5th February 2010

Mr Hugo Hopton
General Manager
South East NRM Board
PO Box 30
Mount Gambier SA 5290

Dear Mr Hopton,

RE: **DRAFT Water Allocation Plan for the Tatiara Prescribed Wells Area**

The South Australian Farmers Federation is please to have the opportunity to review the proposed DRAFT Water Allocation Plan (WAP) for the Tatiara Prescribed Wells Area. The following comments on the WAP are provided for your consideration.

Our comments are categorised into four categories: POLICY, RELEVANCE, CLARITY AND OTHER.

POLICY

Volumetric conversion inequities

It is considered that the WAP should ensure that the groundwater resource of the Tatiara Prescribed Wells Area is managed sustainably and is distributed to water users in an equitable manner.

We consider that while sustainability is intended, it is not clear that this will be achieved with the proposed policies in some management areas. In addition to threatening sustainability, the associated conversion of area based allocations to volumetric allocations, along with the associated reductions are not equitable.

The DWLBC report 2008/23[1] seems to have been ignored by the Board in the volumetric conversion proposal and its implementation through the WAP. The report identifies significant groundwater salinity increases being caused by the application of excessive irrigation water in the Stirling area. Table 6.4 on page 83 of the DWLBC report indicates an observed mean drainage rate for flood irrigation of 403 mm. From Table 1 in the WAP, the Board's proposal provides for an additional 1026mm of

[1] *Minimising Salt Accession in the South East of South Australia. The Border Designated Area and Hundred of Stirling Salt Accession Projects. Volume 2 - Analytical Techniques, Results and Management Implications.*

delivery supplement water over and above allocations for sprinkler irrigation. While not apparent in the WAP, we calculate the net irrigation depth to be 766mm, with an additional 18%, or 138 mm, for spray irrigators, meaning that the over irrigation or the drainage element could be 1164mm, compared to the 403mm reported in the DWLBC study.

The above approach seems to be applied to all management areas, to a greater or lesser extent. The implications, in our view, are that this will lead to an inequity in the base volumetric allocations and regrettably, the inequities continue with the allocation reductions necessary after this inflation.

While flood irrigators may not receive the generous drainage element as a property right, they benefit from its use, but at an expense to the more efficient water applications. An inescapable outcome is if flood irrigators improve their management, they will be able to irrigate greater areas. The claying or lining of channels, smaller and more precisely levelled bays and improved operational management may significantly improve overall flood irrigation efficiency and hence an opportunity to expand the flood irrigation operations. It is unlikely that spray or drip irrigators will be able to make similar gains.

The inequitable distribution of water between 'neighbours' becomes a more significant issue in management areas where there is a diversity of irrigation systems being employed. For example, in Wirrega, where it is believed that about 40% of the current irrigation is flood, the flood Irrigators will receive over double the actual crop water need. Employing this policy throughout the South East, particularly where there is a groundwater scarcity, such as in the Border zones, this is inequitable and will require excessive 'real' cuts in allocations for spray and drip irrigators to benefit flood irrigators. Refer to SAFF tables A & B for example and actual samples.

Groundwater salinity increases

The current general groundwater trend for the shallow water tables is one of declining levels and increasing salinity (refer to Figures 8 and 11 in the WAP). While the deeper water tables do not yet show these degrading trends, it is understood that there can be a significant time lag between cause and effect where the aquifer is at depths greater than 10 metres. We understand that it could take 10-30 years for changes in recharge to be reflected in the water table (assuming extractions remain constant). Similarly, the same time lapse could be attached to salinity increases caused by the mobilisation of soil salt caused by 'over irrigation'. In considering that

findings published in the DWLBC report, excessive recycling of irrigation water is no longer acceptable as it has salinity implications for a number of third party users.

The current proposed volumetric conversion policy does not appear to acknowledge the risks for groundwater salinity from the recycling of groundwater. While the DWLBC report indicates the need for more research, the observed trend is significant and warrants an immediate policy response.

Transfer policy

The current policies for transferring water do not appear to be significantly changed in ways that facilitate and encourage greater economic utilisation of a limited groundwater resource. This may be an important Issue if there are to be significant water allocation reductions. Such outcomes will require a facilitation of temporary and permanent transfers to allow irrigators to adjust to a new allocation regime.

The so called '18 km^2 test,' while it may have changed from a 'square' to a 'circle', the fundamental premise of 1.25 times recharge rate does not appear to have been reviewed. The reality is that in many intensely irrigated areas, where irrigation has been practiced for many years without obvious detrimental impacts, a 1.25 X recharge test would 'fail'. This raises the question as to its validity, particularly for temporary transfers. We would also suggest that for the current and 'natural' activity of forest overlaying a shallow water table the proposed policies would also fail, again challenging the appropriateness of the 1.25 X recharge factor.

RELEVANCE

Groundwater dependent ecosystems

A number or paragraphs are committed to discussing groundwater dependent ecosystems, and then they result in a statement that implies that there are no such systems in the Tatiara Prescribed Wells Area. This leaves readers confused and wondering about the purpose of the discussion. If there is a legal need to comment on such issues, why not open with a clear statement saying that there are no known groundwater dependant ecosystems in the region, but if there were, consideration would need to be given to…..etc.

Similarly the discussion about the DE equation (section 2.2.3) and Table 2.2 could be excised for inclusion in an Appendix, if it is considered at all necessary.

Precedence and the future

We believe that the policies in the WAP should be fair, equitable and functional. While each prescribed wells area has its own WAP, there should be a high level of policy consistency in the implementation of policies between the different groundwater management areas, prescribed wells areas and border areas. This does not mean identical percentage cuts, increases, or assessment values, as they must reflect the character of the groundwater resource. The possibility exists that there may be a future change in administrative boundaries and or transfers across boundaries may become more common. Under these circumstances, inequities created today may inhibit progressive change.

Implication of *today's* policies for *tomorrow's* unbundling of water property rights also needs to be considered In the proposed WAP policies.

CLARITY

Definitions

Some of the definitions in the WAP are confusing:

For example:

- ‘Aquitard’ - the two provided sentences could be considered contradictory.
- 'Ambient underground water’ - would seem incomplete. Surely an ambient condition is free from impacts of both artificial draining (and extraction) and recharge.
- lmplicit in 'Aquifer storage and recovery' is the 'recovery' element. The definition included is more akin to a definition for ‘managed aquifer recharge'.
- The use of the term 'Under groundwater' instead of 'groundwater’ is questioned. Invariably all technical reports use the term 'groundwater'.

Some common operational terms are missing, and for completeness they should be included. For example, terms such as 'allocation', 'plantation forest' (and its variations), and 'water licence' should be added. Some of these may be particularly relevant with a future unbundling of water rights.

Describing olive plantations by tree numbers

Under *Land and water use* in section 1.1, olive plantations are quantified by a tree number. Most land managers would use an area term - hectares. The number of 400,000 olive trees gives no appreciation of the area of this particular crop, or its water use.

Coastal plain

'Coastal plain' is a term used in section 4.1. It is unclear of the relevance; is it meant to refer to 'a *once* coastal plain'?

Indicative net losses component of allocations

The term appears in table 4.3 and appears to be a new expression. Is this the equivalent to the area based 'lrrigation Equivalent', is it the same as the previously used term the ‘net irrigation requirement’? A lack of clarity and explanation creates confusion.

Over extraction in Stirling to mitigate dryland salinity in Laffer

Over extraction in Stirling to mitigate dryland salinity in Laffer appears to be a proposal in Section 3.5; surely this contradictory and poor policy if related to the sustainability objective of the NRM Act.

Transparency in volumetric conversion

As discussed in the Policy discussion, the volumetric conversion process is not sufficiently transparent. We believe licencees want to see if their relativity with their 'neighbours' has changed through the process. This requires clearly identifying the initial area based allocations and the transitions applied to different types of licencees (flood, spray, drip and volumetric) through the various volumetric conversion stages and finally how the reductions are applied.

The process as it appears is a flawed one and must be made more transparent. Questions of what, when and how have not been answered. Stakeholders need to know:

1. where they start,
2. where they finish, and
3. how they relate to their neighbours.

There must be equity in this process.

The process for applications for *Delivery Supplements* and *Special Production Requirements* adds a significant time period to reach a point of clarity about final allocations. While 6 months is the application period, it is likely that execution will be considerably longer. This will create a period of uncertainty for all licencees which may impact on the security value of water allocations with financiers and curtail transfers because of the associated uncertainty.

OTHER

In general, the document provides considerable background information, however the readability could be improved with the services of an independent and professional editor to ensure language consistency and check for accurate connections between the policy references. Similarly, checking the arithmetic in tables needs to be made to ensure accuracy.

Fidelity of some of the Figures could be improved; for example the legend for Figure 6 is illegible and similarly in Figure 7. Figure 12 seems to be incomplete without values. Figure 2 needs some reference points; where is It on a map (to be included), or locate some towns on the section.

Should you seek any discussion on the above matters, please contact Mr Kent Martin on (08) 8739 3058.

Yours sincerely

Sandra Kleare

for Sharon Starick
Chair, Natural Resources Committee

SAFF TABLE A

Impact of volumetric conversion with reductions on different irrigation type allocations

		Tatiara - 7A		
		drip	**spray**	**flood**
current area based allocation	opening base area allocation - ha IE	100	100	100
	applicable ML/IE	6.34	6.34	6.34
	current notional volumetric allocation - ML	**634**	**634**	**634**
proposed new allocation	opening base area allocation - ha IE	100	100	100
	proposed applicable - ML/IE	8.1	8.57	8.57
	tradeable allocation - ML	810	857	857
	flood delivery supplement - ML/ha IE	n/a	n/a	6.1
	volume of delivery supplement - ML	n/a	n/a	610
	total notional volumetric allocation - ML	810	857	1467
reduction required	notional allocation to be reduced by	46.80%	46.80%	46.80%
	represents reduction - ML	379	401	687
	residual allocation - ML	**431**	**456**	**780**
residual allocation as share of area based volume (IE)		**68.00%**	**71.90%**	**123.10%**

STAFF TABLE B

Tatiara WAP (2009) - comparison of area based allocations with proposed volumetric allocations and reductions

	Border Zone	Connawigra	Nth Pendleton	Shaugh	Stirling	Tatiara	Willalooka	Wirrega	Zone 8A
				9A -part		7A			8A
TML PAV	proposed licensed extractions ML	4083	8579	7780	16742	6097	12732	23852	4854
	current Border PAV			11595		7500			7700
existing allocations	ha IEs	574	1026	837	3270	1039	1669	4880	691
	ML/ha/E	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34
	area based allocation equivalent ML	3639	6518	5307	20732	6587	10581	30939	4381
	volumetric allocations - ML	29	0	1088	205	703	6	1012	472
	estimated aggregate all current allocations - ML	3668	6518	6395	20937	7290	10587	31951	4853
conversion proposal SENRMB	NRMB conversion of IEs	5307	10798	8509	62789	10750	28928	55803	6249
	exist volumetric allocations	29	0	1088	205	703	6	1012	472
	total proposed volumemetric allocations	5336	10798	9597	62994	11453	28934	56815	6721
	relativity to current area allocation	-1253	-2219	-1837	-46252	-5356	-16202	-32963	-1867
	reduction on notional allocation to achieve TML/PAV	-24%	-21%	-22%	-74%	-50%	-56%	-59%	-30%
conversion elements SENRMB	conversion for drip - ML/IE	8.50	8.50	9.10	8.50	8.10	8.10	8.10	8.40
	conversion for spray and flood -ML/IE	9.04	9.04	9.65	9.04	8.57	8.57	8.57	9.04
	flood delivery supplement - ML/IE	2.76	2.76	2.94	10.26	2.76	6.1	6.1	2.76
	flood delivery supplement Willalooka W/ Wirrega N - ML/IE						13.14	6.43	

What when How

Volumetric where they start + where they finish

they relate to their neighbours

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Current area based allocations and use				Proposed allocations in TPWA WAP					Analysis of licensee status post volumetric conversion according to TPWA WAP				
ID number	Current IE allocation	Direct conversion based on current 6.34 ML/IE	Usage volume (meter readings) for 2008-09	licensee share of all area based allocations	Volumetric conversion proposed	Estimated additional delivery supplement for flood irrigation	Total volumetric allocation (volumtric conversion + estimated delivery supplement)	licensee share of all converted area based allocations	proposed volumetric allocation after reduction . (11453-6097)/11453 (WAP T4.3)	unused area based allocation for 2008-09 (based on 6.34ML/IE conversion)	notional unused volumetric allocation for based on 2008-09 use and reduced converted volume	net loss in capability	loss as share of current area based volume in column C	base delivery supplement as percentage of IE volume
source	allocations >30 IE	C x 6.34	DWLBC	B/1039	DWLBC	DWLBC	DWLBC	H/10725	H x 53.23%	C - D	J - D	L - K	M/C	G/C
unit	IE	ML/IE	ML	%	ML	ML	ML	%	ML	ML	ML	ML	%	%
1	303	192	0	2.9%	260	0.00	260	2.4%	138	192	138	-54	-28%	0.0%
2	132.7	841	621	12.8%	1137	370.27	1508	14.1%	803	220	181	-39	-5%	44.0%
7	30.8	195	411	3.0%	264	101.87	366	3.4%	195	-216	-216	-1	0%	52.2%
11	48.9	310	303	4.7%	419	0.00	419	3.9%	223	7	-80	-87	-28%	0.0%
13	56.7	359	654	5.5%	486	119.56	605	5.6%	322	-295	-332	-37	-10%	33.3%
15	73	463	659	7.0%	626	445.30	1071	10.0%	570	-196	-89	107	23%	96.2%
18	47.4	302	233	4.6%	406	34.16	440	4.1%	234	70	4	-66	-22%	11.4%
20	90.6	574	870	8.7%	776	348.92	1125	10.5%	599	-295	-270	25	4%	60.7%
21	51.1	324	463	4.9%	459	0.00	459	4.3%	245	-139	-218	-79	-24%	0.0%
22	66.6	422	361	6.4%	571	38.43	609	5.7%	324	41	-57	-98	-23%	9.1%
63	34.7	220	157	3.3%	302	0.00	302	2.8%	161	63	3	-59	-27%	0.0%
total of sample	663	4202	4750	63.8%	5706	1459	7165	66.8%						
total all GMA	1039	6587	6148		8924	1802	10725							

Color

Source ~ Staff Table E.

Staff Table C.

SAA TABLE D

SA Border designated area - South East. Water allocation and use 2007-2009
Tertiary limestone aquifer (unconfined)

Zone	PAV	allocated		use		use as % o	allocation
		2007-08	2008-09	2007-08	2008-09	2007-08	2008-09
	ML	ML	ML	ML	ML	%	%
9A	11595	10230	10230	3812	9113	37.3%	89.1%
8A	7700	4854	4854	1080	676	22.2%	13.9%
7A	7500	8254	8254	6952	7010	84.2%	84.9%
6A	9850	8758	8758	5442	6620	62.1%	75.6%
5A	18500	18999	18943	12875	12801	67.8%	67.6%
4A	20000	22064	22115	14059	14728	63.7%	66.6%
3A	24000	24049	24049	17217	17538	71.6%	72.9%
2A	25000	19976	19976	10499	15890	52.6%	79.5%
1A	30900	31866	31806	23081	22836	72.4%	71.8%
	source 2007-08, 23 Annual Report, Table 3 and 2008-09, 24 Annual Report, Table 3						

Number	Current IE allocation (IE)	Direct conversion (based on original IE conversion) based on 6.34 ML/IE (ML)	Volumetric conversion proposed by Tatiara PWA WAP (ML)	Estimated additional delivery supplement for flood irrigation (ML)	Total volumetric allocation (volumtric conversion + estimated delivery supplement) (ML)	Usage volume (based on meter readings) for 2008-09 (ML)
1	30.4	192.10	259.67	0.00	259.67	
2	132.7	841.32	1137.24	370.27	1507.51	821
3	0	0.00	0.00	0.00	0.00	0
4	0	0.00	0.00	0.00	0.00	0
5	5.8	36.77	49.71	0.00	49.71	
6	0	0.00	0.00	0.00	0.00	0
7	30.8	195.27	263.96	101.87	365.83	411
8	21.1	133.77	180.83	0.00	180.83	54
9	1.9	12.05	16.28	0.00	16.28	13
10	0	0.00	0.00	0.00	0.00	0
11	48.9	310.03	419.07	0.00	419.07	303
12	20.5	129.97	175.68	0.00	175.68	144
13	56.7	359.48	485.92	119.56	605.48	664
14	17.1	108.41	146.55	0.00	146.55	74
15	73	462.82	625.61	445.30	1070.91	858
16	10	63.40	85.70	3.05	88.75	2
17	4.1	25.99	35.14	0.00	35.14	
18	47.4	300.52	406.22	34.16	440.38	231
19	0	0.00	0.00	0.00	0.00	0
20	80.6	574.40	776.45	348.92	1125.37	870
21	53.1	323.97	459.48	0.00	459.48	463
22	66.6	472.24	570.76	38.43	609.19	381
23	20.1	127.43	172.26	122.61	294.87	172
24	17.9	113.49	153.40	0.00	153.40	7
25	5.5	34.87	47.14	16.47	63.61	3
26	1.8	11.41	15.43	0.00	15.43	
27	16.5	104.61	141.40	51.85	193.25	239
28	2.9	18.39	24.85	0.00	24.85	24
29	0	0.00	0.00	0.00	0.00	0
30	17.9	113.49	156.94	0.00	156.94	41
31	20.1	127.43	172.26	0.00	172.26	89
32	5.0	37.41	50.56	0.00	50.56	
33	3.6	22.82	30.85	0.00	30.85	
34	6.6	34.87	47.14	0.00	47.14	
35	0	0.00	0.00	0.00	0.00	0
36	0	0.00	0.00	0.00	0.00	0
37	2.7	17.12	23.14	0.00	23.14	
38	0.8	5.07	6.86	0.00	6.86	
39	2.5	15.85	21.42	0.00	21.42	3
40	10.1	64.03	86.56	0.00	86.56	77
41	7.8	47.55	64.28	0.00	64.28	0
42	2.7	17.12	23.07	0.00	23.07	31
43	3.1	19.65	26.57	0.00	26.57	
44	1.4	8.88	12.00	0.00	12.00	
45	16.7	105.88	143.12	0.00	143.12	136
46	10.9	69.11	93.41	0.00	93.41	
47	0	0.00	0.00	0.00	0.00	0
48	3	19.02	24.85	0.00	24.85	
49	5	31.70	42.85	0.00	42.85	
50	0	0.00	0.00	0.00	0.00	0
51	10.4	65.94	89.13	0.00	89.13	
52	4	25.36	34.28	21.96	56.24	5
53	7.7	48.82	65.99	0.00	65.99	54
54	16	114.12	154.26	0.00	154.26	
55	3	19.02	25.71	0.00	25.71	19
56	0	0.00	0.00	0.00	0.00	0
57	2.2	13.95	18.85	0.00	18.85	
58	18	114.12	145.08	0.00	145.08	
59	8.6	54.52	73.70	52.46	126.16	111
60	2.5	15.85	21.42	0.00	21.42	23
61	13.2	83.69	113.12	75.03	188.15	78
62	16.7	105.88	143.12	0.00	143.12	
63	34.7	220.00	301.65	0.00	301.65	157
64	3.3	20.92	28.28	0	28.28	
65	2	12.68	17.14	0	17.14	0
66	2	12.68	17.14	0	17.14	
Total	1039	6587.26	8923.80	1801.94	10725.44	6148.13

[redacted] for use return

Allocations 7A

SAFF TABLE E