Coleambally IRRIGATION

2014

Annual Compliance Report

Contents

Overview

The Murrumbidgee region had slightly below average rainfall and inflows into the major storages on which Coleambally Irrigation Co-Operative Limited (CICL) relies during the 2013/14 irrigation season and as a consequence the General Security water allocation was limited to 63%.

The area under cropping within our area of operations was 50,725 ha, in comparison to 64,680 ha for the preceding season. The predominant crops were rice, wheat, corn, cotton and canola with the most significant of these in terms of area and water use being rice (12,500 ha and 43% of water supplied by CICL respectively).

The key water statistics for the year were:

- metered net diversions into the Area of Operations 336,916 ML
- metered usage to customers 312,548 ML
- Net channel losses 24,368 ML
- groundwater usage within area of Operation 86,160 ML

Groundwater levels declined during 2013/14. In September 2013, the water table was within 2m of ground level over an area of 3,737 ha but by September 2014 it was 2,729 ha n.b. both readings are well below the LWMP remediation trigger point of 10,000 ha at which the requirement for enhanced net recharge activity is activated.

During October to December 2013, CICL conducted weekly sampling of drainage water. Molinate and other analytes were detected on 2 and 27 occasions respectively. However, on no occasion were Environmental Protection Authority (EPA) Action Levels breached.

CICL continues to manage Coleambally Irrigation Biodiversity Reserve Trust (CIBRT) reserves for environmental purposes. The reserves cover an area of approximately 1,600 ha across 10 individual blocks and their purpose is to protect all forms of dominant native vegetation within their boundaries, including black box depressions and cypress pine, rosewood and boree landscapes. Regular maintenance work included weed control, preservation of fire breaks and feral animal control.

At the time this ACR was compiled, the General Security allocation within the Murrumbidgee stood at 40% compared to 48% at the same time in the previous season. With Burrinjuck and Blowering Dams at 76% and 53% of capacity respectively, the outlook for the 2014/15 irrigation season is lower than in season 12/13 and lower than the historical average.

1. Introduction

1.1 General

This is the 16th Annual Compliance Report (ACR)[1] compiled by CICL. It is written in compliance with CICL's:

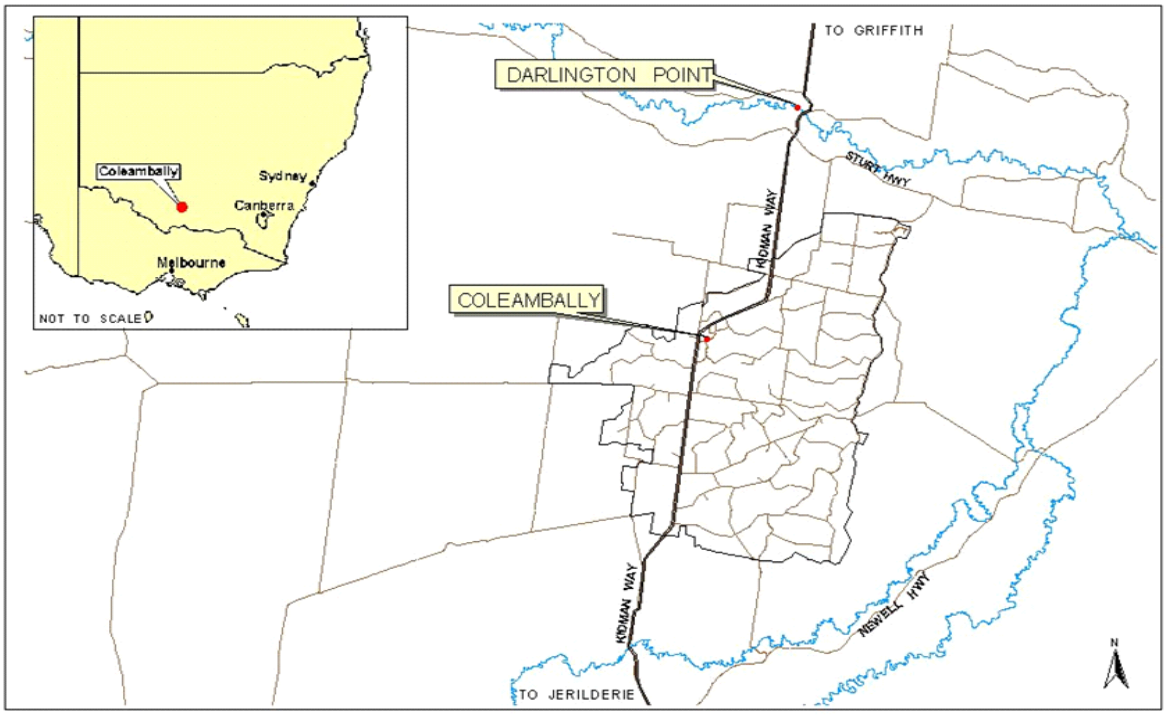
- Environment Protection Licence issued by the Department of Environment and Climate Change, under the Protection of Environment Operations Act 1995 (POEO Act before 1995); and
- operating licence, as issued by the NSW Office of Water's Water Access Licences (8 licences) and Nominated Works and Water Use Approvals issued under the Water Management Act 2000 – specifically, amended approval 40CA401473 of August 2012 (herein referred to as 'approval 2012')

The aim of this report is to demonstrate CICL's compliance with the conditions specified under the approval 2012 and Environment Protection Licence. The format of the report closely mirrors those conditions specified under Schedule 1, reporting conditions 12.1 to 12.2, of the approval 2012.

1.2 Coleambally Irrigation Area of Operations and Location

The Coleambally Irrigation District (CID) is located south of Griffith between the towns of Darlington Point and Jerilderie, New South Wales in the southern Murray-Darling Basin of Australia –refer to Figure 1.1

Figure 1.1 CID Location Diagram



[1] Known as Annual Environment Report (AER) prior to 2009/10

The CID comprises 495 irrigation farms containing 79,000 ha of irrigated land supplied through open earthen channels and approximately 325,000 ha of West Coleambally Channel District to which CICL supplies stock, tank and opportunistic irrigation water. In addition, CICL supplies water to a neighbouring irrigation company, Kerarbury Channel Proprietary Limited (KCPL) which is not physically connected to the Murrumbidgee River. CICL also operates and maintains KCPL's fully automated water regulating system – in that sense; CICL is delivering water across approximately a further 20,000 ha of irrigated land.

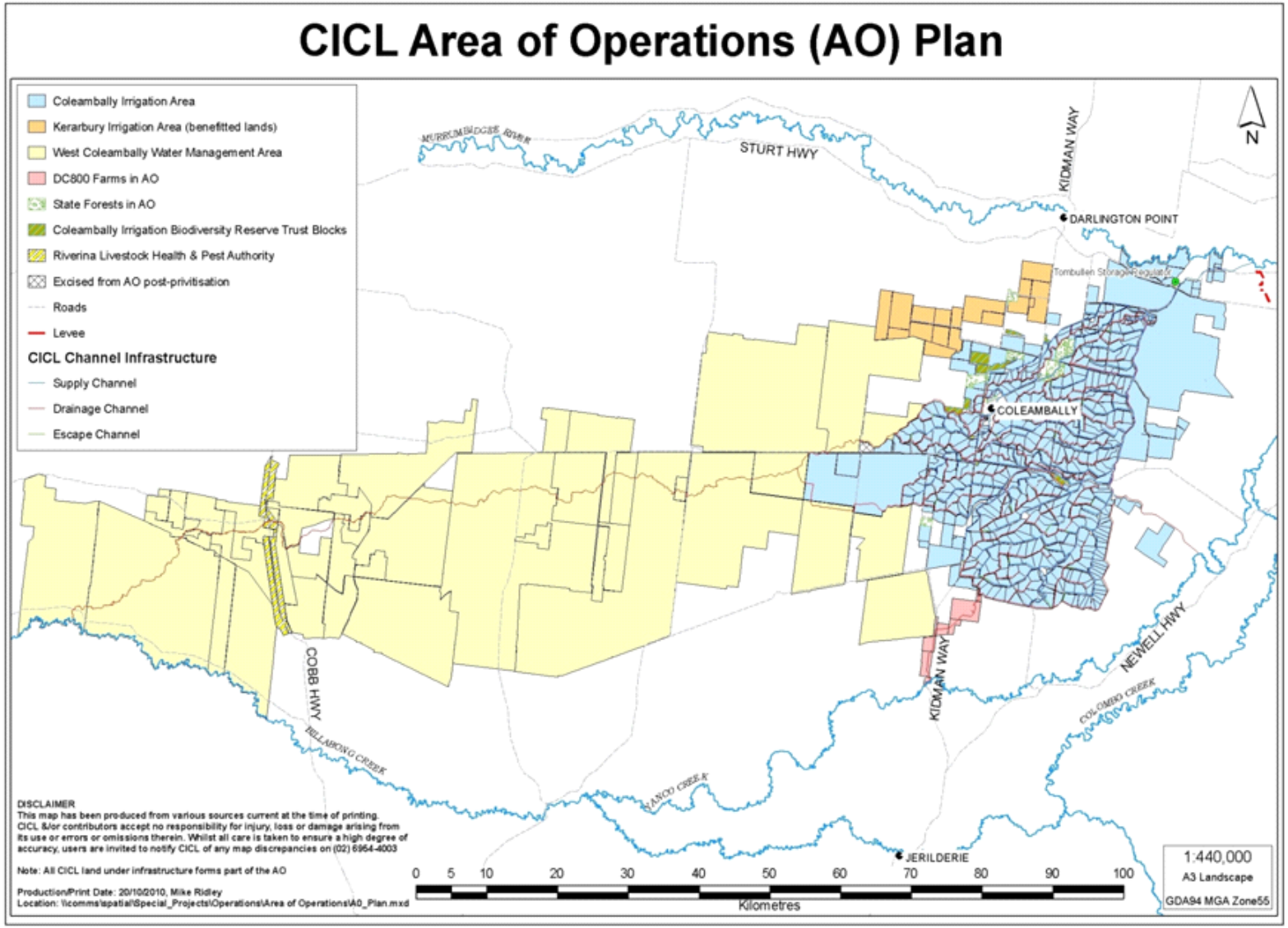
CICL's irrigation water is sourced from the Snowy Mountains via the Murrumbidgee River. The two major storages en route are Burrinjuck and Bowering dams with water being diverted into the Coleambally Main Canal upstream of Gogelderie Weir. CICL's delivery system is gravity fed and incorporates state of the art and solar-powered metering and flow regulation technologies which provide for fully automated water ordering and accounting.

CICL's irrigation system consists of 41 km of Main Canal from the Murrumbidgee River, 477 km of supply channels, and a further 734 km of drainage channels.

CICL is a leading exponent of open channel irrigation management and in the last 10 years has invested over $40 million in system automation. In addition, CICL's members have spent $95 million of their own funding since 2000 improving their land and water management practices and enhancing local biodiversity.

There were no changes to CICL's area of operation, which is depicted in Figure 1.2, during the reporting period

Figure 1.2 Current Area of Operation of CICL including the benefitted lands. (See attached Appendices A7 for higher level of detail)



1.3 Plans of Works and Monitoring Sites (Piezometers)

Figure 1.3 shows the location of approved Works. The approval 2012 and the groundwater work approvals 40CA403808 and 40WA404593 issued by the NSW Office of Water include three water extraction works, namely: Coleambally Main Canal Off-take, Col Bore and Hort Bore. The approval 2012 also includes three drainage discharge points: CCD on the Coleambally Catchment Drain; DC 800A on Drainage Channel 800; and CODD at Bundy on the West Coleambally Channel. One additional monitoring point has also been approved: CODA, on the West Coleambally Channel. The CODA monitoring point is used in conjunction with CICL's Rice Chemical Monitoring Program in lieu of CODD due to CODA's closer proximity to Coleambally. Figure 1.3 also shows the location of the Kerarbury Channel Off-take Regulator, which supplies water to the benefitted lands of the Kerarbury District.

Furthermore, as agreed with NSW Office of Water in 2012 an additional map in A1 Format is provided in Appendix A7 to provide additional detail.

A total of 737 piezometers have been approved as monitoring works to measure groundwater pressure levels in the Upper and Lower Shepparton Aquifers. Their locations are shown in Figure 1.4.

Figure 1.3 Works Plan

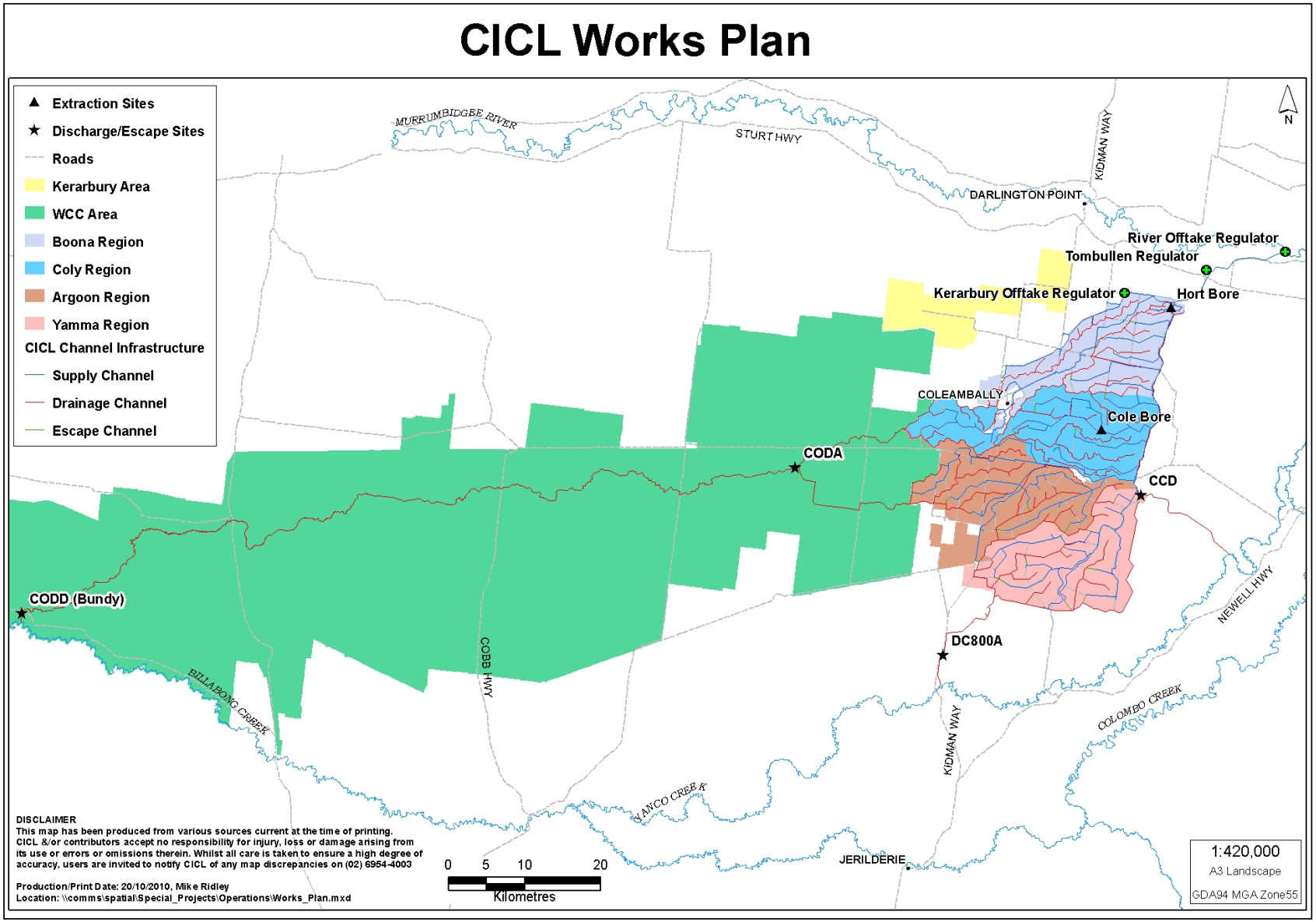
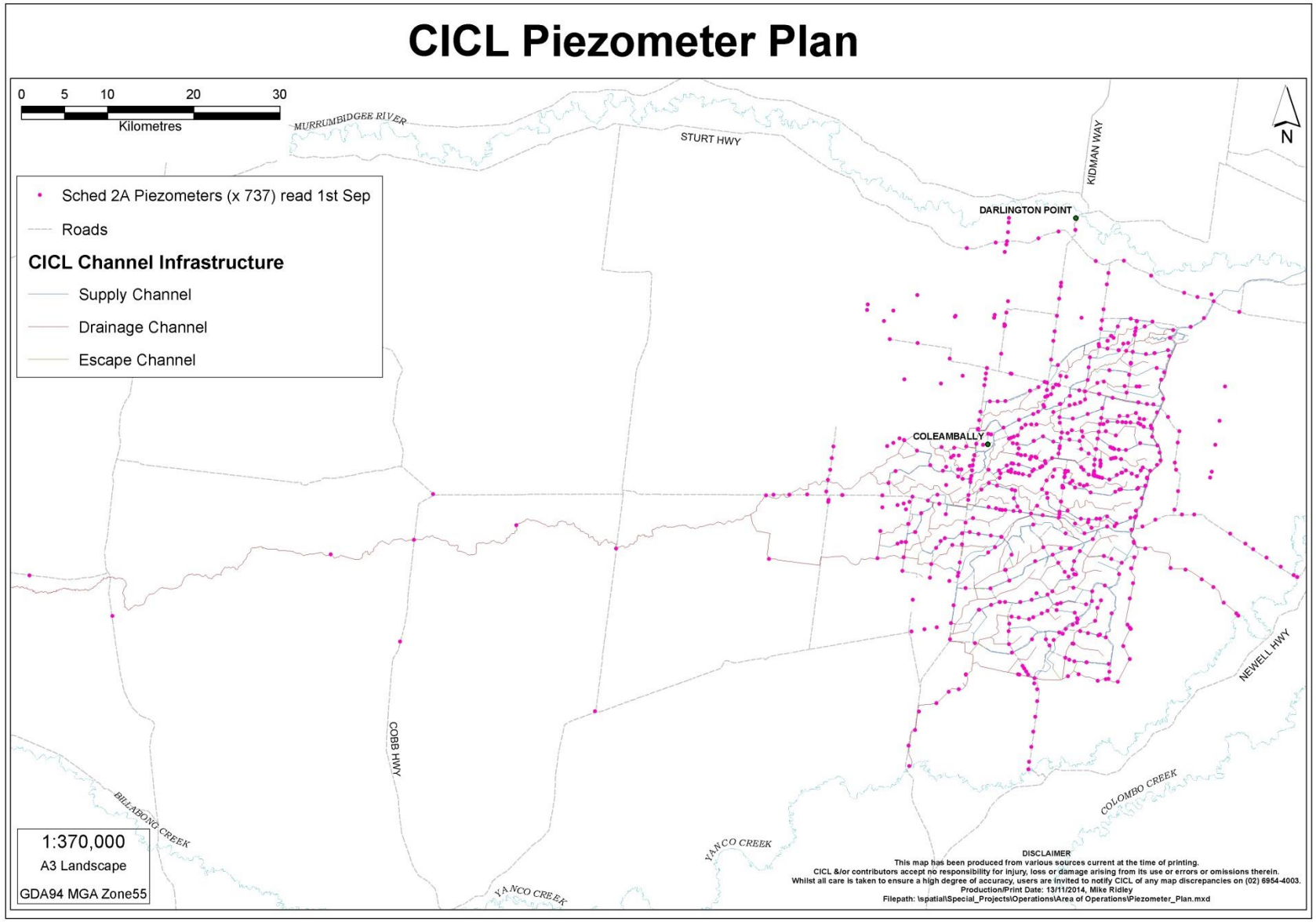
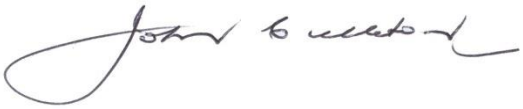


Figure 1.4 Piezometer (Monitoring Sites) Plan



2. Statement of Compliance

This is to certify that from 1st July 2013 to 30th June 2014, CICL has, with the exception of those matters explained in Section 3.4, complied with all monitoring and reporting requirements of the Water Access Licences, Water Supply Works, Approval 2012, groundwater works Approvals 40CA403808 and 40WA404593 and Environment Protection Licence (4652) issued to it by the NSW Government. The information presented in this report is also certified as being complete, true and accurate to the best of my knowledge.



John Culleton
Chief Executive Officer

3. Data and Analysis

3.1 Water Allocation

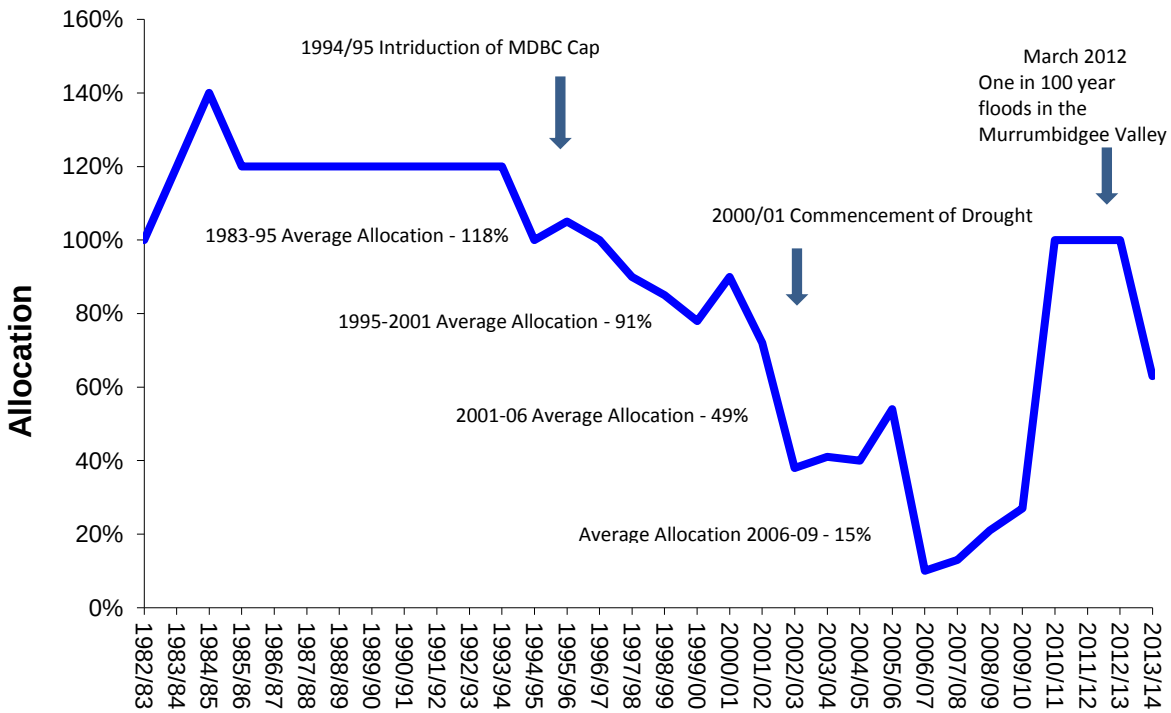
Table 3.1 shows the dates and announced General Security allocations in the Murrumbidgee Valley during 2013/14. The year commenced with an allocation of 18% and increased slowly to 43% by the time of summer crop planting. Unusually, an allocation of 4% was announced in April, however its lateness meant that this water was used to pre-water winter crops or was carried over.

Table 3.1 Cumulative General Security Water Allocations for 2013/14

Date	Cumulative GS Allocation (%)
1/07/2013	18%
1/08/2013	25%
15/08/2013	28%
16/09/2013	33%
1/10/2013	43%
15/11/2013	47%
16/12/2013	52%
15/01/2014	59%
15/04/2014	63%

Figure 3.1 shows annual General Security allocations in the Murrumbidgee Valley since 1982/83.

Figure 3.1: Annual allocations for general security entitlement since 1982/83 in the Murrumbidgee Valley



3.2 Monitoring Data

In compliance with condition 12.17 of the approval 2012, the following monitoring data is included:

1. Piezometer pressure level data, in Appendix A1
2. Surface Water Extraction and Salinity, in Appendix A2
3. Groundwater Extraction from CICL's Approved Works, Salinity and Salt Load, in Appendix A3
4. Groundwater Extraction from other Approved Works, in Appendix A4
5. Drainage Flow and Salinity data from three licensed discharge sites and one licensed monitoring site, in Appendix A3
6. Drainage Water quality data for pH, Nutrients, in Appendix A5
7. Drainage Water quality data for Chemicals, in Appendix A5
8. Crop type, crop area and water usage data, in section 3.3.4
9. Rice Chemical Monitoring Program results in Appendix A6.

3.3 Trends

3.3.1 Salinity

Tables 3.2 to 3.5 show monthly average salinity readings at three licensed discharge points and one licensed monitoring point. In the tables, 2013/14 data is compared with data from the previous two years and with the benchmark data. The benchmark was set up through averaging the data of the three seasons immediately preceding the privatization of CICL in 2000. In the case of salinity data, a blank cell indicates no flow. In Table 3.2, the 2011/12 figures were as presented, however as previous reports indicate this data was effected by backflow and as a result the related flow and salinity data lacks validity.

Table 3.2: MONTHLY SALINITY READINGS AT LICENSED DISCHARGE POINT CCD on the Coleambally Catchment Drain (µS/cm)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	174			120
August	180			164
September	141			213
October	91	103		143
November	80	131	92	98
December	104	88	75	96
January	87	70	211	128
February	113	60	214	16
March	159	75	176	64
April	52		155	94
May	n/a			106
June	n/a			158
Average	**118**	**86**	**157**	**117**
Median	108	75	145	113

Table 3.3: MONTHLY SALINITY READINGS AT LICENSED DISCHARGE POINT DC800A on the Drainage Channel DC800 (µS/cm)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	647	329	375	1496
August	1166	272	321	1661
September	399	285	273	338
October	247	275	347	257
November	311	281	259	314
December	298	362	259	306
January	211	201	182	268
February	330	245	207	240
March	282	443	248	268
April	293	411	318	215
May	323	458	280	226
June	247	236	211	534
Average	**396**	**317**	**297**	**510**
Median	305	283	304	287

Table 3.4: MONTHLY SALINITY READINGS AT LICENSED MONITORING POINT CODA on the West Coleambally Channel (µS/cm)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	258	390		1359
August	199	385	252	1504
September	312	308	287	886
October	176	150	250	399
November	150	126	235	524
December	133	133	207	526
January	138	105	210	457
February	207	236	207	437
March	221	276	233	367
April	132	555	193	459
May	208	270	221	487
June	247	212	252	1133
Average	**199**	**262**	**232**	**712**
Median	203	253	233	506

Table 3.5: MONTHLY SALINITY READINGS AT LICENSED DISCHARGE POINT CODD at BUNDY on the West Coleambally Channel (µS/cm)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	235	231		1868
August	n/a	267	225	1829
September	n/a	344	329	536
October	216	201	347	415
November	192	279	347	450
December	n/a	392	256	531
January	193	290	435	416
February	162	178	966	409
March	259	172	789	374
April	296	238	n/a	362
May	307	n/a	236	330
June	272	172	242	406
Average	**237**	**251**	**417**	**660**
Median	235	238	338	415

The above data shows that the monthly average salinity in the last three years, including 2013/14, at CODA and DC800A has remained relatively low in comparison to benchmark years. However the result at CCD is less pronounced because of diversions on behalf of State Water.

The lower salinity at the drainage monitoring sites is due to the lowering of groundwater (and by association, water-tables) within the CID. Whilst groundwater levels have decreased slightly over 2013/14, there has also been a reduction in water-tables from the benchmark and therefore below the level of the bed (base) of the drainage channels; this means there is no salt intrusion from water-tables into drainage water.

Unfortunately, data obtained in previous years was inaccurate due to localised flood events on the Yanco and Billabong Creeks which resulted in creek levels being above 3m with gauging instrumentation at CCD and CODD being affected by backwater and inundation. After discussion between CICL, the NSW Office of Water and State Water it was agreed that the related instrumentation needed to be updated and relocated. This work is due to be undertaken in 2014/15.

3.3.2 Flow

Tables 3.6 to 3.9 show monthly average drainage flows at three licensed discharge points and one licensed monitoring point. In the tables, 2013/14 data is compared with the previous two years' data and with the benchmark data. The benchmark was established through averaging the data of three seasons immediately preceding the privatisation of CICL in 2000.

Table 3.6: MONTHLY FLOW READINGS AT LICENSED DISCHARGE POINT CCD on the Coleambally Catchment Drain (ML)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	11	0	0	21
August	36	0	0	290
September	1526	0	0	887
October	1213	1688	0	1853
November	626	406	1175	2073
December	1403	416	5061	2305
January	3222	3725	4764	3619
February	3155	3064	2740	1843
March	2853	356	10244	2112
April	30	3	2496	1756
May	0	0	0	1430
June	0	0	0	279
Total	**14075**	**9659**	**26481**	**18468**
Average	**1173**	**805**	2207	**1539**
Median	919	179	587	1800

Table 3.7: MONTHLY FLOW READINGS AT LICENSED DISCHARGE POINT DC800A on the Drainage Channel DC800 (ML)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	16	107	25	432
August	9	36	138	1197
September	418	794	333	4455
October	1012	1149	242	5962
November	240	1106	1334	5119
December	474	617	2296	5162
January	1084	2840	5353	7660
February	545	1240	3783	6795
March	789	962	8411	7816
April	712	518	521	3721
May	165	341	879	2961
June	648	986	315	1675
Total	**6113**	**10696**	**23629**	**52955**
Average	**509**	**891**	**1969**	**4413**
Median	510	878	700	4787

Table 3.8: MONTHLY FLOW READINGS AT LICENSED MONITORING POINT CODA on the West Coleambally Channel (ML) now gauged at COD Wonga.

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	0	0	0	619
August	62	89	195	739
September	513	644	202	4983
October	2027	2574	1723	4494
November	664	1709	2950	5014
December	846	2206	4351	4041
January	3358	2874	4262	6806
February	894	1426	4013	5540
March	1934	2274	23935	8438
April	2095	229	1836	4427
May	814	1143	3680	4209
June	1512	1863	1185	2183
Total	**14719**	**17033**	**48331**	**51493**
Average	**1227**	**1419**	**4028**	**4291**
Median	870	1568	2393	4460

Table 3.9: MONTHLY FLOW READINGS AT LICENSED DISCHARGE POINT CODD at BUNDY on the West Coleambally Channel at Outfall into Billabong (ML)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	82	36	0	282
August	0	0	1	2150
September	0	1	9	3327
October	7	26	115	1914
November	11	81	148	3187
December	0	11	122	1536
January	209	246	42	3523
February	30	28	54	4461
March	76	23	237	3517
April	469	23	0	1814
May	180	0	861	2511
June	242	77	473	3053
Total	**1305**	**553**	**2062**	**31275**
Average	**109**	**46**	**187**	**2606**
Median	53	25	115	2782

The above data shows that whilst drainage in 2013/14 was stable, State Water is now making increased use of CICL drains (CCD, DC800 and DC500) more regularly to divert water to the Yanco and Billabong Creeks.

3.3.3 Extraction

Table 3.10 shows monthly average extraction at the Coleambally Main Canal Off-take. In the tables, 2013/14 data is compared with the previous two seasons' data and with the benchmark data. The benchmark was established through averaging the data of three seasons immediately preceding the privatisation of CICL in 2000.

Table 3.10: MONTHLY EXTRACTIONS (ML) AT LICENCE POINT CCS (Main Canal Off-take)

Month	2013/2014	2012/2013	2011/2012	Benchmark
July	0	0	0	0
August	26665	23660	19854	0
September	34845	32947	36807	42294
October	56080	97331	66700	38311
November	41184	82664	73567	57310
December	73132	105557	83163	66774
January	74856	133102	115482	95277
February	64840	72389	67156	61406
March	35380	32426	2213	105786
April	4783	11445	22360	54865
May	3572	6625	13276	33506
June	0	0	0	0
Total	**415337**	**598146**	**500578**	**555533**
Average	**34611**	**59815**	**41715**	**46294**
Median	35113	52668	29583	48580

The above data shows that below average allocations and the less-than-favourable outlook at planting resulted in 2013/14 extractions below the benchmark.

Tables 3.11 to 3.12 show monthly average extractions during 2013/14 from both Col Bore and Hort Bore compared to the previous two seasons and the benchmark.

Table 3.11: MONTHLY EXTRACTIONS (ML) COL BORE

Month	2013/2014	2012/2013	2011/2012	Benchmark 2007/08
July	0	0	0	0
August	0	0	0	184
September	147	0	0	459
October	0	0	207	376
November	303	0	107	180
December	0	0	520	228
January	0	376	504	317
February	0	29	333	218
March	0	0	0	302
April	0	0	0	339
May	0	0	0	209
June	0	0	0	0.0
Total	**450**	**405**	**1671**	**2812**

Table 3.12: MONTHLY EXTRACTIONS (ML) HORT BORE

Month	2013/2014	2012/2013	2011/2012	Benchmark 2007/08
July	0	0	0	n/a
August	0	0	0	n/a
September	0	0	0	n/a
October	32	26	0	n/a
November	188	0	85	n/a
December	0	0	0	n/a
January	0	0	0	n/a
February	0	0	0	n/a
March	113	0	0	n/a
April	0	0	0	n/a
May	0	0	0	n/a
June	0	7	269	n/a
Total	**333**	**33**	**354**	n/a

The above data depicts that, whilst Hort Bore extractions increased in order to supply high security water on demand outside of the normal CICL irrigation supply period, increased pumping costs relative to the cost of temporary water meant that overall groundwater extractions remained low. It must be noted that the benchmark for the bores is at time of installation (2007/08).

3.3.4 Crop Water Use

Table 3.13 shows the crops grown in CICL's area of operation, their area, the quantity of irrigation water supplied by CICL, average crop water usage and the proportion of water supplied to each crop as a percentage of total water supplied by CICL.

Table 3.13: Crop Area, Total Crop Use, Crop Water Use and Proportion of Total Deliveries

Crop	Area (Ha)	Intensity (ML/Ha)	% of Use
Rice	12500	13.0	43.6%
Corn/maize	4358	7.3	8.4%
Wheat	15071	2.4	9.8%
Soybeans	1734	5.3	2.4%
Pastures	5264	2.8	3.9%
Cotton	5587	4.6	6.9%
Barley	2884.5	2.3	1.8%
Canola	2540	1.5	1.0%
Sorghum	207	4.7	0.3%
Lucerne	72	3.9	0.1%
Oats	559	2.0	0.3%
Millet	55	4.5	0.0%
Triticale	75	1.1	0.0%
Forest	87	1.0	0.1%
Vegetables	39	13.2	0.1%
Clover	60	2.9	0.0%
Prunes	110	7.4	0.2%
Fababeans	150	2.3	0.1%
Other	235	5.9	0.4%
Total	**50,725**	**-**	**79.1%**

The data shows that rice, corn/maize and cotton were the main summer crops, with wheat, barley and pasture being the main winter crops. It must be noted that this data is grower derived and is usually an optimistic season opening forecast. The above intensity data for rice is likely lower than actual. Table 3.14 shows the change in area over the last decade of six major crops in the CID.

Table 3.14: Historical Comparison of Main Crop Areas and Proportion of Deliveries

Season	Rice		Corn/Maize		Soybeans		Cotton		Wheat		Pasture		Canola		
	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Total (%)
2013/14	12500	43.6	4358	8.4	1734	2.4	5587	6.9	15071	9.8	5264	2.8	2540	1.5	75.4
2012/13	19071	52.7	4872	7.7	2583	3.9	2089	3.0	13698	7.2	6545	3.6	4182	1.3	79.4
2011/12	16745	62.1	4767	8.2	2238	2.7	5280	7.9	15989	8.7	7472	4	5244	1.6	91.2
2010/11	14512	68.3	4367	7.2	1240	1.5	885	1.4	11334	5.1	8119	4.2	3381	1.5	89.2
2009/10	3668	46	311	2	495	1	0	0	10635	10	6903	12	2523	2	73
2008/09	2135	33.1	2472	3.4	308	1.4	0	0	4215	9.5	4481	16.3	1471	4.9	68.7
2007/08	90	1.4	941	1.2	152	0.7	0	0	6575	20	5004	20	1584	6.1	49.4
2006/07	8518	54.3	1863	7.6	478	0.8	0	0	12509	15.9	9958	7.8	1602	1	87.4
2005/06	18025	62.8	3306	7	2106	2.9	0	0	13610	8.4	15440	8.7	1748	0.9	90.6
2004/05	8142	44	3671	7.2	1495	2.2	0	0	20287	18.8	12865	10.8	2681	1.3	84.3
2003/04	12597	55.8	3545	5.7	1938	3.5	0	0	21192	15	12131	7.5	1763	0.7	88
2002/03	11395	46	4788	9.3	1788	1	0	0	21346	20.4	10183	7.4	2095	1.7	85.8
2001/02	27493	67.5	3808	4.2	3297	3.4	0	0	21103	9.2	11581	6.1	2191	0.6	91
2000/01	30440	73.9	4074	5.7	4551	5.9	0	0	14276	4.6	11998	4.7	2153	0.4	95.2
1999/00	24138	77.7	1178	3.1	2185	3.9	0	0	12649	6.1	7485	4.4	2152	0.7	95.9
1998/99	24491	73.8	1059	1.3	4339	5.7	0	0	13963	1.7	13879	8.1	2184	1.7	92.3
1997/98	24624	70.4	1059	1.3	4998	7.5	0	0	14943	7.4	9964	6.1	2053	0.4	94.2

The table above shows that over time, irrigation water supplied by CICL has been primarily used to grow rice. Over the last three years, rice growing has rebounded; however in 2013/14 with lower allocations at planting this trend was reversed in favour of increased maize and cotton production. As can be seen, the area committed to the production of soybeans, corn, wheat, pasture and canola has also varied greatly over the last decade in response to the availability of water and changing commodity prices.

3.4 Data Omissions and Discrepancies

This section identifies; the discrepancies and data omissions; and details of any action undertaken or proposed; to remedy any monitoring and/or reporting deficiencies in satisfying condition 12.4 of the approval 2012.

No data has been omitted in 2013/14. CICL has also chosen to use flow figures for CODA from the Wonga Rubicon Flume regulator because the installation of this regulator has rendered the CODA gauging less accurate (backflow affects). This arrangement has been made in consultation with NSW Office of Water.

3.5 Monitoring and Testing Data

NSW Office of Water requires all monitoring, testing, salinity and volume for surface and groundwater extractions in an unrestricted electronic format. A hard copy of the data is included at Appendix A2 and A3. The electronic data required under Section 12.7 of the Combined Licence Package will be provided via email.

3.6 Quality Assurance and Control Standards

CICL maintained the quality standard ISO 9002 and environmental standard ISO 14001 until 2003. While it no longer formally does so, CICL continues to use the related procedures. The following section lists various parameters monitored in compliance with the licence conditions and explains the methodology used for data collection and analysis and for the calibration of measuring devices.

3.7 Flow Monitoring

Coleambally Main Canal Off-take

Water extractions from the Murrumbidgee River are monitored at the Off-take of the Coleambally Main Canal using an Accusonic meter containing eight sensors for flow velocity measurement. The meter is installed as per the guidelines of the supplier and is calibrated using professional hydrographers. The Main Off-take has been calibrated regularly during the season and was within allowable tolerances.

Irrigators' Water Supply Points

Within CICL there are 761 water supply points. Of these, 536 are flume gates (designed/manufactured by Rubicon Systems Australia); 36 are Mace flow meters and 189 are Stock and Garden meters (propeller). CICL carries out calibration of flume gates at the time of installation as well as upon request by a landholder.

During 2013/14 CICL calibrated all flume gates through which water was being supplied for growing rice. The calibration was carried out by CICL staff who had received training from the manufacturers. Mace and propeller meters were calibrated at the time of installation and are in the process of being de-commissioned and replaced by flume gates and were therefore not re-calibrated during 2013/14.

Col Bore and Hort Bore

Apart from the Main Canal Off-take, CICL extracts water from Col Bore and Hort Bore deep groundwater bores. A Tempress propeller meter is installed at Col Bore and a Magflow meter at Hort Bore.

3.8 Salinity and Salt Load

Salinity at Water Extraction Works

CICL monitors monthly salinity levels at the Main Canal Off-take, Col Bore and Hort Bore using an YSI hand-held salinity meter. This is calibrated monthly using the standards supplied by NSW Office of Water. CICL uses two standard solutions for calibration purposes with salinities of 147 µS/cm and 1,413 µS/cm.

Salinity at Licensed Discharge Points

CICL uses data collected by NSW Office of Water at three licensed discharge points and one licensed monitoring point. This data is automatically collected continuously using salinity sensors and is communicated to NSW Office of Water using a radio telemetry system. The data is available on NSW Office of Water website. The instrumentation at these sites is calibrated and maintained by the hydrographic unit of NSW Office of Water at Tumut.

Salt Load Calculation

The Salt Load is calculated by using the following formula:

Salt Load (kg) = [Salinity (µS/cm) / 640] x Flow (ML)

3.9 Pesticides in Supply and Drainage Water

CICL monitors a range of pesticides and nutrients in both supply and drainage water. These chemicals are measured by a laboratory holding National Accreditation and Testing Authority (NATA) accreditation.

3.10 Turbidity and pH

CICL monitor these parameters in both supply and drainage water using hand-held meters. These meters are calibrated annually by CICL staff.

3.11 Crop Type and Crop Area

This information is collected from landholders through summer and winter crop type/area forms. Satellite imagery was again used to verify that rice crops were grown on land classified as suitable.

3.12 Crop Water Usage

Crop water usage is calculated on the water orders and crop information provided by landholders; this information is a grower's prediction and can vary.

3.13 Groundwater Levels and Groundwater Salinity

These parameters are measured by appropriately trained CICL staff. The methodology for groundwater levels and groundwater salinity monitoring was developed in conjunction with NSW Office of Water.

4. New Measures to Limit Groundwater Recharge and the Release of Salt

CICL revised its water use policy in 2012/13, to focus on all water usage rather than just rice water usage. The policy, which was further revised in 2013/14, considers the overall cropping intensity of each farm and establishes limits that prior modelling has established as being sustainable.

5. Land and Water Management Plan (LWMP) Implementation

CICL has co-ordinated the implementation of three Coleambally District LWMPs since the year 2000. The program was designed to ensure that farms are designed and re-engineered to maximise water use efficiency and to adopt LWMP options targeting long-term sustainability.

The implementation of the three LWMP's has been one of the most successful projects in the area of natural resource management within the Murray Darling Basin (MDB). The project was a successful demonstration of community, government and industry partnership in the sustainable management of natural resources, whilst also delivering an increase in efficiency and productivity. However with the cessation of federal funding in 2009/10 and a greatly reduced level of State funding from 2011/12, this program has been concluded.

6. Water Management

The following report and Table 6.1 are intended to satisfy the conditions in 12.10 of the approval 2012. It must be noted however that the water management report refers to data obtained during an irrigation season which runs from September to June.

The following tables display reconciled monthly volumes of water:

- taken through each authorised water supply work against the Approval Holder's water access licences;
- taken through each authorised water supply work against other water access licences; and
- released from each escape as an authorised credit.

Table 6.1: 2013/14 Water taken through Water Supply Works against Water Access Licences (All readings are taken mid-month.)

Surface Water Licences (Works Approval 40CA401473)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Landholder High Security Access Licence 40AL401469	0	0	0	0	3908	0	0	0	0	0	0	0	3908
Converted High Security 40AL405230	0	0	0	0	5579	0	0	0	0	0	0	0	5579
2nd Converted High Security 40AL405343	0	0	0	0	568	0	0	0	0	0	0	0	568
General Security Access Licence 40 AL401471	0	0	0	0	0	54428	66204	33383	286	4783	3572	0	162656
General Security Access Licence 40 AL405267	0	0	0	0	3926	0	0	0	0	0	0	0	3926
Town Water Supply High Security Access Licence 40AL401470	0	0	0	0	70	0	0	0	0	0	0	0	70
Outfall Drain High Security S & T Access Licence 40AL401472	0	0	0	0	3497	0	0	0	0	0	0	0	3497
Conveyance Loss Allowance Access Licence 40AL402990	0	10311	15824	48018	17510	0	0	18762	25130	0	0	0	135555
Supplementary Access Licence 40AL202991	0	9314	11060	0	0	0	0	0	0	0	0	0	20374
	0	**19625**	**26884**	**48018**	**35058**	**54428**	**66204**	**52145**	**25416**	**4783**	**3572**	**0**	**336133**
Aquifer Access Licence 40AL403806 & Supp 40AL403807													
Col Bore (Works Approval 40CA403808)	0	0	147	0	303	0	0	0	0	0	0	0	450
Hort Bore (Works Approval 40WA404593)	0	0	0	32	188	0	0	0	113	0	0	0	333
	0	**0**	**147**	**32**	**491**	**0**	**0**	**0**	**113**	**0**	**0**	**0**	**783**

The following information is provided to satisfy condition 12.11 of the approval 2012.

The monthly volumes of water released without credit from escapes

There was no water released without credit from escapes during the 2013/14 irrigation season. Refer Table 6.2.

The monthly volumes of water released from each drain

There was no water released without credit from drains during the 2013/14 irrigation season.

The monthly volumes of water delivered to customers and accounted by each water supply work

There was a total of **312,548** ML delivered to customers in 2013/14. Refer Table 6.2 for a monthly break-up of deliveries.

Table 6.2: 2013/14 Volume Released without Credit, Released from Drain, and Volume Released to Customers (ML)

2013/14	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
released without credit from escapes	0	0	0	0	0	0	0	0	0	0	0	0	0
released from each drain	0	0	0	0	0	0	0	0	0	0	0	0	0
delivered to customers	0	13154	24541	45387	32484	51167	62822	49424	23846	3874	5346	503	312548

The following information is provided to satisfy condition 12.12 of the approval 2012.

The estimated annual volumes of net channel losses accounting for deliveries, escapes, recycling, evaporation, rainfall, change in storage and seepage

The channel losses through escape channels, evaporation, change in storage, seepage and gains in the channel system through rainfall, are shown in Table 6.3. The gains from rainfall and losses through evaporation have been calculated for the irrigation season only (2013/14 season). For the purpose of Table 6.3 the channel area has been estimated as 555 ha. It must also be noted that net channel losses vary slightly from the CICL Annual Report 2014 due to a calculation error; this correction is reported correctly in this report.

Table 6.3: Net Channel Loss Accounting

Losses	Estimated volume (ML)
Escapes	0
Evaporation	-5,095
Change in storage	46,480
Seepage	-20,813
Total Losses	**20,572**
Gains in Channel	
Rainfall	3,796
Net Channel Losses	**24,368**

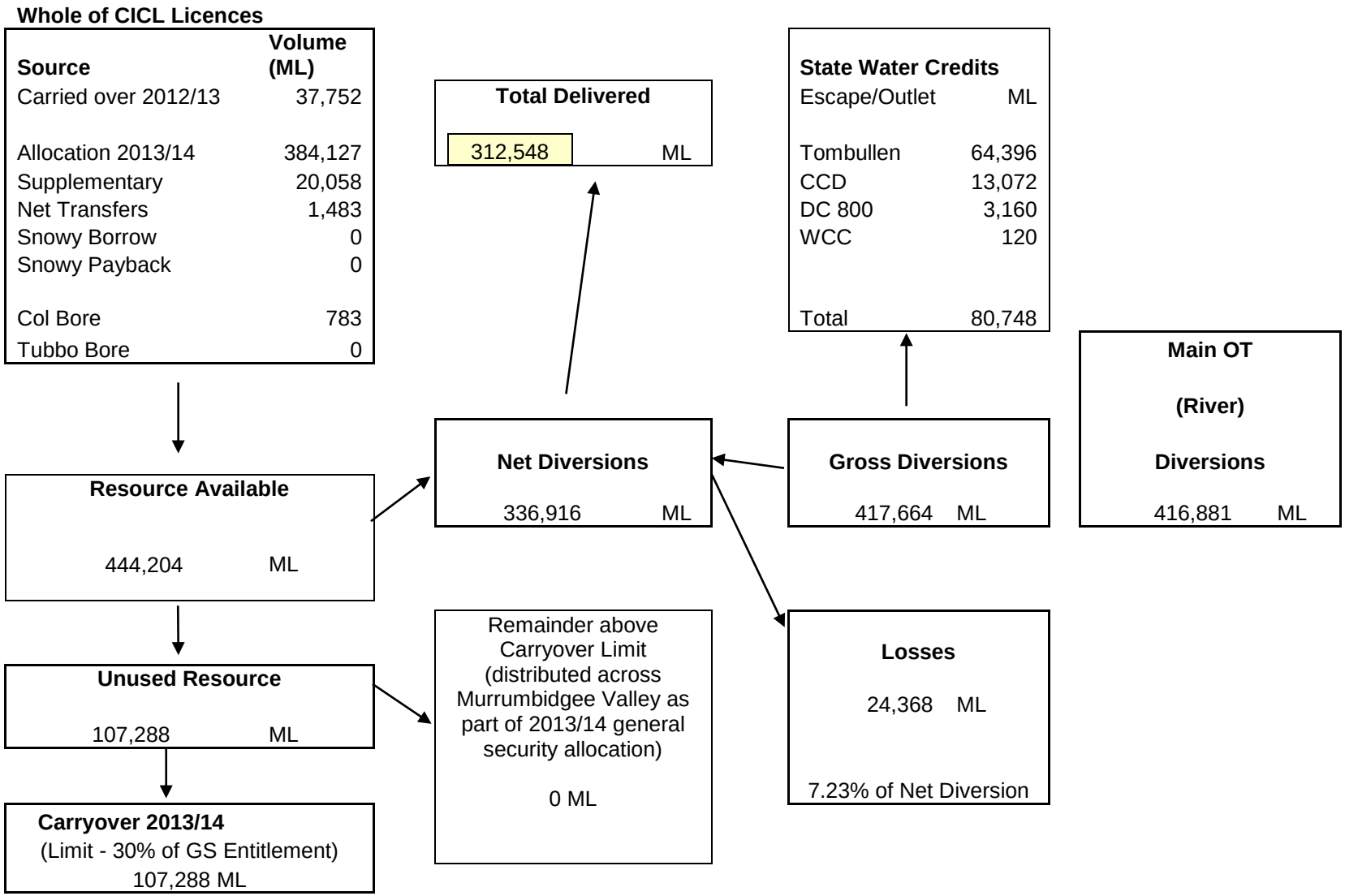
The estimated change in the volume of water held in off-line storages

There was no volume of water held in off-line storages for 2013/14.

The water balance for the entire area of operations or by major subdivisions thereof, if appropriate, as presented together with data from conditions 12.10 and 12.11

Figure 6.1 indicates the water balance including the above data and conditions for 2013/14.

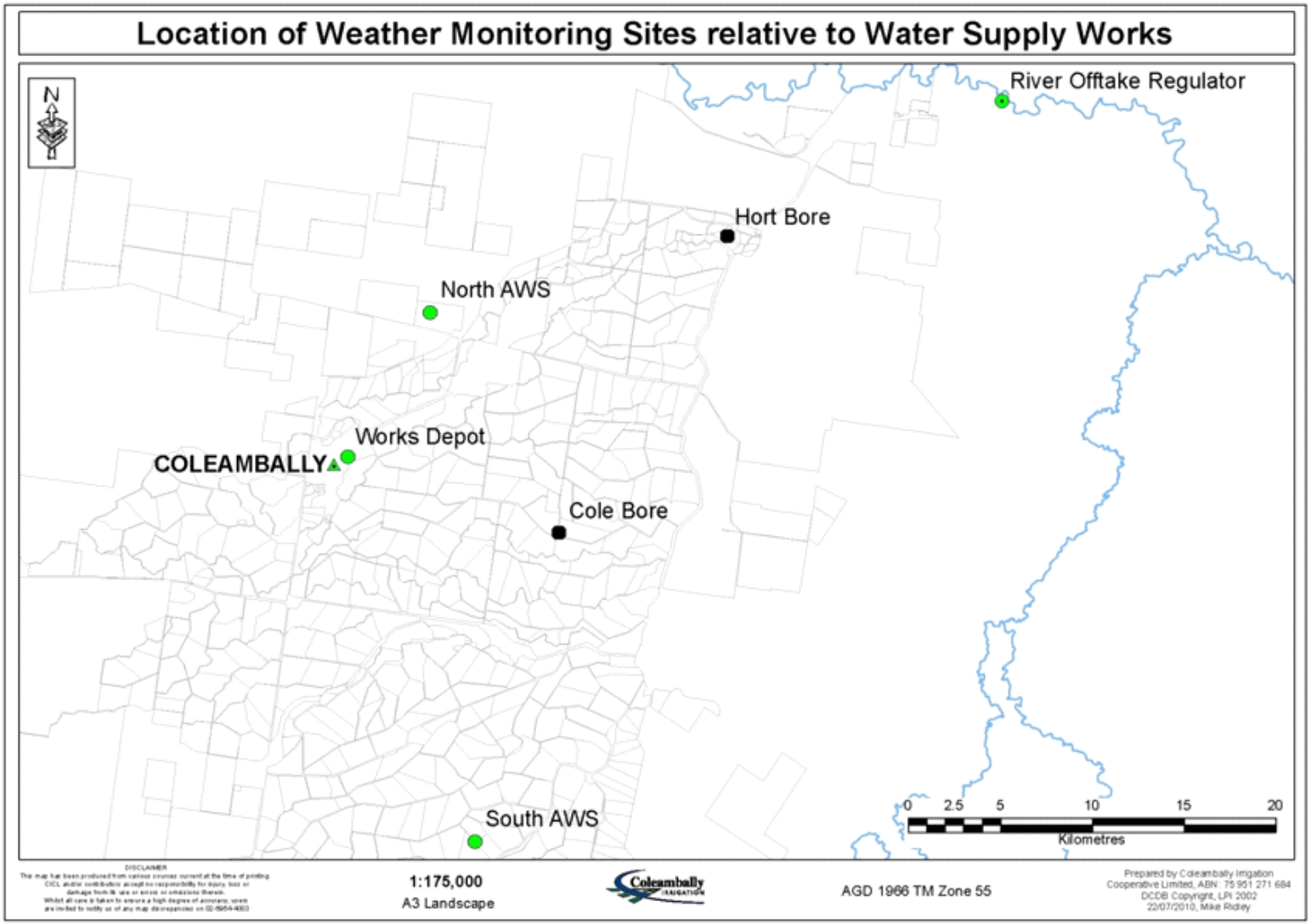
Figure 6.1: Water Use - Year to Date



Estimated Annual Rainfall at each Water Supply Work

A map depicting the locations of all weather monitoring sites relative to all water supply works is shown in Figure 6.2 below.

Figure 6.2: Location of Weather Monitoring Sites relative to Water Supply Works



Estimated Annual Evapo-transpiration / Rainfall at each Water Supply Work

Both North- and South- Automatic Weather Stations (AWS) record many parameters—including Rainfall (logged as 'accumulative') and reference evapo-transpiration (ET_o). The equation used in the calculation of ET_o is the established ASCE Penman-Monteith, otherwise known as the FAO-PM (Penman-Monteith).

Geographically the North-AWS is almost equidistant from both Hort Bore and Col Bore water supply works and is significantly closer to both than the South-AWS. Rainfall and ET_o values from the North-AWS have consequently been used in this report.

As such, for the 2013/14 period and in the general area encompassing all water supply works, the annual Rainfall and ET_o is recorded as 338.2 mm and 1485.7 mm respectively.

Table 6.4: Rainfall and Evaporation AWS/1

AWS/1 (North AWS)	Rain (mm)	ETo (mm)
Jul	26.8	43.2
Aug	21.0	65.1
Sep	24.0	105.8
Oct	5.0	156.5
Nov	17.0	187.9
Dec	28.4	219.0
Jan	36.2	231.9
Feb	28.4	176.7
Mar	48.6	132.7
Apr	33.6	78.5
May	25.6	54.7
Jun	43.6	33.7
2013/14 TOTAL	**338.2**	**1485.7**

Water deliveries for:

- **Rice**

  Total deliveries for rice as per ordering information indicated usage of 162,503 ML across 12,500 ha of rice.

- **Horticulture**

  Total water delivered for horticultural crops which included pumpkins, prunes, grapes, olives, potatoes and (other) vegetables was 1,329 ML across 236 ha.

- **All other summer crops (including pasture)**

  Total water delivered for all other summer crops (including pasture) was 42,509 ML across 6,427 ha.

- **Winter crops**

  Total water delivered for winter crops was 62,473 ML across 26,318 ha.

- **Domestic and stock purposes**

  The water delivered for stock and domestic purposes was 1,329 ML.

- **All other purposes**

  The water delivered for all other purposes (including farm forestry and biodiversity watering) totalled 35,928 ML.

The land areas associated with all water deliveries above are estimated in Table 6.5 below:

Table 6.5: Water Deliveries and associated Land Areas for Irrigation Purposes 2013/14

Water deliveries for rice	162,503	ML	12,500	ha
Water deliveries for horticulture	1,329	ML	236	ha
Water deliveries for all other summer crops (including pasture)	42,509	ML	6,427	ha
Water deliveries for winter crops	62,473	ML	26,318	ha
Water deliveries for domestic and stock purposes	1,329	ML	….	---
Water deliveries for all other purposes	35,928	ML	---	---

Distribution of Irrigation Intensity

The irrigation intensity in at least three intensity ranges, for the main supply sub-divisions/ areas are represented in Table 6.6.

Table 6.6: Distribution of Irrigation Intensity (ML/ha)

Average Irrigation Intensity (ML/ha) across CID Sub-Regions	Number of Farms within Region	Metered Irrigation within Region (ML)	Area of Region (ha)	Irrigation Intensity 2013/14
Region 1: Boona	125	50,137	33,452	1.5
Region 2: Coly	98	96,890	22,432	4.3
Region 3: Argoon	105	74,622	35,427	2.1
Region 4: Yamma	88	65,635	23,313	2.8
Region 5: WCC	37	6,641	317,218	.02
Kerarbury Private Channel	15	18,623	13,335	1.4

7. Salinity and Salt Load

The **Salinity and Salt Load** of extractions at the sites listed in Attachment 1-A of the Combined Licence Package, and in accordance with requirements set out in Attachment 1-B of the Combined Licence Package, satisfies requirement 12.14 of the approval 2012. Refer Table 7.1.

Table 7.1: Volume of Water Entering CICL's Operational Area (ML), Salinity (µS/cm) and Salt Load (Tonnes) in 2013/14

Month	MAIN CANAL			COL BORE			HORT BORE		
	ML	µS/cm	Salt/T	ML	µS/cm	Salt/T	ML	µS/cm	Salt/T
July	0	202	0	0	n/a	0	0	n/a	0
August	26665	202	8412	0	n/a	0	0	n/a	0
September	34845	199	10819	147	735	169	0	n/a	0
October	56080	153	13412	0	n/a	0	32	320	16
November	41184	113	7291	303	720	341	188	320	94
December	73132	100	11453	0	n/a	0	0	n/a	0
January	74856	109	12764	0	n/a	0	0	n/a	0
February	64840	94	9528	0	n/a	0	0	n/a	0
March	35380	95	5269	0	n/a	0	113	320	57
April	4783	123	922	0	n/a	0	0	n/a	0
May	3572	205	1142	0	n/a	0	0	n/a	0
June	0	n/a	n/a	0	n/a	0	0	n/a	0
Total	**415337**		**81011**	**450**		**510**	**333**		**167**
Salt TOTAL	**81688**								
ML TOTAL	**416120**								

The **Volume, Salinity and Salt Load of Discharges** from the sites listed in Attachment 1-A of the approval 2012 and in accordance with requirements set out in Attachment 1-B of the approval 2012, satisfies requirement 12.15 in the approval 2012 and are displayed in Tables 7.2 to 7.4.

Table 7.2: Volume of Water exiting CICL's Operational Area (ML), Salinity (µS/cm) and Salt Load (Tonnes) in 2013/14

Month	DC 800@ OUTFALL			DC 500@ OUTFALL			CCD		
	ML	µS/cm	Salt/T	ML	µS/cm	Salt/T	ML	µS/cm	Salt/T
July	16	647	17	0	258	n/a	11	174	3
August	9	1166	16	62	199	19	36	180	10
September	418	399	260	513	312	250	1526	141	337
October	1012	247	391	2027	176	557	1213	91	172
November	240	311	117	664	150	156	626	80	78
December	474	298	221	846	133	176	1403	104	227
January	1084	211	358	3358	138	726	3222	87	437
February	545	330	281	894	207	289	3155	113	559
March	789	282	348	1934	221	667	2853	159	708
April	712	293	327	2095	132	433	30	52	2
May	165	323	83	814	208	265	0	n/a	n/a
June	648	247	250	1512	247	583	0	n/a	n/a
Total	**6113**		**2668**	**14719**		**4121**	**14075**		**2533**
Salt TOTAL	**9322**								
ML TOTAL	**34907**								

Table 7.3: Volume of Water exiting CICL's Operational Area at CODD (ML), Salinity (µS/cm) and Salt Load (Tonnes) in 2013/14

Month	CODD @ BUNDY		
	ML	µS/cm	Salt/T
July	82	235	30
August	0	n/a	0
September	0	n/a	0
October	7	216	2
November	11	192	3
December	0	n/a	0
January	209	193	63
February	30	162	8
March	76	259	31
April	469	296	217
May	180	307	86
June	242	272	103
Total SALT/T	**1305**		**543**

Table 7.4 represents a **Simple Annual Salt Balance** comprising the imported, exported and retained Salt Load for the area associated with each separate water supply work. This satisfies requirement 12.16 in the approval 2012.

Table 7.4: CID Simple Salt Balance (Tonnes) in 2013/14

IMPORTED SALT	Tonnes	EXPORTED SALT	Tonnes
MAIN CANAL	81011	DC 800A	2668
COL BORE	510	DC 500	4121
HORT BORE	167	CCD	2533
TOTAL	**81688**	**TOTAL**	**9322**
Balance	**72366**		

The salt balance does not include the amount of salt going into the shallow or deep groundwater. It is acknowledged that some salt would be exported out of the area through both shallow groundwater and deep groundwater movement and this is further complicated by groundwater extractions by holders of private irrigator licences.

For this report, a conversion factor of 1,000 µS/cm in 1 L = 640 mg of salt has been used. Effectively 1 ML of water at an EC of 1000 µS/cm contains 640 kg of salt. This is equivalent with the calculation as per Section 3.8.

8. Groundwater Conditions

8.1 Groundwater Conditions within the Area of Operation

CICL has a network of piezometers throughout its Area of Operations which is used to monitor groundwater conditions. The piezometers are read yearly on 1st September (+/- 2 weeks) with the data analysed using Arc Map GIS and MS Excel software.

In September 2014, all of CICL's 737 licensed piezometers were read. Of these, 51 were recorded as being dry, eight as blocked and six damaged. Blocked/damaged piezometers will likely be remedied during general maintenance scheduled for April annually.

Piezometers are read to an accuracy of +/- 5cm, with the data obtained presented as per the Licence monitoring requirements. Data analysis and mapping is performed on a split set of data:

1) Levels from the upper Shepparton aquifer via piezometers < 12m deep
2) Levels from the lower Shepparton aquifer via piezometers 12m - 60m deep

All Licence piezometers with a recorded depth are mapped, with the exception of any dry/blocked readings within 4m of the natural surface, and all those recorded as buried/damaged/flooded, as their inclusion would falsely influence groundwater modelling.

For comparative purposes, groundwater levels in the previous year and in the baseline year of 1998 are presented along with the current year. The inclusion of the previous year highlights the change in conditions from the last season to the present, whilst the inclusion of the baseline year allows a comparison with groundwater conditions in the year following CICL's privatisation.

Figures 8.1 and 8.2 are contour maps of the piezometric levels below natural surface for September 2014. A three dimensional interpolated and gridded surface of piezometric levels was created from point measurements (depth to water below natural surface at each piezometer) by using the inverse distance weighted (IDW) method of interpolation. This method requires inputs of XY coordinates for location and a Z coordinate for the piezometric level. An output grid cell size of 100m gives a unit cell area of 1 ha. The number of neighbours sampled was 12 and a power of two was the exponent of distance.

Tables 8.1 and 8.2 are tabular representations of Figures 8.1 and 8.2 respectively.

Table 8.1: Groundwater depth below natural surface; 0-12m piezometers; Sep 2014

Groundwater Depth Below Natural Surface (m)	2014 Area (ha)
0-1	53
1-2	2,676
2-4	40,362
4-6	29,928
6-8	11,488
8+	11,295
Total	**95,802**

From Table 8.1 for 0-12m depth piezometers 45% of the mapped groundwater area existed in the 0-4m zone in 2014, which in Figure 8.1 is represented in red, orange and yellow combined.

Fig 8.1: Groundwater depth below natural surface; 0-12m piezometers; Sep 2014

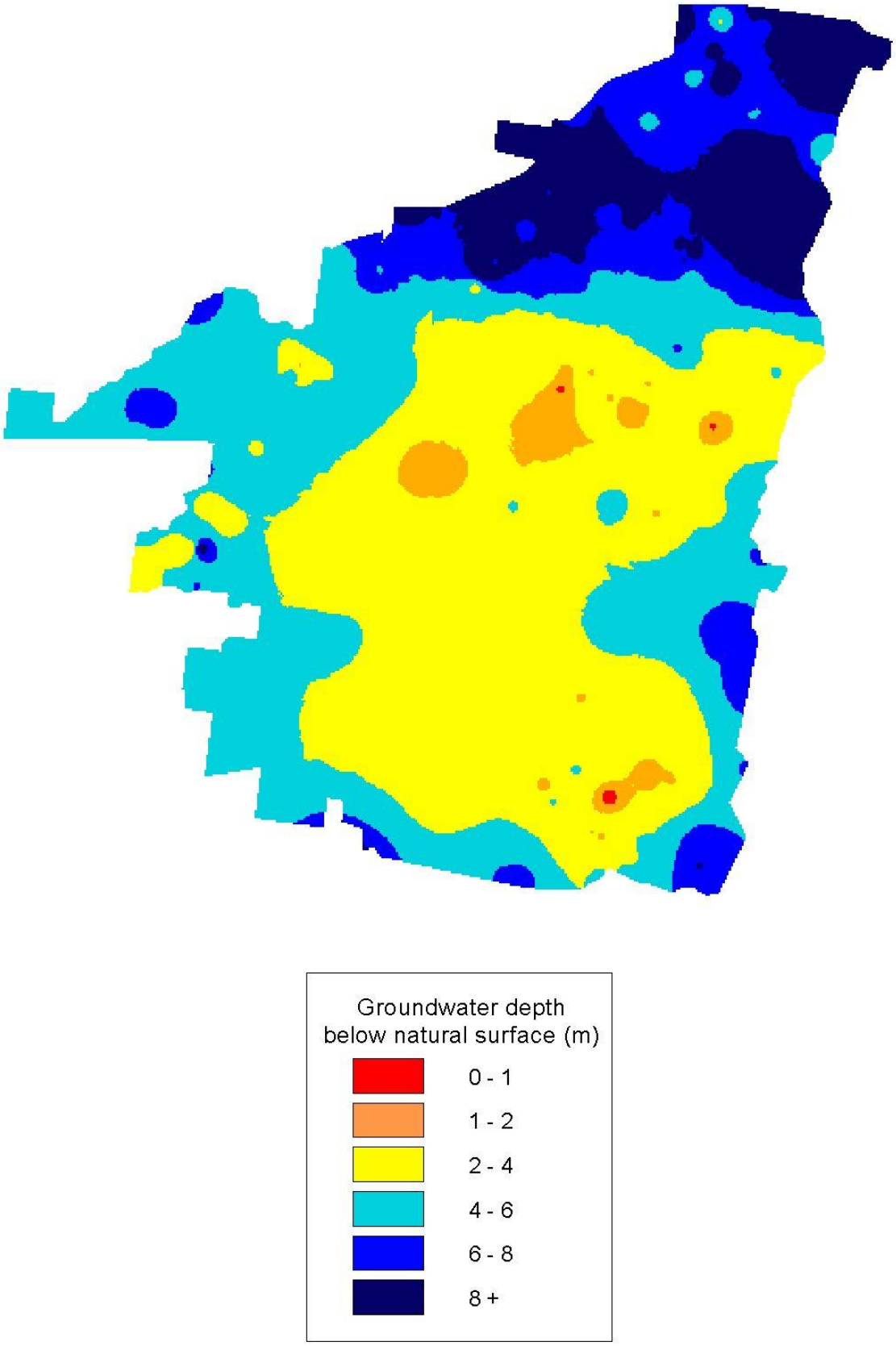


Fig 8.2: Groundwater depth below natural surface; 12-60m piezometers Sep 2014

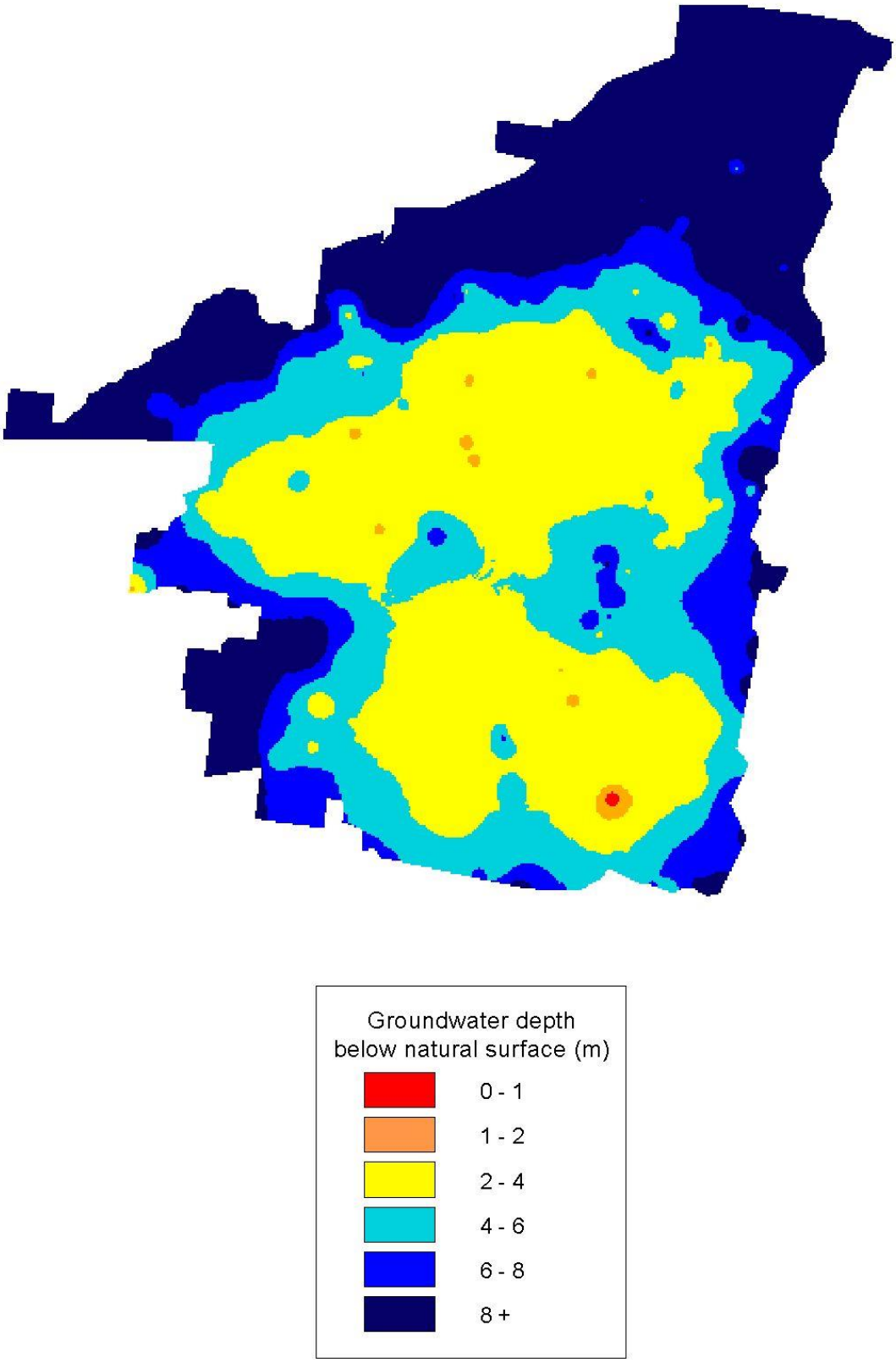


Table 8.2 Groundwater depth below natural surface; 12-60m piezometers; Sep 2014

Groundwater Depth Below Natural Surface (m)	2014 Area (ha)
0-1	34
1-2	380
2-4	33,812
4-6	22,028
6-8	11,533
8+	28,015
Total	**95,802**

From Table 8.2 for 12-60m depth piezometers, 36% of the mapped groundwater area existed in the 0-4m zone in 2014, which in Figure 8.2 is represented in red, orange and yellow combined.

Figures 8.3 and 8.4 depict the groundwater depth below natural surface, in the years 2014 and 1998, as converted to the Australian Height Datum (AHD) and mapped for all of the 0-12m and 12-60m piezometers, signifying the upper and lower parts of the Shepparton Aquifer, respectively. These levels represent the groundwater height above sea level and can be used to identify the direction of groundwater flow. In general, the direction of groundwater flow is WSW.

Tables 8.3 and 8.4 are tabular representations of Figures 8.3 and 8.4 respectively.

Table 8.3: Groundwater depth below natural surface; 0-12m piezometers; Sep 2014 versus Sep 1998

Groundwater Depth Below Natural Surface (mAHD)	2014 Area (ha)	1998 Area (ha)
123 – 127 (higher)	1,887	6,381
119 - 122	28,410	42,337
115 - 118	36,352	34,921
111 - 114	25,995	11,432
107 - 110	3,158	731
94 – 106 (lower)	0	0
Total	**95,802**	**95,802**

Table 8.4: Groundwater depth below natural surface; 12-60m piezometers; Sep 2014 versus Sep 1998

Groundwater Depth Below Natural Surface (mAHD)	2014 Area (ha)	1998 Area (ha)
123 – 127 (higher)	1	4,151
119 - 122	19,870	39,182
115 - 118	35,713	31,548
111 - 114	23,082	11,211
107 - 110	11,297	5,724
94 – 106 (lower)	5,839	3,986
Total	**95,802**	**95,802**

Fig 8.3: Groundwater level (AHD); 0-12 m and 12-60m piezometers; Sep 2014

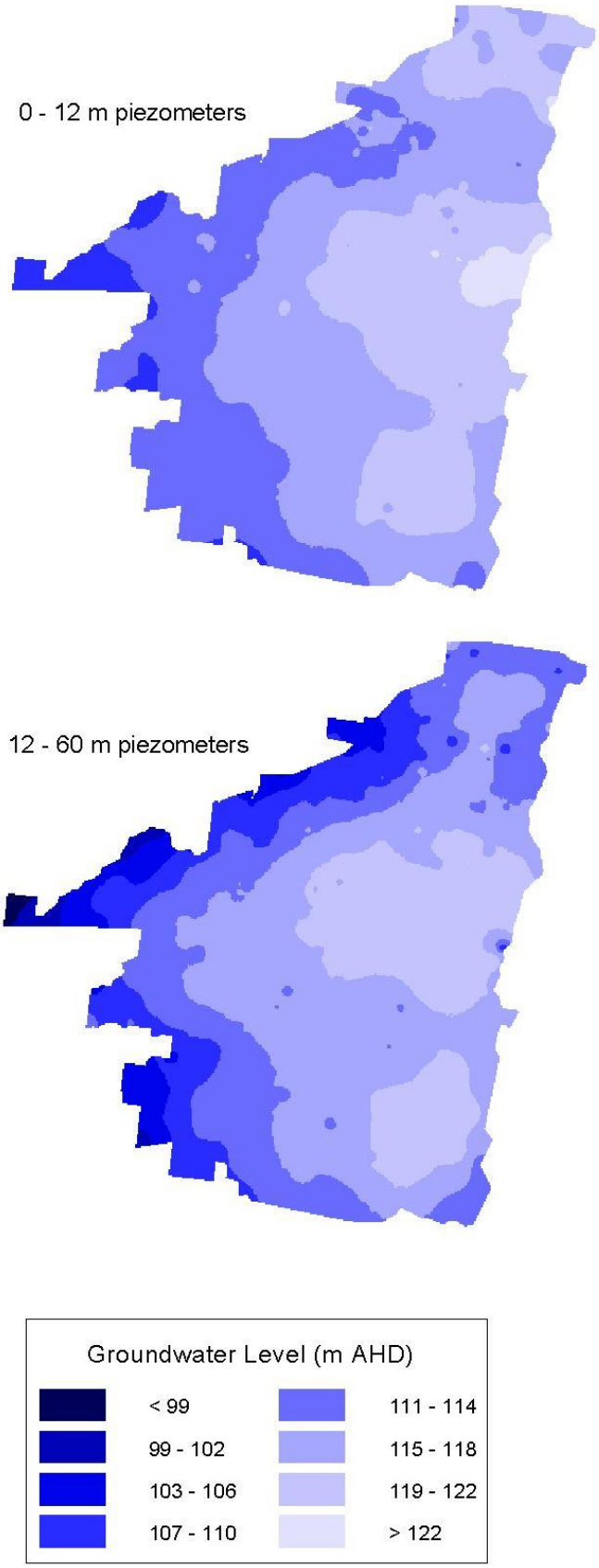
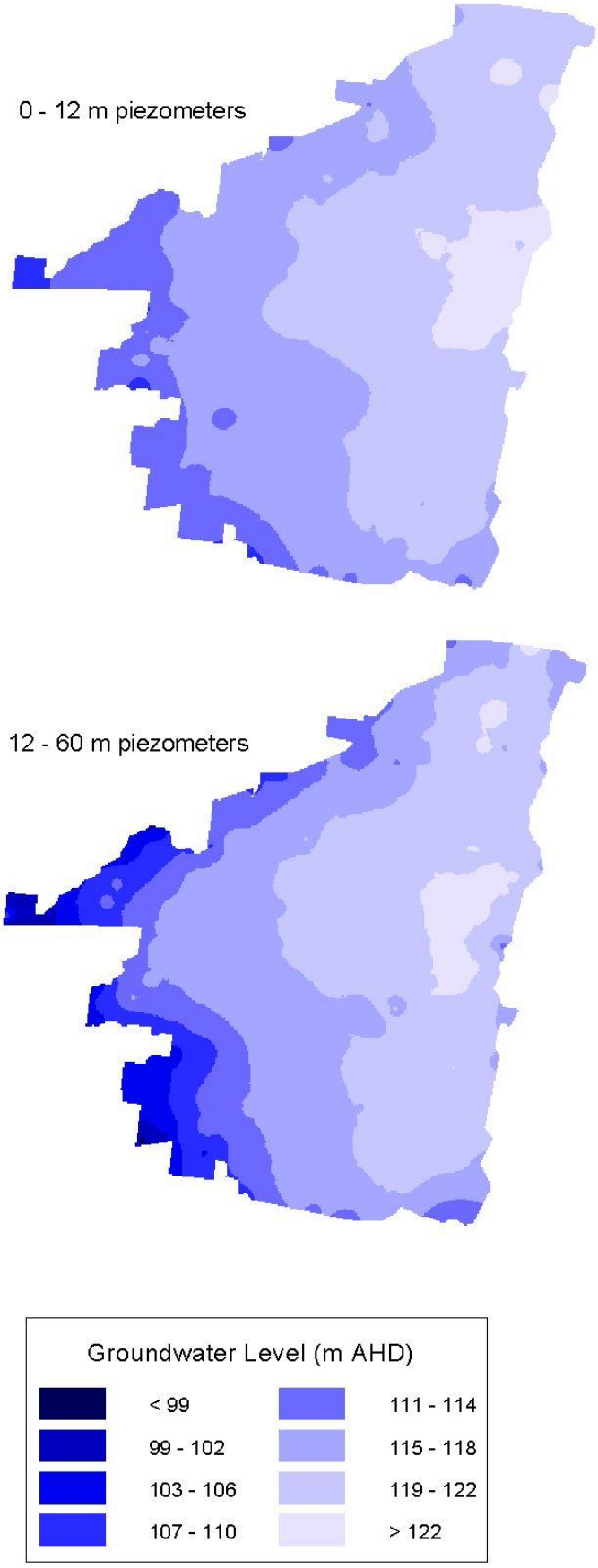


Fig 8.4: Groundwater level (AHD); 0-12 m & 12-60m piezometers; Sep 1998



From Tables 8.3 and 8.4, groundwater level is currently significantly lower than that in the historical reference (baseline) of 1998. Areas associated with the highest 123-127 mAHD levels (i.e. closest to natural surface) decreased by 4,494 ha from 1998 to 2014 for 0-12m piezometers.

Figures 8.5 and 8.6 depict the changes in September groundwater depth below natural surface, from 2013 to 2014 and, as a comparison, from 1998 to 2014, for both 0-12m and 12-60m piezometers, respectively.

Negative values indicate areas with lower (deepening) groundwater and conversely, positive numbers indicate areas with higher (rising) groundwater.

Tables 8.5 and 8.6 represent a comparison of change in area of key groundwater depth ranges from 2013 to 2014 and from 1998 to 2014.

Table 8.5: Change in area of groundwater depth ranges below natural surface; 0-12m piezometers; 2014 vs 1998years 2013 to 2014, and years 1998 to 2014

Groundwater Depth Range Below Natural Surface (m)	Years and Area of Groundwater Depth (ha) [+ = rising][– = falling]			Change in Area of Groundwater Depth (ha) [+ = rising][– = falling]	
	1998	2013	2014	2014 vs 1998	2014 vs 2013
0-1	1,939	194	53	-1,886	-141
1-2	34,102	3,543	2,676	-31,426	-867
2-4	41,559	45,141	40,362	+11,197	-4,779
4-6	13,442	25,577	29,928	+16,486	+4,351
6-8	4,256	10,081	11,488	+7,232	+1,407
8+	504	11,266	11,295	+10,791	+29
Total	**95,802**	**95,802**	**95,802**	**0**	**0**

Table 8.6: Change in area of groundwater depth ranges below natural surface; 12-60m piezometers; years 2013 to 2014, and years 1998 to 2014

Groundwater Depth Range Below Natural Surface (m)	Years and Area of Groundwater Depth (ha) [+ = rising][– = falling]			Change in Area of Groundwater Depth (ha) [+ = rising][– = falling]	
	1998	2013	2014	2014 vs 1998	2014 vs 2013
0-1	760	16	34	-726	+18
1-2	22,264	828	380	-21,884	-448
2-4	33,481	36,189	33,812	+331	-2,377
4-6	17,300	20,833	22,028	+4,728	+1195
6-8	10,549	11,045	11,533	+984	+488
8+	11,448	26,891	28,015	+16,567	+1124
Total	**95,802**	**95,802**	**95,802**	**0**	**0**

Table 8.5 (0-12m piezometers) indicates that, from 1998 to 2014 the area associated with the two uppermost depth ranges (bands) fell significantly. The quantum of area that fell in depth was spread amongst the four bands below. From 2013 to 2014, the water table likewise fell in the top three bands with areas correspondingly distributed in the three bands below.

Fig 8.5: Changes in groundwater depth below natural surface; 0-12m piezometers; years 2013 to 2014, and years 1998 to 2014

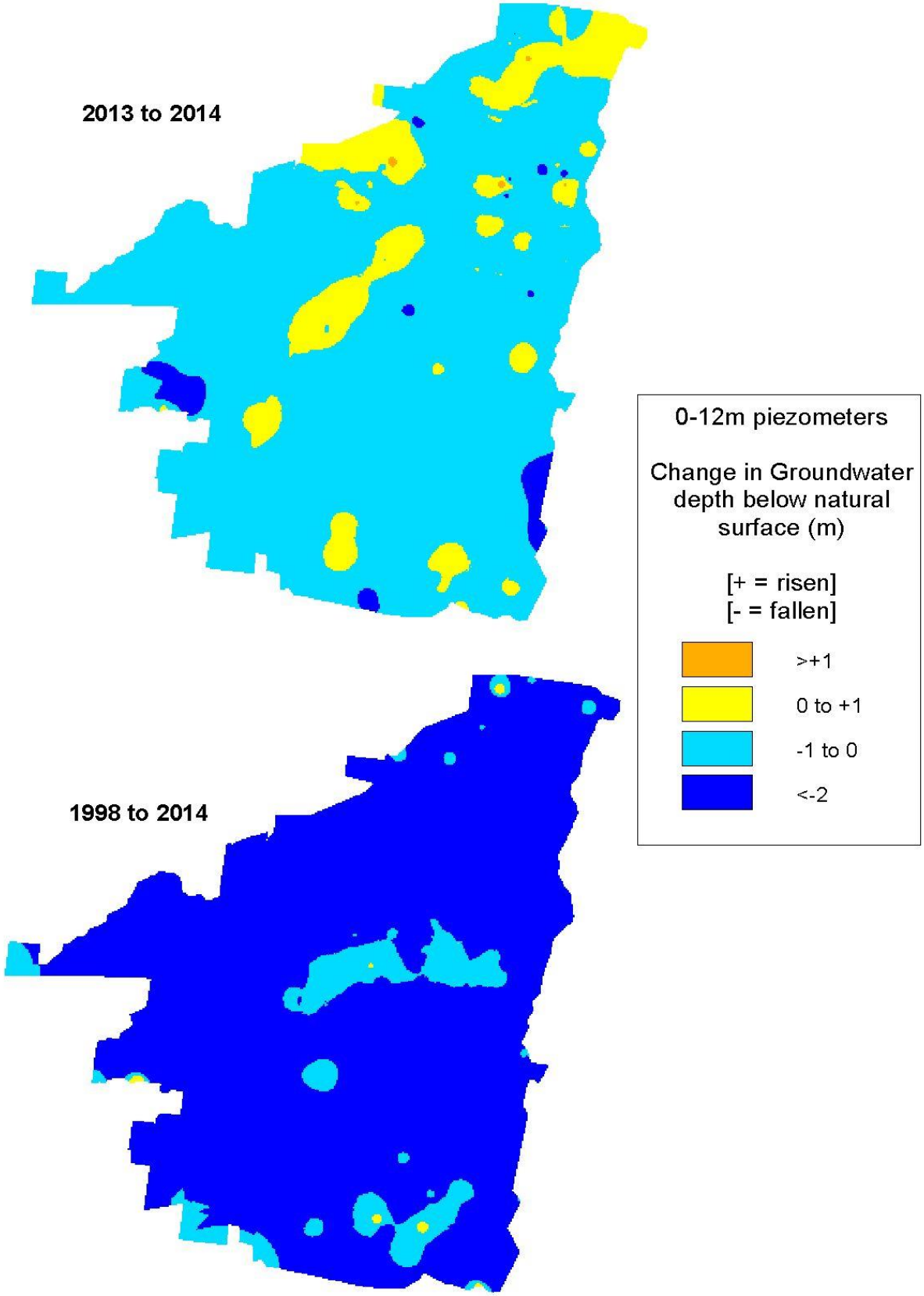


Fig 8.6: Changes in groundwater depth below natural surface; 12-60m piezometers; years 2013 to 2014, and years 1998 to 2014

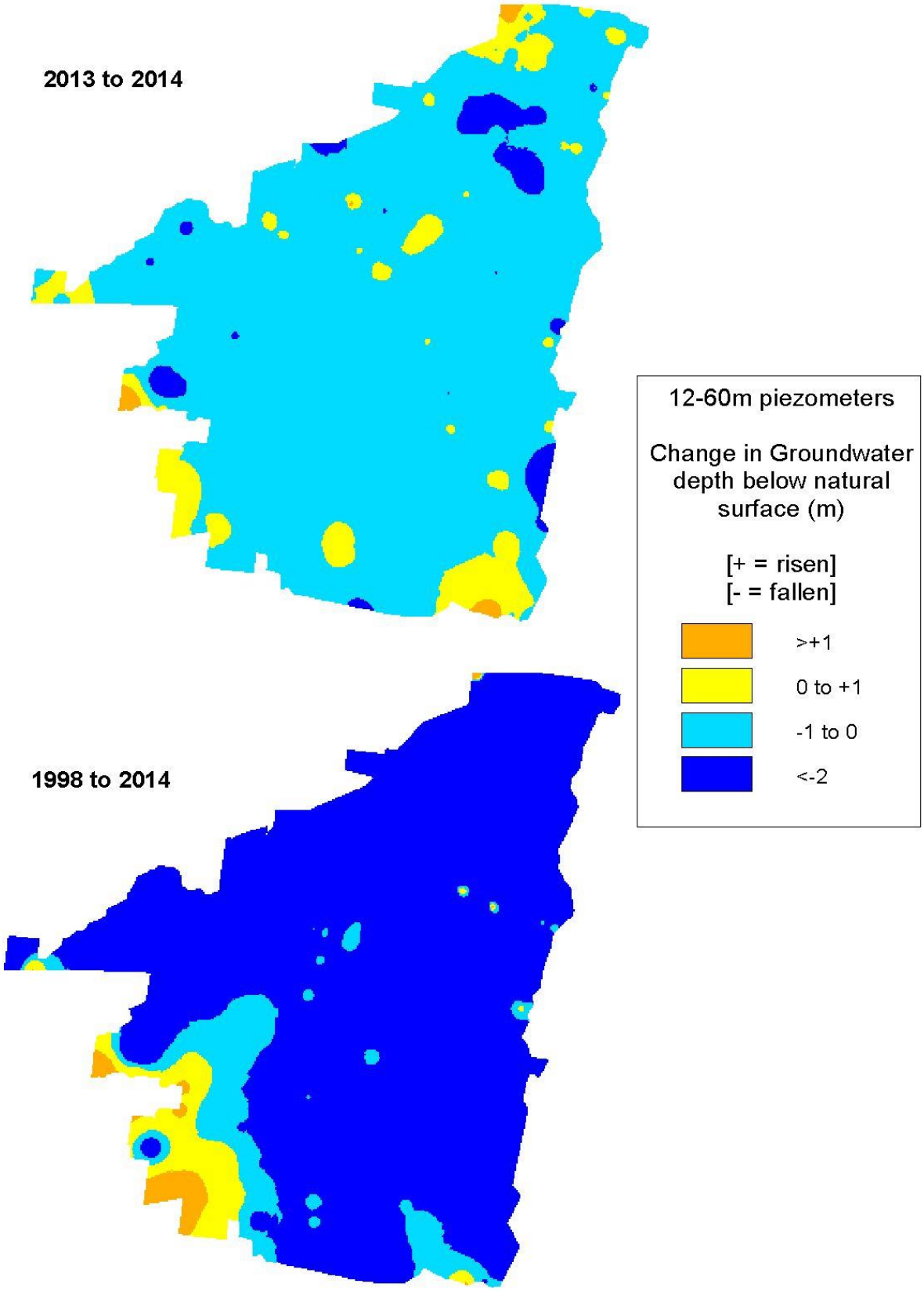
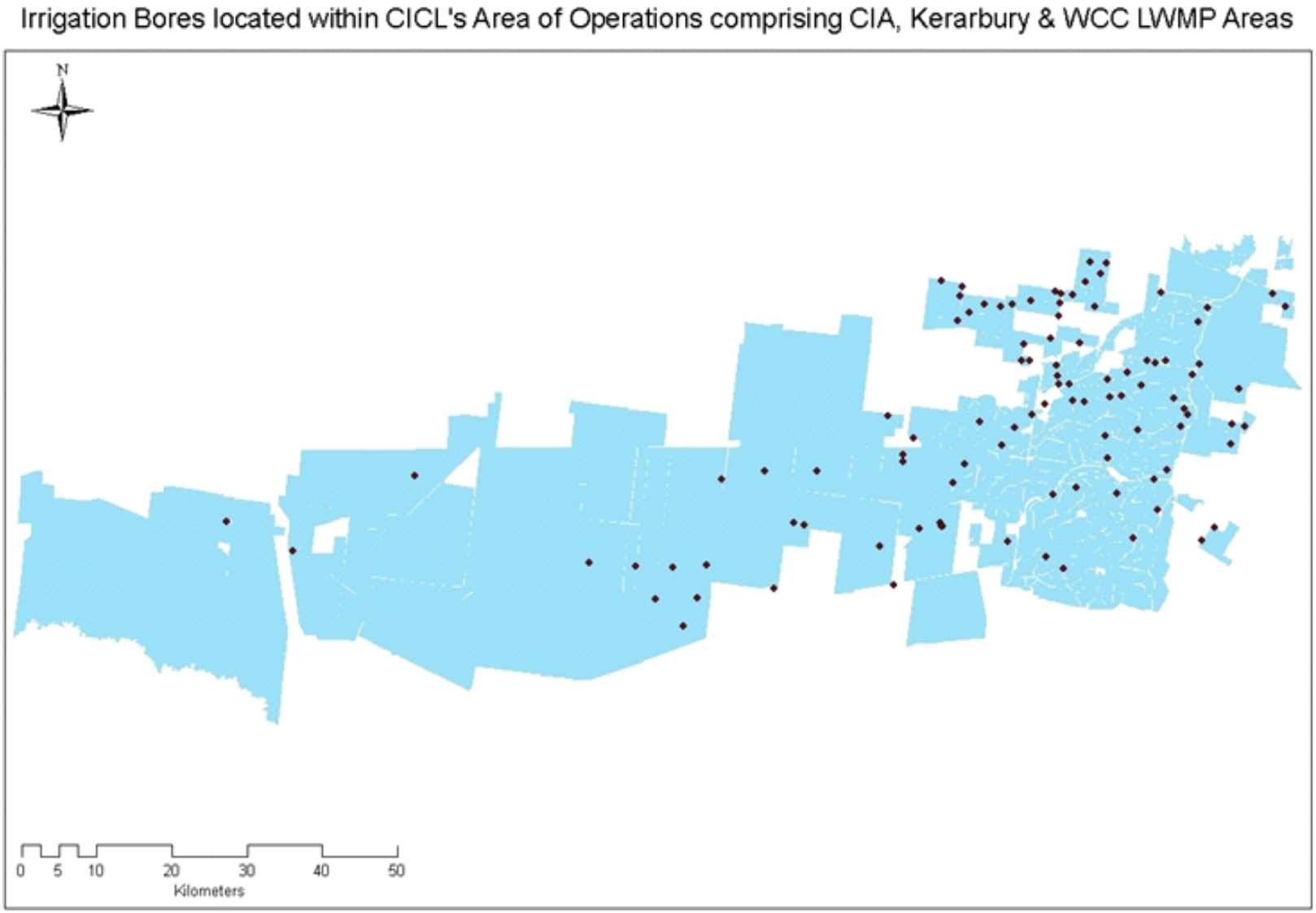


Table 8.6 (12-60m piezometers) also tells a similar story: for 1998-2014 a drop in area in the top two bands with distribution below; and for 2013-2014 a net reduction in area of 2,807 ha from the top three bands, being distributed deeper.

Generally, the groundwater level in 2014 has significantly fallen since that of 1998, and has marginally fallen since 2013.

Figure 8.7: Location of CID Irrigation Bores



8.2 Groundwater Usage

The total metered groundwater usage for the past two seasons and for the baseline season of 1998/99 is presented in Table 8.5. For the 2013/14 season, the total groundwater extraction within CICL's operational area was 86,160 ML. This represents a slight increase over the previous year but the level is still low relative to past levels of extraction. This can be attributed to high surface water allocations, the low cost of temporary water and the mounting costs associated with operating diesel or electrically powered bores.

Table 8.5: Groundwater Extractions in CICL's Area of Operation in 2013/14

LWMP Area	Number of bore licences (2013/14)	Extraction 2013/14 (ML)	Extraction 2012/13 (ML)	Extraction 2011/12 (ML)	Extraction 1998/99 (ML) [baseline]
Coleambally	54	38,777	33,778	16,691	28,714
Kerarbury	21	37,620	32,770	16,194	29,161
WCC/Outfall	29	9,763	8,504	4,240	11,065
Total	**102**	**86,160**	**75,052**	**37,085**	**68,940**

9. Environment Protection Licence

9.1 Water Quality

CICL's surface water quality program is aimed at monitoring supply and drainage water quality within CICL's operational area, including at the licensed discharge points. The program monitors flow, turbidity, dissolved oxygen, pH, salinity, chemical and nutrient levels at various points in compliance with licence conditions. CICL's water quality monitoring sites are shown in Figure 9.1.

There are three licensed drainage discharge points; Coleambally Outfall Drain monitoring site A (CODA) is used as a licensed site in place of Coleambally Outfall Drain monitoring site D (CODD) for the Rice Chemical Management Program (RCMP). Although the CODA site is not identified in the Environment Protection Licence (EPL), the site has been selected for its accessibility and is listed as an approved monitoring site. This arrangement has previously been agreed with the Department of Environment and Conservation (DEC), NSW Office of Water and the NSW Environmental Protection Agency.

The approval 2012 refers to the above discharge points; however a different terminology has been used to identify these sites. Table 9.1 shows the various names used within the Environmental Protection Licence (EPL) and the approval 2012.

At the licensed sites the flow, salinity and temperature of the drainage water are monitored continuously. Monthly water samples are collected from these sites and are analysed for chemicals as required by the EPL. Samples are also collected and analysed from one supply site at the Main Canal (CCS) and one escape site (CE-160-2). CCS is constantly monitored for salinity.

Figure 9.1: Water Quality Monitoring Sites

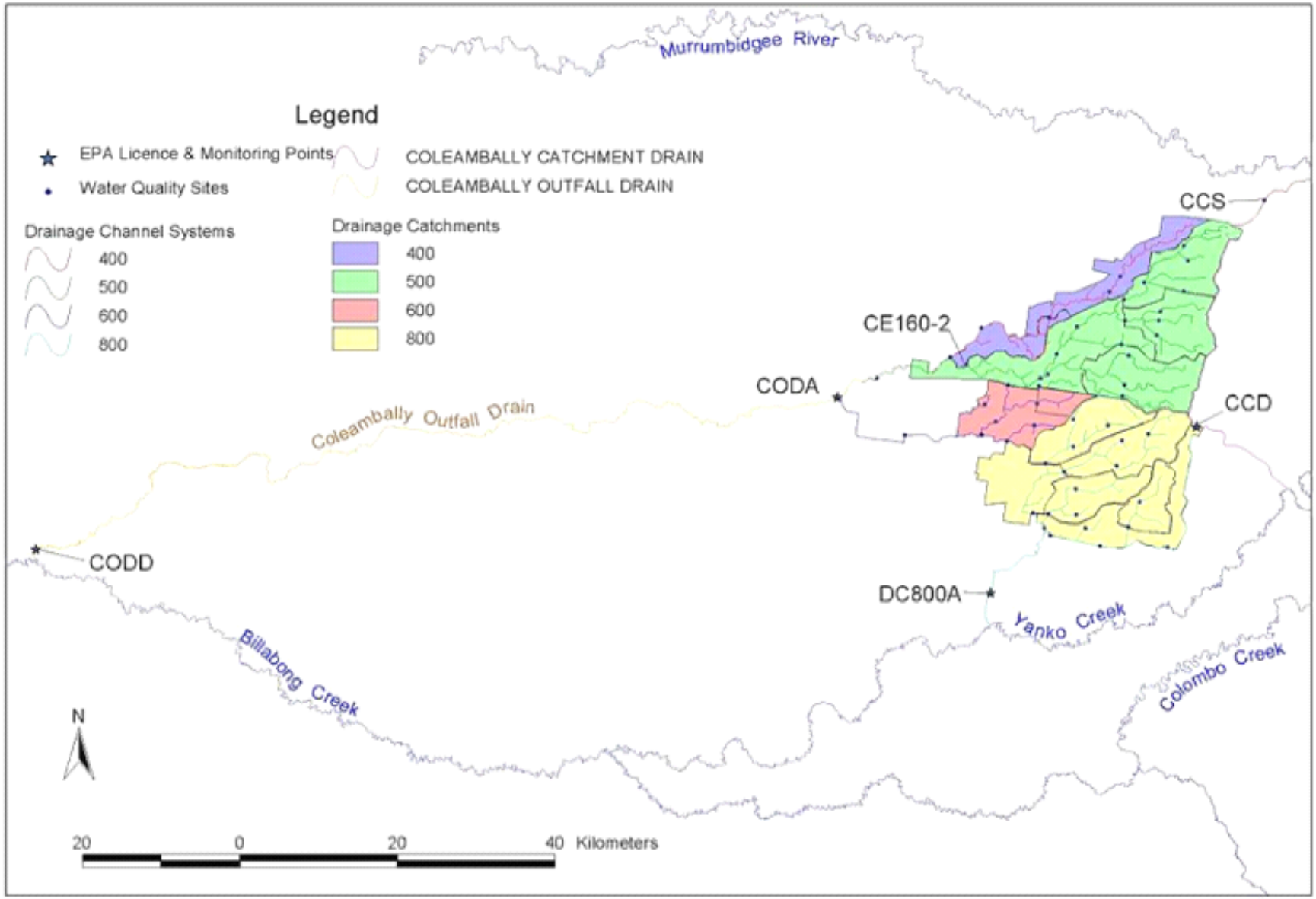


Table 9.1: Site Names used within the EPL and Approval 2012

Site	EPL	Approval 2012
1	DC800A, Highway 321 (Kidman Way) near Bundure Rd	DC800 to Yanco Creek
2	CODA*	DC500, DC600 at WCC Wonga
3	CODD, downstream of Moulamein-Wanganella Bridge	Bundy (Eurolie Creek)
4	Coleambally Catchment Drain at Oakvale Rd	CCD at Outfall
* Not a discharge site		

9.2 Rice Chemical Monitoring Program (RCMP)

From October to December each year samples are collected from 21 sites and are analysed for Molinate levels as part of the RCMP.

Weekly sampling commenced on 30th September and concluded on 23rd December 2013, with nil detections of Molinate exceeding the Action Level of 14.0 µg/L.

Molinate levels are used as an indicator of the presence of other rice chemicals in the drainage water.

Please see appendix Table A9.2 for individual report results.

9.3 Chemical Use

Table 9.2: CICL Chemical Usage in 2013/14

Product	Litres/Kg	Application
Access	5.0	Boxthorns
Allout	2000.0	
Bluestone	60.0	Slime control
Bromakil	0.0	Slime control
Dicam (Kamba)/Cutlass	2200.0	Horehound
Dupont Ally	0.0	
Eject / Oust / Excalibur	0.0	Around Flume Gates
Glyphosate	2000.0	With Roundup on Mature weeds.
Goal/ Cavalier/ Striker	10	
Goal/ Cavalier/ Striker/ Oxen (Oxyfan)	250.0	St Johns Wort
Gulliver	3.0	Alisma
Hammer	20.0	Alisma
MCPA	0.0	Submerged Weeds
Metsun	1.0	Older Bathurst Burrs along Outfall Drain
Propon	171.0	Boxthorns
Sulfomac 750	0.0	Cumbungi in Channels & Drains
Surpass 300	300	Regrowth along Outfall Drain
Surewet 1000	40.0	Alisma
Wetta (Hotup / Blood e Good) /Bowlem	5080.0	With Goal and Amitrol
TOTAL	**12140**	

9.4 Reportable Incidents

There were no reportable water quality incidents in 2013/14.

10. Appendices

10.1 A1 Piezometer pressure level data (raw data)

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface [NS] (m AHD)	Pipe depth below NS (m)	RD0914	Comments 0914
1	Boona	12-60	128.60	0.08	128.52	20.60	17.55	
4	Boona	12-60	128.90	0.38	128.52	24.70	16.80	
5	Boona	12-60	128.00	0.20	127.80	20.60	15.65	
10	Boona	12-60	128.00	0.50	127.50	21.60	10.00	
17	Boona	12-60	124.40	0.20	124.20	27.00	17.00	
19	Boona	12-60	124.30	0.55	123.75	18.50	17.57	
25	Boona	12-60	125.00	0.00	125.00	26.90	13.50	
94	Boona	12-60	128.20	0.60	127.60	20.60	9.65	
96	Boona	12-60	127.30	0.25	127.05	24.40	12.38	
200	Boona	12-60	128.40	0.10	128.30	25.30	15.25	
201	Boona	12-60	128.40	0.10	128.30	32.40	9.45	
202	Boona	12-60	125.80	0.35	125.45	18.70	10.85	
203	Boona	12-60	124.80	0.35	124.45	26.90	15.40	
204	Boona	12-60	127.60	0.40	127.20	34.90	10.00	
207	Boona	12-60	124.10	0.40	123.70	25.90	17.50	
208	Boona	12-60	124.30	0.30	124.00	35.40	18.20	
376	Boona	12-60	127.30	0.44	126.86	31.90	15.85	
392	Boona	12-60	120.90	0.90	120.00	14.20	10.41	
396	Boona	12-60	122.10	0.73	121.37	32.50	11.90	
437	Boona	12-60	119.90	0.10	119.80	26.90	10.20	
443	Boona	12-60	121.10	0.28	120.82	26.10	10.65	
502	Boona	12-60	119.30	0.82	118.48	28.40	11.09	
503	Boona	12-60	120.50	0.20	120.30	27.60	13.65	
504	Boona	12-60	120.40	0.33	120.07	28.80	16.10	
507	Boona	12-60	120.60	0.20	120.40	39.00	21.90	
508	Boona	12-60	120.50	0.18	120.32	25.40	22.10	
509	Boona	12-60	119.20	0.05	119.15	21.90	20.35	
510	Boona	12-60	120.90	0.27	120.63	23.20	17.55	
520	Boona	12-60	121.80	0.28	121.52	21.60	16.20	
521	Boona	12-60	123.40	0.54	122.86	21.60	13.60	
594	Boona	12-60	121.80	0.41	121.39	17.70	12.90	
595	Boona	12-60	122.90	0.20	122.70	21.20	14.85	
596	Boona	12-60	123.10	0.25	122.85	23.30	9.99	
598	Boona	12-60	121.70	0.00	121.70	22.90	14.25	
614	Boona	12-60	122.70	0.45	122.25	15.50	15.70	
615	Boona	12-60	123.60	0.30	123.30	15.80	15.80	dry @rd15.80m
617	Boona	12-60	124.90	0.60	124.30	24.90	8.23	
618	Boona	12-60	124.60	0.46	124.14	12.60	8.10	
619	Boona	12-60	124.90	0.00	124.90	24.10	7.03	
620	Boona	12-60	123.90	0.30	123.60	26.90	8.92	
621	Boona	12-60	126.90	0.23	126.67	30.40	12.15	

622	Boona	12-60	125.90	0.63	125.27	22.10	11.45	
623	Boona	12-60	125.30	0.47	124.83	12.40	7.40	
624	Boona	12-60	127.20	0.00	127.20	19.80	10.35	
625	Boona	12-60	123.30	0.13	123.17	26.90	10.70	
629	Boona	12-60	129.80	0.30	129.50	29.40	15.55	
631	Boona	12-60	130.30	0.13	130.17	31.30	20.35	
635	Boona	12-60	129.60	0.31	129.29	31.90	19.65	
636	Boona	12-60	129.20	0.26	128.94	16.80	12.86	
637	Boona	12-60	128.90	0.24	128.66	28.20	11.10	
643	Boona	12-60	127.30	0.27	127.03	21.90	12.95	
644	Boona	12-60	127.30	0.45	126.85	12.30	12.30	dry @rd12.30m
645	Boona	0-12	126.60	0.32	126.28	11.90	7.90	
647	Boona	0-12	128.50	0.25	128.25	11.90	10.35	dry @rd10.35m
648	Boona	12-60	127.90	0.60	127.30	12.60	9.45	
651	Boona	12-60	126.40	0.50	125.90	12.90	9.42	
652	Boona	12-60	125.90	0.80	125.10	12.60	11.25	
653	Boona	12-60	127.00	0.00	127.00	21.80	10.70	
654	Boona	12-60	126.50	0.25	126.25	32.50	18.00	
656	Boona	12-60	126.40	0.00	126.40	27.30	15.65	
661	Boona	12-60	128.60	0.19	128.41	14.40	14.40	
662	Boona	12-60	126.50	0.28	126.22	13.80	12.30	
667	Boona	0-12	127.00	0.70	126.30	7.50	6.45	
697	Boona	12-60	123.40	0.54	122.86	21.90	18.48	
698	Boona	12-60	123.50	0.19	123.31	20.60	17.55	
725	Boona	12-60	126.30	0.25	126.05	27.10	12.38	
726	Boona	0-12	126.60	0.55	126.05	5.10	5.10	dry @rd5.10m
730	Boona	12-60	124.90	0.12	124.78	23.90	20.00	
732	Boona	12-60	124.90	0.28	124.62	23.20	5.20	blocked @rd5.20m
734	Boona	12-60	124.70	0.14	124.56	18.90		damaged
738	Boona	0-12	126.50	0.25	126.25	10.90	10.14	
739	Boona	12-60	126.20	0.40	125.80	18.30	10.04	
752	Boona	0-12	127.30	0.36	126.94	11.80	10.18	
790	Boona	0-12	127.30	0.25	127.05	9.40	9.40	dry @rd9.40m
804	Boona	12-60	123.30	0.30	123.00	32.50	16.25	
805	Boona	0-12	123.30	0.25	123.05	11.80	10.65	
806	Boona	12-60	123.50	0.27	123.23	34.70	15.45	
807	Boona	12-60	123.30	0.05	123.25	20.40	14.90	
834	Boona	12-60	127.30	0.15	127.15	36.40	18.93	
835	Boona	0-12	127.30	0.15	127.15	5.90	3.10	
836	Boona	12-60	126.20	0.20	126.00	23.60	15.68	
837	Boona	0-12	126.30	0.25	126.05	11.50	11.70	dry @rd11.70m
839	Boona	12-60	130.50	0.10	130.40	22.60	12.95	
843	Boona	12-60	127.30	0.10	127.20	21.70	17.90	
845	Boona	12-60	127.40	0.00	127.40	23.50	8.15	
846	Boona	12-60	126.80	0.05	126.75	20.90	20.50	
946	Boona	12-60	125.90	0.94	124.96	23.30		damaged
949	Boona	0-12	128.60	0.17	128.43	10.50	10.80	dry @rd10.80m
952	Boona	12-60	126.00	0.00	126.00	30.30	13.55	
954	Boona	12-60	126.60	0.00	126.60	14.10	10.00	

964	Boona	12-60	124.20	0.13	124.07	27.50	15.05	
966	Boona	12-60	124.90	0.10	124.80	21.00	17.17	
967	Boona	12-60	123.80	0.20	123.60	26.60	13.80	
968	Boona	12-60	129.70	0.16	129.54	24.80	13.00	
969	Boona	12-60	130.00	0.45	129.55	14.30	12.35	
974	Boona	12-60	128.30	0.23	128.07	25.70	12.10	
977	Boona	12-60	129.90	0.13	129.77	24.00	18.05	
980	Boona	0-12	128.32	1.10	127.22	11.60	11.50	
983	Boona	12-60	130.10	0.00	130.10	33.20	19.35	
985	Boona	12-60	126.60	0.19	126.41	30.60	13.20	
986	Boona	0-12	126.70	0.30	126.40	11.10	10.72	
1154	Boona	12-60	122.20	0.00	122.20	27.90	11.43	
1165	Boona	12-60	122.50	0.23	122.27	32.30	13.03	
1166	Boona	0-12	122.70	0.05	122.65	9.20	7.38	
1177	Boona	12-60	121.30	0.08	121.22	31.80	10.22	
1596	Boona	0-12	123.50	0.12	123.38	9.70	9.60	
1616	Boona	0-12	121.80	0.16	121.64	5.60	5.60	dry @rd5.60m
1635	Boona	12-60	126.20	0.15	126.05	13.60	11.00	
1659	Boona	12-60	128.60	0.12	128.48	27.50	11.42	
1660	Boona	12-60	128.20	0.10	128.10	30.90	11.65	
1661	Boona	0-12	128.40	0.27	128.13	12.00	10.60	
1740	Boona	12-60	118.90	0.34	118.56	25.70	21.15	
1780	Boona	0-12	123.20	0.20	123.00	10.80	10.68	
2141	Boona	12-60	130.64	0.30	130.34	22.40	18.05	
2142	Boona	12-60	130.60	0.17	130.43	23.30	17.42	
2288	Boona	0-12	123.00	0.15	122.85	11.10	11.95	dry @rd11.95m
2377	Boona	0-12	119.85	0.25	119.60	10.50	10.25	
2456	Boona	0-12	120.61	0.20	120.41	10.80	10.80	dry @rd10.80m
2458	Boona	0-12	119.61	0.28	119.33	11.10	11.10	dry @rd11.10m
2723	Boona	0-12	123.05	0.22	122.83	7.40	6.85	
2727	Boona	0-12	122.83	0.24	122.59	5.20	4.65	
4250	Boona	12-60	125.30	0.28	125.02	20.10	10.55	
4372	Boona	0-12	122.29	0.00	122.29	9.10	8.60	
4375	Boona	12-60	122.29	0.44	121.85	18.20	10.75	
4546	Boona	12-60	121.19	0.35	120.84	19.40	14.85	
4547	Boona	12-60	121.30	0.23	121.07	19.10	15.55	
4548	Boona	12-60	128.00	0.35	127.65	18.30	20.15	
4558	Boona	12-60	127.10	0.20	126.90	21.50	16.15	
4912	Boona	12-60	129.20	0.20	129.00	13.70	13.70	dry @rd13.70m
4914	Boona	0-12	128.45	0.32	128.13	6.90	4.55	
5588	Boona	12-60	118.81	0.16	118.65	25.50	15.88	
5911	Boona	12-60	115.97	0.29	115.68	13.10	13.10	dry @rd13.10m
5915	Boona	0-12	116.34	0.18	116.16	8.80	8.80	dry @rd8.80m
5935	Boona	12-60	116.57	0.15	116.42	20.70	10.75	
6102	Boona	0-12	117.39	0.22	117.17	11.60	11.60	dry @rd11.60m
9320	Boona	12-60	129.49	0.00	129.49	13.80	13.80	dry @rd13.80m
9323	Boona	12-60	128.17	0.18	127.99	14.20	10.85	
9324	Boona	12-60	128.58	0.20	128.38	14.10	15.30	dry @rd15.30m
9326	Boona	12-60	123.66	0.20	123.46	13.40	11.94	

9329	Boona	0-12	130.20	0.05	130.15	9.20	9.44	
9331	Boona	0-12	124.95	0.33	124.62	7.10	7.60	
9376	Boona	0-12	128.25	0.27	127.98	4.50	4.50	dry @rd4.50m
9379	Boona	12-60	127.90	0.21	127.69	12.40	8.32	
12166	Boona	12-60	122.85	0.30	122.55	31.83	17.30	
12171	Boona	12-60	122.65	0.07	122.58	16.00	11.45	
12188	Boona	0-12	121.37	0.10	121.27	9.70	8.25	
12190	Boona	12-60	121.73	0.26	121.47	22.01	16.80	
12191	Boona	12-60	121.23	0.15	121.08	22.00	18.80	
12192	Boona	0-12	120.91	0.14	120.77	10.15	9.00	
12194	Boona	0-12	119.59	0.24	119.37	9.25	7.55	
12197	Boona	12-60	127.20	0.22	126.98	19.02	17.85	
12201	Boona	12-60	128.92	0.25	128.67	23.60		blocked @rd2.20m
12202	Boona	12-60	129.31	0.25	129.06	32.23	17.35	
12297	Boona	12-60	124.00	0.21	123.79	21.00		destroyed
12298	Boona	0-12	124.02	0.16	123.86	8.90	10.13	
12299	Boona	12-60	124.77	0.20	124.57	22.20	11.60	
12311	Boona	0-12	127.20	0.15	127.05	10.50	8.95	
12312	Boona	0-12	127.13	0.27	126.86	6.00	6.00	dry @rd6.00m
12313	Boona	12-60	126.64	0.29	126.35	19.00		damaged
12314	Boona	0-12	126.63	0.26	126.37	8.20	7.02	
12315	Boona	0-12	126.62	0.22	126.40	6.00	6.00	dry @rd6.00m
12316	Boona	12-60	127.07	0.16	126.91	21.00	16.90	
12317	Boona	0-12	127.09	0.39	126.70	6.60	4.20	
12321	Boona	0-12	128.72	0.19	128.53	11.30	10.20	
12323	Boona	0-12	127.53	0.37	127.16	9.50	7.70	
12332	Boona	0-12	128.32	0.30	128.02	9.00	9.00	dry @rd9.00m
12333	Boona	0-12	127.51	0.26	127.25	9.40	10.80	dry @rd10.80m
12334	Boona	0-12	128.69	0.22	128.47	8.50	7.80	
12347	Boona	12-60	119.93	0.22	119.71	15.90	7.55	
12349	Boona	12-60	121.16	0.26	120.90	16.30	8.95	
12350	Boona	0-12	118.68	0.14	118.54	6.00	5.35	dry @rd5.35m
12381	Boona	0-12	124.69	0.30	124.39	9.00	9.00	dry @rd9.00m
12383	Boona	12-60	126.83	0.13	126.70	15.50	11.95	
12389	Boona	12-60	130.48	0.23	130.25	21.90	15.05	
12391	Boona	12-60	131.28	0.25	131.03	17.00	15.30	
12393	Boona	0-12	125.20	0.00	125.20	10.00	7.30	
12394	Boona	0-12	125.59	1.00	124.59	12.00	9.45	
12401	Boona	12-60	127.82	0.15	127.67	15.00	11.45	
12402	Boona	12-60	125.99	0.16	125.83	19.50	7.20	
12403	Boona	0-12	127.05	0.28	126.77	9.80	8.40	
12404	Boona	12-60	125.86	0.27	125.59	12.70	10.65	
12405	Boona	12-60	125.94	0.29	125.65	14.50	10.75	
12406	Boona	12-60	125.38	0.22	125.16	17.00	10.70	
12407	Boona	12-60	126.24	0.23	126.01	12.10	12.10	dry @rd12.10m
12409	Boona	0-12	125.84	0.05	125.79	11.30	11.19	
12430	Boona	0-12	126.34	0.25	126.09	9.80	9.80	dry @rd9.80m
12431	Boona	0-12	125.97	0.20	125.77	9.80	10.35	
12432	Boona	12-60	125.37	0.04	125.33	17.10	9.95	

12434	Boona	0-12	126.16	0.18	125.98	10.80	8.33	
12436	Boona	0-12	123.32	0.03	123.29	11.30		damaged
12437	Boona	0-12	124.34	0.11	124.23	8.00	4.55	
12438	Boona	0-12	123.89	0.10	123.79	8.80	6.10	
12512	Boona	12-60	129.21	0.34	128.87	22.50	17.25	
12514	Boona	12-60	131.26	0.34	130.92	16.30	13.88	
12528	Boona	12-60	126.96	0.20	126.76	17.50	17.80	dry @rd17.80m
12529	Boona	0-12	127.18	0.10	127.08	10.30	10.30	dry @rd10.30m
12534	Boona	12-60	126.72	0.17	126.55	15.80	6.10	
12542	Boona	12-60	125.80	0.00	125.32	11.77	11.40	
12564	Boona	12-60	125.60	0.30	125.30	19.50	15.50	
12567	Boona	12-60	127.70	0.25	127.45	18.00	14.90	
12568	Boona	0-12	128.70	0.10	128.60	12.00	13.10	
12569	Boona	12-60	124.10	0.17	123.93	12.16	8.10	
12570	Boona	0-12	123.40	0.30	123.10	11.60	9.62	
12571	Boona	0-12	123.10	0.16	122.94	11.00	7.55	
12572	Boona	0-12	122.60	0.37	122.23	11.30	8.15	
12573	Boona	12-60	123.10	0.20	122.90	26.50	11.50	
12574	Boona	0-12	123.10	0.10	123.00	11.30	9.40	
12576	Boona	12-60	121.60	0.20	121.40	14.30	8.60	
12577	Boona	0-12	121.30	0.20	121.10	11.80	8.75	
12578	Boona	0-12	121.00	0.38	120.62	11.30	8.20	
12580	Boona	0-12	119.60	0.13	119.47	8.80	3.45	
12619	Boona	12-60	119.80	0.18	119.62	17.30	3.90	
12622	Boona	12-60	119.66	0.16	119.50	17.80	7.95	
12623	Boona	12-60	120.51	0.30	120.21	24.50	8.45	
12708	Boona	0-12	122.64	0.18	122.46	11.30	8.55	
12848	Boona	12-60	122.47	0.20	122.27	21.80	19.90	
12962	Boona	12-60	132.16	0.35	131.81	33.00	19.85	
12972	Boona	12-60	125.06	0.17	124.89	18.50	7.85	
12972	Boona	12-60	125.05	0.18	124.87	48.00	16.85	
12998	Boona	12-60	120.48	0.17	120.31	26.50	15.00	
12999	Boona	12-60	121.65	0.21	121.44	23.00	16.00	
13000	Boona	12-60	121.93	0.11	121.82	23.00	15.50	
13001	Boona	12-60	123.25	0.16	123.09	20.50	16.30	
13002	Boona	12-60	117.62	0.24	117.38	21.50	10.70	
13003	Boona	12-60	116.52	0.23	116.29	25.18	11.15	
13004	Boona	12-60	116.82	0.29	116.53	26.00	23.66	
13005	Boona	12-60	118.49	0.32	118.17	17.80	14.15	
496	Coly	12-60	118.90	1.30	117.60	27.10	2.43	
498	Coly	12-60	120.50	0.10	120.40	20.50	5.32	
499	Coly	12-60	118.20	0.38	117.82	23.80	3.54	
501	Coly	12-60	119.40	0.47	118.93	16.00	5.59	
626	Coly	12-60	122.90	0.23	122.67	25.50	7.41	
627	Coly	0-12	122.80	0.13	122.67	9.60	6.63	
630	Coly	12-60	128.20	0.56	127.64	19.30	10.10	
655	Coly	12-60	127.50	0.24	127.26	35.90	8.68	
657	Coly	12-60	126.90	0.00	126.90	36.50	9.31	
658	Coly	12-60	124.00	0.34	123.66	22.30	2.87	

659	Coly	0-12	124.30	0.63	123.67	10.20	5.84	
663	Coly	0-12	125.20	0.10	125.10	7.30	5.18	
664	Coly	12-60	125.90	0.16	125.74	19.10	6.47	
665	Coly	12-60	123.20	0.15	123.05	20.10	3.54	
668	Coly	12-60	123.20	0.00	123.20	26.50	7.52	
669	Coly	0-12	123.00	0.00	123.00	11.00	6.22	
673	Coly	12-60	125.10	0.05	125.05	24.90	3.59	
676	Coly	12-60	125.20	0.14	125.06	23.40	2.84	
677	Coly	12-60	125.00	0.05	124.95	15.50	2.73	
678	Coly	12-60	126.70	0.13	126.57	23.60	3.81	
679	Coly	12-60	126.70	0.50	126.20	13.70	3.81	
680	Coly	12-60	126.10	0.00	126.10	23.10	5.35	
681	Coly	12-60	125.90	0.00	125.90	18.70	3.35	
682	Coly	0-12	125.80	0.00	125.80	10.50	3.23	
683	Coly	12-60	126.50	0.00	126.50	23.80	4.28	
684	Coly	0-12	126.50	0.00	126.50	11.20	3.11	
685	Coly	12-60	127.40	0.10	127.30	12.70	4.47	
687	Coly	12-60	127.60	0.00	127.60	22.90	6.25	
688	Coly	12-60	127.80	0.20	127.60	13.70	6.40	
689	Coly	12-60	128.00	0.60	127.40	26.10	12.03	
690	Coly	12-60	127.90	0.26	127.64	27.70	10.85	
691	Coly	12-60	126.70	0.13	126.57	20.70	8.35	
692	Coly	12-60	126.70	0.20	126.50	15.80	7.57	
693	Coly	12-60	127.90	0.41	127.49	24.50	8.51	
695	Coly	12-60	126.40	0.05	126.35	20.40	6.54	
696	Coly	12-60	126.90	0.22	126.68	58.50	19.26	
700	Coly	12-60	123.10	0.17	122.93	24.60	2.06	
701	Coly	12-60	123.20	0.30	122.90	17.10	2.16	
702	Coly	0-12	122.90	0.13	122.77	11.20	1.95	
704	Coly	12-60	123.70	0.05	123.65	24.30	2.95	
708	Coly	12-60	123.80	0.08	123.72	26.20	3.20	
709	Coly	12-60	123.90	0.30	123.60	19.40	3.42	
711	Coly	12-60	125.60	0.00	125.60	27.10	3.66	
753	Coly	12-60	126.50	0.40	126.10	26.70	7.98	
757	Coly	12-60	126.90	0.32	126.58	30.40	8.22	
758	Coly	12-60	126.90	0.35	126.55	15.80	9.30	
762	Coly	12-60	126.10	0.00	126.10	25.90	3.70	
763	Coly	12-60	125.80	0.10	125.70	17.00	3.84	
764	Coly	12-60	124.80	0.10	124.70	20.90	4.16	
765	Coly	12-60	122.40	0.00	122.40	15.60	2.61	
766	Coly	0-12	122.30	0.00	122.30	3.90		dry @rd3.87m
768	Coly	12-60	122.40	0.05	122.35	21.40	2.58	
769	Coly	12-60	122.70	0.30	122.40	16.60	2.72	
789	Coly	12-60	128.10	0.44	127.66	23.70	9.30	
791	Coly	0-12	124.10	0.00	124.10	10.10	4.45	
792	Coly	0-12	124.10	0.06	124.04	4.90	4.40	
793	Coly	0-12	124.20	0.05	124.15	4.50	3.36	
794	Coly	0-12	124.30	0.12	124.18	4.20	1.97	
798	Coly	12-60	122.80	0.15	122.65	19.10	3.93	

799	Coly	0-12	122.90	0.27	122.63	10.90	3.97	
800	Coly	12-60	123.30	0.13	123.17	30.40	3.81	
801	Coly	0-12	123.30	0.18	123.12	8.30	3.74	
802	Coly	12-60	121.20	0.00	121.20	15.00	3.07	
803	Coly	0-12	121.20	0.00	121.20	7.70	3.07	
809	Coly	12-60	119.79	0.00	119.79	25.85	4.60	
810	Coly	12-60	119.82	0.08	119.74	17.10	4.70	
813	Coly	12-60	119.10	0.35	118.75	25.20	10.73	
814	Coly	0-12	118.70	0.00	118.70	7.40	4.53	
815	Coly	12-60	117.50	0.00	117.50	28.70	12.85	
821	Coly	12-60	119.20	0.02	119.18	25.90	4.36	
822	Coly	0-12	118.90	0.02	118.88	9.80	4.30	
826	Coly	0-12	114.90	0.25	114.65	5.80	5.38	dry @rd5.38m
828	Coly	0-12	114.90	0.86	114.60	9.80	8.80	
830	Coly	12-60	116.90	0.34	116.56	19.50	8.34	
831	Coly	0-12	116.90	0.05	116.85	6.30	4.16	
841	Coly	12-60	115.00	0.12	114.88	37.10	16.31	
1012	Coly	12-60	124.50	0.00	124.50	20.80	3.47	
1050	Coly	12-60	117.60	0.18	117.42	33.20	3.80	
1896	Coly	12-60	116.51	0.15	116.36	26.20	10.25	
1897	Coly	12-60	117.50	0.15	117.29	26.40	10.43	
6804	Coly	12-60	128.47	0.00	128.47	28.00	15.44	
9317	Coly	0-12	126.74	1.18	125.56	5.60	7.03	dry @rd7.03m
9318	Coly	0-12	125.67	0.13	125.54	4.70	3.69	
9325	Coly	12-60	127.08	0.11	126.97	16.40	8.28	
9327	Coly	12-60	125.01	0.40	124.61	31.20	5.97	
9349	Coly	0-12	121.58	0.34	121.24	9.50	2.32	
9351	Coly	0-12	122.43	0.20	122.23	4.00	1.76	
9352	Coly	0-12	122.87	0.10	122.77	8.50	2.80	
9353	Coly	0-12	123.31	0.16	123.15	6.40	3.61	
9354	Coly	0-12	123.25	0.12	123.13	6.70	3.20	
9355	Coly	0-12	122.75	0.25	122.50	6.40	3.08	
9356	Coly	12-60	122.26	0.12	122.14	13.60	2.30	
9357	Coly	0-12	122.10	0.12	121.98	4.30	2.13	
9358	Coly	12-60	121.56	0.22	121.34	12.95	2.62	
9359	Coly	0-12	122.73	0.00	122.73	6.90	2.75	
9380	Coly	0-12	124.52	0.30	124.22	11.50	3.12	
9381	Coly	0-12	124.42	0.22	124.20	11.30	3.12	
9388	Coly	0-12	121.45	0.25	121.20	11.50	1.00	
9393	Coly	0-12	122.13	0.10	122.03	5.18	1.96	
9394	Coly	0-12	120.74	0.25	120.49	7.50	1.35	
9395	Coly	0-12	121.66	0.16	121.50	10.80	1.83	
9396	Coly	0-12	122.37	0.15	122.22	9.40	1.86	
9397	Coly	12-60	123.38	0.28	123.23	16.50	2.32	
9398	Coly	0-12	123.35	0.12	123.23	6.77	1.91	
9399	Coly	0-12	122.36	0.20	122.16	5.18	1.55	
12101	Coly	0-12	121.85	0.19	121.66	3.05	1.53	
12102	Coly	0-12	122.90	0.14	122.76	5.50	1.90	
12103	Coly	0-12	126.38	0.14	126.24	3.60	1.01	

12104	Coly	0-12	127.07	0.30	126.77	3.20	2.27	
12116	Coly	0-12	124.37	0.00	124.37	6.30	3.52	
12178	Coly	0-12	121.52	0.16	121.36	9.35	3.03	
12179	Coly	0-12	120.36	0.23	120.13	6.10	3.66	
12180	Coly	0-12	121.23	0.23	121.00	7.21	4.93	
12199	Coly	12-60	123.49	0.02	123.47	27.17	6.14	
12200	Coly	12-60	123.57	0.17	123.40	14.38		blocked @rd2.12m
12245	Coly	12-60	129.33	0.21	129.12	18.30	16.45	dry @rd16.44m
12247	Coly	12-60	128.81	0.18	128.63	23.10	15.23	
12250	Coly	12-60	127.94	0.16	127.78	24.40	15.55	
12251	Coly	12-60	128.32	0.13	128.19	22.40	13.66	
12253	Coly	12-60	127.42	0.46	126.96	20.06	13.56	
12272	Coly	12-60	129.17	0.14	129.03	24.60	15.27	
12351	Coly	0-12	120.62	0.26	120.36	7.20	5.46	
12395	Coly	12-60	125.88	0.17	125.71	15.60	4.54	
12396	Coly	0-12	125.67	0.05	125.62	6.90	1.42	
12397	Coly	12-60	124.37	0.17	124.20	13.00	3.01	
12398	Coly	12-60	123.36	0.17	123.19	13.00	5.90	
12399	Coly	12-60	126.07	0.42	125.65	17.70	4.12	
12410	Coly	0-12	126.89	0.28	126.61	10.10	3.53	
12411	Coly	0-12	126.38	0.14	126.24	9.00	3.28	
12412	Coly	0-12	124.67	0.29	124.38	11.80	4.77	
12413	Coly	12-60	126.41	0.27	126.14	19.00	3.92	
12441	Coly	12-60	127.06	0.17	126.89	18.10	6.59	
12442	Coly	12-60	126.87	0.20	126.67	18.50	5.73	
12445	Coly	12-60	126.19	0.80	126.19	19.50	4.07	
12448	Coly	0-12	126.15	0.38	125.77	3.50	3.05	
12449	Coly	0-12	126.34	0.00	126.34	2.87		dry @rd2.90m
12481	Coly	0-12	124.83	0.10	124.73	11.70	6.82	
12482	Coly	0-12	124.53	0.17	124.36	11.30	4.51	
12483	Coly	12-60	124.68	0.18	124.50	12.80	3.61	
12484	Coly	12-60	124.88	0.22	124.66	20.30	5.11	
12485	Coly	12-60	124.91	0.32	124.59	20.00	1.76	
12486	Coly	0-12	124.93	0.30	124.63	9.30	3.55	
12487	Coly	0-12	125.89	0.12	125.77	10.30	3.88	
12488	Coly	0-12	126.17	0.21	125.96	7.00	4.89	
12489	Coly	12-60	126.19	0.00	126.19	14.20	6.25	
12490	Coly	12-60	126.39	0.12	126.27	12.80	6.27	
12491	Coly	12-60	126.62	0.15	126.47	14.30	6.00	
12555	Coly	0-12	123.30	0.15	123.15	11.30	3.78	
12556	Coly	12-60	123.10	0.00	123.10	13.80	4.28	
12557	Coly	12-60	122.60	0.15	122.45	17.80	3.10	
12558	Coly	12-60	121.60	0.21	121.39	20.80	3.04	
12559	Coly	12-60	120.90	0.15	120.75	22.00	2.41	
12560	Coly	12-60	121.10	0.18	120.92	14.00	2.77	
12562	Coly	12-60	120.90	0.04	120.86	14.50	3.21	
12563	Coly	12-60	120.20	1.12	120.11	15.00	3.96	
12620	Coly	12-60	121.80	0.30	121.50	17.00	1.26	
12621	Coly	12-60	121.53	0.10	121.43	15.80	2.85	

12624	Coly	0-12	121.60	0.13	121.47	10.80	4.27	
12625	Coly	0-12	121.90	0.20	121.60	8.80	3.24	
12626	Coly	0-12	122.20	0.08	122.12	9.50	3.40	
12627	Coly	0-12	122.20	0.19	122.01	8.80	3.53	
12628	Coly	12-60	123.30	0.00	123.15	16.00	5.54	
12629	Coly	12-60	121.30	0.12	121.18	18.80	5.10	
12630	Coly	12-60	121.80	0.15	121.58	17.30	2.80	
12631	Coly	12-60	121.90	0.30	121.60	18.50	2.81	
12648	Coly	12-60	123.00	0.18	122.82	23.30	3.12	
12666	Coly	12-60	120.10	0.21	119.89	25.80	5.00	
12676	Coly	12-60	127.40	0.14	127.26	16.30	4.90	
12677	Coly	12-60	126.40	0.15	126.25	20.00	3.74	
12678	Coly	12-60	125.50	0.22	125.28	19.30	3.74	
12679	Coly	12-60	124.50	0.16	124.34	23.80	3.87	
12680	Coly	12-60	123.40	0.10	123.30	24.30	3.81	
12709	Coly	12-60	122.71	0.11	122.60	14.80	4.83	
12710	Coly	0-12	124.07	0.00	124.07	11.30	4.36	
12751	Coly	12-60	123.29	0.00	123.29	14.00	6.11	
12753	Coly	12-60	124.70	0.80	123.70	16.30	9.37	
12759	Coly	0-12	122.15	0.15	122.00	8.30	4.90	
12760	Coly	12-60	123.10	0.08	123.02	18.30	5.75	
12841	Coly	12-60	123.30	0.25	123.05	18.30	4.96	
12842	Coly	12-60	123.40	0.25	123.15	15.40	4.09	
12843	Coly	12-60	123.40	0.27	123.13	18.90	3.20	
12844	Coly	12-60	123.40	0.22	123.18	17.30	3.17	
12845	Coly	12-60	123.00	0.19	122.81	22.80	3.08	
12846	Coly	12-60	124.80	0.28	124.52	17.80	7.31	
12963	Coly	0-12	130.65	0.15	130.50	19.00	18.80	dry @rd18.80m
12963	Coly	12-60	130.67	0.15	130.52	41.50	24.38	
12964	Coly	12-60	130.88	0.11	130.77	22.00	15.92	
12966	Coly	0-12	121.22	0.23	120.99	11.00	5.24	
12966	Coly	12-60	121.20	0.25	120.95	20.00	5.04	
12966	Coly	12-60	121.19	0.29	120.90	27.50	7.39	
12968	Coly	12-60	132.02	0.35	131.67	20.50	17.70	dry @rd17.70m
12968	Coly	12-60	131.96	0.29	131.67	42.00	22.70	
12969	Coly	12-60	130.92	0.22	130.66	24.50	19.48	
12970	Coly	12-60	130.26	0.22	130.04	19.50	18.90	
12973	Coly	0-12	125.92	0.19	125.73	7.50	3.88	
12973	Coly	12-60	125.84	0.06	125.78	23.00	3.92	
12973	Coly	12-60	125.90	0.10	125.80	44.50	15.82	
12976	Coly	0-12	127.93	0.18	127.75	1.90		dry @rd1.86m
12976	Coly	12-60	127.93	0.22	127.71	19.70	7.98	
12977	Coly	0-12	127.93	0.08	127.85	4.60	2.57	
12978	Coly	0-12	127.33	0.13	127.20	8.00	2.44	
12979	Coly	0-12	127.57	0.08	127.49	6.50	2.51	
12984	Coly	0-12	126.66	0.20	126.46	11.80	4.03	
12985	Coly	0-12	127.31	0.11	127.20	10.00	3.98	
12986	Coly	0-12	127.91	0.14	127.77	9.30	3.97	
12987	Coly	0-12	125.61	0.05	125.56	8.30	3.52	

12988	Coly	0-12	125.10	0.10	125.00	9.20	3.94	
12989	Coly	0-12	125.43	0.10	125.33	8.80	3.98	
12990	Coly	12-60	125.93	0.16	125.77	12.50	3.77	
12991	Coly	0-12	125.15	0.25	124.90	10.00	3.15	
12992	Coly	0-12	125.33	0.17	125.16	9.60	3.77	
12993	Coly	12-60	125.87	0.21	125.66	16.00	3.66	
12994	Coly	0-12	125.12	0.13	124.99	10.45	3.51	
12995	Coly	0-12	125.22	0.13	125.09	7.10	3.46	
12996	Coly	0-12	119.32	0.19	119.13	8.90	4.58	
12996	Coly	12-60	119.32	0.10	119.22	20.60	4.63	
13007	Coly	0-12	116.80	0.17	116.63	8.50	2.62	
13008	Coly	0-12	119.62	0.00	119.62	11.40	4.96	
13009	Coly	0-12	119.01	0.17	118.84	7.00	2.11	
13016	Coly	0-12	118.01	0.22	117.79	10.00	4.24	
13019	Coly	0-12	118.96	0.20	118.76	10.50	6.26	
13020	Coly	0-12	120.08	0.28	119.80	7.00	5.66	
13020	Coly	12-60	120.09	0.23	119.86	13.50	5.62	
13022	Coly	12-60	121.71	0.54	121.17	13.00	6.68	
13023	Coly	12-60	119.50	0.32	118.96	16.00	5.92	
13024	Coly	12-60	116.88	0.70	116.68	13.50	3.34	
13030	Coly	12-60	119.80	0.27	119.53	13.50	6.77	
13031	Coly	0-12	118.59	0.32	118.27	9.00	5.31	
13041	Coly	12-60	117.32	0.65	116.67	20.80	18.53	
13042	Coly	12-60	116.69	0.67	116.02	17.30	17.50	dry @rd17.50m
13043	Coly	12-60	116.55	0.40	116.15	18.10	17.50	
767	Argoon	12-60	123.40	0.08	123.32	24.30	4.06	
770	Argoon	12-60	124.80	0.12	124.68	17.80	4.70	
771	Argoon	12-60	125.63	0.02	125.61	26.00	3.76	
772	Argoon	12-60	122.50	0.06	122.44	18.30	3.20	
773	Argoon	12-60	122.40	0.11	122.29	25.30	3.20	
774	Argoon	12-60	121.10	0.36	120.74	25.10	2.87	
776	Argoon	0-12	122.20	0.04	122.16	7.30	2.65	
778	Argoon	12-60	121.00	0.02	120.98	20.90	4.12	
779	Argoon	12-60	120.20	0.25	119.95	18.60	3.19	
987	Argoon	12-60	120.50	0.00	120.50	24.30	3.60	
992	Argoon	12-60	121.60	0.16	121.44	32.80	7.09	
993	Argoon	0-12	121.50	0.07	121.43	8.40	3.99	
1000	Argoon	12-60	118.90	0.06	118.84	24.90	2.16	
1001	Argoon	12-60	118.90	0.00	118.90	14.90	2.98	
1002	Argoon	12-60	118.50	0.00	118.50	15.20	2.61	
1003	Argoon	12-60	117.70	0.00	117.70	28.10	3.92	
1004	Argoon	12-60	117.80	0.20	117.60	15.00	3.13	
1006	Argoon	12-60	117.30	0.27	117.03	20.50	3.29	
1007	Argoon	0-12	117.10	0.17	116.93	6.10	3.18	
1008	Argoon	12-60	118.30	0.05	118.25	18.00	3.57	
1009	Argoon	12-60	118.80	0.08	118.72	18.10	3.31	
1015	Argoon	12-60	119.80	0.35	119.45	16.90	4.49	
1016	Argoon	0-12	119.60	0.16	119.44	8.00	4.28	
1018	Argoon	12-60	118.80	0.00	118.80	30.10	4.41	

1022	Argoon	0-12	119.10	0.15	118.95	6.50	3.56	
1048	Argoon	12-60	119.30	0.00	119.30	16.20		blocked @rd1.46m
1049	Argoon	0-12	118.50	0.10	118.40	11.40	5.95	
1052	Argoon	12-60	117.40	0.12	117.28	17.50	4.96	
1060	Argoon	0-12	118.40	0.17	118.23	5.10	2.59	
1061	Argoon	0-12	119.10	0.64	118.46	6.90	3.20	
1070	Argoon	12-60	119.10	0.08	119.02	37.60	12.98	
1071	Argoon	12-60	116.50	0.08	116.42	13.50	10.18	
1080	Argoon	0-12	118.90	0.07	118.83	6.40		damaged
1082	Argoon	0-12	117.49	0.21	117.28	3.75	5.10	
1148	Argoon	12-60	114.40	0.15	114.25	32.30	17.96	
1149	Argoon	12-60	114.60	0.42	114.18	13.50	6.13	blocked @rd6.13m
1150	Argoon	12-60	114.10	0.18	113.92	31.80	18.39	
1151	Argoon	12-60	114.60	0.37	114.23	16.40	15.03	dry @rd15.03m
1152	Argoon	0-12	118.70	0.15	118.55	9.80	3.97	
1168	Argoon	12-60	115.20	0.14	115.06	29.70	10.29	
1169	Argoon	12-60	115.53	0.08	115.45	15.60	8.71	
1170	Argoon	12-60	116.43	0.04	116.39	14.60	3.34	
1178	Argoon	12-60	113.60	0.10	113.50	31.20	18.32	
1179	Argoon	0-12	113.80	0.26	113.54	5.60	5.60	dry @rd5.60m
1180	Argoon	12-60	114.00	0.00	114.00	30.90	15.81	
1181	Argoon	12-60	114.70	0.12	114.58	18.90	10.42	
1190	Argoon	0-12	116.43	0.04	116.39	3.30	2.80	
1256	Argoon	0-12	116.30	0.07	116.23	8.60	2.62	
1257	Argoon	0-12	116.70	0.07	116.63	10.70	2.73	
1262	Argoon	0-12	114.90	0.00	114.90	11.10	6.08	
1263	Argoon	12-60	115.64	0.10	115.54	20.40	12.69	
1264	Argoon	12-60	115.90	0.35	115.55	15.00	13.09	
1279	Argoon	0-12	119.11	0.34	118.77	7.40	3.38	
1853	Argoon	12-60	114.10	0.26	113.84	19.70	19.36	
1868	Argoon	12-60	114.30	0.17	114.13	22.20	19.32	
1878	Argoon	12-60	114.80	0.12	114.68	18.60	18.50	dry @rd18.50m
2338	Argoon	12-60	119.72	0.12	119.60	25.00	4.76	
2428	Argoon	0-12	119.92	0.38	119.54	9.50	3.30	
2431	Argoon	0-12	118.90	0.24	118.56	9.10	2.49	
2519	Argoon	0-12	122.70	0.00	122.70	7.70	4.09	
2951	Argoon	0-12	124.00	0.13	123.87	6.90	4.12	
3371	Argoon	0-12	119.81	0.38	119.43	8.70	3.15	
4193	Argoon	0-12	123.31	0.11	123.20	7.60	5.31	
4237	Argoon	12-60	121.00	0.07	120.93	22.90	4.78	
4238	Argoon	12-60	122.20	0.05	122.15	24.40	3.82	
4941	Argoon	12-60	117.70	0.34	117.36	23.10	4.13	
4942	Argoon	12-60	116.65	0.18	116.47	12.20	3.07	
12181	Argoon	12-60	118.69	0.25	118.57	15.00	2.70	
12184	Argoon	12-60	119.46	0.05	119.41	16.50	1.85	
12346	Argoon	12-60	119.30	0.10	119.20	21.30	3.24	
12352	Argoon	12-60	115.81	0.20	115.61	27.00	15.48	
12354	Argoon	12-60	115.76	0.26	115.50	24.30	10.21	
12355	Argoon	12-60	115.80	0.23	115.57	28.00	5.17	

12373	Argoon	12-60	110.39	0.32	110.07	20.00	10.95	
12374	Argoon	12-60	112.61	0.44	112.17	23.30	21.25	dry @rd21.25m
12375	Argoon	12-60	110.26	0.19	110.07	24.00	20.10	dry @rd20.10m
12376	Argoon	12-60	113.34	0.15	113.19	32.00	20.41	
12377	Argoon	12-60	117.44	0.13	117.31	22.00	6.55	
12378	Argoon	12-60	119.28	0.19	119.09	30.00	7.90	
12379	Argoon	12-60	116.71	0.32	116.39	23.30	7.38	
12384	Argoon	12-60	119.28	0.27	119.01	16.00	8.45	
12387	Argoon	0-12	116.66	0.20	116.46	10.50	7.21	
12618	Argoon	12-60	120.70	0.05	120.65	18.80	2.03	
12633	Argoon	12-60	122.20	0.02	122.18	29.80	3.65	
12634	Argoon	12-60	122.50	0.22	122.23	17.50	1.80	
12635	Argoon	12-60	122.20	0.22	121.98	18.80	1.96	
12636	Argoon	12-60	121.90	0.27	121.63	18.80	3.08	
12638	Argoon	12-60	121.30	0.16	121.14	16.30	3.82	
12638	Argoon	12-60	121.30	0.23	121.07	47.80	16.05	
12640	Argoon	12-60	120.40	0.18	120.22	18.80	3.48	
12644	Argoon	12-60	120.90	0.22	120.68	19.00	3.06	
12645	Argoon	0-12	120.90	0.03	120.87	3.50	1.07	
12646	Argoon	12-60	121.20	0.24	120.96	21.50	2.77	
12647	Argoon	12-60	123.10	0.05	123.05	20.30	2.90	
12655	Argoon	12-60	122.00	0.32	121.68	13.00	3.37	
12658	Argoon	12-60	121.30	0.06	121.04	24.50	2.84	
12665	Argoon	12-60	119.80	0.20	119.60	30.00	3.91	
12672	Argoon	12-60	119.20	0.06	119.14	20.30	2.76	
12675	Argoon	12-60	118.90	0.07	118.83	23.30	2.20	
12681	Argoon	12-60	118.80	0.09	118.71	14.30	5.10	
12682	Argoon	12-60	118.50	0.24	118.26	25.30	3.75	
12683	Argoon	12-60	118.50	0.21	118.29	13.80	3.36	
12684	Argoon	12-60	119.50	0.23	119.27	13.30	2.87	
12686	Argoon	12-60	122.40	0.16	122.24	17.50	4.43	
12687	Argoon	12-60	124.80	0.26	124.54	16.30	4.10	
12688	Argoon	12-60	123.40	0.46	122.94	23.30	4.39	
12689	Argoon	12-60	123.60	0.26	123.34	20.80	7.21	
12690	Argoon	12-60	120.70	0.30	120.40	26.50	5.24	
12691	Argoon	12-60	122.00	0.11	121.89	27.30	7.30	
12701	Argoon	12-60	122.60	0.12	122.48	24.50	5.50	
12711	Argoon	12-60	122.53	0.12	122.41	17.80	6.17	
12854	Argoon	12-60	116.60	0.20	116.40	27.00	6.51	
12855	Argoon	0-12	116.60	0.23	116.37	8.80	9.62	
12880	Argoon	12-60	114.90	0.29	114.61	19.50	2.22	
12901	Argoon	0-12	114.90	0.21	114.69	4.80	2.25	
12943	Argoon	12-60	120.12	0.35	119.77	14.30	4.77	
12944	Argoon	0-12	120.12	0.25	119.87	2.28		dry @rd2.55m
12957	Argoon	12-60	118.16	0.34	117.82	44.20	5.70	
12958	Argoon	12-60	118.56	0.25	118.31	33.00	3.18	
12960	Argoon	12-60	122.24	0.22	122.02	40.50	10.10	
12967	Argoon	12-60	123.22	0.17	123.05	20.00	4.86	
12967	Argoon	12-60	123.22	0.15	123.07	24.50	4.90	

12975	Argoon	12-60	116.10	0.19	115.91	25.00	12.59	
13011	Argoon	0-12	120.12	0.09	120.03	5.00	1.50	
13011	Argoon	0-12	120.23	0.20	120.03	6.70	1.62	
13012	Argoon	0-12	119.92	0.17	119.75	5.00	1.87	
13012	Argoon	0-12	119.92	0.18	119.74	7.00	1.87	
13034	Argoon	0-12	116.23	0.65	115.58	7.08	5.91	
13035	Argoon	0-12	116.47	0.21	116.26	5.14	6.35	dry @rd6.35m
13036	Argoon	0-12	116.72	0.26	116.46	7.34	6.43	dry @rd6.43m
13037	Argoon	0-12	115.86	0.53	115.33	7.80	7.52	
13038	Argoon	12-60	116.22	0.67	115.55	15.44	11.65	
13040	Argoon	12-60	115.46	0.35	115.11	16.19	10.51	
755	Yamma	0-12	126.90	0.20	126.70	9.30	7.90	
756	Yamma	0-12	127.00	0.46	126.54	4.40	4.43	
781	Yamma	0-12	126.70	0.21	126.49	8.50	6.72	
4109	Yamma	12-60	125.38	0.25	125.65	17.90	7.69	
4113	Yamma	0-12	123.88	0.37	123.51	8.50	4.91	
4131	Yamma	12-60	124.91	0.33	124.64	26.20	6.39	
4137	Yamma	0-12	126.56	0.42	126.14	8.50	7.42	
4209	Yamma	12-60	125.60	0.30	125.30	12.20	5.23	
4239	Yamma	12-60	121.10	0.18	120.92	22.90	2.87	
4241	Yamma	12-60	124.66	0.19	124.47	17.10	4.86	
4242	Yamma	0-12	124.58	0.24	124.34	9.90	4.03	
4921	Yamma	0-12	119.30	0.17	119.13	10.70	2.72	
4925	Yamma	12-60	120.70	0.40	120.30	12.30	3.33	
4927	Yamma	0-12	120.50	0.12	120.38	11.70	2.46	
4929	Yamma	0-12	122.30	0.24	122.06	5.40	2.17	
4930	Yamma	12-60	121.50	0.40	121.10	13.70	2.11	
4934	Yamma	0-12	118.54	0.05	118.49	10.80	2.87	
4935	Yamma	0-12	118.00	0.28	117.72	10.80	3.00	
4936	Yamma	0-12	117.84	0.27	117.57	11.10	3.58	
4937	Yamma	12-60	117.95	0.24	117.71	25.20	3.30	
4938	Yamma	0-12	117.89	0.12	117.77	11.00	3.28	
4944	Yamma	0-12	123.88	0.28	123.60	8.40	3.92	
4956	Yamma	12-60	116.80	0.43	116.37	17.40	5.28	
4960	Yamma	12-60	118.60	0.12	118.48	28.70	3.35	
4962	Yamma	12-60	118.30	0.30	118.00	12.80	2.65	
4963	Yamma	0-12	118.60	0.13	118.47	9.70	3.25	
4999	Yamma	0-12	119.49	0.37	119.12	11.30	5.55	
5000	Yamma	12-60	119.40	0.13	119.27	14.90	5.10	
5001	Yamma	12-60	119.61	0.07	119.54	17.40	5.42	
5002	Yamma	0-12	119.97	0.42	119.55	10.50	6.55	
5003	Yamma	0-12	117.56	0.22	117.34	3.50		dry @rd3.50m
5004	Yamma	12-60	118.13	0.14	117.99	15.00	6.30	
5011	Yamma	12-60	120.87	0.29	120.58	17.10	4.67	
5436	Yamma	0-12	121.97	0.25	121.72	7.30	4.35	
5439	Yamma	0-12	122.03	0.19	121.84	4.30	1.80	
5443	Yamma	12-60	124.70	0.15	124.55	24.40	2.99	
5447	Yamma	12-60	123.83	0.13	123.70	23.40	3.05	
5448	Yamma	0-12	122.90	0.00	122.90	11.00	1.74	

5449	Yamma	0-12	122.63	0.32	122.31	9.40	1.60	
5528	Yamma	0-12	123.04	0.17	122.87	8.20	4.35	
5577	Yamma	0-12	122.88	0.00	122.88	8.50	7.83	
5952	Yamma	0-12	121.21	0.21	121.00	7.60	2.92	
5954	Yamma	0-12	120.71	0.14	120.57	11.80	2.06	
5955	Yamma	0-12	120.25	0.10	120.15	9.40	2.08	
5957	Yamma	0-12	120.14	0.24	119.90	10.10	7.66	
5960	Yamma	0-12	119.43	0.12	119.31	7.00	4.40	blocked @rd4.40m
5961	Yamma	0-12	120.05	0.13	119.92	6.40	4.27	
5964	Yamma	12-60	121.00	0.35	120.65	20.20	8.52	
5965	Yamma	12-60	122.82	0.36	122.46	15.50	3.08	
6801	Yamma	12-60	127.46	0.20	127.26	20.70	10.78	
6802	Yamma	12-60	128.23	0.24	127.99	18.30	12.36	
6803	Yamma	12-60	128.29	0.32	127.97	16.20	12.50	
12205	Yamma	12-60	126.54	0.22	126.32	22.50	10.85	
12207	Yamma	12-60	125.30	0.16	125.14	12.75	8.45	
12210	Yamma	12-60	125.57	0.30	125.27	27.25	8.09	
12211	Yamma	12-60	125.57	0.30	125.27	17.30	8.22	
12215	Yamma	12-60	123.77	0.05	123.72	22.80	8.49	
12217	Yamma	12-60	124.38	0.35	124.03	22.50	9.05	
12218	Yamma	0-12	124.30	0.29	124.01	7.38	8.32	
12220	Yamma	12-60	122.97	0.02	122.95	15.80	5.82	
12221	Yamma	0-12	122.75	0.21	122.54	11.45	5.08	
12222	Yamma	0-12	121.82	0.18	121.64	10.00	8.02	
12223	Yamma	12-60	121.30	0.41	120.89	20.00	8.04	
12224	Yamma	12-60	121.36	0.15	121.21	20.05	8.63	
12225	Yamma	12-60	120.51	0.09	120.42	20.60	9.05	
12226	Yamma	0-12	120.98	0.06	120.92	10.10	6.85	
12229	Yamma	12-60	120.69	0.12	120.57	24.00	5.87	
12230	Yamma	0-12	122.36	0.38	121.98	9.80	8.48	
12232	Yamma	0-12	122.05	0.22	121.83	5.50	4.42	
12233	Yamma	0-12	122.02	0.19	121.83	5.50	4.28	
12234	Yamma	12-60	121.94	0.16	121.78	23.25	2.48	
12235	Yamma	0-12	121.30	0.14	121.16	6.15		blocked @rd2.56m
12237	Yamma	0-12	123.37	0.20	123.17	11.00	2.51	
12238	Yamma	12-60	120.67	0.18	120.49	17.80	0.80	
12239	Yamma	0-12	120.60	0.08	120.52	7.50	0.60	
12241	Yamma	0-12	121.90	0.17	121.73	8.50	2.72	
12242	Yamma	12-60	123.85	0.19	123.66	19.10	2.83	
12243	Yamma	12-60	123.35	0.15	123.20	18.90	3.91	
12244	Yamma	0-12	123.55	0.13	123.42	8.30	3.69	
12260	Yamma	12-60	127.29	0.40	126.89	12.05	8.40	
12261	Yamma	12-60	128.48	0.10	128.38	16.45	13.20	
12262	Yamma	12-60	129.32	0.05	129.27	19.10	15.55	
12263	Yamma	12-60	129.41	0.20	129.21	18.00	17.42	
12264	Yamma	0-12	129.41	0.13	129.28	10.30	11.20	dry @rd11.20m
12265	Yamma	12-60	126.90	0.20	126.70	17.20	14.70	dry @rd14.70m
12266	Yamma	12-60	128.29	0.18	128.11	18.20	16.80	
12267	Yamma	0-12	128.29	0.30	127.99	10.10	10.30	dry @rd10.30m

12268	Yamma	12-60	129.25	0.15	129.10	22.50	17.95	
12270	Yamma	12-60	128.32	0.15	128.17	23.55	19.14	
12271	Yamma	12-60	128.18	0.24	127.94	24.68	17.98	
12274	Yamma	0-12	115.80	0.24	115.56	10.40	10.40	dry @rd10.40m
12275	Yamma	12-60	115.80	0.29	115.51	16.48	14.07	
12276	Yamma	12-60	115.42	0.15	115.27	18.30	14.30	
12277	Yamma	12-60	116.65	0.12	116.53	22.33	14.88	
12278	Yamma	12-60	120.66	0.16	120.50	21.78	10.32	
12279	Yamma	12-60	118.19	0.11	118.08	22.45	12.58	
12280	Yamma	12-60	117.61	0.29	117.32	19.50	14.54	
12294	Yamma	0-12	119.53	0.22	119.31	9.00	8.65	
12356	Yamma	12-60	115.93	0.16	115.77	23.50	8.12	
12357	Yamma	12-60	115.63	0.08	115.55	23.00	10.52	
12358	Yamma	0-12	115.63	0.20	115.43	11.00	10.60	
12362	Yamma	12-60	125.79	0.05	125.74	19.20	12.70	
12363	Yamma	12-60	125.63	0.25	125.38	21.70	13.52	
12364	Yamma	12-60	125.78	0.21	125.57	17.60	8.83	
12365	Yamma	12-60	125.31	0.23	125.08	20.00	13.03	
12366	Yamma	12-60	124.35	0.27	124.08	17.20	10.83	
12367	Yamma	12-60	126.73	0.08	126.65	19.00	10.78	
12368	Yamma	12-60	126.79	0.10	126.69	16.20	7.90	
12370	Yamma	12-60	115.34	0.07	115.27	20.00	13.47	
12371	Yamma	12-60	115.40	0.18	115.22	24.00	14.66	
12372	Yamma	12-60	114.83	0.10	114.73	20.00		blocked @rd2.29m
12420	Yamma	12-60	117.95	0.06	117.89	15.50	2.30	
12421	Yamma	0-12	118.05	0.11	117.94	7.30	2.25	
12454	Yamma	12-60	122.42	0.18	122.24	20.00	2.60	
12455	Yamma	0-12	122.43	0.12	122.31	10.50	2.41	
12458	Yamma	12-60	122.95	0.04	122.91	16.50	2.21	
12459	Yamma	12-60	123.81	0.17	123.64	17.50	2.81	
12460	Yamma	12-60	120.49	0.12	120.37	14.50	3.50	
12462	Yamma	12-60	120.37	0.05	120.32	16.50	3.00	
12465	Yamma	12-60	120.26	0.15	120.11	23.80	3.13	
12466	Yamma	12-60	119.75	0.23	119.52	34.00	6.48	
12467	Yamma	12-60	119.31	0.13	119.18	18.10	2.90	
12468	Yamma	12-60	118.46	0.15	118.31	19.50	2.25	
12471	Yamma	12-60	124.88	0.14	124.74	20.00	3.48	
12472	Yamma	0-12	124.67	0.24	124.43	4.80	2.76	
12473	Yamma	12-60	124.50	0.00	124.50	18.80	3.65	
12477	Yamma	12-60	124.23	0.10	124.13	18.50	3.80	
12502	Yamma	12-60	122.20	0.19	122.01	15.50	3.44	
12551	Yamma	12-60	111.27	0.48	110.79	19.80	15.99	
12552	Yamma	12-60	111.46	0.08	111.38	14.30	15.00	
12553	Yamma	12-60	111.88	0.18	111.70	13.30	13.30	
12554	Yamma	12-60	114.02	0.20	113.82	24.50	16.45	
12961	Yamma	12-60	117.71	0.24	117.47	26.00	2.92	
12974	Yamma	0-12	123.60	0.29	123.31	10.00	3.74	
12974	Yamma	12-60	123.60	0.29	123.31	28.50	4.12	
12974	Yamma	12-60	123.52	0.21	123.31	50.50	15.00	

CI COD 1	WCC	12-60	82.88	0.33	82.55	23.50	11.96	
CI COD 10	WCC	12-60	102.73	0.33	102.40	42.20	22.36	
CI COD 2	WCC	12-60	86.62	0.33	86.29	22.50	14.03	
CI COD 3	WCC	12-60	91.94	0.37	91.57	22.00	14.69	
CI COD 4	WCC	12-60	99.20	0.33	98.87	15.50	15.75	dry @rd15.75m
CI COD 5	WCC	12-60	95.92	0.37	95.55	34.00	19.52	
CI COD 6	WCC	12-60	95.54	0.38	95.16	49.00	19.97	
CI COD 7	WCC	12-60	100.33	0.37	99.96	46.00	21.60	
CI COD 8	WCC	12-60	104.17	0.34	103.83	22.50	20.36	
CI COD 9	WCC	12-60	110.83	0.34	110.49	41.50	22.93	

10.2 A2 Surface Water Extraction and Salinity

Table A 2.1: Flow (ML) for CCS at Coleambally Main Off-take

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1			935	1365	3600	5535	4387	3632	660	150	320	
2			1005	1833	3140	3693	4206	2907	865	200	300	
3			1275	1990	2655	3337	4472	3204	740	250	340	
4			1565	2190	2385	2981	4474	3379	1095	655	405	
5			1630	2134	2193	2935	4647	2858	1411	930	410	
6			1295	2315	1981	2885	4306	3005	1483	885	420	
7			1375	2325	1928	3160	4441	3040	1495	485	455	
8			1537	2510	2193	3280	4365	2920	1625	385	665	
9		381	1098	3110	1510	3210	4230	2950	1521	580	680	
10		765	1358	3200	1360	2960	4580	2835	1223	620	680	
11		878	1560	2920	1040	3285	4550	2710	1118	350	700	
12		838	1510	3225	1735	3516	4385	2761	1260	255	625	
13		1027	1515	3335	1850	3485	4380	2706	1120	250	625	
14		1094	1180	3205	2283	3469	4125	2850	1180	250		
15		891	960	3840	2365	2639	3808	3175	1070	230		
16		1192	980	3775	2346	2987	4034	3705	1140	255		
17		1750	937	3856	2477	2816	3883	3305	1820	270		
18		1470	998	3386	2471	2844	5300	2661	2340	590		
19		1100	756	3385	2391	3120	5985	2767	2250	710		
20		938	595	3572	2717	2725	5984	2665	1810	365		
21		1205	834	3415	4215	3550	5957	2386	1310	220		
22		1250	755	3642	4961	3390	5340	1942	1350	265		
23		1274	880	3826	3820	3530	4020	1734	355	350		
24		841	1040	4065	3125	3485	3445	1620	369	145		
25		1062	836	4075	3115	3480	3560	1622	240	190		
26		1002	1050	3610	3370	3400	3495	1375	395	250		
27		795	735	3543	3239	3682	3125	865	391	310		
28		1021	795	3224	2748	3896	3295	810	150	320		
29		916	673	3295	4351	3895	3495		140	370		
30		930	1285	3560	5100	4149	3388		260	360		
31		1040		3605		4238	3440		240			

Table A 2.2: Salinity (µS/cm) for CCS at Coleambally Main Off-take

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1			112.8	117.5	129.9	168.7	125.3	120.1	113.2	136.4	152	
2			115.4	114.8	123.2	165.8	125.7	114.6	114.1	124.8	151.9	
3			121	114	129	165.7	124	118.7	117.9	125.1	151.9	
4			127.2	117	128.6	167.2	125.9	120.3	118.2	123.4	151.4	
5			133.3	122.9	129.7	162.2	131.1	119.6	105.6	111.8	148.7	
6			139.1	121.6	130	157.9	132.1	119.2	104.5	105.5	145	
7			145.1	118.9	125.5	152.2	122.6	120.3	100.5	106.7	138.1	
8			147.5	116.8	123.7	147.1	119	122.6	93.6	113.2	134.9	
9		154.3	147.9	117.9	133.5	143.1	119.8	130.5	92.1	123.2	134.1	
10		151	143.5	118.8	132.7	139.4	115.8	121.7	93.7	130.1	129.9	
11		150.9	135.8	119.7	131.6	137.3	115	119.1	94.5	119.8	121.6	
12		148	127.3	117.7	132.9	136.4	116.5	114.4	96.1	113	120.7	
13		144.6	130.9	117.2	124.6	135.4	116.8	113.5	88.4	115.4	120.8	
14		143.1	137.1	107.8	115.7	139.3	122.4	113	87.6	115.5		
15		141.4	135.1	111.2	121.3	132.8	114.6	111.3	87.9	118.5		
16		139.7	119.5	131.5	132.1	129.1	121.4	112.4	96.1	123.4		
17		140.8	116.1	134.6	139.1	129.6	124	113	107.4	131.8		
18		138.7	113.9	118.9	133.2	130.2	124.1	110.1	130.1	128.7		
19		134.4	109.7	125.1	125.4	129.1	127.9	107.5	105.7	130.5		
20		130.1	103.8	107.2	134.1	146	123.9	104.5	111.4	130.6		
21		129.5	104.4	112.2	124.2	147.8	125.9	101.5	114.4	135.1		
22		129.6	107.5	114.8	122.8	133.4	124.6	96.4	122.3	132.4		
23		128.5	112	111.5	123.1	133.9	129	97.5	114.3	134.6		
24		123.8	108	116.4	127.7	136.3	130.5	103.5	143	135.6		
25		120.5	100.8	129.7	135.6	121.7	130.4	106.5	161	138.4		
26		119.8	96.7	135.5	139.2	117.8	113	107.7	155.8	142.1		
27		115.3	105.8	120.5	141.1	116.7	117.7	107	192.5	145.9		
28		114.7	119.2	118.7	144.5	119.1	122.4	108.2	189.8	148.8		
29		115.5	118.2	122.5	151	128.9	122.7		173.4	149.7		
30		116.4	116.6	119	153.8	131.2	122.9		163.6	150.7		
31		114.2		128.4		137.6	125.4		159			

10.3 A3 Drainage Salinity and Flow Data

Table A 3.1 Flow (ML) for DC 800 at Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1			19.4	10.3	78.9	16.0	92.9	58.3	21.7	70.6	0.1	34.3
2			17.9	10.1	99.4	10.7	87.5	57.3	24.6	58.9	0.3	85.5
3			9.6	8.3	99.3	16.2	101.8	65.0	27.9	46.0	0.3	162.6
4			4.0	42.2	101.2	17.7	125.3	65.5	25.3	37.6	0.1	116.9
5			20.3	84.9	91.6	15.0	118.2	65.3	21.7	31.7	0.1	71.7
6			15.8	87.7	79.6	13.1	132.3	63.7	18.3	26.7	0.7	54.6
7			13.5	94.9	49.3	9.2	103.1	59.8	15.7	26.2	0.9	54.0
8			27.7	84.5	47.8	5.7	96.0	64.9	14.6	28.9	1.3	60.6
9			23.6	79.8	58.9	3.1	118.8	56.7	15.8	27.4	0.6	59.8
10			17.2	86.5	54.2	1.3	106.5	54.3	18.0	23.6	0.4	45.3
11			11.2	40.9	36.8	0.8	99.5	49.8	17.3	19.0	0.2	27.8
12			23.8	34.6	27.1	0.3	105.0	48.7	17.6	15.6	0.2	31.3
13	2.5		18.8	33.8	22.8	9.7	94.1	58.9	16.4	13.0	0.8	25.9
14	17.5		41.6	22.7	17.6	22.9	104.7	62.0	14.0	12.3	1.3	25.3
15	21.0		41.5	17.6	16.6	28.6	100.0	58.1	13.5	12.6	1.7	27.5
16	27.8		36.4	20.1	11.5	35.1	81.5	53.9	17.3	12.6	7.0	19.4
17	20.3		37.6	16.4	8.7	34.8	84.8	51.6	19.1	11.1	10.1	15.0
18	10.8		45.7	16.4	11.6	30.0	89.6	46.4	17.2	9.6	6.3	14.0
19	3.8		42.9	22.3	15.0	24.3	97.0	43.1	18.2	9.2	6.6	14.0
20	1.4		52.9	24.0	16.6	20.4	85.8	38.1	17.7	8.5	10.2	12.9
21	0.7		48.6	26.7	10.5	20.9	89.6	21.8	19.6	7.3	11.4	12.8
22	0.4		32.7	23.5	9.2	15.9	80.7	12.6	21.1	2.7	8.7	9.4
23	0.2		39.3	21.6	11.6	29.6	81.9	11.5	25.8	2.4	14.6	2.4
24	0.1		38.3	22.3	25.2	23.8	79.1	12.7	41.1	1.7	23.0	0.9
25	0.1		26.6	30.3	20.2	12.5	73.4	13.2	40.0	1.2	41.0	0.9
26	0.1	0.6	23.9	32.6	17.8	10.2	76.5	13.0	40.4	0.6	35.3	0.5
27	0.1	7.1	22.8	27.5	15.4	12.1	74.9	14.2	76.7	0.5	37.1	0.2
28	0.0	8.7	16.2	27.6	17.9	21.0	67.4	19.7	81.6	0.2	40.7	0.1
29	0.0	8.4	10.6	22.4	16.3	34.5	70.4		81.0	0.1	33.7	0.1
30	0.0	2.2	13.8	24.6	17.5	52.7	65.5		82.3	0.1	24.3	0.1
31	0.0	9.2		52.4		69.4	56.6		80.2		22.0	

Table A 3.2 Salinity (µS/cm) for DC 800 at Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1			417.3	277.9	324.4	398	191	210.4	529.7	320.9	532.9	216.8
2			319.9	269.6	300	415.1	195	207	517.4	314.2	573.9	254.4
3			272.5	283.5	280.8	379.1	185.5	217.2	489.1	330.9	604.2	322.2
4			276.1	276.8	226.1	317.7	184.4	227.7	515.8	345.6	566.7	337.6
5			253.8	213.1	185.5	285.7	194.3	235.9	489.1	299	625.8	296.6
6			252.3	212.6	178.1	318.4	190.6	241.6	490.3	273.8	682.6	259.5
7			286.6	216.9	193.5	376.3	193.7	243.5	473.6	284.3	835	225.9
8			317.1	202.1	233.4	423.6	211.6	244	319	334.7	588	205.4
9			290.5	191	240.4	434.6	202.1	257.3	324.4	379.7	346.3	188.1
10			269.9	189.9	277.4	418.7	188.6	269	383.2	395.9	423.7	203.5
11			259.7	194.5	284.7	416.1	190.9	285	422.4	291.4	470.2	190.7
12			260.8	198	256.5	339.1	183.1	290	438.9	308.5	474.5	188.2
13	388.8		278.4	208	275.6	373.3	174.8	286.9	440.8	328	553.9	204.9
14	368		299.1	208.5	251.2	331.9	159.8	261.6	405.2	367.4	660.7	229.4
15	360.2		328.4	209.8	198.8	304.6	159.4	232.1	401.6	386.6	598	252.1
16	360		287.6	224.5	190.2	294.7	187.9	98.2	416.4	556.6	606.3	249
17	364.5		290.1	227.8	183.8	283.6	197.5	108.9	592.3	466.5	623.6	232.5
18	352.7		278.2	226.8	257.8	257.3	198.1	128.8	569.8	453.6	422.7	217.6
19	347.6		258.8	234.2	267.5	600.2	202.9	133.5	508.3	442.1	376.4	213.7
20	343		252.6	263.7	257.6	506.8	208.7	134.1	475.5	439.2	338	225.8
21	319.8		293.6	302.4	319.4	369.6	233.9	173.3	569.4	410.9	364.3	273.2
22	315.4		308.2	316.4	275.7	333.1	215.5	186.2	474.2	511.4	493	291.3
23	316.7		289.2	357.2	298.8	320.7	210.2	211.6	330.4	414.3	394.6	258.1
24	317.9		264	395.9	299.5	388.2	205.7	278.5	413.8	502.2	370.7	224.1
25	308.3		342.6	400.8	319	392.4	220.3	355.9	419.7	543.8	360.5	213.1
26	298.8	268.2	273.1	394.9	340.7	385.2	228.9	426	403.6	534	233.4	217.1
27	298.3	329.6	239.1	382.4	341.6	400.4	229	445.2	443.3	568.3	188	220.3
28	294.8	276.6	254.9	378.1	373.6	357.7	222.2	477.9	387.2	543.5	200.6	220.5
29	295	226	261.1	390.9	452.4	284.4	219.5		379.7	506.2	192.3	226.2
30	297.3	233.1	271	338.5	544.5	291.8	212.7		358.9	473.1	248.2	231.8
31	300.7	301.1		352.6		218.2	221.9		360.3		261.1	

Table A 3.3 Flow (ML) for CODA at West Coleambally Channel

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	0	0	12.0	99.8	44.3	200.3	86.0	53.7	99.6	31.4	43.6	14.5
2	0	0	8.7	100.7	48.6	125.2	99.9	59.9	86.6	30.4	40.5	80.6
3	0	0	7.1	100.5	64.4	157.0	92.1	67.4	110.3	22.1	33.5	123.5
4	0	0	8.4	113.3	61.5	153.1	100.1	70.8	80.0	19.7	54.3	188.7
5	0	0	11.4	120.5	50.3	144.9	105.3	85.3	56.7	17.4	46.0	213.4
6	0	0	8.9	120.0	50.3	150.0	71.5	78.1	126.2	15.9	45.1	193.6
7	0	0	4.8	115.5	50.4	132.3	40.3	69.8	128.5	13.5	42.0	164.5
8	0	0	8.3	120.2	50.2	1.6	49.2	65.1	120.0	9.2	63.2	158.7
9	0	0	25.4	120.3	50.3	0.0	61.7	57.7	126.6	8.1	72.9	35.2
10	0	0	33.5	120.1	50.4	0.0	70.2	10.8	133.1	6.6	80.3	55.7
11	0	0	31.6	120.2	50.3	0.0	74.5	20.9	125.2	3.0	90.7	37.8
12	0	0	31.3	103.2	50.2	0.0	115.3	24.2	87.3	3.0	90.5	47.4
13	0	0	34.7	100.5	50.0	0.0	116.5	22.2	63.2	1.3	96.4	120.8
14	0	0	59.9	100.1	49.9	0.0	135.4	18.4	72.4	0.1	100.3	49.5
15	0	0	39.0	95.1	49.9	0.0	147.2	15.8	64.5	1.0	83.2	48.3
16	0	0	22.4	80.6	49.9	0.0	102.9	10.9	64.6	0.0	20.3	139.1
17	0	0	20.0	80.0	49.4	0.0	112.9	5.3	64.4	0.0	13.3	57.2
18	0	0	20.9	67.7	41.9	0.0	129.4	2.8	73.6	0.0	6.4	14.7
19	0	0	4.6	53.3	41.9	0.0	145.5	0.8	69.4	0.0	0.0	15.3
20	0	0	0.0	50.6	40.1	18.2	153.3	1.2	71.0	0.0	37.3	25.6
21	0	0	0.0	51.9	40.3	85.2	155.3	18.5	60.1	0.0	13.1	15.5
22	0	0	0.0	55.8	40.4	100.2	155.0	77.1	38.0	0.0	12.0	12.1
23	0	0	0.0	60.1	46.8	100.2	126.3	118.1	44.4	6.1	10.9	9.6
24	0	0	0.0	60.3	75.7	100.2	80.1	118.6	67.3	1.3	11.1	9
25	0	6.6	0.0	60.1	100.4	100.3	69.9	48.4	63.3	0.0	10.2	6.8
26	0	16.4	0.0	59.9	100.0	102.3	69.7	72.5	55.2	0.0	6.8	5.9
27	0	8.0	0.0	59.8	100.0	119.6	60.4	116.0	32.6	0.0	4.1	5.8
28	0	15.6	65.9	55.3	100.3	124.0	11.6	116.1	31.0	0.0	4.2	5.3
29	0	17.8	93.0	45.4	100.6	101.6	29.7		23.9	0.0	4.6	4.9
30	0	12.4	92.1	40.5	10.1	95.3	56.7		14.0	38.9	3.3	4.4
31	0	12.2		42.7		94.9	50.0		21.1		3.4	

Table A 3.4 Salinity (µS/cm) for CODA at West Coleambally Channel

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	548.9	194.6	508.1	146.7	118.6	141.2	72.1	156.5	231.5	433.5	166.7	409.4
2	510.6	152.1	460.1	141.4	52.7	150.3	87.2	150.3	239.5	427.9	179.4	339
3	317.9		419.2	151.4	36.6	127.3	88.1	154.7	217.2	422.8	175.9	318.1
4	288.9		335.2	144	40	110.6	65.4	192.2	208.9	410.7	159.1	266.4
5	275.1		334.8	149.9	50.1	110.1	133.3	174.3	204	439.7	154.4	265.6
6	292.1		319.8	152.1	70.4	100.5	187.2	173.5	203.4	451.2	154.3	270.5
7	341.6		281.4	137.8	97.9	105.5	232	177.6	216.5	483.5	155	256.5
8	357.8		319.6	137.8	138.4	144.6	213.3	188	208.5	506.9	153	211.3
9	499.6		316.7	136.8	149		133.4	189.4	201.4	525.1	148.2	192.9
10	375.3		291.6	136.5	145.6		104.3	194.5	202	543.4	150.2	190.3
11	271.4		273.6	133.2	141.7	207.7	84.9	249.8	217.6	574.7	136.1	192.8
12	233.7		265.8	153.6	150.8	197.7	83.5	299.7	231.9	606.5	128.2	194.4
13	178.1		270.6	153	162.2	149.3	91.2	280.7	253.5	638.5	123.2	194.5
14	549.2		267.7	152.9	160.6	147	122.4	285.4	273.6	666.4	120.2	188.3
15	982		249.4	142	168.4	157.9	120.3	279.8	273	686.8	139.5	180.8
16	779.1		250.1	127.7	179.4	167.3	-13.9	288.7	273.3	702.5	167.1	177
17	707		260.8	130.2	181.5	190.7	34.1	323.6	267.7	716.9	315.1	180.8
18	636.6		373	127.6	92.8	214.8	37.8	340	264.6	735.9	492.7	185.6
19	560.7		355.9	122.1	18.2	193.8	41.9	344.7	265.8	754.2	387.2	189.3
20	522.8		329.4	129.9	93.4	190.2	75.2	354	280.4	768.3	428.9	161.5
21	275.5			143.4	158.7	165.6	98.3	358.1	290.4	807.4	493.4	155.5
22	222.9			154.3	171.4	66	120.6	249.9	282.1	849.9	460.5	163.7
23	234.4	589.6	339.5	169.5	166	89.8	136.6	178.6	290.6	855.2	414.1	169.8
24	247	457.7	332.3	179.4	153.3	129.3	147.1	190.7	307.3	430.5	392.1	176.7
25	242.6	448.9	318.2	195.1	148.3	120.3	120.8	204.9	324.9	398.9	397	183.1
26	225.1	432.1	285.1	198.8	141.8	140.5	112	202.8	335.3	367.7	408.6	186.8
27	213.9	339.7	266.3	195.1	132.3	79.5	99.2	201.5	362.4	368.8		191.5
28	204.3	333.3	299.8	195.6	154.8	68.9	106.2	212.6	380.6	373.8		190.6
29	212.8	458.4	155.3	180.4	157.3	60.5	102.5		401.5	379.9	415.8	189.2
30		395.3	157	100.7	137.7	58.4	107.7		419.6	322	415.1	194.3
31		434.9		133.1		61.5	115.4		433.7		412.1	

Table A 3.5 Flow (ML) for CCD at Coleambally Catchment Drain Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1				37.5	38.2		122.1	9.7	41.6	0.5	0.1	
2				46.6	80.2		132.1	4.7	31.7	0.2	0.1	
3				53.3	95.0		132.7	77.7	28.9	1.4		
4				63.6	41.2		133.4	105.2	17.0	0.9		
5				98.6	74.5		130.7	107.7	7.5	0.1		
6				100.3	77.2		129.3	144.9	4.2	0.0		
7				98.9			122.2	147.4	2.6			
8				98.9			135.7	144.9	2.1			
9				102.2			138.2	142.3	1.6			
10				87.0			128.7	140.2	1.1			
11				100.6			104.1	140.7	0.9			
12				104.5			128.1	141.0	0.8	0.0		
13				102.3			142.6	140.6	0.8			
14				102.7			144.3	139.1	0.8			
15				82.2			144.7	136.8	0.8			
16				91.8		41.9	141.1	137.8	0.5			
17				100.8		31.9	137.2	137.1				
18				99.6		3.3	137.7	135.5	0.1			
19				93.8		2.0	117.9	103.0	3.3			
20				22.2		2.4	106.7	96.2	3.3	0.0		
21				0.3		3.1	131.3	80.4	1.3	0.0		
22						2.5	138.5	112.1	1.1			
23						1.8	135.0	114.6	0.9			
24						1.8	117.4	113.7	0.9			
25						2.8	103.6	105.3	92.2			
26						2.1	96.5	76.3	76.3			
27						1.7	96.1	66.7	21.8	0.0		
28						39.9	102.0	62.7	4.9	0.0		
29						88.6	94.4		1.9	0.1		
30						95.5	57.6		2.7	0.1		
31						94.9	43.3		1.9			

Table A 3.6: Salinity (µS/cm), for CCD at Coleambally Catchment Drain Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1							59.6	63.4	82.4	40.3	70.7	
2				104.4	130.3		62.4	64.2	92.7	42.8		
3				112.3	128.7		67.3	67.2	72.7	65.8		
4				132.2	131.7		65.5	64.9	49.7	39.6		
5				104.5	135.4		64	67.5	64.8			
6				97.3	129.2		68.6	69.2	37.5			
7				93.6			71.3	69.3	38.7			
8				100.6			70	72.2	41.1			
9				99.5			66.2	70.8	46			
10				107.1			65.7	68.2	53.6			
11				101.3			69.1	64.5	60.6			
12				91.9			66.2	58.8	67.9			
13				97.3			64.8	54.3	100			
14				100			66	55.3	99.1			
15				98.2			69.3	52.7	90.1			
16				101.7			68.9	50.6	92.3			
17				95.3		66.2	68.9	50.6				
18				97.5		68.4	70.4	50				
19				102.8		77	68.8	54.5	103.6			
20				105.6		80.3	72.1	50.6	107.8			
21				125.1		83.4	80.2	53.5	108.2			
22						84	80.2	53.9	106.3			
23						96.7	78.6	54	108.7			
24						109	80.7	55.6	108			
25						120.4	79.2	58.7	103.8			
26						122.9	76.1	60.7	72.2			
27						135.6	72.9	55.6	47			
28						97.8	74.8	62.3	49.5			
29						59.2	71.6		52.8	65.8		
30						57.9	67.9		56.1	75.3		
31						57.9	66.4		56.2			

Table A 3.7: Flow (ML) for CODD at West Coleambally Channel at Bundy

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	3.7		0.0	0.0	8.5	0.0	0.0	0.4	0.0	7.0	0.0	0.0
2	5.7		0.0	0.0	5.0	0.1	0.0	3.2	0.7	6.3	0.0	0.0
3	5.0		0.0	0.0	1.9	0.2	0.0	4.0	0.5	4.8	0.0	0.0
4	3.0		0.0	0.0	3.3	0.2	0.3	1.4	0.3	2.3	0.0	0.0
5	1.4			0.0	2.2	0.3	0.8	0.1	0.3	2.0	0.0	0.0
6	0.9			0.0	2.1	0.3	0.2	1.4	0.4	0.9	0.0	0.0
7	0.5			0.0	2.2	0.1	0.8	3.6	0.4	0.2	0.0	0.0
8	0.2			0.0	1.7	0.0	1.1	2.7	0.4	0.0	0.0	0.0
9	0.1			0.0	1.9	0.0	0.3	1.7	0.3	0.0	0.0	0.0
10	0.4			0.0	1.8	0.0	0.1	1.1	0.4	0.0	0.0	0.0
11	0.4			0.0	1.4	0.0	0.0	0.9	0.4	0.0	0.0	0.0
12	0.7			0.0	1.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0
13	1.2			0.0	1.4	0.3	0.0	0.0	0.3	0.0	0.0	14.9
14	1.6			0.0	1.2	0.8	0.0	0.0	0.6	0.0	0.0	8.1
15	1.3			0.0	4.5	1.3	0.0	0.0	0.5	0.0	0.0	9.6
16	1.3			0.0	6.8	0.6	0.0	0.0	0.4	0.0	0.0	7.6
17	1.1			0.0	4.9	0.5	0.4	0.4	0.7	0.0	0.0	2.7
18	1.2			0.0	3.4	0.3	0.8	0.9	0.4	0.0	0.0	0.0
19	0.9			0.0	2.5	0.0	0.1	1.2	0.0	0.0	0.0	0.0
20	0.8			0.0	1.5	0.5	31.7	0.5	0.0	0.0	0.0	0.0
21	0.6			0.0	0.9	0.2	59.6	0.1	0.0	0.0	0.0	0.1
22	0.4	0.0		0.0	0.8	2.7	44.0	0.1	0.0	0.0	0.0	1.6
23	0.2	0.0		0.0	0.7	1.2	28.1	0.0	0.0	0.0	0.0	0.3
24	0.2	0.0		0.9	0.7	0.8	17.9	0.7	0.0	0.0	0.0	0.0
25	0.8	0.0	0.8	0.0	4.9	0.8	10.5	0.2	0.0	0.0	0.0	3.3
26	0.8	0.0	0.3	0.0	4.7	0.0	7.3	0.6	0.0	0.0	0.0	4.4
27	0.7	0.0	0.0	0.0	3.5	0.0	8.9	1.6	0.0	0.0	0.0	6.3
28	0.6	0.0	0.0	0.0	2.4	0.0	9.3	0.6	0.0	0.0	0.0	7.9
29	0.4	0.0	0.0	4.2	2.0	0.0	11.5		6.4	0.0	0.0	6.3
30		0.0	0.0	10.1	0.9	0.0	8.7		3.9	0.0	0.0	3.7
31		0.0		11.1		0.0	3.6		5.3		0.0	

Table A 3.8: Salinity (µS/cm) for CODD West Coleambally Channel at Bundy

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	222.1	248	292.7	400	200.9	346.6	166.1	191.5	158.8	320.7		6.7
2	224.5	248.3	293.6	440	209.2	387		198.8	155.9	324.7		55
3	245.8	260.5	305.5	462.2	239.7	399.9		209.4	184.1	322.7		
4	252.6	269.2	320.3	494.2	281.2	407	278.2	209.1	208.5	270.2		
5	238.4	275.2	242.6	515.2	269.7	383.2	339	218.1	210.9	221.1		
6	237.4	274.6	334.2	445.8	265.1	442.7	334.1	217	215.7	234		
7	239.2	271.2	339	439.8	254.7	501.3	343.4	206.4	219.3	240.1		
8	244.2	275.2	352.7	381.3	265.3	526.2	328.3	206.6	216.5	214.8		
9	263	280.5	359.6	189.9	270.3	516.7	305.5	187.6	209.8	102.2		
10	242.5	279	334.6		278.4	548.3	311.6	176.8	192.4	256.9		
11	244.4	283.2	338.2		289.5	589.8	329.6	171.9	192.5	257.9		
12	228.7	278.7	332.4		288.4	601	321.7	177.8	195.5	258		13.6
13	214.3	280.2	317.1		275.7	532.1	294.6	185.8	187.3	259.4		121.4
14	206.3	285.7	302.3		267.5	390.9	275.1	182.3	171.3	45.5		218.3
15	186.9	285.2	304		298	336.9	321	160.9	172			242.3
16	192.5	288.4	307.7		268.6	318.6	356.8	153.9	164.7			270.3
17	193.7	269.2	316.1		256	308.8	319.3	171.1	153.7			257.6
18	187.9	187.1	321.3		263.1	320.1	326.1	162.5	166.7			227.6
19	191.3	228.6	323.8		279.3	350.1	302.2	159.7	181.7			193.2
20	205	239.2	355.9		286.3	343.3	283.3	157.5	193.6			149.4
21	217.6	255.5	364.4		280.7	354.2	260.4	156.4	193.4			169.6
22	222.2	271.1	378.5		268.4	324.2	260.8	162.4	179			138.6
23	224.9	275.3	432.4	15.5	275.8	328.4	255.9	162.5	70.7			144.9
24	227.1	253.8	393.7	255.9	282.7	312.4	267.7	170.7	47			143.2
25	247	253.5	398.6	285	347.8	285.1	301.7	166.9	49.9			185.2
26	258	264.4	385.2	314.6	315	298.3	309.8	161.7	58.6			230.2
27	264.9	259.6	391.8	332.8	300.1	320.4	370.5	153.5	33.2			236.7
28	262.1	272.7	414.2	370.9	326.6	318.9	446.1	148.3				222.9
29	260.5	291.5	385.5	399.9	337.1	327.8	398.2		331.8			202.4
30	255.4	291.8	381.4	294.1	315.5	345.9	318.2		313.2			185.1
31	249.6	287.1		188.5		375.1	251.1		316.4			

10.3 A4 Groundwater Extraction from other Approved Works

Table A4.1 & A4.2 Flow (ML), Salinity (µS/cm), Salt Load (Tonnes) at Col Bore and Flow (ML), Salinity (µS/cm), Salt Load (Tonnes) at Hort Bore for 2013/14

Table A4.1: COL BORE

Month	Jul			Aug			Sep			Oct			Nov			Dec		
	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T
TOTAL	0		0.0	0		0.0	0		0.0	0		0.0	0		0.0	0		0.0
Month	Jan			Feb			Mar			Apr			May			Jun		
	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T
TOTAL	376	620	364	29	722	33	0		0.0	0		0.0	0		0.0	0		0.0

Table A4.2: HORT BORE

Month	Jul			Aug			Sep			Oct			Nov			Dec		
	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T
TOTAL	0		0.0	0		0.0	26	320	13	0		0.0	0		0.0	0		0.0
Month	Jan			Feb			Mar			Apr			May			Jun		
	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T	ML	EC	Salt T
TOTAL	0		0.0	0		0.0	0		0.0	0		0.0	0		0.0	7	320	4

10.4 A4: Water Quality Data

Table A4.1 Nutrient (mg/L) and Pesticide Data (µg/L) for CCS at Coleambally Main Canal (Tubbo Wells) for 2013/14

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Endosulfan I	Endosulfan II	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF
Aug	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF
Sep	0.11	0.006	0.4	0.037	25	0.14	<0.1	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	0.31	NA	<0.10	NA
Oct	0.02	<0.005	0.2	0.039	28	<0.10	<0.01	NA	<0.10	<0.01	<0.01	<0.01	<0.10	<0.10	<0.10	NA	<0.10	<1.00
Nov	0.02	0.006	0.19	0.028	22	<0.10	0.022	<0.01	<0.10	<0.01	<0.01	<0.01	<0.10	<0.10	<0.10	<1.00	<0.10	<1.00
Dec	0.02	<0.005	0.17	0.03	23	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	<0.10	<0.10	<0.10	NA	<0.10	<1.00
Jan	0.02	<0.005	0.24	0.025	25	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Feb	0.02	0.005	0.18	0.029	22	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Mar	0.03	0.005	0.13	0.028	19	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
Apr	<0.01	0.005	0.16	0.024	6	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
May	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
Jun	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF

NF = No Flow or flow less than 5ML per day
NA = Not Applicable

Table A4.2 Nutrient (mg/L) and Pesticide Data (µg/L) for CODA at West Coleambally Channel for 2013/14

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Endosulfan I	Endosulfan II	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Aug	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Sep	0.04	0.015	1.4	0.152	48	46	<0.10	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	1.00	NA	<0.10	NA
Oct	0.14	0.006	0.69	0.10	80	0.14	<0.01	NA	<0.10	<0.01	<0.01	<0.01	0.20	<0.10	<0.10	NA	<0.10	<1.00
Nov	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Dec	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NF	NF	NF	NA	NF	NF
Jan	0.04	0.007	0.38	0.073	130	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Feb	0.06	0.008	0.48	0.08	150	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Mar	0.08	0.008	0.76	0.09	290	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
Apr	<0.01	0.017	0.57	0.066	75	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
May	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
Jun	0.046	0.10	0.60	0.3	64	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	NA	<1.00

NF = No Flow or flow less than 5ML per day
NA = Not Applicable

Table A4.3 Nutrient (mg/L) and Pesticide Data (µg/L) for DC800A at Outfall into Yanco Creek for 2013/14

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Endosulfan I	Endosulfan II	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Aug	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Sep	0.41	0.018	2.4	0.11	47	42	<0.10	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	0.93	NA	<0.10	NA
Oct	0.03	0.008	0.64	0.071	70	0.15	<0.01	NA	<0.10	<0.01	<0.01	<0.01	<0.10	<0.10	<0.10	NA	<0.10	<1.00
Nov	0.07	0.013	1.4	0.114	130	0.98	<0.01	<0.01	0.36	<0.01	<0.01	<0.01	0.24	<0.10	<0.10	<1.00	<0.10	<1.00
Dec	0.07	0.008	1.4	0.127	130	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	<0.10	<0.10	<0.10	NA	<0.10	<1.00
Jan	0.06	0.008	0.47	0.064	160	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Feb	0.12	0.01	1.00	0.126	380	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Mar	0.03	0.007	0.95	0.068	65	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
Apr	0.01	0.028	0.80	0.104	120	<0.10	<0.01	NA	0.13	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
May	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
Jun	0.02	0.18	1.20	0.38	130	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	NA	<1.00

NF = No Flow or flow less than 5ML per day
NA = Not Applicable

Table A4.4 Nutrient (mg/L) and Pesticide Data (µg/L) for CCD at Coleambally Catchment Drain at Outfall into Yanco Creek for 2013/14

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Endosulfan I	Endosulfan II	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Aug	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Sep	0.03	0.008	0.53	0.038	19	0.33	<0.10	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	0.46	NA	<0.10	NA
Oct	0.02	<0.005	0.22	0.04	25	<0.10	<0.01	NA	<0.10	<0.01	<0.01	<0.01	<0.10	<0.10	<0.10	NA	<0.10	<1.00
Nov	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Dec	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NF	NF	NF	NA	NF	NF
Jan	0.02	0.006	0.26	0.033	47	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Feb	0.03	0.005	0.21	0.039	41	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	<0.10	<0.10	NA	NA	<1.00
Mar	0.03	0.005	0.18	0.028	26	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
Apr	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
May	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
Jun	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF

NF = No Flow or flow less than 5ML per day
NA = Not Applicable

Table A4.5 Nutrient (mg/L) and Pesticide Data (µg/L) for CODD (WCC) at Bundy near Billabong Creek for 2013/14

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Endosulfan I	Endosulfan II	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Aug	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NA	NF
Sep	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NF	NF	NA	NF	NA
Oct	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF
Nov	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Dec	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NF	NF	NF	NA	NF	NF
Jan	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NF	NF	NA	NF	NF
Feb	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NF	NF	NA	NA	NF
Mar	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
Apr	0.01	0.031	0.68	0.098	77	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	<0.10	NA
May	NF	NF	NF	NF	NF	NF	NF	NA	NF	NF	NF	NA	NA	NA	NF	NA	NF	NA
Jun	0.011	<0.05	1.00	0.26	230	<0.10	<0.01	NA	<0.10	<0.01	<0.01	NA	NA	NA	<0.10	NA	NA	<1.00

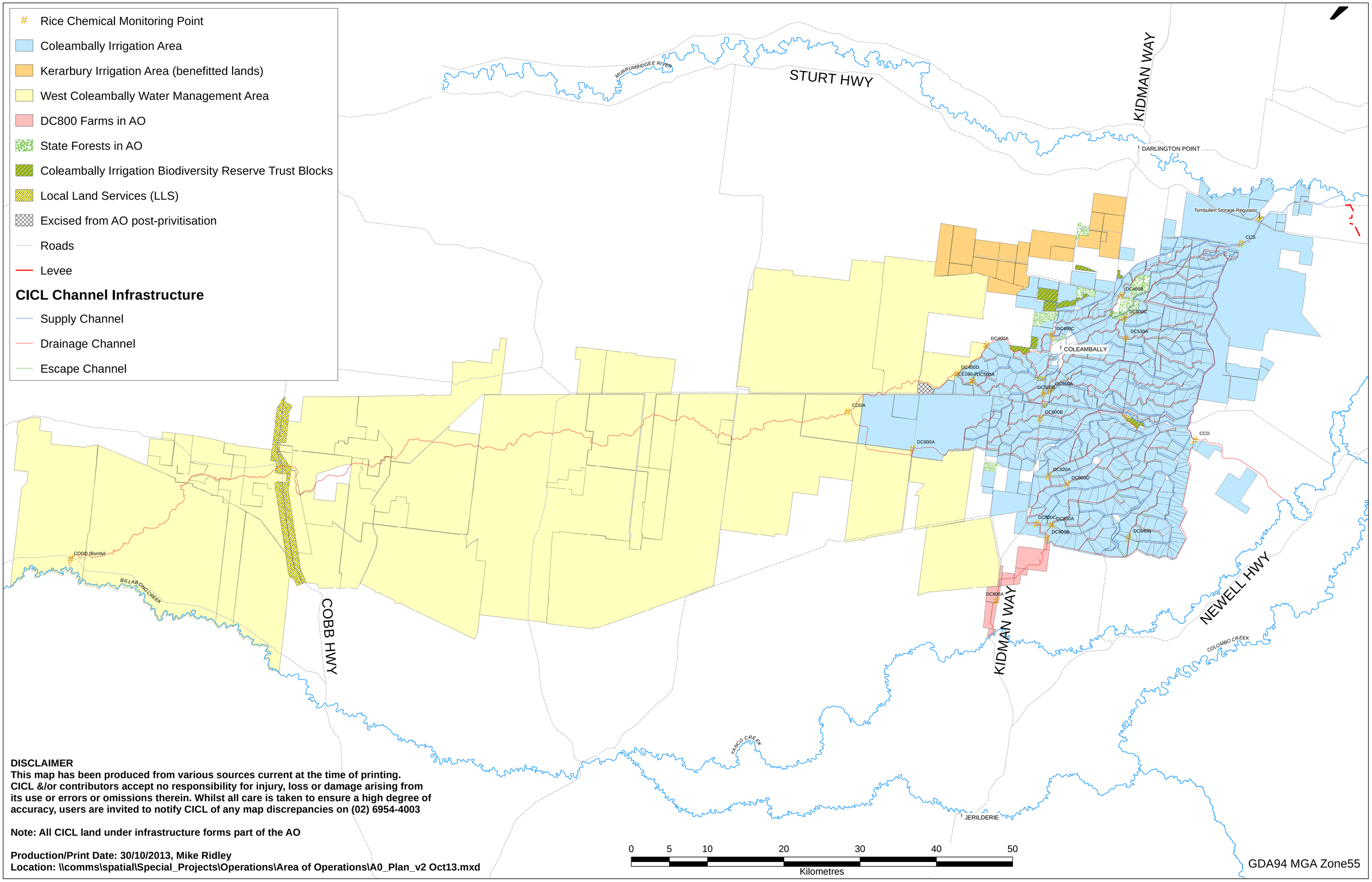
NF = No Flow or flow less than 5ML per day
NA = Not Applicable

10.5 A6 RCMP Results-

Table A 6.1 RCMP Licence Point Results 2013/14

Date	Sample Number	Sample point	Molinate results
30/09/2013	1673	Region:Argoon, Id:5, Acro:CODA	<LOR
30/09/2013	1677	Region:Yamma, Id:18, Acro:DC800A	<LOR
30/09/2013	1682	Region:Yamma, Id:39, Acro:CCD	<LOR
30/09/2013	1684	Region:Boona, Id:56, Acro:CCS	<LOR
08/10/2013	1792	Region:Argoon, Id:5, Acro:CODA	<LOR
08/10/2013	1796	Region:Yamma, Id:18, Acro:DC800A	<LOR
08/10/2013	1801	Region:Yamma, Id:39, Acro:CCD	<LOR
08/10/2013	1805	Region:Boona, Id:56, Acro:CCS	<LOR
14/10/2013	1839	Region:Argoon, Id:5, Acro:CODA	<LOR
14/10/2013	1844	Region:Yamma, Id:18, Acro:DC800A	<LOR
14/10/2013	1849	Region:Yamma, Id:39, Acro:CCD	<LOR
14/10/2013	1851	Region:Boona, Id:56, Acro:CCS	<LOR
21/10/2013	1904	Region:Argoon, Id:5, Acro:CODA	<LOR
21/10/2013	1908	Region:Yamma, Id:18, Acro:DC800A	<LOR
21/10/2013	1913	Region:Yamma, Id:39, Acro:CCD	<LOR
21/10/2013	1917	Region:Boona, Id:56, Acro:CCS	<LOR
28/10/2013	1962	Region:Argoon, Id:5, Acro:CODA	<LOR
28/10/2013	1967	Region:Yamma, Id:18, Acro:DC800A	Molinate 0.30ug/L
28/10/2013	1972	Region:Yamma, Id:39, Acro:CCD	<LOR
28/10/2013	1975	Region:Boona, Id:56, Acro:CCS	<LOR
04/11/2013	2022	Region:Argoon, Id:5, Acro:CODA	<LOR
04/11/2013	2026	Region:Yamma, Id:18, Acro:DC800A	<LOR
04/11/2013	2031	Region:Yamma, Id:39, Acro:CCD	<LOR
04/11/2013	2034	Region:Boona, Id:56, Acro:CCS	<LOR
11/11/2013	2081	Region:Argoon, Id:5, Acro:CODA	<LOR
11/11/2013	2085	Region:Yamma, Id:18, Acro:DC800A	<LOR
11/11/2013	2090	Region:Yamma, Id:39, Acro:CCD	<LOR
11/11/2013	2093	Region:Boona, Id:56, Acro:CCS	<LOR
18/11/2013	2130	Region:Argoon, Id:5, Acro:CODA	<LOR
18/11/2013	2134	Region:Yamma, Id:18, Acro:DC800A	<LOR
18/11/2013	2139	Region:Yamma, Id:39, Acro:CCD	<LOR
18/11/2013	2141	Region:Boona, Id:56, Acro:CCS	<LOR
25/11/2013	2185	Region:Argoon, Id:5, Acro:CODA	<LOR
25/11/2013	2189	Region:Yamma, Id:18, Acro:DC800A	<LOR
25/11/2013	2194	Region:Boona, Id:56, Acro:CCS	<LOR
02/12/2013	2239	Region:Argoon, Id:5, Acro:CODA	<LOR
02/12/2013	2243	Region:Yamma, Id:18, Acro:DC800A	<LOR
02/12/2013	2248	Region:Yamma, Id:39, Acro:CCD	<LOR
02/12/2013	2250	Region:Boona, Id:56, Acro:CCS	<LOR
09/12/2013	2289	Region:Yamma, Id:18, Acro:DC800A	<LOR
09/12/2013	2294	Region:Yamma, Id:39, Acro:CCD	<LOR
09/12/2013	2296	Region:Boona, Id:56, Acro:CCS	<LOR
16/12/2013	2337	Region:Argoon, Id:5, Acro:CODA	<LOR
16/12/2013	2341	Region:Yamma, Id:18, Acro:DC800A	<LOR
16/12/2013	2345	Region:Yamma, Id:39, Acro:CCD	<LOR
16/12/2013	2347	Region:Boona, Id:56, Acro:CCS	<LOR
23/12/2013	2392	Region:Argoon, Id:5, Acro:CODA	<LOR
23/12/2013	2395	Region:Yamma, Id:18, Acro:DC800A	Molinate 6.0ug/L
23/12/2013	2399	Region:Yamma, Id:39, Acro:CCD	<LOR
23/12/2013	2401	Region:Boona, Id:56, Acro:CCS	<LOR

CICL Area of Operations (AO) Plan



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Rubber Lining Yamma 2

Coly 3 Regulator Upgrade

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