

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

Correspondence to:

5th August 2011

Commissioner – The Hon. Justice Catherine Holmes
Queensland Floods Commission of Inquiry
PO Box 1738
Brisbane 4000



Commissioner,

Reading of your interim report tells me that your Commission has got down to a firm base for assessment of the flood and its management as it existed. However, what appear to be minor up-front points in your Interim report have me concerned that your observation of our water supply source may be clouded by some evidence produced as fact that is unsupported or erroneous.

As a consequence, the Commission, in my view, has not received all the base information necessary to make a considered judgment or recommendations on our water supply.

The points that I refer to are:

- Page 24 1.1 First paragraph. "The Queensland wet season extends from October to April".
- Page 44 2.4.2 "South-east Queensland was affected by drought from 2001 to 2009". (Notes 120 & 121).
- Page 39 para 3 2.2.8 "Apart from the limited mitigation capacity of the Wivenhoe and Somerset Dams, it is important to note that approximately 50 per cent of the Brisbane River catchment is below the dams (note 58)". Etc.

South-east Queensland was affected by drought from 2001 to 2009.

Section "D" of my submission deals extensively with this assertion. The statement is not based on fact.

Attachments D4 and D5 are respectively Bureau of Meteorology maps for the two year period 1st May 2007 to 30th April 2009. They are attached for convenience.

D4 is a "decile" map that clearly shows the rainfall in the catchments was above the long term average.

D5 is a "rainfall percentage" map that shows that the rainfall for that two year period was 125% of the mean.

Therefore

There was no drought in that two year period.

The Commission reference for including that statement shows that it has picked up the inaccurate statements attributed to the Climate Change Centre of Excellence in the QWC Water Strategy. I have dealt with this extensively in section D. The QWC response of the 20th June 2011 is in your possession. It does not attempt to deal with these matters.

In addition

There was no drought in the catchments 2001 to 2006. There was drought in SEQ and other parts of Queensland.

2.5 million People of SEQ were convinced that there was not only a drought in the catchments but that it was the “worst drought on record”.

As explained in section “D” of my submission, the basis of this assertion was a “decile” map of that period. The corresponding percentage map showed 80% of the long term average 1960 to 1990 which included the 1974 flood.

The situation, confirmed by the Australian Bureau of Meteorology, was that the decile map showed “lowest on record” as the rainfall in the catchments had never been lower than 80% of the long term average.

This statistical aberration was used extensively by those in charge to justify their shortcomings in inadequate provision of our water supply. That this was the case had been obvious since 1992 after the Woffdene Dam was cancelled for political reasons.

Further analysis of the catchments of the Somerset and Wivenhoe confirmed that Summer Rainfall in the catchments were 99.1% Wivenhoe and 91.4% Somerset. The 20% deficiency was in the low inflow producing non-summer months April to November.

Declaration of the ceasing of the drought was made by Premier Bligh on the 20th May 2009. Your reference was again the SEQ water Strategy. The “drought” was tied to dam levels and was therefore not a hydrological drought. Dam levels may fall for a number of reasons other than Hydrological. Unfortunately the Bureau of Meteorology definition of a drought is so wide that it permits this to occur.

The Hydrological evidence of the above is that clearly there was no drought in SEQ for the two years preceding that declaration and that there was no drought in the catchments 2001 to 2006.

“The Queensland wet season extends from October to April”

It is best dealt in conjunction with

“Apart from the limited mitigation capacity of the Wivenhoe and Somerset Dams, it is important to note that approximately 50 per cent of the Brisbane River catchment is below the dams (note 58)”. Etc.”

This statement extends the period indicated publicly by Mr Drury of SEQWater in 2007 that the “wet season” was December to March. The period of 8 months conflicts with 4 months by a very large margin.

Attached is my summary of rainfall stations in the Wivenhoe/Somerset catchments. The rainfall stations included had at least the period 1960 to 2006 so as to cover the 30 year long term average period of 1961

to 1990.

These Bureau of Meteorology records show:

- The four summer months received more than 50% of all rainfall for the period up to 1960 and after 1960.
- In the Somerset catchment, the total rainfall over the 5 recording stations averaged 25,602mm for the period 1961 to 2006. (128,010mm / 5)
- In the Wivenhoe catchment, the total rainfall over the 8 recording stations averaged 18,602mm for the period 1961 to 2006. (148,027mm /8)

The “wet” season

From these records it can be deduced that the “wet” season is correctly defined by Mr Drury, SEQWater, as December to March. (Attached)

However, it brings to the fore the point that escapes those in charge, that it is “low pressure systems” that are by far our main water supply. They can come at any time during the year. The evidence now before us in the short history of the Wivenhoe is that these low pressure systems vary from a 20 per cent fill to over a 300 percent fill.

In these circumstances, your definition of eight months is nearer the mark and could be extended to the whole of the year.

The attached chart outlines the frequency of these “low pressure systems” named “Uncommon Events” by Mr Drury. The chart is compiled from rainfall data from all rainfall stations in the catchments outlined above and Bureau of Metrology flood information.

The attached Dam Level Graph was compiled by Seqwater and overlaid by me with the activity of these “uncommon events”. It clearly shows the effect of these events when dealing with our water supply.

By 1992 it was obvious that the cancellation of the Wolfdene Dam was a huge mistake as “Summer Rainfall” was inadequate for our needs.

The inevitable mathematical certainties occurred in 1992, 1996, 1999 and 2001. They refilled our dams. Also the mathematical certainty of a prolonged departure was observed 2001 to 2006 and part 2007.

The mathematical certainty of their return was conveyed to the then Deputy Premier Bligh and Minister Hinchliffe, (both attached).

The dams were then filled by four minor “low pressure systems” the FSL being 100 percent of capacity by March 2010. This date is well before the weather pattern set in.

Overflows of two further low pressure systems in excess of 20 per cent of the Wivenhoe occurred in October and December 2010 and were released.

Unfortunately my alerts to Deputy Premier Bligh (18th January 2008) and Minister Hinchliffe (23rd April

2009) attached were disregarded or ignored. Two low pressure systems concatenated with a minor flood leaving the Commission to clean up the events that occurred below the dams. With two clear days without rain before the onset of the two major low pressure systems, the non release of the minor flood before these two events is the subject of much discussion.

Water below the dams 50%

This has been the subject of recent correspondence to the Commission which would not have been available at the time of the compilation of your interim report.

Seqwater appears to have used catchment area in their estimates of 50% below the Dams and not actual rainfall in those areas.

The pre development flows would have been available to them. They were made available to me eventually on request and are included in my submission. They show that of all the water that reached the Brisbane River mouth in the 111 year period 1890 to 2000, **56.5 per cent** came from above the dams.

In addition, the use of catchment area did not show the average rainfall for those specific catchments. Instead a sweeping statement was used with no hard evidence.

The hard evidence above shows the variation between the Wivenhoe and the Somerset catchments. For the period 1961 to 2006, the Somerset rainfall stations averaged 25,602mm and the Wivenhoe 18,628mm. In my view, this illustrates that the generalization should have been particularized before inclusion in the Interim report.

Summary

While these points may be minor in the Commission's deliberations, they weigh heavily in assessing the means to have flooding in Brisbane reduced to the point of extinction and mitigation of flooding in Ipswich and Gympie.

All of the three points raised have relevance to our main water supply "low pressure systems" and how to best manage them for flooding, drought and water security control.

The mismanagement of "low pressure systems" is plain to see.

We have experienced the loss of the Wofdene Dam at the outset through the April 1988 and April 1989 relatively major low pressure systems overflowing the dams. We absorbed the bounty of four major refills to 2001 without any thought of their extended departure pattern subsequently experienced in 2001 to 2006/7. It was wrongly promoted as a "drought" by those in charge.

My warnings, 'that on full dams further "low pressure systems" would concatenate spilling vast quantities of water', to then Deputy Premier Bligh (2008) and Minister Hinchliffe (2009) were ignored, with the end result a major part of your Inquiry.

To control these features of Flooding, Drought and Water Security, it is necessary to expand the capacity of the dams. Doubling the FSL of both dams is available by the expansion of the Borumba Dam to its full potential as a "back-up" storage for Wivenhoe\Somerset in times of both "drought" and "flood". Costings for a dam wall to 1,650,000 ML has already been supplied by engineers.

In times of flood, the FSL of both Wivenhoe and Somerset Dams could then be lowered to zero if

required, thus creating the ability to hold back the largest know flood in its entirety. The dams would be replenished naturally at the back end of the flood. However, if the flood does not eventuate, it is most likely that a draw down from the storage at Borumba Dam of no more than 700,000ML would be required depending on the caution of the flood engineers prior to the predicted flood.

In times of drought the reserve supplies, which an expanded Borumba Dam could store, are far superior to the current backup of desalination and recycled water.

Percentage of water from above and below the dams

The withholding of the Wivenhoe/Somerset water then brings into focus those who would have us believe that below dam water is 50% and flooding cannot be stopped. (Seqwater in the interim report notes).

Pre-development flows: By a wide margin, they are mistaken in the percentages with the official pre-development flows showing **56.5 per cent above** the dams over a 111 year period including the four major floods.

The 2011 flood: Using Seqwater figures for the flood above the dams plus the evidence of one of their employees, Mr Ayres, for flows from the Bremer and Lockyer coupled with estimates for the remainder; the above dam water was 65% of the total 2011 flood.

The water from below the dams runs unimpeded when the water from above the dams is taken out of play.

Requirements of the Water Resource (Moreton) Plan 2007

At this stage there has been no reference in the Interim Report to this Act or its requirement that 66 per cent of all water that flows through the Wivenhoe/Somerset dams must reach the Brisbane River mouth.

This is the subject of a major section in my submission. I have no problem with that percentage. However in the writing of the Act the Technical Advisory Panel's warnings have been ignored and the mathematics used effectively increased this percentage to a permanent 78 per cent when tested against the 112 years 1894 to 2006 excluding 1974 flood.

This needlessly diverted 160,000ML annually away from our use to the ecology. It has already shown to be the major stumbling block in Premier Bligh's guarantee, made at a public meeting, to the people of the Mary Valley that the Borumba Dam instead of the Traveston would be the way they would go if it "stacked up". The Hydrologists and Engineers, up front in their reports, said they were told to exclude transfer of water from the Wivenhoe/Somerset as there was no water available. This advice was given before the Water Resource (Moreton) Plan Act was passed. The advice ensured the continued progress of the proposed 150,000ML Traveston Dam at that time.

This error has cost the people of SEQ a sum said to be in the region of \$650 million. The permanent percentage error increase to 78% continues to have a major impact on costs and the conduct and management in handling our water supplies.

In my view this is the most significant aspect of our water supply, flooding and drought that the Commission has to deal with.

Minister Robertson has advised me by letter on the 2nd June 2010 that the Act is up for review in 2017 when there will opportunities to make a submission. This will be too late by then as three very expensive

desalination plants in the Water Strategy and the footings of the proposed increase of the Borumba Dam to 350,000ML which will preclude the raising of the Dam to 2,000,000ML, may be under way.

Who we are

It is worth reiterating that we represent no one or organization other than the interests of the citizens of SEQ. The "we" is Trevor Herse, retired, of the Gold Coast, Mr Ron McMahon, grazier, of Imbil and myself.

We wish you well in your deliberations.

Sincerely

A black rectangular box redacting the signature of J. V. Hodgkinson.

J. V. Hodgkinson F.C.A.



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Archive - Twenty-four-monthly rainfall deciles for Queensland

Map Rainfall Deciles

Period 24 months

Area Queensland

Year Month Day

2009

Apr

EARLIER
LATER

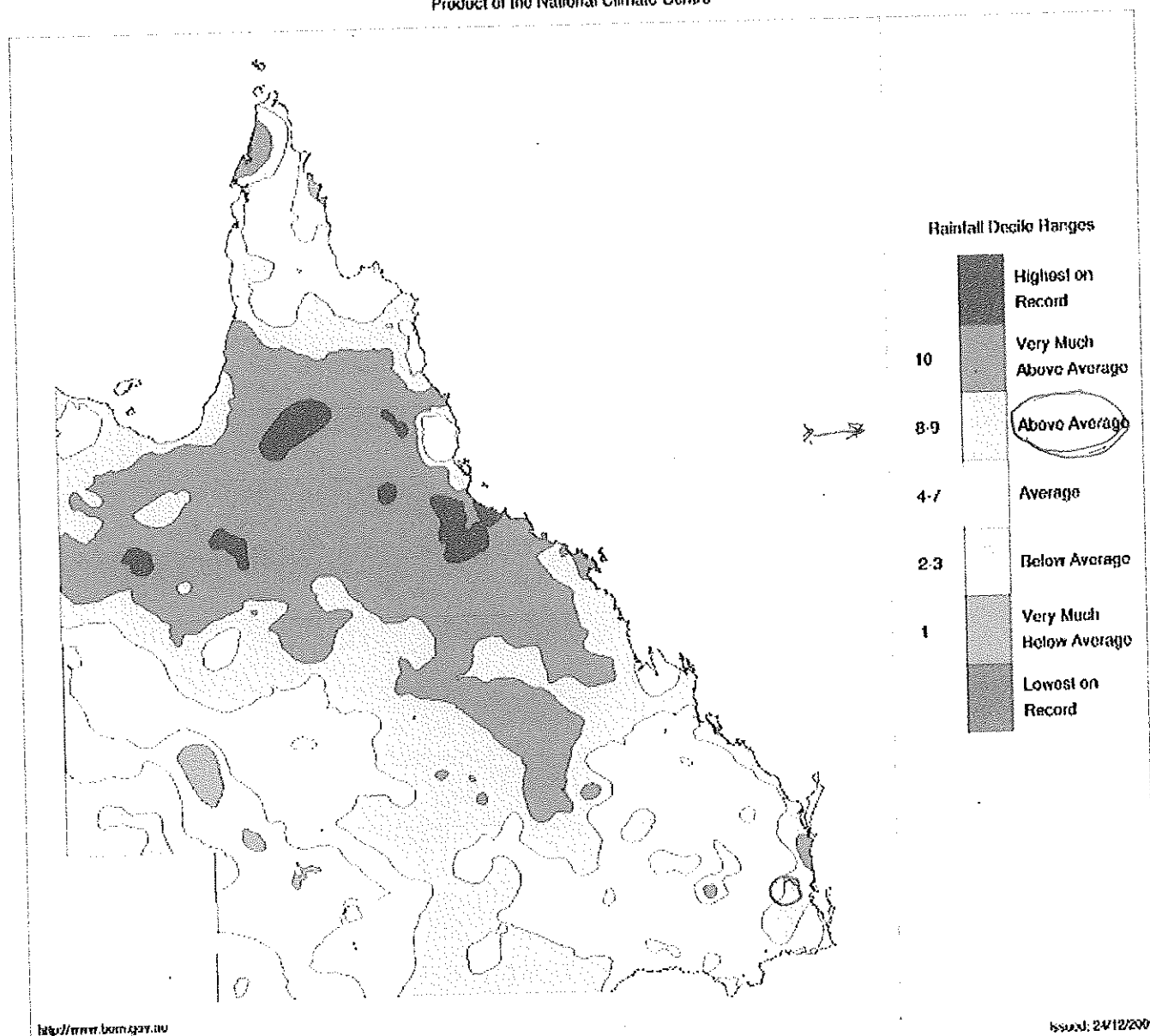
EARLIER
LATER



Zoom out

Queensland Rainfall Deciles 1 May 2007 to 30 April 2009

Distribution Based on Gridded Data
Product of the National Climate Centre



<http://www.bom.gov.au>

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Issued: 24/12/2009

Product Code: IDCKAR74Q0

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Archive - Twenty-four-monthly rainfall percentages for Queensland

Map Rainfall Percentages

Period 24 months

Area Queensland

Year

2009

EARLIER

LATER

Month

Apr

EARLIER

LATER

Day

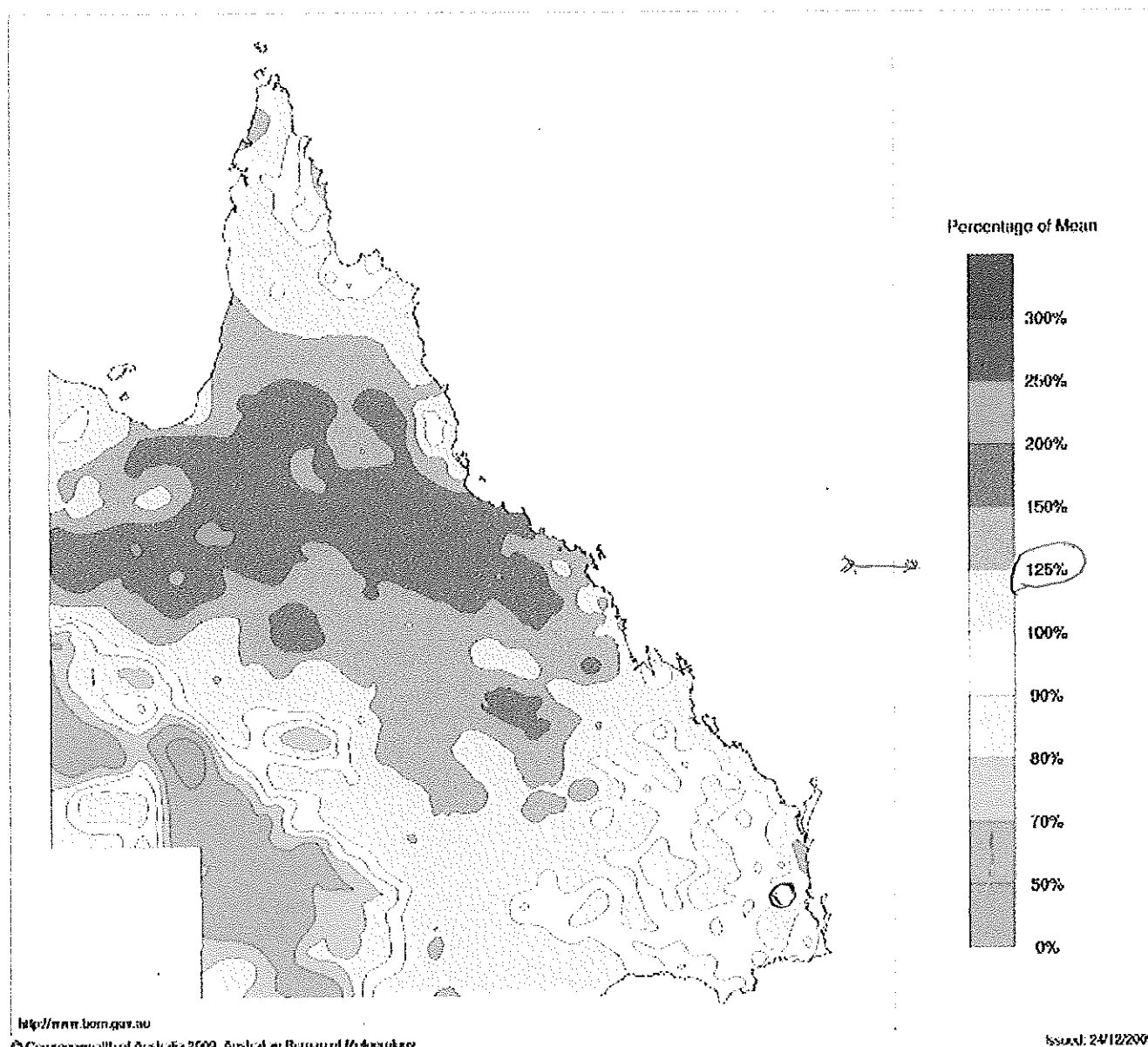


Zoom out

Queensland Rainfall Percentages

1 May 2007 to 30 April 2009

Product of the National Climate Centre



John Hodgkinson

From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
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

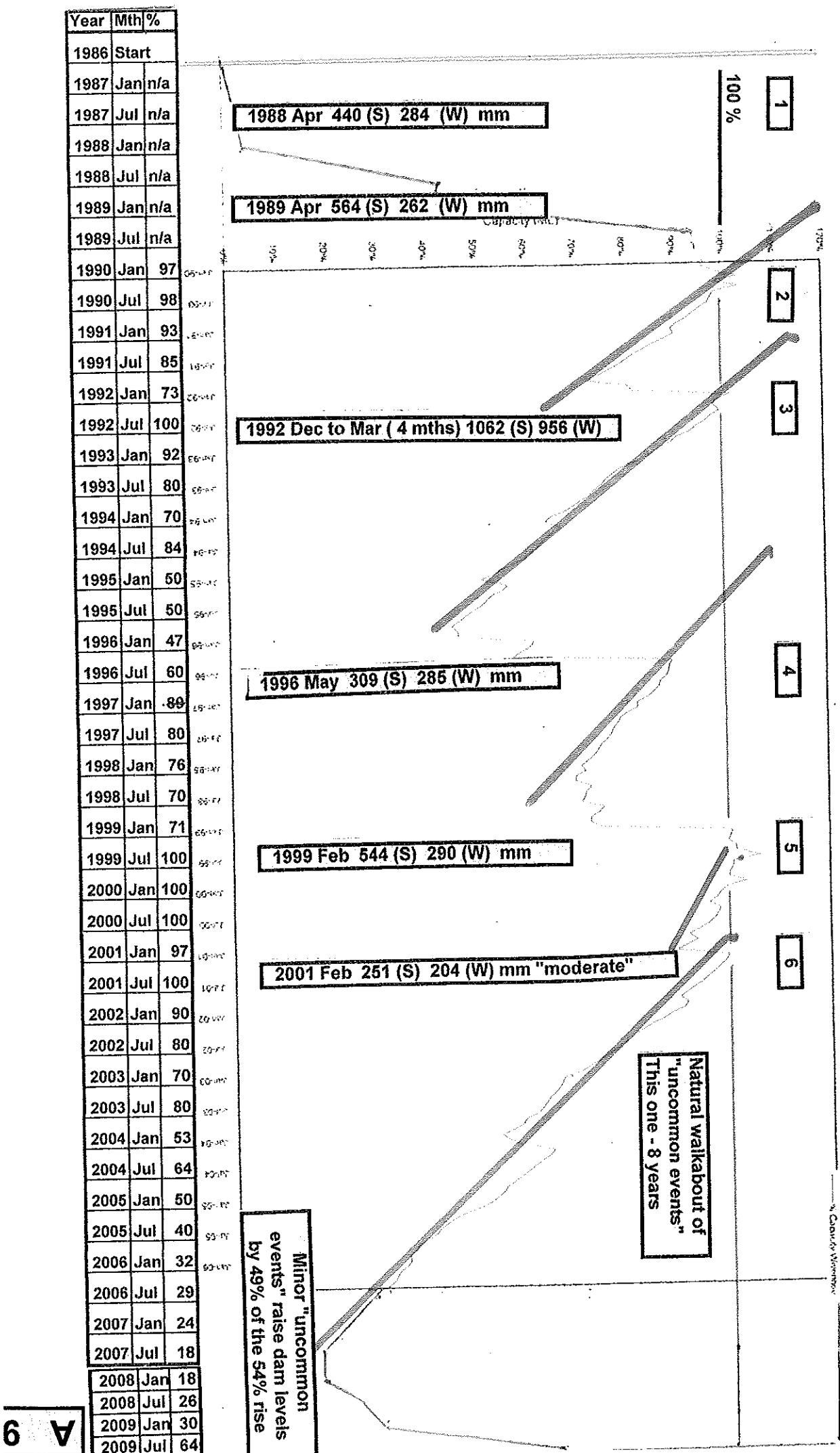
[REDACTED]
Department of Environment and Resource Management
Location: South Wing - CSIRO, 120 Meiers Rd, Indooroopilly

4/4/2010

Station Number	Start Year	End Year	Summer	Non Summer	Total	Summer Per cent	Non Summer Per cent	Total Per cent
SOMERSET DAM								
40635	1954	2006	24,272	23,441	47,713	50.9	49.1	100.0
40102	1927	1960	18,152	15,464	33,616	54.0	46.0	100.0
	1961	2006	23,804	23,119	46,923	50.7	49.3	100.0
			41,956	38,583	80,539	52.1	47.9	100.0
40110	1891	1960	37,137	31,661	68,798	54.0	46.0	100.0
	1961	2006	21,152	20,457	41,609	50.8	49.2	100.0
			58,289	52,118	110,407	52.8	47.2	100.0
40189	1936	1960	13,495	10,631	24,126	55.9	44.1	100.0
	1961	2006	22,581	22,316	44,897	50.3	49.7	100.0
			36,076	32,947	69,023	52.3	47.7	100.0
40145 Mt Mee	1910	1960	39,563	30,270	69,833	56.7	43.3	100.0
	1961	2006	36,201	32,705	68,906	52.5	47.5	100.0
			75,764	62,975	138,739	54.6	45.4	100.0
Total	Prior	1960	108,347	88,026	196,373	55.2	44.8	100.0
	1961	2006	128,010	122,038	250,048	51.2	48.8	100.0
			236,357	210,064	446,421	52.9	47.1	100.0
WIVENHOE DAM								
40060	1895	1960	20,423	19,040	39,463	51.8	48.2	100.0
	1961	2006	16,358	17,730	34,088	48.0	52.0	100.0
			36,781	36,770	73,551	50.0	50.0	100.0
40307	1962	2006	17,508	18,584	36,092	48.5	51.5	100.0
40301	1937	1960	9,860	8,568	18,428	53.5	46.5	100.0
	1961	2006	16,610	17,536	34,146	48.6	51.4	100.0
			26,470	26,104	52,574	50.3	49.7	100.0
40020	1901	1960	23,550	21,606	45,156	52.2	47.8	100.0
	1961	2006	19,770	19,150	38,920	50.8	49.2	100.0
			43,320	40,756	84,076	51.5	48.5	100.0
40382	1894	1960	28,409	26,995	55,404	51.3	48.7	100.0
	1961	2006	18,899	19,613	38,512	49.1	50.9	100.0
			47,308	46,608	93,916	50.4	49.6	100.0
40075	1887	1960	37,901	32,819	70,720	53.8	46.2	100.0
	1961	2006	19,478	19,830	39,308	49.6	50.4	100.0
			57,379	52,649	110,028	52.1	47.9	100.0
40205	1910	1960	23,089	20,908	43,997	52.5	47.5	100.0
	1961	2006	19,502	18,552	38,054	51.2	48.8	100.0
			42,591	39,460	82,051	51.9	48.1	100.0
40188	1938	1960	13,363	10,219	23,582	56.7	43.3	100.0
	1961	2006	20,902	21,954	42,856	48.8	51.2	100.0
			34,265	32,173	66,438	51.6	48.4	100.0
Total	Prior	1960	156,595	140,155	296,750	52.8	47.2	100.0
	1961	2006	149,027	152,949	301,976	49.4	50.6	100.0
			305,622	293,104	598,726	51.0	49.0	100.0

Wivenhoe dam levels supplied by SEQWater matched with "Uncommon events"

Historical Wivenhoe Storage Capacity
Jan 1990 to May 2006



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 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.

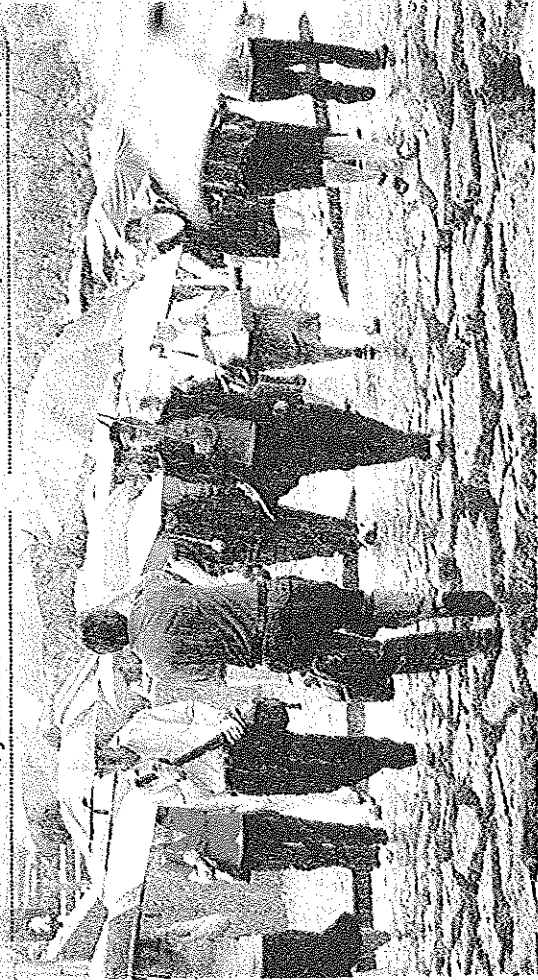
***They will return.** When the uncommon events return, we will **not** have sufficient **storage space** to retain the surplus water from them, except for the first one. Most of that water from uncommon events would now be lost whereas they were our main provider for the 16 years to 2001".*

Bring us a monsoon

Let it rain

Summer rainfalls in Wivenhoe, Somerset and North Pine Dam catchments

DECEMBER 1991 - MARCH 1992	DECEMBER 1998 - MARCH 1999
922.8mm registered at Kilcoy	838.7mm registered at Esk
DECEMBER 1993 - MARCH 1994	DECEMBER 1999 - MARCH 2001
414.7mm registered at Esk	426.2mm registered at Esk
DECEMBER 1994 - MARCH 1995	DECEMBER 2001 - MARCH 2004
384.2mm registered at Kilcoy	571.7mm registered at Esk
DECEMBER 1995 - MARCH 1996	DECEMBER 2004 - MARCH 2006
572.4mm registered at Blackbutt	392.3mm registered at Kilcoy



Near-tropical storms needed to fill storages

Amanda Gearing

CYCLONES in the Gulf of Carpentaria that have dropped half a metre of rain in tropical Queensland in the past week may have filled dams in the area to overflowing.

But similar amounts of rain would be needed to break the drought gripping southeast Queensland and replenish dwindling water supplies.

The combined storage volume of the region's three main dams is down to 22.17 per cent, well below the previous record low of 44.7 per cent set in November 1995.

SEQWater operations manager for Wivenhoe, Somerset and North Pine dams Rob Drury said a low or a major depression would be needed to cover the whole catchment area of the dams.

Wivenhoe would need 300mm-350mm of rain falling at 120mm a day over three days to fill, he said.

Wivenhoe has the capacity to store 1165,000 megalitres of water as well as an additional capacity of 1,450,000MI to miti-

gate flooding Brisbane's second largest dam, Somerset Dam, upstream of Wivenhoe, would need 350mm-400mm of intense rain to fill because it has a smaller catchment area, Mr Drury said.

North Pine Dam, which has an even smaller catchment area would need 600mm-650mm of intense rain to fill.

"You do need large, uncommon events to fill large dams. You don't fill them every year," Mr Drury said. "There have been only four main rainfall events in the past 15-16 years. It has been seven years since we had a major rainfall event that has given us a refill of 50 per cent of the dam."

The only two rainfall periods that generated major inflows that filled the dams since 1990 were 922.8mm registered at Kilcoy in the four months to March 1992 and 838.7mm registered at Esk in the four months to March 1999.

"The dam levels were dropping 15-18 per cent a year (before water restrictions began) but last year it was only 10 per cent," Mr Drury said.

FREQUENCY OF "LARGE SCALE RAIN EVENTS ".

(Known by SEQWater as "uncommon events")

Flood gauge BOM is at Brisbane City. Localised in catchments are marked "no reading" but appear in written BOM flood information affecting the catchments.

* Recent information on pre-development flows from Department Environment & Resource Mang. enabled cross-checking of data

Year	Catchment Somerset MM	Catchment Wivenhoe MM	Flood Gauge BOM Metres	Years Since	Below Average												Above average gap
					1	2	3	4	5	6	7	8	9	10	11	12	
1841	n/a	n/a	8.5	n/a													
1843	n/a	n/a	2.8	2													
1844	n/a	n/a	7.0	1													
1852	n/a	n/a	3.0	8													
1857	n/a	n/a	5.0	5													
1863	n/a	n/a	3.4	6													
1864	n/a	n/a	3.8	1													
1867	n/a	n/a	2.4	3													
1870	n/a	n/a	3.0	3													
1873	n/a	n/a	2.8	3													
1875	No bureau records		2.8	2													
1879	kept to here		2.8	4													
1887	n/a	454	3.8	8													
1888	n/a	324	3.8	1													
1890	n/a	385	5.3	2													
1892	395	287	n/a	2													
1892	394	302	n/a	0													
1893	1422	1036	8.5	3													
1898	505	336	2.5	5													
1908	394	309	3.3	10													
1911	436	225	No reading	3													
1915	322	152	No reading	4													
1918	352	168	No reading	3													
1927	564	260	1.8	9													
1928	413	252	2.1	1													
1929	257	129	1.9	1													
1931	216	250	3.4	2													
1934	292	201	No reading	3													
1939	294	140	No reading	5													
1950	479	286	No reading	11													
1955	532	289	2.4	5													
1956	429	250	1.8	1													
1967	310	251	2.0	11													
1968	526	292	2.0	1													
1971	468	296	1.8	3													
1972	304	318	No reading	1													
1973	474	257	No reading	1													
1974	790	517	5.4	1													
1976	891 4 mths	631 4 mth	No reading	2													
1981	341	274	No reading														
1983	687 3mths	529 3mths	No reading														
1988	440	294	Dam filling	12													
1989	564	262	1.9	1													
1992	1062 4 mths		1.9	3													
1996	308	205	-	4													
1999	544	296	1.9	3													
2001	251	204	n/a	2													
2007	Near miss		n/a	6													
OVERALL TOTALS / AVERAGE				44													

SUMMARY

Years Since	No. of Events	Total Events
Below the average		
0	1	
1	11	
2	6	
3	10	70%
4	3	31
Above the average		
5	4	
6	1	
7		
8	2	
9	1	
10	1	
11	2	
12	1	
13		30%
14		12
Total		44

Notes :

12 years is the largest gap

70% of events occur within 4 years

Average gap is 3.7 yrs

SEQWater rainfall requirements to fill dams
Required in a few days
Wivenhoe 300-360mm

Somerset 350-400mm

Bureau flood gauge
Major 3.5 metres
Moderate 2.6 metres

9 periods of 6 years or more recorded.
6 years is the length of the last gap.