] Principal Hydrologist DERM reveals 56.5% of all water that reaches the Brisbane River mouth was from above the dams. Attached (***DB10***)

The 2011 flood saw the "above dam" water with 62.5% and "below dam" water at 37.5%. This calculation shows that above dam water was 60.0% more water above than below the dams.

Seqwater's figure of the flood through the Wivenhoe/Somerset is generally accepted at 2,650,000ML being the above dam water. Mr. Ayres (Seqwater) flow figures produced in evidence had the Lockyer Creek flow at 701,858ML and the Bremer River at 426,541ML. Add to that estimates of the Mid and Lower Brisbane River and Oxley Creek of 462,644ML and we have a total of 1,591,043ML. These figures produced the percentages in the first paragraph.

The importance of this heading is that with proper backup afforded by an expanded Borumba Dam permitting the release of the FSL's, then no damage would have occurred in Brisbane, damage in Ipswich would have been minimized and flooding in Gympie reduced by 34% (Yabba Creek water).

Water security

Deputy Premier Anna Bligh 18th January 2008 and Minister Hinchliffe 23rd April 2009 were alerted by me that on full dams major events had occurred within one year and that very large volumes of water would be lost. The relevant extracts are in the letter to Mr. Harris.

We have now witnessed 2,650,000ML, being the entire flood of 2011, plus approximately 700,000ML being the October and December minor floods all released without a Megalitre being saved. Further we are 25% of the Wivenhoe capacity worse off (FSL reduction to 75%) than the position before the floods.

Flood inquiry

It is clear from the above that presently there is no intention by the Bligh Government to move from the position of Water Resource (Moreton) Plan 2007 as it stands.

The dynamics of Flood, Drought and Water Security hinge on the clarification of the drafting of that Act. The practical application of that 66% percentage, that Ministers rely upon, far exceeds that percentage.

The matter requires independent analysis. Despite numerous requests to various Ministers for this over four years, an independent analysis is not forthcoming. It seems, therefore, this could be a matter for the Inquiry to determine and a copy of this letter is being sent to the Inquiry.

As you are aware, and it is worth reiterating, that Mr. Ron McMah, grazier of Imbil, Mr. Trevor Herse, retired of the Gold Coast and myself do not represent anyone or organization. We do represent the citizens of SEQ. In recent times some of those citizens, damaged by the flood of 2011, have come to recognize that backup facilities are needed to fully utilize the FSL of the Wivenhoe/Somerset dams. They are awaiting the outcome of the Borumba proposal. .

Sincerely

[redacted]

J. V. Hodgkinson F.C.A.

Queensland
water
Commissio

Securing our water, togethe

Our ref: D/11/019442

DB 1

20/6/11

Mr John Hodgkinson
[redacted]

Dear Mr Hodgkinson

Thank you for your letter of 29 January 2011 which in summary highlights:

- your concerns relating to linking of low dam levels in the Wivenhoe and Somerset system to "drought" severely damaging the credibility of the Water Strategy; and
- a proposal to increase the storage capacity of Borumba Dam to 2,000,000ML.

I apologise for the delay in responding. Your letter was complex and needed to be viewed in the context of considerations of the Queensland Floods Commission of Inquiry.

I understand from the attached correspondence dated 6 August 2009, the then Minister for Natural Resources, Mines and Energy and Minister for Trade, the Honourable Stephen Robertson MP had addressed the matters relating to your Borumba Dam proposal and provided reasons as to why the proposal will not be considered further.

I also note the outcomes of the Queensland Floods Commission of Inquiry may have a significant impact on the opportunities for operating the Wivenhoe-Somerset system. However at this stage the Queensland Water Commission's position remains the same as previously advised by the Minister.

Thank you for your considerable effort to explain your case. Should you require further clarification please do not hesitate to contact me on [redacted]

Yours sincerely

[redacted]

A/General Manager
Regional Planning and Policy

Enc (1)

Queensland Water Commissio
PO Box 15087 City East Qld 40(
Ph: +61 7 3227 8207 Fax: +61 7 3227 82
ABN: 65 242 908 036 **web: www.qwc.qld.gov.a**

Hon Stephen Robertson MP
Member for Stretton

Queensland Government

Minister for Natural Resources, Mines and Energy and Minister for Trade

Ref NR/02/0348, NR/03/1147
CTS 03266/09

6 AUG 2009

Mr John Hodgkinson
[redacted]

Dear Mr Hodgkinson

I refer to:

- your letter of 25 May 2009 to the Honourable Stirling Hinchliffe MP, Minister for Infrastructure and Planning, regarding the consideration of 'uncommon events' (uncommon meteorological events) in the hydrologic assessments of Wivenhoe Dam and Borumba Dam as related to your proposal to transfer water (via a new pipeline) from Wivenhoe Dam into a raised Borumba Dam;
- your letter of 31 May 2009 to Minister Hinchliffe's Principal Advisor, [redacted] regarding the consideration of "uncommon events" and other matters; and
- your letter of 30 January 2009 to Minister Hinchliffe, the then Parliamentary Secretary to the Deputy Premier, regarding matters that were discussed at a meeting with the Parliamentary Secretary on 21 January 2009.

Minister Hinchliffe forwarded your letters to my office for consideration and response in relation to your proposal to pump water from Wivenhoe Dam to Borumba Dam, as these matters fall within my portfolio responsibilities. I am advised that Minister Hinchliffe's Principal Advisor will respond to your letter of 31 May 2009 regarding the Coordinator-General's role.

The Queensland Water Commission's advice in regard to a number of the critical points that have been raised in regard to your proposal is set out below.

Availability of water for transfer to Borumba Dam
The primary constraint to your proposal is the availability of water from the Brisbane River system for transfer to Borumba Dam.

The Moreton Water Resource Plan (the Moreton Plan) provides existing urban, industrial and agricultural users with certainty about water entitlements at a specified level of supply security.

Telephone +61 7 3225 1861

Given the extent of current water development in the Moreton Plan area, provision was made for only a minimal increase in future water extraction from this area, to protect environmental flow requirements for the Brisbane River and Moreton Bay. A large portion of the water that flows over the spillway of Wivenhoe Dam is not just excess flood water, but a necessary contribution to the flows required to sustain the environment.

Water Resource Plans contain environmental flow objectives relating to mean annual flows at various locations. Table 1 outlines the percentage of mean annual flows, in an undeveloped state, that must not be jeopardised at the end of river systems by future water resource planning decisions in South East Queensland (SEQ).

The Moreton Plan enables mean annual flows at the mouth of the Brisbane River to be reduced to 66 per cent of pre-development levels, in recognition of the extensive water infrastructure already in existence in these systems and the limited potential for further extraction. In comparison, mean annual flows at the mouth of the Mary River will be at 90 per cent of pre-development levels, even after allowing for the proposed Traveston Crossing Dam Stage 1, and will exceed the minimum mean annual flow objective. These required mean annual flow percentages have been derived in consultation with a technical advisory panel, comprised of independent ecological and other experts, for each Water Resource Plan area.

Table 1 Mean annual flow objectives at River mouth

	Mary Basin Water Resource Plan	**Moreton Water Resource Plan**	**Logan Basin Water Resource Plan**	**Gold Coast Water Resource Plan**
Location	Mouth of the Mary River	Mouth of the Brisbane River	Mouth of the Logan River	Mouth of the Nerang River
Mean Annual Flow as a proportion of pre-development flows	85%	66%	76%	66%

In regard to your reference to the yield information contained within the June 2006 GHD report *Desk Top Review of Identified Dam and Weir Sites*, you were advised at the 21 January 2009 meeting that the GHD report did not consider environmental flow requirements which act to significantly reduce the yield of a dam.

Given the limited opportunity for further water extraction from the Moreton system, the Commission considers that the development of new local water storage infrastructure, or minor changes to the operating level of Wivenhoe Dam to increase its storage capacity, would be a far more efficient way to utilise any additional water available from the Brisbane River system, as opposed to pumping a small amount of additional water to a raised Borumba Dam.

Consideration of 'uncommon events'
The Commission refutes any inferences that large uncommon meteorological events have not been correctly or adequately considered.

Both the Moreton Plan and the Mary Basin Water Resource Plan were based on detailed daily time step hydrologic assessments that consider streamflow and rainfall data over the full period of historic record, including all major flood events (uncommon events) in these periods.

The Commission recommends that you seek the advice of a qualified hydrologist to assist with your understanding of the hydrologic assessments and processes employed in the development of Water Resource Plans.

Dynamics of the Moreton Area
The connection of Hinze Dam and the Tugun Desalination Plant to the SEQ Water Grid have not changed the dynamics of the Moreton Area to such an extent as to require amendments to the Moreton Plan.

New regional infrastructure, such as the raising of Hinze Dam, Tugun desalination plant and the SEQ Water Grid, was needed to account for the reduced yield arising from more robust hydrologic assessments including consideration of climate variability and change, levels of service and the effects of increasing demand. These projects have not made new water available for transfer from Wivenhoe Dam to a raised Borumba Dam.

In reference to your comments about the transfer of water from Hinze Dam to Wivenhoe Dam, the Commission advises that there is no proposal to transfer water from Hinze Dam to Wivenhoe Dam. Subsequent to treatment, water from Hinze Dam will be transported to treated water reservoirs across the region via the SEQ Water Grid.

Other development considerations drawing water from the Brisbane River
Government actions in regard to providing water to Toowoomba via a pipeline from Wivenhoe Dam, and investigations into a desalination site at the Brisbane River mouth and an emergency barge mounted desalination plant do not conflict with the Moreton Plan. Toowoomba will be supplied from the existing Moreton Plan entitlement, reducing the potential take from the Mt Crosby Water Treatment Plant. Desalination plants located near the mouth of the Brisbane River would draw seawater rather than run off the river flows.

Impact on flood immunity downstream from Wivenhoe Dam
The second key constraint to your proposal for storage of floodwater in Wivenhoe Dam, and subsequent transfer to Borumba Dam, is the potential impact on flood immunity downstream from Wivenhoe Dam. It is understood that your proposal involves the temporary storage of water in the flood compartment of Wivenhoe Dam and gradual transfer of this water into a raised Borumba Dam. The use of a significant portion of the Wivenhoe flood compartment for extended storage and transfer is not considered to be a viable alternative water supply option, due to increased flood risks to downstream areas and risk to the integrity of the structure of the dam itself.

Historical records show that there is a significant probability of two or more flood producing storms occurring in the Brisbane River system within a short time of each other. In order to be prepared to meet such a situation, the stored floodwaters from one storm should be discharged from the dams as quickly as possible, with flood discharge operations to be consistent with other dam operation principles.

The flood mitigation manual for Wivenhoe Dam states that typically the floodwaters should be cleared within seven days after the flood peak has passed through the lower reaches of the Brisbane River. In a major flood this timeframe may not be achievable because of downstream flood conditions and it may be necessary to extend the emptying period by several days.

The draft *South East Queensland Water Strategy*, released in March 2008, identified a change in the operating level of Wivenhoe Dam as a potential source of supply beyond existing commitments. This option is yet to be investigated in detail, but only a minor change is anticipated to be acceptable, due to flood risks. A preliminary investigation is available on the Commission's website at: <www.qwc.qld.gov.au/SEQWS+supporting+documents>.

Based on this advice, it has been determined that any investigation into the engineering requirements and capital and operating costs of pumping water from Wivenhoe Dam to a raised Borumba Dam would be ineffectual, given there is insufficient available water to transfer, coupled with increased flood risks to the community.

You acknowledge in your letter of 30 January 2009 that a 2 000 000 ML Borumba Dam sourcing water solely from its own catchment would fail in both cost and water supply.

Therefore, the Government is not in a position to further investigate your proposal.

It is requested that any further correspondence on this matter be provided directly to:

[redacted]
Acting Chief Executive Officer
Queensland Water Commission
PO Box 15087
CITY EAST QLD 4002

Should you require any further information please do not hesitate to contact [redacted]

Yours sincerely

STEPHEN ROBERTSON MP

Hon Stirling Hinchliffe MP
Member for [redacted]

Queensland Government

DB 2

Our ref: 09/16928

15 JUL 2009

Mr Ron McMah
[redacted]

I refer to your representations to the Honourable Anna Bligh MP, Premier and Minister for the Arts, about your proposed alternative to the Traveston Crossing Dam project. As this matter falls within my portfolio responsibilities, your correspondence was forwarded to my office for response. I apologise for the delay.

I also refer to our meeting held on 21 January 2009 attended by yourself, Mr Trevor Herse and Mr John Hodgkinson; [redacted] and [redacted] of the Queensland Water Commission (QWC); and [redacted] of the then Office of the Deputy Premier and Minister for Infrastructure and Planning.

Your letter of 19 May 2009 reiterates the request that you made at the January 2009 meeting for an independent review of a proposal to transfer water (pump via a new pipeline) from Wivenhoe Dam into a raised Borumba Dam. Specifically, you requested that a 2 000 000 megalitre (ML) dam at Borumba be considered and that no constraint be placed on the capture of floodwater from Wivenhoe Dam during extreme flow events.

Strictly speaking, responsibility for this matter falls within the portfolio of the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy and Minister for Trade. However, as a number of critical points that you raise in your letter were addressed at the meeting on 21 January 2009, I have elected to respond to you personally and will advise Minister Robertson of my response. I have also sought confirmation from QWC about particular aspects of your proposed alternative to Traveston Crossing Dam.

Availability of water for transfer to Borumba Dam

The primary constraint to your proposal is the availability of water from the Brisbane River system for transfer to Borumba Dam.

The Moreton Water Resource Plan (the Moreton Plan) provides existing urban, industrial and agricultural users with certainty about water entitlements at a specified level of supply security.

[redacted]
Telephone +61 7 3224 4600
[redacted]

Given the extent of current water development in the Moreton Plan area, provision was made for only a minimal increase in future water extraction from this area, to protect environmental flow requirements for the Brisbane River and Moreton Bay. A large portion of the water that flows over the spillway of Wivenhoe Dam is not just excess flood water, but a necessary contribution to the flows required to sustain the environment. The Moreton plan cannot simply be amended to allow more water to be extracted, at the expense of the environment, as you appear to suggest.

Water Resource Plans contain environmental flow objectives relating to mean annual flows at various locations. Table 1 outlines the percentage of mean annual flows, in an undeveloped state, that must not be jeopardised at the end of river systems by future water resource planning decisions in South East Queensland.

The Moreton Plan enables mean annual flows at the mouth of the Brisbane River to be reduced to 66 per cent of pre-development levels, in recognition of the extensive water infrastructure already in existence in these systems and the limited potential for further extraction. In comparison, mean annual flows at the mouth of the Mary River will remain at 90 per cent of pre-development levels, even after allowing for the proposed Traveston Crossing Dam Stage 1, and will exceed the targeted mean annual flow objective. These required mean annual flow percentages have been derived in consultation with a technical advisory panel, comprised of independent ecological and other experts, for each Water Resource Plan area.

Table 1 *Mean annual flow objectives at River mouth*

	Mary Basin Water Resource Plan	Moreton Water Resource Plan	Logan Basin Water Resource Plan	Gold Coast Water Resource Plan
Location	Mouth of the Mary River	Mouth of the Brisbane River	Mouth of the Logan River	Mouth of the Nerang River
Mean Annual Flow as a proportion of pre-development flows	85%	66%	76%	66%

In regard to your reference to the yield information contained within the June 2006 GHD report "Desk Top Review of Identified Dam and Weir Sites", you were advised at the 21 January 2009 meeting that the GHD report did not consider environmental flow requirements, which act to significantly reduce the yield of a dam.

Given the limited opportunity for further water extraction from the Moreton system, QWC considers that the development of new local water storage infrastructure, or minor changes to the operating level of Wivenhoe Dam to increase its storage capacity, would be a far more efficient way to utilise any additional water available from the Brisbane River system, as opposed to pumping a small amount of additional water to a raised Borumba Dam.

Consideration of 'uncommon events'

QWC refutes any inferences that large uncommon meteorological events have not been correctly or adequately considered.

Both the Moreton Water Resource Plan and the Mary Basin Water Resource Plan were based on detailed daily time step hydrologic assessments that consider streamflow and rainfall data over the full period of historic record, including all major flood events (uncommon events) in these periods.

QWC recommends that you seek the advice of a qualified hydrologist to assist with your understanding of the hydrologic assessments and processes employed in the development of Water Resource Plans.

Dynamics of the Moreton Area

The connection of Hinze Dam and the Tugun Desalination Plant to the South East Queensland Water Grid have not changed the dynamics of the Moreton Area such as to require amendments to the Moreton Water Resource Plan.

New regional infrastructure such as the raising of Hinze Dam, Tugun Desalination plant and the SEQ Water Grid was needed to account for the reduced yield arising from more robust hydrologic assessments including consideration of climate variability and change, levels of service, and the effects of increasing demand. These projects have not made new water available for transfer from Wivenhoe Dam to a raised Borumba Dam.

In reference to your comments about the transfer of water from Hinze Dam to Wivenhoe Dam, QWC advises that there is no proposal to transfer water from Hinze Dam to Wivenhoe Dam. Subsequent to treatment, water from Hinze Dam will be transported to treated water reservoirs across the region via the South East Queensland Water Grid.

Other development considerations drawing water from the Brisbane River

Government actions in regard to providing water to Toowoomba and investigations into a desalination site at the Brisbane River mouth and an emergency barge mounted desalination plant do not conflict with the Moreton Plan. Toowoomba will be supplied from the existing Morton Plan entitlement, reducing the potential take from the Mt Crosby Water Treatment Plant. Desalination plants located near the mouth of the Brisbane River would draw seawater rather than run of the river flows.

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The second key constraint to your proposal for storage of floodwater in Wivenhoe Dam and subsequent transfer to Borumba Dam is the potential impact on flood immunity downstream from Wivenhoe Dam. It is understood that your proposal involves the temporary storage of water in the flood compartment of Wivenhoe Dam and gradual transfer of this water into a raised Borumba Dam.

The use of a significant portion of the Wivenhoe flood compartment for extended storage and transfer is not considered to be a viable alternative water supply option, due to increased flood risks to downstream areas and risk to the integrity of the structure of the dam itself.

Historical records show that there is a significant probability of two or more flood producing storms occurring in the Brisbane River system within a short time of each other. In order to be prepared to meet such a situation, the stored floodwaters from one storm should be discharged from the dams quickly as possible, with flood discharge operations to be consistent with other dam operation principles.

The flood mitigation manual for Wivenhoe Dam states that typically, the floodwaters should be cleared within seven days after the flood peak has passed through the lower reaches of the Brisbane River. In a major flood this timeframe may not be achievable because of downstream flood conditions and it may be necessary to extend the emptying period by several days.

The *draft South East Queensland Water Strategy, March 2008* identified a change in the operating level of Wivenhoe Dam as a potential source of supply beyond existing commitments. This option is yet to be investigated in detail but only a minor change is anticipated to be acceptable, due to flood risks. A preliminary investigation is available on QWC's website at www.qwc.qld.gov.au/SEQWS+supporting+documents.

Based on this advice, it has been determined that any investigation into the engineering requirements and capital and operating costs of pumping water from Wivenhoe Dam to a raised Borumba Dam would be ineffectual, given there is insufficient available water to transfer, coupled with increased flood risks to the community.

The Government is not therefore in a position to further investigate your proposal.

It is requested that any further correspondence on this matter be provided directly to:

[redacted]
Acting Executive Director
Regional Planning and Policy
Queensland Water Commission
PO Box 15087
City East 4002

I trust this information is of assistance. If you require any further information, please contact [redacted] who will be pleased to assist.

Yours sincerely

Stirling Hinchliffe MP
Minister for Infrastructure and Planning

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

Correspondence to:
[redacted]

C1

16th November 2010

DB3

[redacted]
Principal Project Officer
Water Planning South East
Department of Natural Resources, Mines and Energy
Postal: 80 Meiers Rd
Indooroopilly QLD 4068

C2

Copies to:
Minister Stephen Robertson Minister for Natural Resources, Mines and Energy
Ms Mary Boydell Chair QWC
Professor Angela Arthington
Professor Paul Greenfield

[redacted]

Minister Robertson responded on the 2nd June 2010 to my letter of the 20th April 2010 which was very much appreciated. In addition he was good enough to give me your name as contact person should I have any further enquiries. No doubt you are familiar with its contents.

As you were present at our meeting involving Trevor Herse, myself and senior executives of DERM held on the 2nd February 2010 and also classified as a contributor to the **Moreton and Gold Coast environmental Investigations** (TAP) issued in July 2006, you will be very familiar with what I have to say. *C3*

Minister Robertson has pointed out that the conclusions of these investigations formed the basis of the Water Resource (Moreton) Plan 2007 which was enacted on the 19th March 2007. He classified the period July 2006 to March 2007 as sufficient time for public scrutiny. He also pointed out to me the former in his letter of the 6th August 2009 responding to my letter to the previous Minister.

The following straightforward Yes/No question tests the veracity of Minister Robertson claims in both of those letters. The answer either way has severe consequences for the residents of SEQ.

The question

Arithmetical calculation

The question deals with an arithmetical calculation. It has two factors:
1. 66% of the water that passes through the Wivenhoe/Somerset catchments is required at the Brisbane River mouth. (WRP page 64 Node E : page 72 Node E column 3 MAF)
2. The other factor is the annualised volume of water over a period called the "simulation period". (WRP

page 93). The period in the Act is 01/07/1889 to 30/06/2000. To arrive at this annualised volume of water, pre-development flows are added together and divided by the number of years. That annual required volume is a once only calculation that remains for good and must be met for all succeeding years.

The net result is 66% (1) of the annualised volume calculated by the "simulation period" (2) must reach the Brisbane River mouth

The question

Was it the intention of the TAP personnel and the Review Panel to include the major floods of 1890, 1893 and 1974 in the calculation of the "simulation" period?

If the answer is "**no**" then the **66%** is calculated on the wrong base and denies us 130,568ML annually or the equivalent of the output of 3 desalination plants the size of Tugun.

If the answer is "**yes**" then that volume, inflated by the floods, when applied to the 113 years 1894 to 2006, increases the actual percentage to **75%**. The statement attributed by the Minister then becomes "False" in terms of Boolean logic "True or False". It then needs widespread public rectification because of the huge cost of this calculation.

This is all set out in my calculations attached to this letter. It was setout in a letter on the 25th February 2010 to [redacted] Director of Water Assessment DERM with a request for critical analysis. The QWC Commissioner Mary Boydell also requested [redacted] to respond direct to me on this matter. There was no response. All of the above recipients of this letter and those present at our meeting have also received a copy with the exception of the Minister. ***C4*** ***C5***

Why the question?

Information: Establishing the official information

The Moreton and Gold Coast environmental Investigations (TAP) had this to say about the inclusion of large floods on page 52 of that document.

*"**Mean annual flow** is a measure of the total volume of flow carried by a river or stream at a particular site. It is a useful and easily understood communication tool for summarising net flow regime change in volumetric terms. **However, it can be skewed by years with very large flows.**"* The second set of bold letters is mine for emphasis. ***C6***

It also had this to say about the "simulation" period on page 42 of that document. It is the only statement on establishing the years to be observed.

"Flows at these nodes are established for a period of approximately 110 years"

The Water Resource (Moreton) Plan 2007 has the following definitions:

*"**mean annual flow**, for a node, means the total volume of flow, at the node, in the **simulation period** divided by the number of years in the simulation period."* ***C7***

*"**simulation period** means the period from 1 July 1889 to 30 June 2000."* ***C8***

Assessment of the information

It is difficult to understand why the Technical Advisory Panel was so vague in the critical phase of selection of the simulation period. Their observation is deficient in two matters:

1. The Act selected 111 years (01/07/1889 to 30/06/2000) and not the "approximate 110" years.
2. The inclusion of the major floods 1890, 1893 and 1974 in the simulation period. The **attached chart** of pre-development flows illustrates the impact of these floods even to the uninitiated. The chart was drawn up by the official IQQM model. I requested this information prior to and at our meeting on the 2nd February 2010. I received it subsequently.

Conclusion of the above

Whatever may be rationalized of the above, there is no escape from reality when this "once only" volume, calculated in accordance with the Act, is applied to the 113 years 01/07/1893 to 30/06/2006. That period excludes the 1890 and 1893 floods "conveniently located" at the very start of the simulation period. The annual volume that must reach the mouth of the Brisbane River is **75%** of the predevelopment flows even with the 1974 flood included.

The TAP advice that **major floods will "skew" the result is proven.**

Attempts to have some well qualified members of the Technical Advisory Panel (TAP) and its Review Committee clarify this situation have strangely met with silence. Perhaps they have referred my correspondence to you or others in your Department.

Information in public domain for some time

Minister Robertson made reference to the TAP information being in the public arena for some time. The import of that statement was that objections and variations should have been raised at that point.

I find two essential matters that should have been accounted for before passing into Law the Water Resource (Moreton) Plan 2007

1. The absence of the pre-development flows in the public domain.
2. The ongoing examination the McMah proposal

Absence of pre-development flows

The **Moreton and Gold Coast environmental Investigations** (TAP) document is dated July 2006. The Water Resource (Moreton) Plan 2007 was passed by Parliament on the 19th March 2007.

While the TAP document was on the web-site, the important arithmetical factor of the pre-development flows was not. The 1890, 1893 and 1974 floods were well know to me but the pre-development flows could only be estimates and therefore not usable by anyone in an assessment. ***C9***

The McMah proposal

At a public meeting in Gympie on the 3rd November 2006, the then Deputy Premier Anna Bligh gave an

iron-clad guarantee to the people Mary Valley that if his proposal stacked up then that would be the way they would go rather than the Traveston dam proposal.

Mr McMah's proposal conformed to the publicly promoted advice of Premier Beattie (Public advertisement attached) ***C10***. Looking back with hindsight, Premier Beattie and Ron McMah were near the mark with 110,000ML from the first two sections with the third section in the category of ephemeral. The current water strategy has three desalination plants in mind with an output of 135,000ML and well into the future at that. The Terms of reference that were drawn up required all three sections contrary to Premier Beattie's public position.

There is sufficient evidence that there was conflict with the proposed Water Resource (Moreton) plan that had not been resolved and Deputy Premier Bligh's undertaking to the people of Gympie not fulfilled.

- The Engineering report was clear that it, and the Hydrological report, were completed on the **22nd January 2007**. The Hydrological report carried an "appendix" and was re-dated September 2007. ***C11***

- Correspondence from the then Deputy Premier Bligh to Mr McMah about settlement of the Terms of Reference so that the Engineering and Hydrological Reports could commence, was still in evidence at the **31st January 2007** being the last date of her correspondence to Mr McMah. It was **dated 8 days after the reports had been finalized** on the basis that there was no water from the Wivenhoe/Somerset system. (Letter from Premier Bligh and sign-off section of the Engineering report attached) ***C12***

- Both of those reports said at the outset that they had declined to provide any assessment of the use of surplus water from the Wivenhoe/Somerset system as "advice" had been given that there was no water available from that system. That there was an unresolved dispute before, and at the time, the Water Resource (Moreton) Plan 2007 was enacted by Parliament, is clear from the evidence. ***C13***

- The "appendix" of the Hydrological report dealt with flood waters, we believe, as a result of our August 2007 correspondence to Deputy Premier Bligh. Their primary contention was that as all of SEQ was generally covered by these large events (agreed), then the Borumba Dam expanded to 2,000,000ML would be overflowing at the same time. All of DERM and the QWC personnel at our meeting of the 2nd February 2010 disagreed with this central statement of the "appendix". The catchment is simply too small. ***C3***

- It should be noted that the "Final" report of the Hydrology firm carried a September 2007 date, some six months after the passing into Law the Water Resource (Moreton) Plan 2007.

- Deputy Premier Bligh's letter of the 31st January 2007 also utilised three paragraphs to deflect Ron McMah's insistence on an independent review. With the Consultants' reports already ***C12*** complete, perhaps she was unaware that the Hydrology firm was one of two acknowledged contributors to the **TAP Moreton and Gold Coast environmental investigations** on which the Technical Advisory Panel conclusions were based. The third contributor acknowledged was yourself. (attached) ***C14***

I am therefore in disagreement with Minister Robertson's view that there was sufficient time for public comment. **Clearly even the (then) Deputy Premier Bligh was ignored and exposed to duplicity.**

The Relationship of the McMah proposal to the determination of what the Technical Advisory Panel really meant when making the allocation to the River

The "advice" received by the Hydrologists and Engineers "that there was no water available from the Wivenhoe/Somerset system" disappears altogether if the Technical Advisory Panel did not intend that floods 1890, 1893 and 1974 be included in the "simulation period". If they intended that they be included against their own advice, then the reality of its application for the 113 years 1894 to 2006 becomes 75% for the River and leaves Minister Robertson to explain why 75%, with its huge associated cost, is allocated to the River and not 66%. ***C4*** ***C5***

The McMah proposal rested on the collection and retention for later return of water from the Wivenhoe/Somerset system. The Water Resource (Moreton) Plan 2007 provides for this. The evidence is that there were two impediments to this essential ingredient to the McMah proposal:

- The change to a stochastic approach and away from the normal HYNF method of calculating the yield of the Wivenhoe/Somerset dams. (SEQWater Strategy page62 para 3.3)
- The inclusion of the major floods in the simulation period. ***C8***

The McMah proposal eliminates the need for the change to a stochastic approach. As you are aware from our addendum to his proposal, there is only need to return not more than 700,000ML in any period measured by your IQQM model. This is to maintain our dams at a level not less than 40% using a yield of 373,000ML calculated by this IQQM model. There were only two such periods involved in 120 years and they were for 5 years and 6 years.

This permits the release of 87,000ML/a being the difference between the yield of 373,000ML calculated by your IQQM computer model and the current allocations of 286,000ML/a

The inclusion of the major floods in the simulation period determines that the people of SEQ were shortchanged by 130,568ML/a by the inclusion of these floods. The 87,000ML/a eliminated by "no need for the stochastic approach" is included in this figure. ***C4*** ***C5***

The essential and only required ingredients of consequence in the McMah proposal was the construction of the dam wall at Borumba to expand that dam to 2 million ML and a two-way pipeline to Wivenhoe/Somerset. The Engineers provided a costing for a three stage wall to 1,650,000ML with hydro and two saddle dams. The cost is attached at $1.397billion. The Chief supervising engineer on the construction of the Wivenhoe Dam gave an "heroic" estimate of the cost of piping equipment and installation to be $500 million. A check on the cost of pipes, on his recommendation, indicated that it was somewhere near the mark. ***C15***

Pumping requirements would be minimal. The first 1,500,000ML could be pumped over a number of years under normal conditions with the withdrawals not required for many years. (The SEQWS intends that the Borumba dam be expanded to 350,000ML utilizing its own catchment). The Hydro plant should pay its way.

With the denial of storage water from the Wivenhoe/Somerset system, the concentration of the reports, claimed to relate to the McMah proposal, was on the "throw away" suggestion of the Weirs in the Mary Valley. This was a highly expensive proposition and used extensively in media arguments. On examination of the Engineering report the former chief supervising engineer of the Wivenhoe Dam remarked "You were stitched up BONZER" and conveyed his thoughts to the QWC.

Mathematics

Above calculation
We have seen above that the calculation required is of basic arithmetic. It required two factors to arrive at an answer. Only one factor, the 66% requirement had a firm foundation. The absence of a firm foundation for the other opened the way for serious error for the unwary.

Dam filling events occur on average every 3.7 years.
[redacted] of SEQWater enunciated the requirements to fill these large dams in the Courier Mail 10th February 2007. 300mm in a few days is a flood capable under certain conditions of filling the dams from scratch to overflow. On the other hand 100mm per month for 3 months is a comparative trickle. ***C16***

A review of Bureau of Meteorology records of the rainfall stations in the catchments and the Bureau's flood information reveals that these large events ignore the month of the year and can happen at any time. Their frequency occurs on average every 3.7 years since 1841 with the majority under that average. Therefore those above can be quite lengthy as we experienced in the 2001 to 2007 period. It was defined as a "drought" even with the catchments receiving 99.1% and 91.4% in the summer months with the 20% deficiency in the low flow non-summer months. ***C17***

It was interesting to note that the QCCCE in their comparison of the 1898 – 1903 Federation period with the 2001 – 2007 period, declined to use the pre-development flows through lack of data. In spite of this we see above the commencement of the pre-development flows at 1890 with the federation drought being 1898 to 1903. Even without the large events, which did not occur in either period, one would have found significant difference as the Federation drought rainfall was spread out over the years with very little concentrated rain. It was entirely different in the period 2001 to 2007. ***D1***

The qualifications made by the QCCCE, evidenced in the previous Water Strategy, have been omitted from the current version. ***D1***

Embrace of the "Millennium drought" is at the heart of your Department's thinking, solutions and rationale of past events ***D1***

As events unfold

****

Extract from my letter to Hon. Mr S. Hinchliffe, Minister for Infrastructure and Planning, sent on the 23rd April 2009 three weeks before the May 2009 event

"The way I see it, the difficulty for you and all who support the Traveston is that on the mathematical certainty of the return of the "uncommon events" the dams will overflow. That by itself should have people in SEQ questioning if those in charge understand what they are doing. Historically there has been 11 "uncommon events" within 1 year of each other (April 1988 & April 1989 for example) and there will be a tremendous loss of water over spillways with full dams. In my view justification of the Traveston will be under severe stress and storage in the Borumba Dam together with its additional yield, vindicated."

The May 2009 event was relatively minor, never-the-less it filled the dams to near capacity and Premier Bligh declared her particular brand of "drought" over. A review of the Bureau drought section in their website indicated that SEQ had been drought free for two years prior to May 2009.

Again the October 2010 was a relatively minor event but enough to create significant overflow of dams almost full from May 2009 event.

******

The following is an extract from my letter **to Premier Anna Bligh** on the 18th January 2008 when dealing with the Traveston Dam project.

"Uncommon events" proved to be the lifeblood of SEQ from 1986 to 2001, filling the Dams to overflow four times and covering expanding population requirements with ease. Although the official records disclose there was an absence of "uncommon events" between 1974 and 1988, there were five such events in the short life of the Wivenhoe Dam (1988 to 1999 and a topup in Feb.2001). A high proportion of those events flowed over the spillway and were lost because of lack of storage.

They will return. *When the uncommon events return, we will* ***not*** *have sufficient* ***storage space*** *to retain the surplus water from them, except for the first one. Most of that water from uncommon events would now be lost whereas they were our main provider for the 16 years to 2001".*

****

Not prophetic, Not Climate Change – just mathematics

Billions of dollars have been squandered recently by ignoring the past activities of our main water supply "uncommon events".

The future

Everyone present at our meeting held on the 2nd February 2010 was left in no doubt that the 66% proposed by the Technical Advisory Panel was considered inadequate by some of those present and that steps had been taken to improve it. That they had the authority or authorization is assumed.

It is my view there is billions of dollars of future expenditure resting on the decisions enumerated in this letter and in the end the decisions will have to be justified. Deferring these matters to 2017, when the Water Plan is up for renewal, is not an option as three unnecessary desalination plant sites have been selected and the location of the new dam wall (300,000ML capacity) at the Borumba dam will preclude a wall to 2 million ML capacity unless modified before any construction is commenced.

Conclusion

The responsibility of the Minister and your Department is to examine the requirements of the ecology of the River and the needs of the people of SEQ and to equitability balance the requirements of both.

I wish you well in your deliberations.

Regards

.....
John V Hodgkinson F.C.A.

DB 4

John Hodgkinson

From: [redacted]
To:
Sent:

Hi John

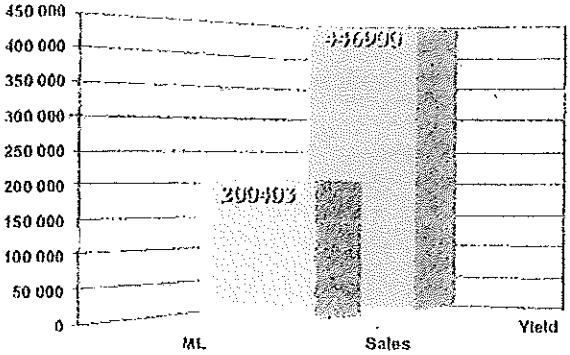
Thanks for your letter of 2 February following your meeting with Sterling Hinchcliffe.

I am pleased that you were given sufficient time to put your case and note the very detailed follow up letter that you have sent through. I have spoken to the Deputy Premier's office and they advise that your proposal will be carefully considered and a response provided in due course. As we discussed this is a matter for the Queensland Government.

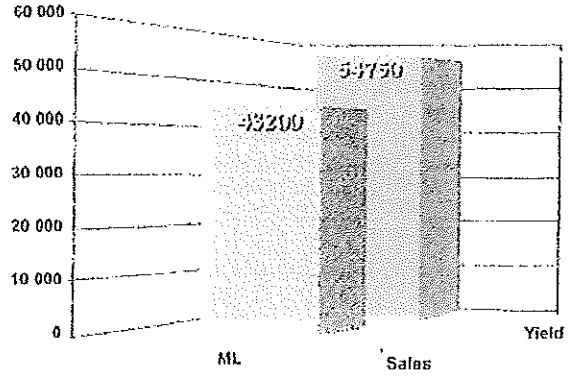
In relation to your question about infrastructure funding the Commonwealth Government established Infrastructure Australia [IA] to provide it with independent advice on national infrastructure priorities. Any proposal would therefore have to be considered by IA, and the subject of an assessment if justified, before it would be considered by the Government.

Regards

[redacted]



Wivenhoe, Somerset Catchment



North Pine Catchment

Yield is the amount of water captured for use by our dams each year

DB 5

446 900 ROSALIE

CRI

54 750 CAMBOO

Wivenhoe, Somers

North Pine Catchm

Lockyer, Mid Brisba

Supply catchments for

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

[redacted]

Correspondence to:
[redacted]

20th April 2010
Hon Stephen Robertson
Minister for Natural Resources
PO Box 15216
CITY EAST 4002

DB6

Reference: NR/09/0848, NR/09/1142 CTS 03266/09

COPY: The right Honorable Kevin Rudd, Prime Minister of Australia, Member for Griffith.

Minister,

Thank you for your letter of the 6th August 2009. Since then the Traveston Dam proposal has been scrapped. However, our proposal to replace the now cancelled Dam still holds good and will provide a superior alternate water source. It will eliminate the requirement for extreme initial cost and very high ongoing costs of desalination. I have now received all of the information from DERM necessary to respond to your letter.

I write to point out to you a serious discrepancy in "primary constraint" of your letter.

The consequence of this discrepancy is the denial of 130,000ML already available in the Wivenhoe/Somerset system together with the eventual necessity of desalination.

The essence of your Primary Constraint was that because of the requirement of the Water Resource (Moreton) Plan 2007 to have 66% of the "Mean Annual Flow" pass the Brisbane River mouth, there was no further water available for extraction for residents of SEQ.

You emphasized the construction of the 66% determination by the following words:

"These required mean annual flow percentages have been derived in consultation with a technical advisory panel, comprised of independent ecological and other experts, for each Water Resource Plan".

It was followed by table 1 which stated the Mean Annual Flow as a proportion of pre-development flows with 66% under "Moreton Water Resource Plan – Mouth of the Brisbane River" column.

The discrepancy occurs in the calculation of the "Mean Annual Flow" (MAF).

The 66% was determined by you in consultation with the Technical Advisory Panel, but the period of "Simulation period", being the base of the "Mean Annual Flow", was not determined by you thus permitting a vastly different result from the one you most likely intended.

I have recently held a meeting with five of your top officials to review our proposal. The meeting lasted 2

and ½ hours and all points were covered. The information that I had requested on several occasions prior to the meeting was provided. It Subsequentially placed me in a position to make the following statements and conclusions based on the evidence provided by your Department.

Method laid down by the Act

The method laid down by the Act was to calculate the pre-development flows for the years 01/07/1889 to 30/06/2000, a period of 111 years called the "Simulation period". That **volume** was then divided by 111 years to establish the "Mean Annual Flow" **volume.** This volume calculated by the IQQM model is 1,641,331M/a.

This **volume** then becomes the required annual flow and is permanent. The percentage of 66% is then applied calculating a **permanent volume of 1,083,278M/a** to reach the Brisbane River mouth. The percentages are then discarded never again to be used.

At issue is two major floods contained within the "Simulation period"

Your Department of Natural Resources, Mines and Water in their 2006 environmental investigations are very clear that the inclusion of major floods in determining the "Mean Annual Flow" will **"Skew"** the result. (**Attached page 52**)

Those responsible for determining the "Simulation period" ignored this advice thus creating a vastly different outcome.

This once only volume calculation included two major floods at the start of the "Simulation period". They were the 1890 flood equal to 5 times the capacity of the Wivenhoe/Somerset and comparable to the 1974 flood and the 1893 flood. The 1893 flood was special covering 22 days with 2.6 meters of rainfall being recorded by Cromhurst Laboratory at the headwaters of catchment of the Stanley River. Rainfall station number 40110 in the Somerset catchment read 416mm for 1974 and 1,422mm for 1893. Its size was calculated by the IQQM model at 9 times the 1974 flood.

Visual implications of these floods in determining the "once only" volume

The distortions created by inclusion of these two floods at the very start of the Simulation period 1890 to 2000 are clearly seen in the **attached graph**.

The Graph was prepared by the IQQM model described in the Act and is the authoritative source and supplied by DERM.

The 1890 flood at the far left of the graph is a little difficult to see. It is the same size as the 1974 flood.

Revision of the Mean Annual Flow with the exclusion of those two floods

You would have seen above that the current application of the Act including the two floods arrives at a permanent volume of 1,083,278ML/a. to arrive at the mouth of the Brisbane River.

The three main numbers required to review the implications of the floods were:

1. The Mean Annual Flow (MAF) calculated by the IQQM computer model being 1,641,331M/a
2. The proportion supplied by the Wivenhoe/Somerset catchments was 58.2% with minor variations depending on the position below the dams.
3. The flows recorded by the IQQM model at the Wivenhoe Dam and presented in Gigalitres.

(**Attached**).

These items were provided by DERM and confirmed by email on the 3rd March 2010.

The detailed calculations using these numbers are **attached** for the last 113 continuous years to 2006 before the Water Resource (Moreton) Plan 2007 was enacted by Parliament in March 2007.

Exclusion of the 1890 and 1893 and inclusion of the low-flow years 2001 to 2006 revises downward the Mean Annual Flow (MAF) to 1,443,501M/a and 66% of that being the permanent volume of water required at the Brisbane River mouth reduces to 952,710ML/a

The comparison of the requirements at the Brisbane River mouth is:

Use of simulation period 111 years 01/07/1889 to 30/06/2000 including floods : 1,083,278ML/a
Use of simulation period 113 years 01/07/1893 to 30/06/2006 excluding floods : 952,710ML/a

The variation of 130,568ML/a effectively denies the population of SEQ the use of this water and inevitably leads us towards highly expensive desalination.

The volume decided by including the floods converts the percentage for the Ecology from 66% to slightly above 75% for the whole of the 113 year period 1894 to 2006.

Technical Advisory Panel confirmation

The only reference that I can locate in the Technical Advisory Panel's literature provided by DERM is this quote from page 42 of that TAP report "*Flows at these nodes are established for a period of approximately 110 years*".

Approximations do not engender precision in adopting the period which, as you will have observed, is an absolute essential in this case.

The questions to the TAP and Peer Review panels are:

- Did they intend that the floods be included thus ignoring your Departmental advice on "Skewing" attached?
- If so, how did they justify inclusion?
- If the floods are to be included, the 66% then becomes just a "headline" rate with the reality being 75% for the period 113 year period 1894 to 2006. How do they justify the withholding of the reality from the people of SEQ.
- If they did not intend that they be included then how did it occur? Did they just miss it? Was it changed after their deliberations etc?

The lead persons on those panels are:

- TAP - Professor Arlington of Griffith University
- Peer Review – Professor Paul Greenfield vice chancellor of the Queensland University

Attitude of your most senior officers

There is no need to remind you that your responsibility is to both the residents of SEQ and to the Ecology and to equitably balance the requirements of both. [redacted] the lead professional, makes this very clear that they only produce information leaving the way clear for you to discharge this

responsibility.

It seems that two of your principal officers have other ideas and were quite open about it. They indicated that the 66% determined by you, as you point out, on the advice of the Technical Advisory Panel (TAP) was in their view insufficient for the ecology. They advised us (Mr T Herse and I) that they had "tweaked" the system in favour of the Ecology. That action effectively over-rode your decision.

"Tweak" is defined as fine-tuning a complex system. A minor adjustment would be of a nature less than one percentage point and minimum benefit to the Ecology. If the "Tweak" is the same as enumerated above then it is a major understatement. A 9% variation is a massive re-arrangement of water allocation.

Second key constraint (being the only other relevant item in your letter of the 6th August 2009

The meeting with DERM gave us the opportunity to clear up misconceptions on our proposal to link in the Borumba Dam expanded to 2 million ML.

The attached graph of the Wivenhoe dam levels prepared by the Qld Water Commission for the years 1888 to 2006 has been confirmed by the CEO of the Water Commission as representing the position if all of the 373,000ML/a calculated yield of the Wivenhoe/Somerset was withdrawn. Current allocations from the Wivenhoe/Somerset are 286,000ML leaving a balance of 87,000ML withheld for two reasons.

1. The current 66% rule as examined above and
2. The stochastic approach to the available yield.

The 66% rule is dealt with above and the stochastic approach is dealt with as follows:

You will notice that on only two occasions in the 118 year history would water have to be withdrawn and returned to the Borumba. Those occasions did not exceed supplementing the Wivenhoe/Somerset with 700,000ML and for no longer than 3 years in order to maintain not less than a 40% level. This is the level at which recycled water is to be introduced.

As the further allocation of 87,000ML/a can occur over a number of years, the transfer of 1,500,000ML reserves in the Borumba can be spread over a number of years and within the current dam's ability and safety requirements.

As we have seen above, the citizens of SEQ have been shortchanged 130,568ML/a. The balance 43,568ML/a can be dealt with in the same manner as the GHD report indicated that a further capacity of 482,000ML was all that was required to provide an additional 50,000ML. This is easily dealt with in the Borumba reserves in the same manner.

One can readily see that hydro power in the expanded Borumba will be in a positive position with the pumping costs easily absorbed in full by the Hydro Plant in the expanded Borumba.

As the 130,568ML/a is already within the requirements of the Water Resource (Moreton) Plan 2007, there is no need for an Environmental Impact Study.

Conclusion

If it was meant to have the 1890 and 1893 floods included against the Technical Advisory Panel's advice then the fact that it "skews" the result and really represents 75% of the water for the Brisbane River, not 66% as the legislation would have them believe, and that only ¼ of the water in our dams is for us, should

be made clear to the citizens of SEQ.

On the other hand, if a true 66% was to be the position, the South East Queensland Water Strategy and its desalination requirements needs to be unraveled.

I am sending a copy to my local member, the Prime Minister Kevin Rudd, as being the Member for Griffith he is affected by the outcome. He was good enough to involve his chief Policy Advisor in assessing our previous submission on the Traveston. The Policy Advisor supported a review of our proposal.

Sincerely

.....
John V. Hodgkinson F.C.A.

J. V. HODGKINSON F.C.A
Chartered Accountant

[redacted]

Correspondence to:
[redacted]

17th November 2010

DB7

Hon Stephen Robertson MP
Minister for Natural Resources
Level 17
61 Mary St
BRISBANE 4000

C2

Dear Minister,

Thank you for your letter of the 2nd June 2010. I have responded as you suggest to Mr. Daniel Harris.

I have enclosed a copy of my response as it affects the veracity of statements, drawn from the way the Water Resource (Moreton) Plan 2007 is written, and attributed to you.

The hydrology of the Moreton Plan is accepted. The arithmetic of the plan is not accepted. The application of the Act to the 113 years 1894 to 2006 determines that 75% of the water that passes through the Wivenhoe/Somerset must reach the Brisbane River mouth and not the 66% attributed in the Act and as a consequence your statements to me and the people of SEQ.

While the percentage of 66% is clear, what is not clear is 66% of what? The Technical Advisory Panel (TAP) did not specify the years of the "Simulation period". They were quite vague with approximations.

The "Simulation period", selected in the Act, began on the 01/7/1889 and ended on the 30/06/2000. It included three major floods of 1890, 1893 and 1974. The TAP **Moreton and Gold Coast environmental Investigations** issued in July 2006 drew attention to the fact that large floods would skew the result.

A glance at the pre-development flows (included in the attachments), prepared by the IQQM computer model enshrined in the ACT, shows this propensity to skew, even to the uninitiated. The 1890 and very large flood of 1893 are conveniently located at the start of the "Simulation period" chosen for the exercise.

The "Mean Annual Flow" on which the 66% is based is calculated permanently on this once only calculation including the floods. The reality is that the volume becomes 75% when applied to the 113 years 1894 to 2006, which excludes the 1890 and 1893 floods responsible for the "skewed result" but still includes the 1974 flood as well as the period 01/07/2000 to 30/06/2006 when rainfall was equal to 76% of the long term average.

The variance in the volume of water involved as a result is 130,568ML annually denied to consumers which represents the equivalent of the output of 3 desalination plants of the Tugun size. This represents

future infrastructure costs in the billions of dollars and is worthy of your reconsideration.

We are here to help, the "we" being Trevor Herse retired of the Gold Coast, Ron McMah grazier of Imbil and myself also retired. We represent no one except the people of SEQ. Our initial interest was to replace the Traveston with the Borumba Dam expanded to 2,000,000ML.

Even at this stage we see no impediment to this proposal. Certainly not the Water Resource (Moreton) Plan 2007, as has been suggested, which requires the Minister to regularly review and, if necessary, amend it's provisions to ensure adequate water supply to SEQ consumers.

Regards

.....
John V. Hodgkinson F.C.A.

DB 8

Queensland Government

Hon Stephen Robertson MP
Member for Stretton
Ref MO/10/1897
CTS 07330/10

Minister for Natural Resources, Mines and Energy and Minister for Trade

02 JUN 2010

Mr John Hodgkinson
[redacted]

Dear Mr Hodgkinson

Thank you for your letter dated 20 April 2010 regarding the mean annual flow objective in the Water Resource (Moreton) Plan 2007 (the Moreton WRP).

I am advised that you met with officers from the Department of Environment and Resource Management and the Queensland Water Commission on 2 February 2010 to discuss many of the issues you have raised. I am also advised that your proposals were considered as part of the planning processes for south east Queensland. Opportunities to consider new options and strategies will become available at the time of the plan's review, which is scheduled for 2017. Further consideration can be given to your proposal at that time.

With regard to your comments about the decisions made during the development of the Moreton WRP, please be assured that this plan was developed following a rigorous process involving input from the community and technical experts. During this process there were many opportunities for community and stakeholder input through submission and consultation processes. A high level of expertise and the best available information was used to develop the Moreton WRP including the environmental flow and water allocation security objectives. As a result, the mean annual flow objective provides the best possible outcome for both water users and the environment.

Regarding your issue with the simulation period, the period of 1890 to 2000 was chosen as this timeframe had the best available data. The data and the simulation period will be extended to include the most recent information when the Moreton WRP is reviewed in 2017. When this review occurs, opportunities will be available to make a submission about the plan.

Should you have any further enquiries, please do not hesitate to contact [redacted] Principal Project Officer, Water Planning South East of the department on telephone [redacted]

Yours sincerely

[redacted]

STEPHEN ROBERTSON MP

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DB 9

Hon Stephen Robertson MP
Member for Stretton

Minister for Natural Resources, Mines and Energy and Minister for Trade

Ref MO/10/5100
CTS 22167/10

25 JAN 2011

Mr John Hodgkinson
[redacted]

Dear Mr Hodgkinson

Thank you for your letter dated 16 November 2010 regarding the development of the *Water Resource (Moreton) Plan 2007* (the Moreton WRP) and management of water distribution in South East Queensland.

The Moreton WRP was developed using a high level of expertise and the best available information. In my previous letter to you of 2 June 2010, I explained that the water resource planning process is a rigorous one that takes into account the needs of both the community and the environment. As stated in my previous correspondence, your proposal was considered as part of this process.

The Moreton WRP will be reviewed in 2017, after 10 years of operation. I once again thank you for your interest in the water resources of south east Queensland.

Should you have any further enquiries, please do not hesitate to contact [redacted] Principal Project Officer, Water Planning South East of the Department of Environment and Resource Management on telephone [redacted]

Yours sincerely

[redacted]

STEPHEN ROBERTSON MP

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DB 10

John Hodgkinson

From: [redacted]
To:
Cc:

Sent: Wednesday, March 03, 2010 11:43 AM
Subject: RE: Minor refresher queries

Dear John,

Sorry I could not get back to you earlier. I hope you enjoyed your break.

I will reply to your first questions in this e-mail and I will cover other issues later on.

(1) You are right, the mean annual flow at the Brisbane River mouth for pre-development scenario is 1,641,331 ML/a. This value is based on data from 01/07/1889 to 30/06/2000.

(2) I remember us comparing flows at different sites for various scenarios, but I can not exactly reproduce this figure. I will provide a comparison of flows for a certain site for different scenarios for you and I will also provide a ratio of flows simulated at a particular site and the Brisbane River mouth for a particular scenario. Hope that will answer your question.

- Ratio of flow volume downstream of Mt Crosby Weir simulated for future development scenario and pre-development scenario expressed as is percentage is 58.0%
- Ratio of flow volume downstream of Mt Crosby Weir simulated for existing development scenario and pre-development scenario expressed as is percentage is 58.62%
- Contribution of catchment upstream of Wivenhoe Dam as a percentage of the flow at the river mouth for pre-development scenario is approximately 56.5%.
- Percentage of flow simulated downstream of Mt Crosby Weir compared to the flow simulated at the Brisbane River mouth for future development scenario is 62%.

I am not sure which graph you would like to see. I have provided graphs showing annual flow volumes at Wivenhoe Dam tailwater for different scenarios for the period 01/07/1889 to 30/06/2000 in my first e-mail. Would you like to see similar information for another site?

I will check the period of data used in assessments that Gilbert and Assoc. conducted for the Mary catchment and get back to you next week.

Let me know if you have any other questions.

Regards,

[redacted]

Principal Hydrologist, Water Planning Sciences
Environment and Resource Sciences
[redacted]

Department of Environment and Resource Management
Location: South Wing - CSIRO, 120 Meiers Rd, Indooroopilly