

February 28, 2014 Stantec File: 111440070 Conservation File: 5577.00

Attention: Peter Crocker, District Supervisor
Manitoba Conservation and Water Stewardship
Environmental Compliance and Enforcement Branch
Box 13, 1129 Queens Avenue
Brandon, MB R7A 1L9

Dear Mr. Crocker,

Reference: Daly Irrigation Project – 2013 Final Monitoring Report – Licence No. 3010

Stantec Consulting Ltd. (Stantec) submits the following 2013 Final Monitoring Report for the Daly Irrigation Project, on behalf of the Daly Irrigation Development Group (DIDG; the Licencee). This letter provides a summary and status of monitoring data collected in 2013, as required by *Environment Act* Licence No. 3010 (the Licence), issued on July 5, 2012.

The following information is presented:

- Upstream and downstream flows, volumes and rates of water pumped, and durations of pumping as prescribed by Clause 21 of the Licence.
- Findings of the Dissolved Oxygen Monitoring Plan as prescribed by Clause 22 of the Licence.
- Photographs of the Little Saskatchewan River riffle bed exposure immediately downstream of the diversion point of the Development as prescribed by Clause 23 of the Licence.

#### MEASUREMENT OF UPSTREAM AND DOWNSTREAM FLOW RATES

In accordance with Clause 21 of the Licence flow rates were recorded daily on a continual basis. For purposes of this report, daily flow rates were recorded at two monitoring sites, upstream and downstream from the Development diversion point, as described below:

- The upstream flow gauging station (ID: 05F018), operated by Water Survey of Canada, is in operation close to the crossing of Highway 25 over the Little Saskatchewan River, just downstream of the reservoir outlet.
- A stream flow monitoring station was installed downstream of the pump intake on July 20, 2012. This monitoring station consists of two data loggers: one (ID: DIVER M4391) was installed at the bottom of the river to measure total water pressure and water temperature,



and the other (ID: DIVER L6518) was installed at the surface, adjacent to the pumping station to measure atmospheric pressure and air temperature.

Two manual stream flow measurements were collected downstream of the diversion point in 2013, on May 9 and September 19 in order to calibrate the installed downstream monitoring station. An additional two measurements were attempted during the year however these were unsuccessful due to unsafe conditions. The flow rates measured for the two calibration dates are as follows:

- May 9 25.1 m³/sec
- September 19 1.62 m<sup>3</sup>/sec

For purposes of this report, flow rates upstream and downstream of the diversion point were compared during the irrigation season from July 3 to September 19, 2013. The Water Survey of Canada website was used to retrieve measured flows at the upstream gauging station (05F018). Figure 1 shows estimated flow rates (m³/sec) recorded daily at the upstream (black) and downstream (red) monitoring stations in 2013.



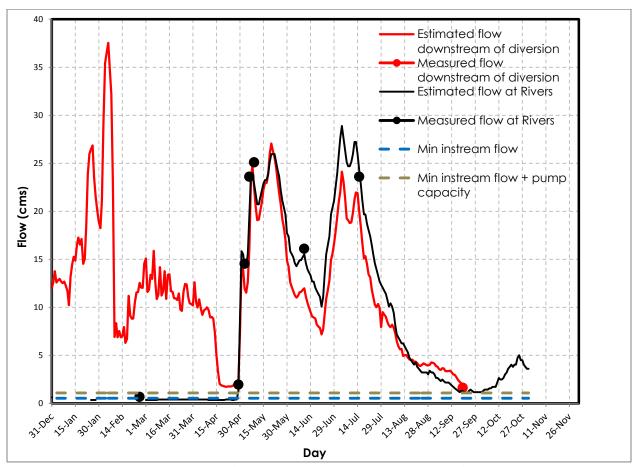


Figure 1 - Daily Average Streamflow Upstream and Downstream from Diversion

At the beginning of Spring 2013, the two estimated stream flows show similar patterns and upstream-downstream correlation. During the irrigation season, downstream flow was generally lower than upstream, indicating withdrawals at the diversion. Towards the end of the irrigation season we see flow rates higher downstream of the diversion point than upstream, suggesting localized flows between the two stations.

The estimated flow downstream of the diversion was above the minimum instream flow requirement of  $0.524~\text{m}^3/\text{sec}$  throughout the 2013 recording period required by the Licence. These flow rates exceed the minimum instream flow requirement in the Little Saskatechewan River ( $0.524~\text{m}^3/\text{sec}$ ) and minimum instream flow rate plus the maximum allowable pumping rate ( $0.524~\text{m}^3/\text{sec} + 0.555~\text{m}^3/\text{sec} = 1.075~\text{m}^3/\text{sec}$ ). This suggests that operation of the Daly Irrigation Project did not cause the flow immediately downstream of the diversion point to drop below the minimum instream flow in 2013. The minimum flow rate recorded downstream of the diversion point in 2013 occurred on the final day of irrigation on September 19 at  $2.03~\text{m}^3/\text{sec}$ . The upstream recorded



flow rate shows a similar drop in flow rate near the end of the irrigation season, suggesting that seasonal conditions contributed to the reduction of these flow rates.

#### **VOLUMES AND RATES OF WATER PUMPED AND DURATION OF PUMPING**

The Development withdrew water from the Little Saskatchewan River during the period of July 3 to September 19, 2013. A total of approximately 1,820 acres of land were irrigated (910 acres of potatoes, 585 acres of wheat, 130 acres of barley, and 195 acres of soybean). In accordance with Clause 21 of the Licence, pump intake volumes and rates are summarized in Table 1 in Appendix A.

The total volume of water pumped during the irrigation season was 216,557,585 US gallons (819,759 m<sup>3</sup>). The daily average total volume of water pumped was 1,488,791 US gallons (204,940 m<sup>3</sup>).

#### **DISSOLVED OXYGEN CONCENTRATION**

In accordance with Clause 22 of the Licence, a Dissolved Oxygen (DO) Monitoring Plan was implemented in spring of 2013 with deployment of the HOBO® U26-001 DO Logger.

The purpose of the DO Monitoring Plan was to determine if the Development had an impact on DO concentration and fish habitat within the Little Saskatchewan River downstream from the diversion point. Impacts to fish habitat are conceivable when DO concentration drops to 2-4 mg/L. Fish kills occur at DO concentration of <2 mg/L. Optimal habitat conditions within the river are achieved at a DO concentration of 5-8 mg/L.

The DO logger was deployed on May 7, 2013 and recorded DO and temperature values on an hourly basis until July 31, 2013. Daily average, minimum and maximum DO concentration and temperature were recorded and are summarized in Figure 2.

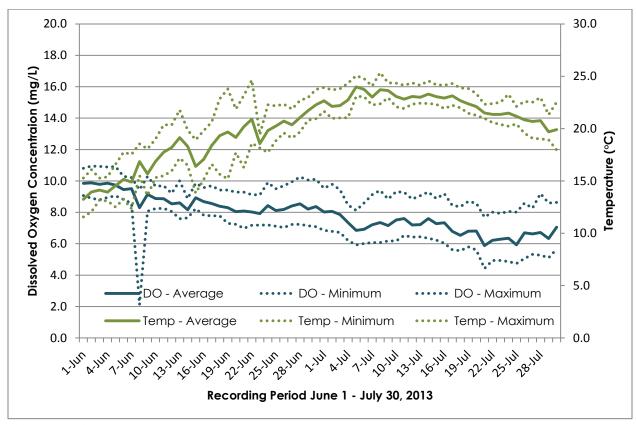


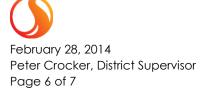
Figure 2: Dissolved Oxygen Concentration, June 1 – July 30, 2013

Following the beginning of the 2013 irrigation season on July 3, average daily DO concentration has been between approximately 5-10 mg/L. Daily minimum values fall slightly below 5 during the latter part of July. Levels have not dropped below the 2 mg/L required for fish survival during recording dates. The lowest DO concentration reported in Figure 2 was 2.1 mg/L on June 8, prior to commencement of the irrigation season. The overall daily average DO concentration during the recording period was 7.9 mg/L.

DO concentration data for the period of July 31, 2013 to September 19, 2013 was not recorded due to equipment malfunction. Methods to prevent future equipment malfunction are discussed under Monitoring Activities Planned for 2014.

#### RIFFLE MONITORING

Under Clause 23 of the Licence, the Licencee is required to capture photographs of the riffle bed exposure in the Little Saskatchewan River downstream from the Development's diversion point



during the irrigation season. A trail camera was used to record daily photographs of the riffle from May 22, 2013 to October 20, 2013.

Photographs were not recorded between August 13, 2013 and September 19, 2013 due to equipment malfunction. Methods to prevent future equipment malfunction are discussed under Monitoring Activities Planned for 2014.

Appendix B includes photographs which show the riffle during active irrigation dates on July 7, July 29, and August 13, 2013. Photographs in Appendix B which show the riffle on non-active irrigation dates include July 5, July 30, and August 30, 2013. A complete set of photographs taken by the trail camera are included on CD-ROM (enclosed).

#### **MONITORING ACTIVITIES PLANNED FOR 2014**

During the 2013 irrigation season, equipment malfunctions occurred which resulted in incomplete data sets available for the annual report. To provide complete information in future annual reports, below are suggested methods to improve data collection from equipment.

Additional equipment checks along with re-calibration should be made to retrieve DO concentration data consistently and avoid possible malfunctions.

The trail camera which is positioned to record photographs of the riffle during active and non-active irrigation dates should be inspected periodically. Electronic files should be downloaded from the camera on a frequent basis to avoid data loss.

#### STATUS OF DALY IRRIGATION PROJECT CONSTRUCTION

Several irrigation components, including pivots and irrigation lines, which were proposed in the DIDG Environmental Impact Assessment (Stantec, 2012) were constructed in 2013. Figure 3 in Appendix C shows an updated Project Footprint of these components. Future construction of proposed pivots and irrigation lines are being considered for construction by DIDG in 2014 to provide additional irrigation service to more fields.

Regards,

STANTEC CONSULTING LTD.

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Attachment: Appendix A (Water Use)

Appendix B (Riffle Monitoring Photographs)
Appendix C (Updated Project Footprint)
CD ROM Riffle Monitoring Photographs 2013

c. Whetter, David (Stantec); Webb, Bruce (MCWS); Waldner, Ed (DIDG)

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Table 1: Daly Irrigation Development Project Licence No. 3010, Annual Water Use Report, 2013 Year

		Re	dfern (Pump	2)			Ke	ywest (Pump 2	2)			Sur	idance (Pump	2)			S	undance (Pum	p 1)	
		Intake Lo	cation: NW1	0-12-21W			Intake Lo	cation: NW10	-12-21W			Intake La	ocation: NW10	-12-21W			Intake	Location: NW1	0-12-21W	
D-4-	Pum	np Capacity:	2400 US gp	m (0.1514 r	m³/s)	Pur	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pur	np Capacity	r: 2400 US gpm	n (0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	m (0.1001 m <sup>3</sup>	/s)
Date (2013)	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated
July 3																1339.12	749770.75	0.08436456	2838.19	NW 8-12- 21 SW 8-12-21
July 4	0.14	1.13	0.00001	0.004278	Line Test	0.14	1.13	0.00000882	0.004278	Line Test	0.14	1.13	0.00000882	0.004278	Line Test	1335.31	550408.25	0.08412453	2083.52	NW 8-12- 21 SW 8-12-21
July 7	2414.17	1903797	0.15209	7206.65	NE 32-11- 21 SW 6-12- 21 SE 6-12-21	1311.30	1108412	0.0826119	4195.79	NW 22- 12-21 SE 21-12- 21	2498.77	2075284	0.15742251	7855.80	SE 36-11- 22 NW 5-12- 21 NE 5-12- 21	1624.76	1141181	0.10235988	4319.84	NW 8-12- 21 SW 8-12-21
July 8	2249.34	3159910	0.14171	11961.55	NE 32-11- 21 SW 6-12- 21 SE 6-12-21	1350.82	1880871	0.08510166	7119.87	NW 22- 12-21 SE 21-12- 21	2499.75	3503457	0.15748425	13262.02	SE 36-11- 22 NW 5-12- 21 E 1/2 8- 12 21	1445.19	1868723.38	0.09104697	7073.88	NW 8-12- 21 SW 8-12-21
July 9	2394.90	3190299	0.15088	12076.59	NE 32-11- 21 SW 6-12- 21 SE 6-12-21	1394.98	1735539	0.08788374	6569.73	NW 22- 12-21 SE 21-12- 21	2561.77	3500071	0.16139151	13249.20	SE 36-11- 22 NE 5-12- 21	1478.59	1900416.50	0.09315117	7193.86	NW 8-12- 21 SW 8-12-21
July 10	2294.77	3099152	0.14457	11731.56	NE 32-11- 21 SW 6-12- 21 SW 5-12- 21	1388.23	1940667	0.08745849	7346.22	NW 22- 12-21 SE 21-12- 21	2478.09	3128457	0.15611967	11842.49	SE 36-11- 22 NE 5-12- 21	1406.02	1953001.25	0.08857926	7392.91	NW 8-12- 21 SW 8-12-21
July 11	2448.20	3159281	0.15424	11959.17	NE 32-11- 21 SW 6-12- 21 SW 5-12- 21	1362.91	1920506	0.08586333	7269.90	NW 22- 12-21 SE 21-12- 21	2655.01	2245528	0.16726563	8500.24	SE 36-11- 22 NW 5-12- 21 E 1/2 8- 12 21	1359.43	1918753.88	0.08564409	7263.27	NW 8-12- 21 SW 8-12-21

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		Intake Lo	cation: NW1	0-12-21W			Intake Lo	cation: NW10	-12-21W			Intake La	cation: NW10	-12-21W			Intake	Location: NW1	0-12-21W	
D L -	Pun	np Capacity:	2400 US gp	m (0.1514 r	n³/s)	Pur	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pur	np Capacity	: 2400 US gpn	n (0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	m (0.1001 m <sup>3</sup> ,	/s)
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July 12	2358.62	3112440	0.14859	11781.86	SE 5-12-21 SE 6-12-21 SW 5-12- 21	1384.57	1745995	0.08722791	6609.31	NW 22- 12-21 SE 21- 12-21						1339.54	1898927	0.08439102	7188.22	NW 8-12- 21 SW 8-12-21
July 13	2478.16	2431173	0.15612	9202.99	SE 5-12-21 SE 6-12-21 SW 5-12- 21	1358.27	607314.80	0.08557101	2298.94	NW 22- 12-21 SE 21-12- 21						1317.79	1022350.56	0.08302077	3870.02	NW 8-12- 21 SW 8-12-21
July 17	2445.39	1902178	0.15406	7200.53	NE 32-11- 21 SW 6-12- 21 NW 6-12- 21	1343.79	899152.80	0.08465877	3403.66	NW 22- 12-21 SE 21-12- 21	2289.08	657227.60	0.14421204	2487.88	SE 36-11- 22 NW 5-12- 21 NE 5-12- 21	1554.97	1102814.88	0.09796311	4174.61	NW 8-12- 21 SW 8-12-21
July 18	2260.17	2384691	0.14239	9027.03	NE 32-11- 21 SW 6-12- 21 NW 6-12- 21	1358.27	1452384	0.08557101	5497.87	NW 22- 12-21 SE 21-12- 21						1447.05	1548306	0.09116415	5860.97	NW 8-12- 21 SW 8-12-21
July 21	0.14	1.13	0.00001	0.004278	Line Test	0.28	3.38	0.00001764	0.012795	Line Test	0.14	1.13	0.00000882	0.004278	Line Test	0.10	0.82	0.0000063	0.0000063	Line Test
July 23	1907.74	692899	0.12019	2622.91	NE 32-11- 21 SW 6-12- 21 SE 1-12-22						1913.31	913444.70	0.12053853	3457.76	SE 36-11- 22 E 1/2 8- 12 21					
July 24	2344.83	2737093	0.14772	10361.02	NE 32-11- 21 SW 6-12- 21 SE 1-12-22	1402.57	1263207	0.08836191	4781.76	NW 22- 12-21 SE 21- 12-21	997.23	1398805	0.06282549	5295.05	SE 36-11- 22 E 1/2 8- 12 21	1422.72	1186749.75	0.08963136	4492.33	NW 8-12- 21 SW 8-12-21
July 25	2273.39	3087142	0.14322	11686.10	NE 32-11- 21 SW 6-12- 21 SE 1-12-22	1380.91	1937177	0.08699733	7333.01	NW 22- 12-21 SE 21- 12-21	1578.89	1803410	0.09947007	6826.65	SE 36-11- 22 NW 5-12- 21	1384.99	1947132.38	0.08725437	7370.69	NW 8-12- 21 SW 8-12-21

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1	Pur	np Capacity	: 2400 US gp	m (0.1514 ı	m <sup>3</sup> /s)	Pur	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pui	mp Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	om (0.1001 m³,	/s)
Date (2013)	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated
July 26	2499.68	3191540	0.15748	12081.29	NE 32-11- 21 SW 6-12- 21 NW 6-12- 21	1313.13	59556.68	0.08272719	225.45	NW 22- 12-21 SE 21- 12-21	1317.45	1102825	0.08299935	4174.65	SE 36-11- 22 NE 5-12- 21	1369.94	1604465.13	0.08630622	6073.56	NW 8-12- 21 SW 8-12- 21
July 27	2516.41	3153898	0.15853	11938.80	NE 32-11- 21 SW 6-12- 21 NW 6-12- 21											1				
July 28	2502.91	3141437	0.15768	11891.63	SE 6-12-21 SW 5-12- 21 NW 6-12- 21											1			1	
July 29	2213.20	1763502	0.13943	6675.576	SE 6-12-21 SW 5-12- 21 SE 5-12-21															
Aug 1	2534.98	1758988	0.15970	6658.492	NE 32-11- 21 SW 6-12- 21 SE 5-12-21						1920.06	795949.40	0.12096378	3013	SE 36-11- 22 E 1/2 8- 12 21					
Aug 2	2678.57	3191855	0.16875	12082.48	NE 32-11- 21 SW 6-12- 21 SE 5-12-21						974.30	152683	0.0613809	577.97	SE 36-11- 22 NE 5-12- 21					
Aug 3	2251.45	3115337	0.14184	11792.83	NE 32-11- 21 SW 6-12- 21 SE 1-12-22															
Aug 4	2198.57	1139113	0.13851	4312.01	NE 32-11- 21 SW 6-12- 21 SE 1-12- 22											1			+	

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D L -	Pun	np Capacity:	2400 US gp	m (0.1514 r	m³/s)	Pun	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pui	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	m (0.1001 m <sup>3</sup> ,	/s)
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Aug 8				1							1907.12	842629.50	0.12014856	3189.70	SE 36-11- 22 E 1/2 8- 12 21					
Aug 9											980.21	135394.70	0.06175323	512.52	SE 36-11- 22					
Aug 13	2695.16	1924066	0.16980	7283.38	NE 32-11- 21 SW 6-12- 21 SE 1-12-22	1360.38	1151967	0.08570394	4360.67	NW 22- 12-21 SE 21-12- 21	2004.44	884259.90	0.12627972	3347.29	SE 36-11- 22 NW 5-12- 21	1622.80	1032220.25	0.1022364	3907.38	NW 8-12- 21 SW 8-12-21
Aug 14	2464.66	3227074	0.15527	12215.80	NE 32-11- 21 SW 6-12- 21 SE 1-12-22	1343.64	1856473	0.08464932	7027.51	NW 22- 12-21 SE 21-12- 21	1025.07	1427723	0.06457941	5404.52	SE 36-11- 22 NE 5-12- 21	1404.99	1823734.5	0.08851437	6903.58	NW 8-12- 21 SW 8-12- 21
Aug 15	2317.83	3227248	0.14602	12216.46	NE 32-11- 21 SW 6-12- 21 SE 6-12- 21	1273.89	1776135	0.08025507	6723.40	NW 22- 12-21 SE 21- 12-21	1000.74	1401396	0.06304662	5304.86	SE 36-11- 22 NE 5-12- 21	1392.42	1963776.5	0.08772246	7433.70	NW 8-12- 21 SW 8-12-21
Aug 16	2496.30	3217553	0.15727	12179.76	NE 32-11- 21	1248.15	1751093	0.07863345	6628.61	NW 22- 12-21 SE 21-12- 21	981.06	1387776	0.06180678	5253.30	SE 36-11- 22	1374.07	1958388.5	0.08656641	7413.30	NW 8-12- 21 SW 8-12-21
Aug 17	2428.94	2671721	0.15302	10113.56	NE 32-11- 21 SW 6-12- 21 NW 6-12- 21	1288.66	564684.10	0.08118558	2137.56	NW 22- 12-21 SE 21-12- 21	955.46	426787.10	0.06019398	1615.56	SE 36-11- 22	1363.66	614703.5	0.08591058	2326.90	NW 8-12- 21 SW 8-12-21
Aug 18	1552.35	2168927	0.09780	8210.28	NE 32-11- 21 SW 6-12- 21 NW 6-12- 21															

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1	Pur	np Capacity	: 2400 US gp	m (0.1514 r	m <sup>3</sup> /s)	Pur	mp Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pui	mp Capacity	r: 2400 US gpm	n (0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	om (0.1001 m³,	/s)
Date (2013)	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated
Aug 19	1623.65	2167140	0.10229	8203.51	SE 5-12-21 SW 5-12- 21 NW 6-12- 21	1524.08	1110303	0.09601704	4202.95	NW 22- 12-21 SE 21-12- 21	1954.52	834784.80	0.12313476	3160	SE 36-11- 22 NW 5-12- 21	1564.25	980535.25	0.09854775	3711.73	NW 8-12- 21 SW 8-12-21
Aug 20	1536.31	2142711	0.09679	8111.04	SE 5-12-21 SW 5-12- 21 NW 6-12- 21	1481.47	1934970	0.09333261	7324.70	NW 22- 12-21 SE 21-12- 21	1022.54	1432890	0.06442002	5424.08	SE 36-11- 22 NW 5-12- 21	1360.05	1914823.13	0.08568315	7248.39	NW 8-12- 21 SW 8-12-21
Aug 21	1523.80	2093881	0.09600	7926.20	SE 5-12-21 SW 5-12- 21 NW 6-12- 21	1472.33	2067942	0.09275679	7828.01	NW 22- 12-21 SE 21- 12-21	1412.10	964734.80	0.0889623	3651.92	SE 36-11- 22 NE 5-12- 21	1398.29	1931275.88	0.08809227	7310.67	NW 8-12- 21 SW 8-12-21
Aug 22	1985.37	2373191	0.12508	8983.50	NE 32-11- 21 SW 6-12- 21 SE 5-12-21	1437.87	2021148	0.09058581	7650.87	NW 22- 12-21 SE 21- 12-21	999.48	1413419	0.06296724	5350.37	SE 36-11- 22	1368.81	1919311.38	0.08623503	7265.38	NW 8-12- 21 SW 8-12-21
Aug 23	1965.40	2578762	0.12382	9761.67	NE 32-11- 21 SW 6-12- 21 SW 5-12- 21	1513.82	1557872	0.09537066	5897.19	NW 22- 12-21 SE 21-12- 21	963.48	899509.40	0.06069924	3405.01	SE 36-11- 22	1338.20	1300552.63	0.0843066	4923.12	NW 8-12- 21 SW 8-12- 21
Aug 24	1424.79	2000131	0.08976	7571.31	NE 32-11- 21 SW 6-12- 21 SE 6-12- 21	1430.98	1183131	0.09015174	4478.64	NW 22- 12-21 SE 21-12- 21						704.56	312685.38	0.04438728	1183.64	NW 8-12- 21
Aug 25	1412.41	1990024	0.08898	7533.06	NE 32-11- 21 SW 6-12- 21 SE 6-12- 21															
Aug 26	1711.13	1960261	0.10780	7420.39	NE 32-11- 21 SW 6-12- 21 SE 6-12-21															

Table 1: Daly Irrigation Development Project Licence No. 3010, Annual Water Use Report, 2013 Year

		Re	dfern (Pump	2)			Ke	ywest (Pump :	2)			Sun	dance (Pump	2)			S	undance (Pum	p 1)	
		Intake Lo	cation: NW1	0-12-21W			Intake Lo	cation: NW10	-12-21W			Intake Lo	cation: NW10	-12-21W			Intake	Location: NW1	0-12-21W	
5.1	Pun	np Capacity:	2400 US gp	m (0.1514 r	m³/s)	Pun	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pur	np Capacity	: 2400 US gpm	n (0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	m (0.1001 m <sup>3</sup> ,	/s)
Date (2013)	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated
Aug 27	2008.71	2368316	0.12655	8965.05	SW 5-12- 21 SE 5-12-21	1480.20	936180	0.0932526	3543.83	NW 22- 12-21 SE 21-12- 21	2005.28	644643.60	0.12633264	2440.24	SE 36-11- 22 E 1/2 8- 12 21	1356.23	434615.28	0.08544249	1645.20	NW 8-12- 21 SW 8-12-21
Aug 28	2222.20	2972655	0.14000	11252.72	SW 5-12- 21 SE 1-12-22	1521.55	2124174	0.09585765	8040.87	NW 22- 12-21 SE 21-12- 21	1015.09	1422900	0.06395067	5386.26	SE 36-11- 22	720.12	1012028.06	0.04536756	3830.94	NW 8-12- 21 SW 8-12-21
Aug 29	2141.61	1844839	0.13492	6983.473	SW 5-12- 21 SE 1-12-22	1490.19	1340044	0.09388197	5072.62	NW 22- 12-21 SE 21- 12-21	986.54	710987.3	0.06215202	2691.38	SE 36-11- 22	712.91	634269.69	0.04491333	2400.97	NW 8-12- 21
Sept 4	2123.19	1315475	0.13376	4979.61	NE 32-11- 21 SW 6-12- 21 SE 1-12-22	1433.23	1214492	0.09029349	4597.35	NW 22- 12-21 SE 21-12- 21	2007.68	888543.4	0.12648384	3363.50	SE 36-11- 22 NE 5-12- 21	1330.26	595059.81	0.08380638	2252.55	NW 8-12- 21 SW 8-12-21
Sept 5	1572.18	1131745	0.09905	4284.117	NE 32-11- 21 SW 6-12- 21 SE 1-12-22	1378.80	1376450	0.0868644	5210.43	NW 22- 12-21 SE 21-12- 21	937.74	379521.80	0.05907762	1436.65	SE 36-11- 22	754.24	758560	0.04751712	2871.46	NW 8-12- 21
Sept 10						0.28	2.25	0.00001764	0.008517	Line Test	0.14	1.13	0.00000882	0.004278	Line Test					
Sept 12						1366.15	645976.9	0.08606745	2445.29	NW 22- 12-21 SE 21-12- 21										
Sept 13						1361.22	1698073	0.08575686	6427.90	NW 22- 12-21 SE 21-12- 21										

Table 1: Daly Irrigation Development Project Licence No. 3010, Annual Water Use Report, 2013 Year

		Re	dfern (Pump	2)			Ke	ywest (Pump	2)			Sun	dance (Pump	2)			S	undance (Pun	np 1)	
		Intake Lo	cation: NW1	0-12-21W			Intake Lo	cation: NW10	-12-21W			Intake Lo	cation: NW10	)-12-21W				Location: NW1		
Date	Pun	np Capacity:	2400 US gp	m (0.1514 r	m <sup>3</sup> /s)	Pun	np Capacity	: 2400 US gpm	(0.1514 m	<sup>3</sup> /s)	Pur	np Capacity	: 2400 US gpn	n (0.1514 m	<sup>3</sup> /s)		Pump Capac	ity: 1600 US gp	om (0.1001 m³,	/s)
(2013)	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)	Parcel(s) Irrigated
Sept 14	2121.50	1338991	0.13365	5068.629	NE 32-11- 21 SW 6-12- 21 SE 5-12- 21															
Sept 15	1560.36	710662.10	0.09830	2690.148	NE 32-11- 21 SW 6-12- 21 SE 1-12- 22		1					ł					1		+	
Sept 19						0.14	1.13	0.00000882	0.004278	Line Test										
Total (US gallons)								42,861,898	,				37,375,045					39,579,541.2	27	
Total (m³)			366,204.70					162,249.94					141,479.88					149,824.78	<b>S</b>	
Total (ac-ft)								131.54					114.70					121.46		



Photo 1: July 7, 2013 Pumping Active



Photo 2: July 5, 2013 Pumping Not Active



Photo 3: July 29, 2013 Pumping Active



Photo 4: July 30, 2013 Pumping Not Active



Photo 5: August 13, 2013 Pumping Active



Photo 6: August 10, 2013 Pumping Not Active



Photo 7: September 19, 2013 Irrigation Season Completed

