

Fact Sheet

As at August 2009

Case study 1: Channel Automation Reduces Shepparton Irrigation Area Outfalls

During 2008/09, with 532 gates in place automating 75% of the Shepparton Irrigation Area, unplanned spills and releases (outfalls) for the entire Shepparton Irrigation Area were reduced by 79% from 8,850 ML in 2007/08 to 1,813 ML in 2008/09 and were reduced by 65% compared with 2006/07.

How was the improved performance calculated?

The following table outlines the deliveries and outfalls for each season for the Shepparton Irrigation Area. The final column shows the volume of water that was delivered for every 1 ML of outfalls.

	Allocation	Deliveries (ML)	Spills & Outfalls (ML)	Deliveries (ML) per 1 ML of outfall
2006/07	29%	69,019	5160	13.4 ML
2007/08	57%	68,198	8850	7.7 ML
2008/09	33%	64,700	1813	35.7 ML

Background to works

G-MW began its Shepparton Irrigation Area Modernisation Project in 2007 installing 16 gates along the East Goulburn Main. A further 516 regulating gates were installed as part of the 2008 winter works program. The Shepparton project is on track to be completed by December 2009 with a total of 706 gates installed along Shepparton's 750 km channel network.



Installing automated regulators in the Shepparton Irrigation Area

For general information call or visit

1800 013 357

www.g-mwater.com.au

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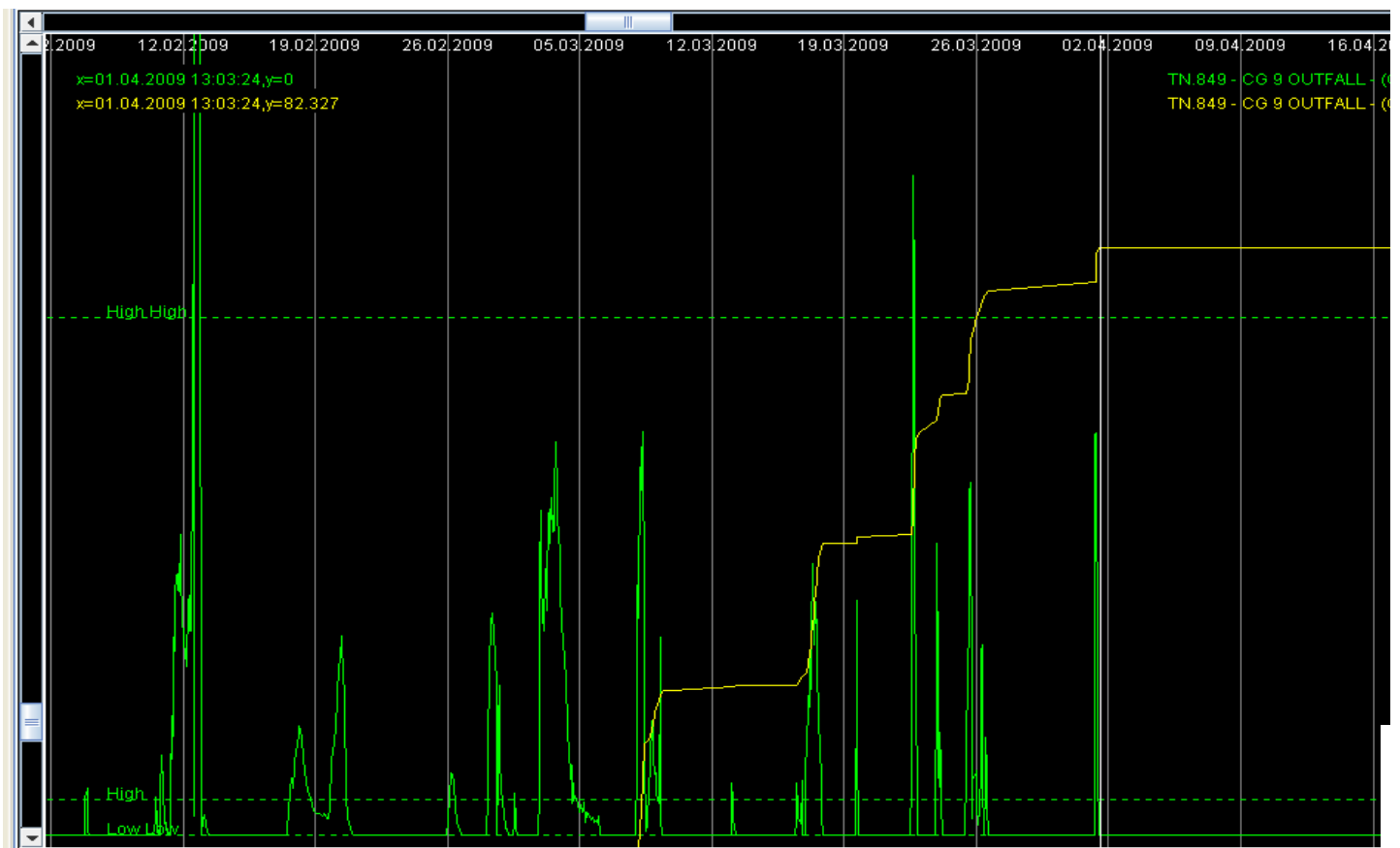
Case study 2 – Automation reduces outfalls from CG9 and CG 19/6

The graphs from G-MW's operations database show that since channel automation was 'turned on' in March and April 2009, daily outfalls reduced by so much they are no longer measurable and as a result there was no further increase in outfalls for the entire season from the CG9 and CG 19/6.

The automated regulators now talk to each other and G-MW Tatura to ensure flow rates for customer deliveries are maintained. Inflows are monitored to ensure they closely track customer demand and therefore limit the potential for unplanned spills or releases (outfalls).

Example 1 – CG9 (green shows daily outfalls, yellow shows cumulative for season)

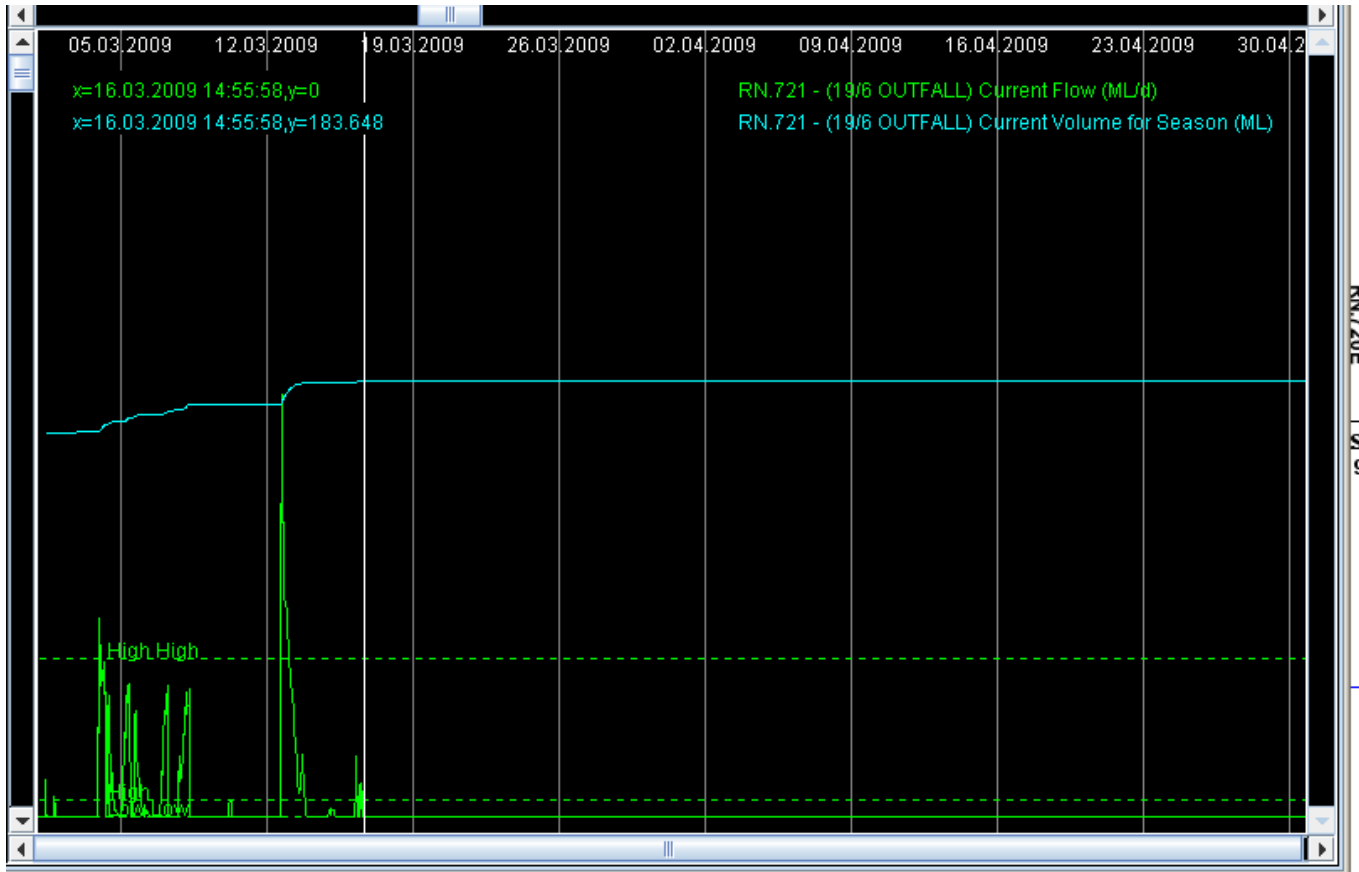
The screen image from G-MW channel automation system illustrates the dramatic impact of automation on system outfalls - since automation was 'turned on' on 2 April 2009 there has been no further measured increase to the 82ML of outfall recorded for the 2008/09 season.



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Example 2 – CG 19/6 (green shows daily outfalls, blue shows cumulative for season)

As this graph illustrates, from the day the channel regulators began operating, there has been no additional measured increase to the total volume of outfalls from the 19/6 for the 2008/09 season. G-MW recorded 183 ML of outfalls from start of the season up to 16 March 2009 when automation took over operations of the channel. There was no further measurable increase in outfalls from 16 March through to the end of the season.



Back ground to the works

As part of the NVIRP Early Works, during the winter of 2008 1000 Flume Gates were installed across five of the six G-MW irrigation Areas (excluded CG1-4 and Shepparton which have their own modernisation projects).

- The majority of 2008 works were installed in the Central Goulburn 5-9 channels.

NVIRP has been working with a range of specialists to develop Environmental Watering Plans for waterways and wetlands of high environmental values which may be impacted by modernisation works through the reduction in incidental losses such as outfalls. In addition to the environment's share of water savings of 75,000 ML, up to 5,000 ML of mitigation water has also been set aside for this purpose.

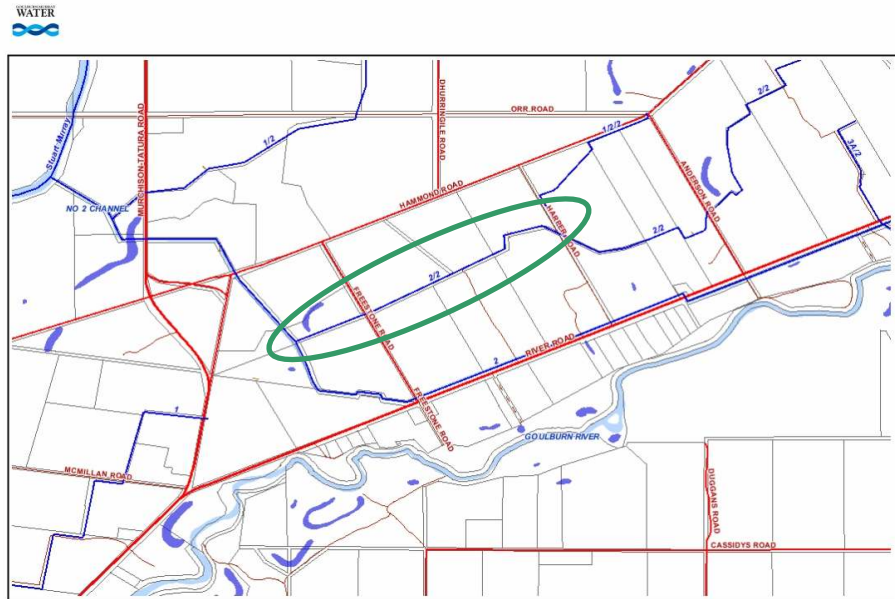
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Case study 3: Automation & channel lining – CG 2/2

Plastic lining of the CG2/2 in the Central Goulburn Irrigation Area has increased channel efficiency from 78.9% in 2007/08 to 91.6% in 2008/09.

Automated regulators were installed along the channel in 2002/03 and 4.5km of the CG 2/2 channel was lined with HDPE plastic in 2008 as part of a larger lining project on the CG 2 system. The entire length of CG2/2 channel has been reshaped and lined with High Density Poly Ethylene (HDPE) black plastic, 2mm thick.



Location of CG2/2 channel lining Scale = 1:21,944 Composed by: lindsay Date: 12/08/2009

How was the performance improvement calculated?

The automated regulators record the volume of water released into the top and the volume passed out of the bottom of the channel. Deliveries to customers are measured through metered outlets and on this system detritage meter outlets have been replaced with modern electronic outlets including Flume gates and Magflow meters.

In 2007/08 the channel operated at 78.9% efficiency, in 2008/09 after lining the performance improved to 91.6% efficiency.

	2007/08	2008/09
Water into the channel	1523.5	1137.7
Water accounted for as deliveries or passed out of the channel	1202.2	1042.9
Difference	321.3	94.8
Efficiency	78.9%	91.6%

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Case study 4: NVIRP Early Works program – CG9 channel lining

Background to the works

As part of the 2008 NVIRP Winter works program, a 5 km section of the CG9 open earthen channel was lined with High density poly ethylene (HDPE). Automated regulators were also installed at all sites along this section of channel.

Performance Improvements

Data recorded by the upstream and downstream regulating gates shows there was less than 1 ML of difference between the amount of water that went into the lined pool and the amount that came out at the next regulator.



Installing HDPE channel lining during 2008 Winter works program

The next pool along shares many similarities including soil types, rates of use and size however the pool is not lined. Under the same test conditions, the unlined pool recorded 4 to 6 times the volume of loss recorded for the lined pool. In both cases the lined pool recorded efficiency levels of more than 90%, the unlined pool's efficiency was as low as 69.9%.

G-MW analysed the data over a 24 hour period on two separate days, 1 day in summer and 1 day in spring. During the analysis period no deliveries took place which means the water travelled through the pools to supply downstream deliveries.

	Lined pool		Unlined pool	
	Test 1	Test 2	Test 1	Test 2
Water measured into the pool	19.6	5.3	12.3	10.0
Water measured out of the pool	19.0	4.8	8.6	8.0
Difference over 24 hour period	.6	.5	3.7	2.0
Efficiency (%)	96.9%	90.5%	69.9%	80.0%

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Case study 5: New metering tracks successful irrigation

Electronic Magflow and Flume gate meters talk continuously to their local channel regulators and the main database in Tatura to ensure flow rates through the meter are maintained at the level requested by the customer for the entire irrigation. The following graph shows the continuous monitoring of an irrigation delivery by a local farmer.

The following diagram shows the channel levels (black line) as well as the actual flow through the meter (blue line) tracked against the flow rate requested by the farmer (red line). The green line shows the movement of the outlet door to continuously adjust for any G-MW channel flow or level variations.

The graph demonstrates how flow rates and service levels onto farm can be maintained consistently and monitored through the use of smart meter outlets and channel automation.



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