OPERATING ARRANGEMENTS

THOMSON RESERVOIR

Prepared for

the Department of Natural Resources and Environment

by

Melbourne Water

in accordance with

Bulk Entitlement (Thomson River-Melbourne Water Corporation) Conversion Order 2001

July 2002

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Introduction

Clause 13.1 of the Thomson River Bulk Entitlement Conversion Order requires Melbourne Water to propose water accounting and operational arrangements for water stored in and released from Thomson Reservoir, including target filling arrangements.

Under Clause 16.1, Melbourne Water may be required to report on:

- the amount of water diverted by Melbourne Water from the Thomson River
- the amount of water released from Thomson Reservoir for hydro-electric power generation
- the daily passing flows in the Thomson River downstream of the dam, at the Narrows and at Coopers Creek gauging stations
- the volume contained in Melbourne Water's share of Thomson Reservoir storage capacity
- Melbourne Water's daily share of inflow to Thomson Reservoir
- the volume of losses attributed to Melbourne Water should it take water from Thomson River other than from the Thomson Reservoir

This report describes the water accounting and operational arrangements proposed by Melbourne Water to satisfy the above requirements.

Melbourne Water and Southern Rural Water Thomson Entitlement

Melbourne Water staff calculate the daily inflows, stored volumes and releases from both Melbourne Water and Southern Rural Water's shares of Thomson Reservoir. The details of how these volumes are metered and calculated are described in "Melbourne Water Thomson Bulk Entitlement Metering Program" (May 2002). The daily values are recorded in Melbourne Water's QASK database and transferred to a MS Excel spreadsheet used to provide monthly reports to Southern Rural Water.

The operating arrangements used by Melbourne Water and Southern Rural Water for ordering and providing irrigation releases from Southern Rural Water's share of Thomson Reservoir storage are contained in Attachment A. A sample irrigation release order form sent by Southern Rural Water to Melbourne Water is contained in Attachment B. A sample of the monthly account provided by Melbourne Water to Southern Rural Water, detailing the inflows, releases and stored volume for its share of Thomson Reservoir is contained in Attachment C.

Passing Flows

Clause 10 requires Melbourne Water to maintain minimum passing flows downstream of the Thomson Reservoir in the Thomson River at three sites:

- approximately 300 metres downstream of the dam (225112)
- at the Narrows Gauging Station (225210)
- at Coopers Creek Gauging Station (225208)

Downstream releases from Thomson Reservoir are regulated on at least a daily basis to ensure compliance with minimum flow requirements at these sites, in accordance with Melbourne Water's "Thomson Dam Environmental Flow Obligations Implementation Strategy, Revision No. 1" (May 2000).

Site 225112 (downstream of Thomson dam) is alarmed to the Thomson Duty Officer and the Brooklyn Control Centre 24 hours per day. The Narrows and Coopers Creek gauges are monitored daily via telephone dial-up.

The environmental flow requirements downstream of Thomson reservoir are specified in Melbourne Water's Standard Operating Procedure H001 "Maintaining Environmental Flows from Dams and Weirs". The daily flows at these sites are recorded in Melbourne Water's QASK database. An environmental flow compliance report is provided to Melbourne Water's Board each quarter and to senior management each month. Additionally, the satisfying of Thomson environmental flow requirements is one of the key performance indicators used in assessing the performance of the responsible field operators and is assessed monthly.
Melbourne Water provides Southern Rural Water with a water account each month showing the daily passing flows at the three Thomson River sites (refer to Attachment C).

Target Filling Arrangements

The capacity of Thomson Reservoir is more than four times its mean annual flow. Hence, when Thomson Reservoir is draw down it requires a number of years on average to refill. Due to its large storage to inflow ratio and the wilderness nature of the reach downstream of the dam, Thomson Reservoir is not operated specifically to serve any flood mitigation role and Melbourne Water does not utilise specific target filling arrangements.

ATTACHMENT A
Thomson Irrigation Releases Operating Arrangements

1. Water release orders must be made at a reasonable time in advance of when a flow, or change in flow, is required to meet SRW irrigation, SRW environmental flow, or SRW operational requirements downstream of Coopers Creek.

2. SRW must use the Water Release Order Form specified in Attachment B for ordering water releases from Thomson Reservoir

3. SRW must indicate on the Water Release Order form whether orders are Routine or Urgent

4. Routine Release Order Forms are to be faxed to the MWC Integrated Control Centre, Water Operations at Brooklyn between 8am-2pm on the day prior to the SRW release requirement. Any release orders will nominate the Regulation Time from which the order will be effective on the following day. Regulation Times are 9am, 12 noon and 2pm (these times are 1 hour later during Daylight Saving).

5. Unless MWC and SRW have agreed otherwise, SRW can order water from its share of Thomson in accordance with MWC's latest set of water accounts (either provisional or official). MWC provides official water accounts following the end of each month (Attachment C), with provisional accounts issued at the end of each week (Attachment D).

6. An Urgent Order is defined as "Off Regulations", that is, a reduction in the release flow due to rain events or a sharp decline in demand. MWC will accept Urgent Orders between 8am and 2pm and will use best endeavours to meet the Urgent Orders at the Regulation Times. MWC does not guarantee the meeting of any Urgent Order. MWC will advise SRW when Urgent Orders are not able to be met and adjust the water balance account as described in clause 3 of Attachment C.

7. MWC is not required to adjust SRW releases from Thomson Reservoir more than once per day.

8. MWC must confirm receiving orders within four hours by completing the Release Order form and faxing this back to SRW, and to provide a new release figure for downstream of Thomson Reservoir.

9. MWC cannot guarantee meeting SRW orders or changes in flow requested outside these times.

10. MWC must maintain such ordered flows until advised otherwise by SRW or until the volumes available to SRW from its Thomson Reservoir entitlement are exhausted.

11. Releases nominated by SRW must be measured in the Thomson River at Coopers Creek and be in addition to any releases made by MWC to meet its environmental flow obligations at Coopers Creek .

12. Releases from Thomson Reservoir are regulated through the Thomson Hydro and/or via a separate release valve. Depending on the reservoir head releases of up to 480 ML/d can be regulated through the Thomson Hydro station. Releases in excess of the hydro capacity are made via a separate release valve.

Given the release infrastructure provided for under 11, MWC will attempt to maintain a minimum flow in the Thomson River at Coopers Creek equal to SRW's ordered volumes plus MWC's environmental flow obligation.

If the flow immediately downstream of the Storage falls below the required minimum flow, MWC will advise SRW.

ATTACHMENT B
Sample Irrigation Release Order Form

ATTACHMENT C
Sample Official Monthly Thomson Water Account

1. MWC must maintain a water balance account of the releases, as nominated by SRW under their Thomson Bulk Entitlement Order, and the recorded flow in accordance with a wareporting program provided for under Clause 13 of Melbourne Water's Thomson Bulk Entitlement Order.

2. Where total daily flows at Coopers Creek are less than SRW's ordered volumes plus MWC's environmental flow, MWC must adjust the water debited to SRW at Thomson Reservoir to the difference between the required environmental flow and the total flow.

3. Where total flow at Coopers Creek is greater than the ordered volume plus the environmental flow, due to MWC not being able to act by 2pm or 4pm on an a urgent order requiring a reduction in releases, MWC must reduce the water balance debited to SRW at Thomson Reservoir by 0.5 times the difference between the amended order and total flow less the environmental flow.

4. MWC will issue SRW with a monthly water account balance. The volumes contained in the water account balance will be confirmed by SRW in writing with MWC.

Sample Official Monthly Thomson Water Account

Date	Thomson Inflow	Thomson River Gauging Stations							Southern Rural Water			
		Thomson Reservoir Releases	The Narrows		Coopers Creek				Share of Inflow	Volume accumulated in Thomson reservoir capacity share	Outstanding Deficit	Volume Spilled into each party's share of Storage
	ML/d	Recorded Flow (up to 8:00am) ML/d	Envir'tal Req'ment ML/d	Recorded Flow ML/d	Envir'tal Req'ment ML/d	SRW 'Release Order'	Total Min Required Flow	Recorded Flow ML/d	ML/d	ML	ML	ML
01/03/2002	169	115	80	135	155	0	155	190	10.1	9607	19866	
02/03/2002	115	115	80	144	155	0	155	196	6.9	9614	19866	
03/03/2002	179	98	80	167	155	37	192	206	10.7	9588	19866	
04/03/2002	180	108	80	233	155	72	227	247	10.8	9527	19866	
05/03/2002	180	105	80	233	155	75	230	247	10.8	9462	19866	
06/03/2002	180	105	80	233	155	75	230	247	10.8	9398	19866	
07/03/2002	107	105	80	233	155	75	230	247	6.4	9330	19866	
08/03/2002	74	105	80	179	155	43	198	212	4.4	9291	19866	
09/03/2002	145	105	80	167	155	40	195	206	8.7	9260	19866	
10/03/2002	145	105	80	167	155	40	195	206	8.7	9228	19866	
11/03/2002	145	105	80	167	155	40	195	206	8.7	9197	19866	
12/03/2002	71	105	80	167	155	40	195	206	4.3	9161	19866	
13/03/2002	72	105	80	167	155	40	195	206	4.3	9126	19866	
14/03/2002	53	105	80	289	155	95	250	255	3.2	9034	19866	
15/03/2002	57	104	80	300	155	100	255	256	3.4	8937	19866	
16/03/2002	63	110	80	300	155	100	255	256	3.8	8841	19866	
17/03/2002	68	115	80	329	155	100	255	274	4.1	8745	19866	
18/03/2002	112	119	80	220	155	66	221	239	6.7	8686	19866	
19/03/2002	111	130	80	273	155	55	210	239	6.7	8638	19866	
20/03/2002	86	128	80	206	155	32	187	212	5.2	8611	19866	
21/03/2002	57	105	80	220	155	25	180	212	3.4	8589	19866	
22/03/2002	57	105	80	233	155	25	180	212	3.4	8568	19866	
23/03/2002	136	125	80	289	155	85	240	256	8.2	8491	19866	
24/03/2002	63	120	80	300	155	90	245	256	3.8	8405	19866	
25/03/2002	210	120	80	300	155	90	245	264	12.6	8327	19866	
26/03/2002	254	120	80	259	155	60	215	264	15.2	8282	19866	
27/03/2002	635	108	80	124	155	13	168	191	38.1	8307	19866	
28/03/2002	110	110	80	134	155	0	155	206	6.6	8314	19866	
29/03/2002	242	95	80	106	155	0	155	191	14.5	8329	19866	
30/03/2002	7	95	80	106	155	0	155	183	0.4	8329	19866	
31/03/2002	183	95	80	106	155	0	155	175	11.0	8340	19866	
Total in ML	4266	3390	2480	6486	4805	1513	6318	6963	256			

DATE	Release Order Number	Requested change in flow time	Release Order Volume	Measured 24 hour Total Thomson Release	Total volume debited to SRW water balance (8:00hrs previous day to 8:00hrs current day)
			ML/day	ML/day	ML/day
01-Mar-02					0
02-Mar-02	16	10:00	40		0
03-Mar-02	17	10:00	75		37
04-Mar-02					72
05-Mar-02					75
06-Mar-02					75
07-Mar-02	18	10:00	40		75
08-Mar-02					43
09-Mar-02					40
10-Mar-02					40
11-Mar-02					40
12-Mar-02					40
13-Mar-02	19	10:00	100		40
14-Mar-02					95
15-Mar-02					100
16-Mar-02					100
17-Mar-02	20	14:00	55		100
18-Mar-02					66
19-Mar-02	21	14:00	25		55
20-Mar-02					32
21-Mar-02					25
22-Mar-02	22	10:00	90		25
23-Mar-02					85
24-Mar-02					90
25-Mar-02	23	14:00	50		90
26-Mar-02	24	14:00	0		60
27-Mar-02					13
28-Mar-02					0
29-Mar-02					0
30-Mar-02					0
31-Mar-02					0
Total					1513

ATTACHMENT D
Sample Provisional Weekly Thomson Water Account

Southern Rural Water Storage and Inflow shares of Thomson Reservoir
Provisional Report for the period 21-Jun-02 to 27-Jun-02

Date	Share of Inflow	SRW release order volume	Volume accumulated in Thomson reservoir capacity share	Outstanding Deficit
	ML	ML	ML	ML
21-Jun-02	20.8	0	9166	19866
22-Jun-02	12.4	0	9178	19866
23-Jun-02	29.8	0	9208	19866
24-Jun-02	13.0	0	9221	19866
25-Jun-02	21.4	0	9242	19866
26-Jun-02	13.0	0	9255	19866
27-Jun-02	29.8	0	9285	19866
Total	140.0	0		