

Discharge Consent (068/12/2) Reporting

March 2015 to May 2015

Author

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1.0 INTRODUCTION

This report has been prepared by Dalradian Gold Ltd. (DGL) in response to Condition 1.I. of Discharge Consent 068/12/2, which requires quarterly water quality reporting. The consent relates to discharge of site drainage water (at Irish Grid Reference H 5707 8690) arising from the DGL advanced exploration project at Curraghinalt. The site is situated approximately 8 km to the east of the village of Gortin, County Tyrone, Northern Ireland, BT79 7SF.

2.0 SUMMARY OF OPERATIONS DURING THE REPORTING PERIOD

DGL are currently in the early stages of progressing advanced exploration at the Curraghinalt site, which includes re-activating historical underground workings and completion of a parallel drilling program. The work is progressing under Planning Permission K/2013/0072/F, and is aimed at collecting information that will support a Pre-Feasibility Study and an Environmental Impact Assessment to allow for development of a full mine.

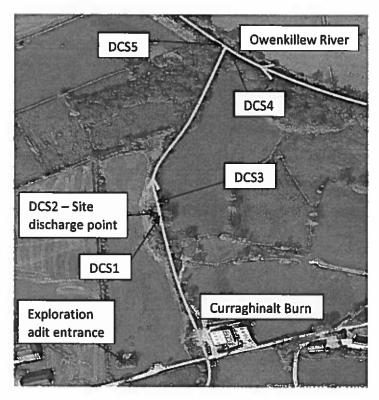
Water discharged via the consent during the reporting period has derived from natural groundwater drainage from the adit entrance, together with runoff water on the site that has resulted from incident rainfall. Following capture and management of these sources, temporary treatment prior to discharge at the consent location has included passage through an oil interceptor and thereafter one of two dedicated filter presses. However, the latest water quality data presented for May will reflect discharge associated with a formal water treatment facility that has recently been commissioned at the site. To date treatment has primarily focused on silt removal. DGL informed the Northern Ireland Environment Agency (NIEA) of the intention to commence the site discharge on 3 December 2014. This document represents the second quarterly discharge consent report.

Current construction works being finalised at the site include the development of offices, services and parking, a designated storage area for waste rock, and the formal water treatment facility to allow for additional treatment capacity as exploration progresses.

3.0 SAMPLING LOCATIONS, PROTOCOL AND LABORATORIES

Five surface water sample locations are required to be sampled monthly as part of the Discharge Consent. These have been listed below as Discharge Consent Sample 1 (DCS1) to Discharge Consent Sample 5 (DCS5) and are also presented on Figure 1.

- DCS1 Immediately upstream of the confluence of the site discharge point and Curraghinalt Burn;
- DCS2 Site discharge point;
- DCS3 5 m downstream of the confluence of the site discharge point and Curraghinalt Burn;
- DCS4 Immediately upstream of the confluence of Curraghinalt Burn and the Owenkillew River; and
- DCS5 5 m downstream of the confluence of the Curraghinalt Burn and the Owenkillew River.



100m – approx. scale

Figure 1: Site map (Bing Maps) showing discharge consent sample locations

All surface water samples are collected according to protocols described in the DGL Surface Water Sampling Procedure¹. To help ensure quality results, care is take not to disturb stream bed sediments upstream of the sampling point and prior to sampling. Samples are collected at all locations by a DGL Field Technician wearing a fresh pair of nitrile gloves and from the flowing stream of water to minimise any risks of contamination. All sample bottles are laboratory supplied and are filled to capacity at source.

Samples are placed in a cooler with ice, secured with sample packaging and accompanied by a completed Chain of Custody (CoC) Form, and shipped directly to in Antrim for analysis. Thereafter, routinely sub-contract metals analysis to in in the contract is accredited by the United Kingdom Accreditation Service (UKAS) to 17025 standard, and UKAS monitor and externally audit the laboratory. All analyses that have been undertaken for comparison against discharge consent thresholds are reported as accredited on laboratory certificates. Additionally, based in have been utilised to support supplementary Quality Assurance/Quality Control (QA/QC) testing.

DGL have also introduced the measurement of pH in the field at each sample location. Regular calibration of the instrument used is undertaken on site using both pH 4.01 and pH 7.01 buffer solution and in accordance with DGL MultiParameter Meter Calibration Procedure². During readings, the pH probe is fully immersed at all times in the flowing stream of water and up until stabilisation occurs³.

¹ Dalradian Gold Ltd. 2013. Surface Water Sampling Procedure. Issued July 2013.

² Dalradian Gold Ltd. 2013. MultiParameter Meter Calibration Procedure. Issued July 2013.

³ Dalradian Gold Ltd. 2013. MultiParameter Meter Sampling Procedure. Issued July 2013.

The instrument has not been available throughout the reporting period and has been scheduled for maintenance.

4.0 RESULTS

During the reporting period DGL have collected a total of 20 water samples from the discharge consent locations. This number of samples exceeds that required by the consent during the period, and amounts to a maximum of five samples from any of the locations described. Sampling was undertaken on 23 March 2015, 26 March 2015, 23 April 2015, 21 May 2015 and 28 May 2015. In total, five batches of water samples were sent to two different laboratories.

QA/QC checks and factual reporting against the consent water quality thresholds for the discharge point are presented in the following sub-sections. Water quality results and thresholds are summarised in Appendix A, and all laboratory certificates are presented in Appendix B.

4.1 Quality Assurance/Quality Control

A number of QA/QC measures have been applied to water samples taken at all sites. A factory calibrated certificate for the HANNA HI9828 MultiParameter meter used to measure pH in the field is provided in Appendix C.

4.1.1 Chain of Custody and confirmation of parameter analysis

A CoC form was completed on each day of sampling and on eight separate occasions between 23 March 2015 and 28 May 2015. The CoC forms document possession of the samples from the time of sample collection to reception at the lab; provide primary instruction to the lab on the parameters to be analysed; and provide sample information relevant to the lab, such as sample name and sample date and time. Following each sampling event and prior to submission to the lab, the CoC was reviewed and checked for errors. In the events covered within the period there are no issues to report in this respect.

4.1.2 Holding times

In Standard Operating Procedure (SOP) No. QA 022 REV 0 'Preservation and Handling of Samples', provide maximum holding or storage times for individual analytical parameters alongside sample container types to be used, analytical methods and validation references.

In order to ensure holding times were not exceeded, DGL shipped samples directly to the laboratory. Certificates presented in Appendix B demonstrate that all samples were received by on the day of sampling (four occasions), and three out of four batches were received by on the day of sampling. A single batch of samples (24 March 2015) were received by on the day following sampling. Testing is recorded by to have been scheduled for a standard 10 day turnaround time, or on one occasion (28 May 2015) an express 7 day turnaround time.

Results certificates show that testing commenced on the day of sample receipt on seven occasions and on the day following sample receipt on one occasion.

4.1.3 Field Blanks

A total of three field blanks have been collected during the reporting period to assess potential contamination due to the sampling environment (e.g., dust getting into the sample bottle). Analysis of field blanks was undertaken by alongside the specified water chemical analysis. Field blank results include total ambient conditions during samplings, but can also potentially incorporate bias due to laboratory methods (e.g., low-level constituents remaining in analytical equipment from a prior highly contaminated sample from another site) that are assessed by laboratory method blanks. The field blanks incorporated deionised water supplied by the laboratory which theoretically should

return no measurable values throughout the parameters analysed (with the omission of pH) unless there has been a source of contamination during sampling.

All blank determinants were below laboratory detection limits (Appendix A), which is consistent with satisfactory conditions during each sampling event.

4.1.4 Duplicate Samples

Five duplicate samples were collected during the reporting period. Two at the discharge point (DCS2), two immediately upstream of the confluence of Curraghinalt Burn and the Owenkillew River (DCS4), and one 5 m downstream of the confluence of the Curraghinalt Burn and the Owenkillew River (DCS5). Analysis of all duplicate samples was undertaken by for independent testing; and therefore not alongside the remaining batch.

The measure of the reproducibility or precision of the chemical analysis has been quantified by calculating the Relative Percentage Difference (RPD) between parameter concentrations on the split sample submitted as a blind duplicate. The RPD has been calculated as follows:

$$RPD\% = \frac{|S-D|}{\frac{1}{2}(S+D)} \times 100$$

Where:

RPD = Relative Percentage Difference

S = Sample value of parameter; and

D = Duplicate value of parameter

Theoretically, the samples should have identical chemical concentrations (i.e., RPD = 0). However, due to factors such as sample matrix heterogeneity, natural variations or variations due to sample collection, handling or analysis, a variation in chemical concentration may occur (i.e., RPD greater than 0). The duplicates reported here were also tested at a different laboratory, and therefore exposed to slightly different holding times and possibly analytical methodology. Moreover, the reproducibility of replicate analyses at concentrations near the method detection limit (MDL) can be poor, resulting in RPD values of greater than the desirable limits. Therefore, for duplicate concentrations greater than five times the detection limit, a relative percent difference value of $\pm 20\%$ is considered acceptable⁴. Given these considerations, for duplicate concentrations less than five times the detection limit, RPD has not been calculated.

An RPD value greater than the above project objectives suggests variability has been introduced through sample collection, sample handling, or sample analysis. Of the analysis undertaken, dissolved arsenic determined in the discharge point sample (DCS2) on 26/03/2015, in comparison to the associated duplicate, falls outside the 20% acceptable threshold. Both values are below the consent limit, but these values should be interpreted in a qualitative capacity only.

4.1.5 Laboratory internal QA/QC

operate in accordance with SOP No. QA 017 REV 5 covering their 'Procedure for the Accepting and Rejecting of Quality Controls and Results'. This document covers the approach adopted to quality control and the criteria used for accepting and rejecting results. On laboratory certificates report all samples to be in 'Acceptable' Condition upon receipt.

⁴ Zeiner, S.T. 1994. Realistic Criteria for the Evaluation of Field Duplicate Field Results. Proceedings of Superfund XV, November 29-December 1, 1994. Sheraton Washington Hotel, Washington, D.C.

BOD analysis on fourteen samples has been reported by as a 'sample deviation'. This has been due to the sample being over diluted in the laboratory. These results are considered to be indicative only (see Appendix A).

4.1.6 Summary

As detailed above, there are no major QA/QC concerns and all samples are considered applicable. Duplicate and blank samples collected also indicate a high level of data quality. There were no detections in any field blanks. However, a number of the BOD samples have been over diluted in the lab and are considered to be indicative only.

4.2 Factual Presentation of Data

All water quality results are presented in summary form for each location in Appendix A. This includes a comparison of concentrations from the discharge point location (DCS2) against specific threshold values detailed within the consent.

During the reporting period, all five sample results from DCS2 are below the threshold values presented within the consent for all parameters.

Excluding duplicate samples obtained for QA/QC purposes, water quality obtained from the Curraghinalt Burn during the period can be summarised as follows:

- Total suspended solids data varied significantly and from <3 mg/L (both upstream and downstream) to a maximum of 72 mg/L (downstream of the site). At the time of the maximum suspended solids concentration recorded in the burn the discharge from the exploration site had a solids loading of 7 mg/L;
- All BOD concentrations are less than 2 mg/L;
- Laboratory measured pH varies between a minimum of 6.81 pH units (recorded at the upstream location) and a maximum of 7.88 pH units (recorded at the downstream location);
- Dissolved mercury and cadmium were always recorded to be below detection;
- Oil or grease has not been visible at the sample locations;
- The maximum dissolved iron concentration has been determined at 1.47 mg/L at the upstream location; and
- The maximum total hardness has been recorded as 71.4 mg/L at the downstream location.

Excluding duplicate samples obtained for QA/QC purposes, water quality obtained from the Owenkillew River during the period can be summarised as follows:

- Total suspended solids data varied significantly and from <3 mg/L (both upstream and downstream) to a maximum of 42 mg/L (upstream of the site);
- All BOD concentrations are less than 3 mg/L;
- Laboratory measured pH varies between a minimum of 6.9 pH units (recorded at both the upstream and downstream locations) and a maximum of 7.93 pH units (recorded at the downstream location);
- Dissolved mercury, cadmium, chromium and lead were always recorded to be below detection;
- Oil or grease has not been visible at the sample locations;
- The maximum dissolved iron concentration has been determined at 0.6379 mg/L at the downstream location; and
- The maximum total hardness has been recorded as 41.6 mg/L at the downstream location.

Appendix A

Presentation of Water Quality Results

DCS2 - Discharge Point	Discharge Consent					10	-				Ī	1				
Parameter	Threshold	Detection limit (typical)	27/11/2014 16/12/2014 18	14 16/12/2014	/12/2014 14/01/2015 04/02/2015 Deptente/DCS7 11/02/2015	/2015 Depticate/D	CS7 11/03/201	5 Depticate/DCS7	Daplicate	\$102/60/62	26/03/2015	Duplicate	23/04/2015	Deplicate	24/05/2015 24/05/2015	2/05/2015
Total Suspended Solids	So	3	3 11	18	32 6	D G	13	21	10	3	37 8	31	7	10	23	36
Biochemical Onygen Demand	10	1	מ	41	158 1.76	.e. 191 _e	1.03*	1>	- 4	~	1.23	7	1.04	4	1.71	1.49
¥	×64.43	3.40	7.38 7.47	7.08	7.18 7.34 (7,34 (7,00) 6.92	7.5 (7.48)	7.68	7.8	7.7	7.83 (8.54)	Sec. 7.4 confe	7.83	7.9	8.29	8.27
Total sinc*	33.1	18°	<18 <18	30	30 <18	6 <18	418 c18	Carl Cla	11.47	10.21	<18	30.07	<18	63.73	17.8	14.6
Desolved mercury*	1.7	0.1	40.1	.0 .1	40.1	.1 40.1	<0.1	40.1	40.2	<0.2	40.1	40.2	<0.1	40.04	<0.03	10.00
Dissolved cadmium*	0.7	D.6*	40.6 40.6	9.0>	<0.6 <0.6	970> 97	<0.6	40.6	€0.0>	<0.09	<0.6	<0.09	<0.6	<0.05	<0.1	ش 1
Dissolved Iron	3.9	0.23	<0.23 <0.23	<0.23	<0.23 <0.23	23 0.34	<0.23	<0.23	0.04908	0.03045	<0.23	0.8087	<0.23	0.18	<0.019	€10°C>
Dissolved copper*	16.2	-6	12 10	69	ଓ ଓ	B 4	6	8	9.065	1,101	10	2,202	60	4.765	9.39	11.71
Dissolved chromium ²	8.3	2	2 2	2	7 2	D	2	4	19'0>	40.68	27	40.68	42	- c0.28	2.13	2.01
Chromium VI	MA	5	\$ \$	٧	9	8	\$	Ş	Permitte managed as		8	Machinistical	9	TANKS CONTRACTOR OF	<30	<30
Chromium III	MA	30	<30 <30	<30	<30 <30	0 30	<30	₩.	STATE OF THE PERSON NAMED IN		<30	The Party State of the Party Sta	<30	CIVIL TOTAL	<30	<30
Dissolved nickel	20	j.	લ લ	9	34 10	0	24	The Report of the last	12.01	6.544	\$	0.833	7	5.578	5.22	5.09
Dissolved arsenic ¹	25	1	1 <	7	3 4.8	111	5.1	STORY OF STREET	623	1.971	7.9	1.929	2.5	2234	16	13.7
Dissolved lead	Managed 2.2 (Springer)	.9	46 46	9>	9>	9	9	90	40.173	<0.173	9>	40.173	9>	Q12	<0.02	<0.02
Total hardness as CaCO3	N/A	3.2	123 137	132	135 137	7 24.1	150	146	139	136	106	114	147	159	140	148
Visible oil or grease	N/A	M/A		1	4	The same of the same			Ecol - point	1		10000			٠	1

pH values presented in pH units. Values in brackets are field pH messurements. Total Suspended Solids, Biochemical Organ Demand, Total hardwess & Dissobved iron concentrations are presented in mgft, all other parameters are in ug/L. Last Discharge Consent Threshold from The Water Framework Discetive (Priority Substances and Classification) Regulations (Morthern Ireland) 2011

Annual mean value presented for Good Standard for overs and freshwater lakes

² Annual mean environmental standard for chromium III (4.7) w/L) plus annual mean environmental standard for chromium VI (3.4) w/L) presented for Good Standard for rivers and freshwater lates² Annual mean environmental standard (AA-EUS) value presented for priority substance and its compounds for all rivers and lakes

* Department Specific

* Detection limit greater than 50% of Discharge Consent Threshold concentration

* BOD over divided, therefore result indicative only

Exceedance of threshold

Deplicate sample Flow of the State Total Suspended Solids in discharge water [mg/1] Control to the sale sound of the sale of t 8248850

*** istable for its all fall for the sold Biochemical Ozygen Demand in discharge water (mg/L) Consideration of the annual to

pH [bb.] of discharge water Boll of the sold o

DCS1 ~Curraghinalt Burn upstream

1													
Parameter	Detection limit	27/11/2014	16/12/2014	18/12/2015	14/01/2015	27/11/2014 16/12/2014 18/12/2015 14/01/2015 04/02/2015 11/02/2015	11/02/2015	Duplicate	26/03/2015 23/04/2015 21/05/2015 28/05/2015	23/04/2015	21/02/2015	28/05/2015	
Total Suspended Solids	3	63	83	Ø	6	2	2	4	181	2	-	u	
Biochemical Oxygen Demand	1	<1	۲۶	₽	1.87	1.39	₽	2	1.23	· ~	1.79		
PH		6.7	6.75	7	6.9	7.23 (6.73)	6.8 (7.33)	8.2	6.81 (7.05)	66.9	7 19	7.7	
Total zinc	18	<18	<18	<18	20	<18	<18	170	<18	<18	186	7.49	
Dissolved mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0,1	<0.1	100	1000	
Dissolved cadmium	9.0	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.09	90>	40.6	909	49.1	
Dissolved iron	0.23	2.07	0.52	0.67	0.39	0.36	0.36	0.6633	<0.23	1.34	134	1 47	
Dissolved copper	6	8	6>	8	6>	8	6>	7.207	₹	8	ଚ	2.56	
Dissokved chromium	2	42	<2	4	8	77	2	<0.68	42	O	0	9560	
Chromium VI		\$	\$	\$	\$>	ş	\$	TOTAL SCHOOL STATE	5	5	4 4	230	
Chromium III	30	<30	<30	¢30	85	<30	- OE>	THE PERSON NAMED IN	30	30	9	3 E	
Dissolved nickel	m	ß	8	Ø	63	63	8	0.705	8	8	v	0.913	
Dissolved arsenic	1	2.4	7	7	<1	1.3	7	1.197	2	3.2	22	3.69	
Dissolved fead	9	<6	9>	99	â	9	9	0.284	9>	9	9	0.315	
Total hardness as CaCO3	3.2	21.7	16.2	21.1	30.1	24.2	19.7	19	13.4	33.1	17.6	29.4	
Visible oil or grease	N/A	•						100 m					
								and of the last of		,	,	•	

PH values presented in pH units. Values in brackets are field pH measurements. Total Suspended Solids, Biochemical Oxygen Demand, Total hardness & Dissolved iron concentrations are presented in mg/L, all other parameters are in µg/L.

DCS3 - Curraghinalt Burn downstream

Darameter	at the state of th	A A LOS PASSON										
		7/11/5014 1b/12/201	16/12/2014 1	8/12/2014 1	4/01/2015	04/02/2015	11/02/2015	12/2014 14/01/2015 04/02/2015 11/02/2015 26/03/2015 23/04/2015 21/05/2015 28/05/2015	3/04/2015	1,05/2015	:8/05/2015	
Total Suspended Solids		rr)	82	4	'n	m	5	28	72	2		
Biochemical Oxygen Demand	1	1.08	₽	⊽	1.65	1.91		1.31		1.75	133*	
pH		7.19	7.46	6.95	7.44	7.16 (6,93)	7.45 (7.2)	6.91 (7.31)	787	7 88	37.2	
Total zinc	18	<18	<18	<18	20	<18	<18	<18	418	812	14.3	
Dissolved mercury	0.1	<0.1	<0.1	<0.1	6.1	<0.1	1.0	100	1 6	5	7007	
Dissolved cadmium	9.0	<0.6	-0.6	<0.6	9.0>	40.6	<0.6	<0.6	900	100	100	
Dissolved iron	0.23	1.78	0.54	0.65	0.38	0.25	0.25	0.74	80	1 1	1.03	
Dissolved copper	6	8	ę	ŧ	6>	8	8	9	9	9	1.03	
Dissolved chromlum	2	0	0	0		,	7 5	7 5	2 3	²	2.28	
Chromium VI		<u>'</u>	, ,	,	,	,	,	7	7	7	1.8	
		7	9	0	×	Ŷ	Ş	Ş	\$	Ą	69	
CITOTHEM III	30	<30	30	8	8	3	9	<30	230	<30	UR>	
Dissolved nickel	8	8	ő	2	2	2	4	0	0	,	3,15	
Dissolved arsenic	1	2.1	U			,	2	, :	7 3	2 3	71.7	
Dissolved fead		4			,	,		,,,	5.0	77. 17.	1.1	
Total handson as Carons	, ,		,	?	9		9	9	9	9	0.187	
TOTAL MATCHESS #5 CALUS	3.4	35.5	27.5	21	34.5	41.4	49.4	13.7	71.4	36.6	65.1	
Visible oil or grease	N/A											

pH values presented in pH units. Values in brackets are field pH measurements. Total Suspended Solids, Blochemical Oxygen Demand, Total hardness & Dissolved fron concentrations are presented in mg/L, all other parameters are in µg/L.
** BOD over diluted, therefore result indicative only

^{* 800} over diluted, therefore result indicative only

DCS4 - Owenkillew River upstream

Parameter	Detection limit	27/11/2014	16/12/2014	18/12/2014	14/01/2015	27/11/2014 16/12/2014 18/12/2014 14/01/2015 04/02/2015 11/02/2015 26/03/2015	11/02/2015	26/03/2015	Duplicate	23/04/2015	Duplicate 23/04/2015 Duplicate 21/05/2015	21/05/2015
Total Suspended Solids	В	43	€3	9	Ø	2	\$	42	43	2	0	9
Biochemical Oxygen Demand	1	<1	4	₽	1.47	1.29	₽	2.57	60	₽	8	1.95
Hd	•	6.84	7.07	6.68	6.77	6.7 (5.92)	7.06 (8.15)	6.9 (8.54)	7.7	7.93	7.2	7.23
Total zinc	18	<18	<18	<18	<18	<18	<18	<18	9,716	<18	<0.63	₹
Dissolved mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	¢0.1	<0.2	<0.1	<0.03	40.1
Dissolved cadmium	9.0	<0.6	<0.6	<0.6	40.6	40.6	>0.6	<0.6	€0.0Þ	<0.6	<0.01	40.6
Dissolved iron	0.23	1.05	0.5	0.45	0.43	0.4	0.36	0.25	0.2771	0.56	0.806	0.53
Dissolved copper	6	6>	6>	6>	9	6	6	6	50.05	Ø	0.445	₽
Dissolved chromium	2	<2	\$	2	4	7	42	\$	<0.68	2	€ 0.58	42
Chromium Vf	5	<5	\$>	Ş	Ą	Ş	\$	Ş	CONTRACTOR OF THE PERSON OF TH	'n	5000	\$
Chromium III	30	<30	<30	<30	<30	<30	30	<30		<30		430
Dissofved nicket	3	<3	22	φ	8	á	ű	4	6.45	2	0.569	8
Dissolved arsenic	1	Ų	7	4	7	<1	7	8,8	5.032	1.5	1.399	1.4
Dissolved lead	9	9>	9>	9>	9>	9>	99	99	0.543	99	<0.02	99
Fotal hardness as CaCO3	3.2	28.8	24.3	19.1	25.1	31	27.9	17.6	21	37.5	88	23.7
Visible oil or grease	N/A	•	•	4		,	,		DESCRIPTION OF THE PARTY OF THE			

pH values presented in pH units. Values in brackets are field pH measurements. Total Suspended Solids, Biochemical Oxygen Demand, Total hardness & Dissolved iron concentrations are presented in mg/L, all other parameters are in µg/L.

DCSS - Owenkillew River downstream

Parameter	Detection limit	27/11/2014	16/12/2014	18/12/2014	14/01/2015	04/02/2015	27/11/2014 16/12/2014 18/12/2014 14/01/2015 04/02/2015 11/02/2015 23/03/2015	23/03/2015	26/03/2015	26/03/2015 23/04/2015 21/05/2015	21/05/2015	Duplicate	•
Total Suspended Solids	3	<3	ß	00	v	v	2	5	35	8	2	2	
Biochemical Oxygen Demand	1	<1	7	41	1.61	1.37	₽	\$	2.59	7	1.17	0	
PH	•	7.04	7.15	6.61	9.76	6.66 (5.54)	7.03 (7.45)	7.5	6.9 (6.77)	7.71	6.94	7.5	
Total zinc	18	<18	<18	<18	<18	<18	<18	11.69	20	<18	<18	4.396	
Dissalved mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	
Dissolved cadmium	9.0	9.0>	<0.6	<0.6	40.6	9.0>	<0.6	<0.0>	<0.6	<0.6	¢0.6	<0.0>	
Dissolved iron	0.23	0.98	0.5	0.42	0.43	0.37	0.39	0.6379	0.25	0.58	0.56	0.5218	
Dissolved copper	6	6>	6>	\$	₹	\$	6	0.322	₹	€	8	2.819	
Dissolved chromlum	2	42	<2	\$	2	2	2	<0.68	2	77	2	99.68	
Chromium VI	2	\$	\$	\$>	 	\$	\$		\$	₽	v	ALCOHOLD STREET	
Chromium III	30	<30	<30	<30	8	0£>	85		<30	30	0€	5 Co. 10	
Dissolved nickel	3	<3	3	<3	v	63	8	0.649	V	8	2	0.997	
Dissolved arsenic	1	₽.	∀	∀	⊽	1.2	₽	1.158	s	1.5	13	1.183	
Dissolved lead	9	9>	9>	9>	â	99	9	<0.173	99	9	Ŷ	<0.173	
Total hardness as CaCO3	3.2	29.3	23.8	18.2	25.3	31	27.1	35	17.2	41.6	22	25	
Visible oil or grease	N/A	•	,	,		 -			 -			Character Dogston	

ph values presented in ph units. Values in brackets are field pH measurements. Total Suspended Solids, Blochemical Oxygen Demand, Total hardness & Dissolved iron concentrations are presented in mg/L, all other parameters are in µg/L.

**BOD over diluted, therefore result indicative only

^{*} BOD over diluted, therefore result indicative only

DCS6 - Field Blanks

Parameter

Detection limit 27/11/2014 16/12/2014 18/12/2014 14/01/2015 04/02/2015 11/02/2015 11/02/2015 26/03/2015 23/04/2015 21/05/2015

4 3 4 4 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6												
lotal suspended solids	3	₹3	<3	8	7	~	φ	\$	63	Ş	Q	
Biochemical Oxygen Demand	1	P	₽	₽	₽	₹	₽	42	₽	₹	V	
pH	477	6.15	6.4	5.59	9	5.22	6.89	8.1	5.75	6.15	6.41	
Total zinc	18	<18	×18	<18	<18	<18	<18	<3.73	<18	<18	<18	
Dissolved mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	
Dissolved cadmium	9.0	<0.6	9:0>	<0.6	<0.6	<0.6	40.6	<0.09	<0.6	<0.6	<0.6	
Dissofved iron	0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	0.003	<0.23	<0.23	<0.23	
Dissolved copper	6	6>	6>	₹	\$	8	8	1.454	6>	0	6>	
Dissolved chromlum	2	<2>	4	2	2	\$	7	<0.68	2	2	S	
Chromium Vi	5	Ş	ą	\$	11	\$	5		8	\ 		
Chromium III	30	<30	¢30	0€>	99	8	<30		98	 	<30	
Dissolved nickel	33	<3	\$	ಬ	8	8	20	<0.374	2	Į⊽		
Dissolved arsenic	1	4	4	₽	⊽	₽	₽	<0.352	 	 ⊽) \	
Dissolved lead	9	9>	9>	9	\$	9	99	<0.173	9	49	99	
Total hardness as CaCO3	3.2	<3.2	<3.2	<3.2	<3.2	<3.2	3.2	5.2	3.2	37	<3.7	
Visible oil or grease	N/A		ě	,			,					

Notes:
pH values presented in pH units. Values in brackets are field pH measurements. Total Suspended Solids, Biochemical Oxygen Demand, Total hardness & Dissolved iron concentrations are presented in mg/l, all other parameters are in µg/l.

Appendix B

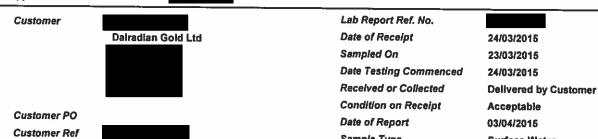
Laboratory Certificates



Monitoring and Testing Services

A copy of this certificate is available on

Ref 2 Ref 3



CERTIFICATE OF ANALYSIS

Sample Type

Surface Water

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Dissolved)	177	ICPMS	2.971	ug/L	Decouperate St
BOD (Surface Water)	113	Electrometry	<2	mg/L	UKAS
Cadmium (Dissolved)	177	ICPMS	<0.09	ug/L	01010
Chromium (Dissolved)	177	ICPMS	<0.68	ug/L	
Copper (Dissolved)	177	ICPMS	7,101	ug/L	
Hardness Total (Surface Water)	111	Colorimetry	136	mg/L CaCO3	UKAS
ron (Dissolved)	177	ICPMS	30.45	ug/L	
_ead (Dissolved)	177	ICPMS	<0.173	ug/L	
Mercury (Dissolved)	178	ICPMS	<0.2	ug/L	
Vickel (Dissolved)	177	ICPMS	6.544	ug/L	
Oils, Fats & Grease	101	Solvent Extraction/ Gravimetry	<1	mg/L	
pH (Surface Water)	110	Electrometry	7.7	pH Units	UKAS
Solids (Total Suspended)	106	Filtration/ Drying @ 104C	3	mg/L	2.010
Zinc (Surface Water)	177	ICPMS	10.21	ug/L	UKAS

Signed:

Acc. : Accredited Parameters by ISO 17025:2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P): Presumptive Results



Date: 03/04/2015

**: The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2012)



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Customer		Lab Report Ref. No.	
		Date of Receipt	24/03/2015
		Sampled On	23/03/2015
		Date Testing Commenced	24/03/2015
		Received or Collected	Delivered by Customer
Customer PO		Condition on Receipt	Acceptable
		Date of Report	03/04/2015
Customer Ref	DCS5 - 23/03/15	Sample Type	Surface Water
Ref 2 Ref 3			

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Dissolved)	177	ICPMS	1.158	ug/L	700.
BOD (Surface Water)	113	Electrometry	<2	mg/L	UKAS
Cadmium (Dissolved)	177	ICPMS	<0.09	ug/L	UNAS
Chromium (Dissolved)	177	ICPMS	<0.68	ug/L ug/L	
Copper (Dissolved)	177	ICPMS	0.322	ug/L ug/L	
Hardness Total (Surface Water)	111	Colorimetry	35	mg/L CaCO3	UKAS
Iron (Dissolved)	177	ICPMS	637.9	ug/L	UIVAG
ead (Dissolved)	177	ICPMS	<0.173	ug/L ug/L	
Mercury (Dissolved)	178	ICPMS	<0.2	ug/L ug/L	
Nickel (Dissolved)	177	ICPMS	0.649	<u> </u>	
Oils, Fats & Grease	101	Solvent Extraction/ Gravimetry	<1	ug/L mg/L	
pH (Surface Water)	110	Electrometry	7.5	pH Units	UKAS
Solids (Total Suspended)	106	Filtration/ Drying @ 104C	,.5 5	•	UNAS
Zinc (Surface Water)	177	ICPMS	11.69	mg/L ua/L	UKAS

Signed:

- Technical Supervisor

Acc.: Accredited Parameters by ISO 17025 2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P): Presumptive Results

UKAS UKAS USING

Date: 03/04/2015

^{** :} The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2012)

			Test Cer	tifica
nalytical Services			Certificate:	
alradian Gold Ltd				
anadian Gold Etd				
lance and		ORD-05645		
	Sample Receipt Date	Resident March 1990 Colon Colo		
	Date Analysis Started	The second secon		
	Completion Date	District Control of States States, National States		
	Turnaround Time			
	No of Samples	6		
	Purchase Order Number			
1,000,000		ECA-01585	CONTRACTOR OF STATE OF	

Lab Technician

Page:

2 of 2

Analytical Services

Test Certificate

Certificate:

Lab Ref	Sample	Sample	Method	Test	Result	Units	ACC		6
	Details	Date	No.	l lest	Kesuit	Units	ACC	Lab	Sample Deviations
	DCS1	26/03/2015	N/A	Arsenic, Ultra-low Total as As	2	ug/l	Y	S	
			SAM016	BOD	1.23	mg/l	Ý	3	\$
			N/A	Cadmium, Filtered as Cd	<0.6	Ug/I	Ÿ	s	ाँ
			N/A	Chromium - Hexavalent	<5	ug/I	Y	s	
			N/A	Chromium III	<30	ug/I	N	S	
			N/A	Chromium, Filtered as Cr	<2	ug/I	Y	Ş	
			N/A N/A	Copper, Filtered as Cu	<9	ug/l	Y	5	
			N/A N/A	Iron, Filtered as Fe Lead, Filtered as Pb	<0.23	mg/l	Y	S	
			N/A	Mercury, Filtered as Hg	<6	ug/l	Y	S	
			N/A	Nickel, Filtered as Ni	<0.1	ug/l	Y	S	
			SAM004	pH	<3 6.81	ug/l Units	Y	S	
			\$AM001	Suspended Solids	18	mg/l	Y Y		
			N/A	Total Hardness as CaCO3	13.4	mg/l	Ÿ	S	
			N/A	TPH / Oil & Greases	<1	mg/l	Ý	s	
			N/A	Zinc, Total as Zn	<1B	ug/l	Ý	s	
	Sample Matrix:	Surface Water	Analyst Comment	:					
D18853	DCS2	28/03/2015	N/A	Arsenic, Ultra-low Total as As	7,9	ug/l	Υ	s	
			SAM016	BOD	1.23	mg/I	Y		\$
			N/A	Cadmium, Filtered as Cd	<0.8	ug/l	Y	s	-
			N/A	Chromium - Hexavalent	<5	ug/I	Y	S	
			N/A N/A	Chromium III	<30	ug/l	N	S	
			N/A	Chromium, Filtered as Cr Copper, Filtered as Cu	<2	ug/l	Y	S	
			N/A	Iron, Filtered as Fe	10	ug/l	Y	S	
			N/A	Lead, Filtered as Pb	<0.23 <8	mg/l	Y	S	
			N/A	Mercury, Filtered as Ho	<0.1	ug/l ug/l	Y Y	S S	
			N/A	Nickel, Filtered as NI	5	ug/l	Ý	S	
			SAM004	pH	7.63	Units	Ý	Ě	
			SAM001	Suspended Solids	27	mg/l	Ý		
			N/A	Total Hardness as CaCO3	106	mg/l	Y	S	
			N/A N/A	TPH / Oil & Greases Zinc, Total as Zn	<1	mg/l	Y	S	
			1007	Zert, Total as Zil	<18	ug/I	Y	S	
	Sample Matrix:	Surface Water	Analyst Comment						
018854	DCS3	26/03/2015	N/A	Arsenic, Ultra-low Total as As	2.7	s and			
			SAM016	BOD	1.31	ug/l mg/l	Y Y	S	020
			N/A	Cadmium, Filtered as Cd	<0,6	ug/l	Ý	Ş	s
			N/A	Chromium - Hexavalent	<5	ug/l	Ý	S	
			N/A	Chromium III	<30	ug/l	N	s	
			N/A	Chromium, Filtered as Cr	<2	ug/I	Y	S	
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	S	
			N/A N/A	Iron, Filtered as Fe	0.24	mg/l	Y	S	
			N/A	Lead, Filtered as Pb	<8	ug/l	Y	S	
			N/A	Mercury, Filtered as Hg Nickel, Filtered as Ni	<0.1	ug/I	Y	S	
			SAM004	pH	<3	ug/l	Y	S	
			SAM001	Suspended Solids	6.91 28	Units	Y Y		
			N/A	Total Hardness as CaCO3	13,7	mg/l mg/l	Ϋ́	5	
			N/A	TPH / Oil & Gresses	<1	mg/l	Ÿ	S	
			N/A	Zinc, Total as Zn	<18	ug/i	Y	s	
	Sample Matrix;	Surface Water	Analysi Comment:						
D16855	DCS4	26/03/2015	N/A	Arsenic, Ultra-low Total as As	4.8	ug/I	Y	s	
			SAM016	BOD	2.57	mg/l	Y		5
				Cadmium, Filtered as Cd	<0,6	ug/l	Υ	5	
				Chromium - Hexavalent Chromium III	<5	ug/l	Y	S	
				Chromium, Fittered as Cr	<30	ug/l	N	S	
					<2	ug/t	Y	S	

			N/A	Copper, Filtered as Cu	<₽	ug/l	Υ	S
			N/A	Iron, Filtered as Fe	0.25	mg/l	Y	S
			N/A	Lead, Filtered as Pb	<8	ug/l	Y	S
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Y	S
			N/A	Nickel, Fittered as NI	4	ug/l	Y	S
			SAM004	pΗ	6,90	Units	Y	
			SAM001	Suspended Solids	42	mg/l	Υ	
			N/A	Total Hardness as CaCO3	17,6	mg/l	Y	S
			N/A	TPH / Oil & Greases	<1	mg/l	Y	5
			N/A	Zinc, Total as Zn	<18	ug/l	Y	S
	Sample Matri	in: Surface Water	Ansiyst Commen	t				
018856	DCS5	28/03/2015	N/A	Arsenic, Ultra-low Total as As	5	ug/l	Υ	s
_			SAM018	900	2.59	mg/l	Y	
			N/A	Cadmium, Filtered as Cd	<0.8	ug/l	Y	S
			N/A	Chromium - Hexavalent	<5	ug/l	Y	s
			N/A	Chromium III	<30	ug/l	N	s
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	S
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	S
			N/A	Iron, Filtered as Fe	0.25	mg/l	Υ	s
			N/A	Lead, Filtered as Pb	<6	ug/l	Υ	5
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Y	S
			N/A	Nickel, Filtered as Ni	<3	Ngu	Y	S
			SAM004	pH	6,90	Units	Y	
			SAM001	Suspended Solids	35	mg/l	Y	
			N/A	Total Hardness as CaCO3	17.2	mg/l	Y	S
			N/A	TPH / Oil & Greases	<1	mg/l	Y	s
			N/A	Zinc, Total as Zn	<20	ug/l	Y	S
	Sample Matr	ix: Surface Water	Analyst Commen	t .				
018857	DCS6	26/03/2015	N/A	Arsenic, Ultra-low Total as As	<1.0	ug/L	Y	S
			SAM016	BOD	<1	mg/l	Y	
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Υ	5
			N/A	Chromium - Hexavalent	<5	ug/l	Y	S
			N/A	Chromlum III	<30	ug/l	N	s
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	S
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	S
			N/A	Iron, Filtered as Fe	< 0.23	mg/l	Y	s
			N/A	Lead, Filtered as Pb	<6	ug/l	Y	s
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Υ	s
			N/A	Nickel, Filtered as NI	<3	ug/l	Υ	S
			SAM004	pH	5.75	Units	Υ	
			SAM001	Suspended Solids	< 3	mg/l	Y	
			SAM001 N/A	Suspended Solids Total Hardness as CaCO3	< 3 <3.20	mg/l mg/l	Y	5
				,	=	-		5 S

Sample Matrix: Surface Water Analyst Comment:

Samj	ole Dev	ations Legend	
Results may be compre	mised	If the following deviations apply	
Comment	C	Incorrect Container	#
Container with Headspace provided	8	Insufficient sample volume	¢
BOD OverdSuted, therefore result Indicative only	\$	800 Underdiluted, therefore result indicative only	#
High Chloride concentration, COO could not be	5	Holding time exceeded due to sampled on date	@
Holding time exceeded in Lab	±	Holding time exceeded due to delayed instructions	å



Monitoring and Testing Services

Tel:

Tel: Fax: Web: email

A copy of this certificate is available on

Customer		Lab Report Ref. No.	
	Dairadian Gold Ltd	Date of Receipt	26/03/2015
		Sampled On	26/03/2015
		Date Testing Commenced	26/03/2015
		Received or Collected	Delivered by Customer
Custom 20		Condition on Receipt	Acceptable
Customer PO		Date of Report	07/04/2015
Customer Ref		Sample Type	Trade Effluent
Ref 2 Ref 3			

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Dissotved)	177	ICPMS	1.929		Acc.
BOD (Industrial Eff.)	113	Electrometry	<2	ug/L	10040
Cadmium (Dissolved)	177	ICPMS	<0.09	mg/L	UKAS
Chromium (Dissolved)	177	ICPMS	<0.68	ug/L	
Copper (Dissolved)	177	ICPMS		ug/L	
Hardness Total (Industrial Eff.)	111	Colorimetry	2.202	ug/L	
Iron (Dissolved)	177	ICPMS	114	mg/L CaCO3	UKAS
ead (Dissolved)	177	ICPMS	808.7 <0.173	ug/L	
Mercury (Dissolved)	178	ICPMS	<0.173	ug/L	
Nickel (Dissolved)	177	ICPMS		ug/L	
Oils, Fats & Grease	101	Solvent Extraction/ Gravimetry	0.833	ug/L 	
oH (Industrial Eff)	110	Electrometry	<1	mg/L	
Solids (Total Suspended) Industrial E	106	Gravimetry	7.8	pH Units	UKAS
Zinc (Industrial Eff.)	177	ICPMS	31	mg/L	UKAS
		TOT THO	30.07	110/1	LIKAS

Signed:

Acc.: Accredited Parameters by ISO 17025:2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P): Presumptive Results

UKAS

Date: 07/04/2015

**: The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2012)





email

A copy of this certificate is available on

Customer

Customer PO

Customer Ref

Ref 2

Ref 3

Lab Report Ref. No.

Date of Receipt 26/03/2015

Sampled On 26/03/2015

Date Testing Commenced 26/03/2016

Received or Collected Delivered it

Received or Collected Delivered by Customer
Condition on Receipt Acceptable
Date of Report 07/04/2015
Sample Type Surface Water

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Dissolved)	177	ICPMS	5.032	The state of the s	Acc.
BOD (Industrial Eff.)	113	Electrometry	8	ug/L	LUZAD
Cadmium (Dissolved)	177	ICPMS	<0.09	mg/L ug/L	UKAS
Chromium (Dissolved)	177	ICPMS	<0.68	ug/L	
Copper (Dissolved)	177	ICPMS	20.09	<u>-</u>	
lardness Total (Industrial Eff.)	111	Colorimetry	21	ug/L mg/L CaCO3	UKAS
on (Dissolved)	177	ICPMS	277.1	-	UKAS
ead (Dissolved)	177	ICPMS	0.543	ug/L ug/L	
fercury (Dissolved)	178	ICPMS	<0.2	ug/L	
ickel (Dissolved)	177	ICPMS	6.45	ug/L	
ils, Fats & Grease	101	Solvent Extraction/ Gravimetry	<1	mg/L	
H (Industrial Eff)	110	Electrometry	7.7	pH Units	UKAS
olids (Total Suspended) Industrial E	106	Gravimetry	43	mg/L	UKAS
inc (Industrial Eff.)	177	ICPMS	9.716	ug/L	UKAS

Signed:

Acc. : Accredited Parameters by ISO 17025;2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P): Presumptive Results

UKAS

Date: 07/04/2015

** : The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2012)

alytical Services		Test Certificate:	Certi	liC
alytical Services		Issue No:		
	Job No ORD-05850			
	Sample Receipt Date 23/04/2015			
	Date Analysis Started 23/04/2015			
	Completion Date 08/05/2015			
	Turnaround Time 10			
	No of Samples 3			
	Purchase Order Number 1737			
	Quote Number ECA-01585			
Br Tarana				

Lab Technician

Analytical Services

Test Certificate

Certificate: Issue No:

1

							issue i	NO:		1
Lab Ref	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Sample Deviations	
	DCS1	23/04/2015	N/A	Arsenic, Ultra-low Total as As	3.2	Ug/I	Y	S	and the same of th	
			SAM016	800	<1	mg/l	Ÿ	Ě		
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Ý	S		
			N/A	Chromium - Hexavalent	<5	ug/l	Ÿ	ş		
			N/A	Chromium III	<30	ug/l	Ň	S		
			N/A	Chromium, Filtered as Cr	<2	ug/I	Ÿ	S		
			N/A	Copper, Filtered as Cu	<9	ug/i	Ý	s		
			N/A	Iron, Fätered as Fe	1.34	mg/l	Ÿ	S		
			N/A	Lead, Filtered as Pb	<6	ug/l	Ÿ	s		
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Ý	s		
			N/A	Nickel, Filtered as Ni	<3	ug/l	Ÿ	S		
			SAM004	pH	6.99	Units	Ý			
			SAM001	Suspended Solids	< 3	mg/l	Ý			
			N/A	Total Hardness as CaCO3	33.1	mg/l	Ÿ	S		
			N/A	TPH / Oil & Greases	<1	mg/I	Ÿ	S		
			N/A	Zinc, Total as Zn	<18	ug/l	Ÿ	s		
D. 40 Fine	Sample Matrix:			:: This sample has been analysed for Chromium - H recommended stability times. It is therefore possib	lexivalent, Arsenic, U de that the results pro	itra-low Tot vided may t	el as As outs a compromi	ide sed,		
019526	DCS2	23/04/2015	N/A	Arsenic, Ultra-low Total as As	2,5	ug/l	Y	S		
			SAM016	BOD	1.04	mg/l	Y		\$	
			N/A	Cadmium, Filtered as Cd	<0.0	ug/l	Y	S		
			N/A	Chromium - Hexavalent	<5	ug/i	Y	S		
			N/A	Chromium III	<30	ug/l	N	s		
			N/A	Chromium, Filtered as Cr	<2	Ngu	Y	5		
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	S		
			N/A	Iron, Filtered as Fe	<0.23	mg/l	Υ	s		
			N/A	Lead, Filtered as Pb	<6	ugs	Υ	S		
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Υ	s		
			N/A	Nickel, Filtered as NI	7	Ngu	Y	s		
			SAM004	pH	7.83	Units	Y			
			SAM001	Suspended Solids	7	mg/l	Y			
			N/A	Total Hardness as CaCO3	147	mg/l	Ý	s		
			N/A	TPH / Oil & Greases	<1	mg/L	Ý	s		
			N/A	Zinc, Total as Zn	<18	ug/l	Ý	s		
019527	Semple Matrix:			This sample has been analysed for Chromium - Hi recommended stability times. It is therefore possibility times.	exavalent, Arsenic, Ut le that the results pro-	tra-low Tota rided may b	l as As outsi s compromis	de ed.		
U18527	DCS4	23/04/2015	N/A	Arsenic, Ultra-low Total as As	1.5	Ngu	Y	S		
			SAM016	800	<1	mg/l	Υ			
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Y	5		
			N/A	Chromium - Hexavalent	<5	ug/I	Y	S		
			N/A	Chromium III	<30	ug/l	N	s		
			N/A	Chromium, Filtered as Cr	<2	ugs	Y	S		
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	s		
			N/A	Iron, Filtered as Fe	0.56	mg/l	Ÿ	s		
			N/A	Lead, Filtered as Pb	<6	ug/l	Ý	s		
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Y	S		
			N/A	Nickel, Filtered as Ni	<3	ug/l	Ý	S		
			SAM004	pH	7.93	Units	Ý	Š		
			SAM001	Suspended Solids	< 3	mg/l	Ý			
			N/A	Total Hardness as CaCO3	37.5	mg/l	Ÿ	s		
			N/A	TPH / Oil & Greases	<1	mg/l	Ÿ	S		
			N/A	Zinc, Total as Zn	<18	ug/I	Ý	S		
			-		~18	ODA	T	9		

Sample Matrix: Surface Water

Analyst Comment: This sample has been analysed for Chromium - Hexavalent, Arsenic, Ultra-low Total as As outside recommended stability times. It is therefore possible that the results provided may be compromised.

Sa	mpie Deviatlo	ns Legend	
Results may be comp	promised if the	e following deviations apply	
Comment	С	Incorrect Container	14

BOD Overdiluted, therefore result indicative only	\$	800 Underdiluted, therefore result indicative only	#
High Chloride concentration, COD could not be	§	Holding time exceeded due to sampled on date	0
Holding time exceeded in Lab	±	Holding time exceeded due to delayed instructions	&

nalytical Services				Certif	ica
ialytical Services			Certificate: Issue No:		
	Job No OF	D orner			
	Sample Receipt Date 23	The State of			
	Date Analysis Started 23/				
	Completion Date 08/				
	Turnaround Time 10	00,2015			
	No of Samples 3				
	Purchase Order Number 173	37			
	Quote Number EC				
ar			Partie of the Pa		

Lab Technician



Sample Matrix: Surface Water

Analytical Services

Test Certificate

Certificate: Issue No:

- 1

							10000 1	10.		•
Lab Ref	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Sample Deviations	
019528	DCS3	23/04/2015	N/A	Arsenic, Ultra-low Total as As	5,3	ug/l	Y	S		4
			SAM016	BOD	<1	mg/l	Y			
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Ý	S		
			N/A	Chromium - Hexavalent	<5	ug/l	Ÿ	s		
			N/A	Chromlum (II)	<30	ug/l	, N	S		
			N/A	Chromium, Filtered as Cr	<2	ug/l	Ÿ	S		
			N/A	Copper, Filtered as Cu	<9	_		_		
			N/A			ug/l	Y	5		
				Iron, Filtered as Fe	0.6	mg/l	Y	5		
			N/A	Lead, Filtered as Pb	<6	ug/l	Y	S		
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Y	S		
			N/A	Nickel, Filtered as Ni	<3	ug/l	Υ	S		
			SAM004	pH	7,82	Units	Y			
			SAM001	Suspended Solids	72	mg/l	Y			
			N/A	Total Hardness as CaCO3	71.4	mg/l	Y	5		
			N/A	TPH / Oit & Greases	<1	mg/l	Y	S		
			N/A	Zinc, Total as Zn	<18	ug/l	Y	S		
-	·	:: Surface Water		:: This sample has been analysed for Chromiu recommended stability times, it is therefore p	m - Hexavalent, Arsenic, L cossible that the results pr	Utra-low To ovided may	tal as As outs be comprom	ide sed.		
019529	DCS5	23/04/2015	N/A	Arsenic, Ultra-low Total as As	1,5	ug/l	Y	\$		
			SAM016	BOD	<1	mg/l	Y			
			N/A	Cadmium, Filtered as Cd	<0.8	ug/l	Y	S		
			N/A	Chromium - Hexavalent	<5	ug/l	Y	S		
			N/A	Chromium III	<30	ug/l	N	S		
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	S		
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	5		
			N/A	Iron, Filtered as Fe	0,58	mg/l	Ý	s		
			N/A	Lead, Filtered as Pb	<6	ug/l	Ý	s		
			N/A	Mercury, Fittered as Hg	<0.1	ug/l	Ý	s		
			N/A	Nickel, Filtered as Ni	<3	_				
			SAM004	pH		ug/l	Y	S		
			SAM001	•	7.71	Units	Y			
				Suspended Solids	< 3	mg/l	Y			
			N/A	Total Hardness as CaCO3	41,8	mg/l	Y	S		
			N/A	TPH / Oil & Greases	<1	mg/l	Y	\$		
			N/A	Zinc, Total as Zn	<18	ug/I	Y	S		
		:: Surface Water	Analyst Comment	: This sample has been analysed for Chromiu recommended stability times, it is therefore p						
019530	DCS8	23/04/2015	N/A	Arsenic, Ultra-low Total as As	<1.0	ug/l	Y	S		
			SAM016	BOD	<1	mg/l	Y			
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Y	s		
			N/A	Chromium - Hexavalent	<5	up/l	Y	S		
			N/A	Chromium III	<30	ug/l	N	5		
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	s		
			N/A	Copper, Filtered as Cu	<9	ug/l	Ý	s		
			N/A	Iron. Filtered as Fe	<0.23	mg/l	Ý	S		
			N/A	Lead, Filtered as Pb	~0.23 <6	-	Ý	5		
			N/A	Mercury, Filtered as Ho	-	ug/I				
			N/A	-	<0.1	ид/І	Y	5		
				Nickel, Filtered as Ni	<3	ug/l	Y	5		
			SAM004	pH	6.15	Units	Y			
			SAM001	Suspended Solids	< 3	mg/l	Y			
			N/A	Total Hardness as CaCO3	<3.20	mg/l	Y	5		
			N/A	TPH / Oil & Greases	<1	mg/l	Y	S		
			N/A	Zinc, Total as Zn	<18	ug/l	Y	S		

Sa	mple Deviatio	ns Legend	
Results may be comp	promised if th	e following deviations apply	
Comment	C	Incorrect Container	
Container with Headspace provided	8	insufficient sample volume	

Analyst Comment: The sample has been enalysed for Chromium - Hexavalent, Arsenic, Ultra-low Total as As outside recommended stability times. It is therefore possible that the results provided may be compromised.

BOD Overdiluted, therefore result indicative only	\$	800 Underdiluted, therefore result indicative only	#
High Chloride concentration, COO could not be	5	Holding time exceeded due to sampled on date	0
Holding time exceeded in Lab	±	Holding time exceeded due to delayed instructions	8



Monitoring and Testing Services

A copy of this certificate is available on



Customer		Lab Report Ref. No.	
		Date of Receipt	23/04/2015
		Sampled On	23/04/2015
		Date Testing Commenced	23/04/2015
		Received or Collected	Delivered by Customer
_		Condition on Receipt	Acceptable
Customer PO		Date of Report	15/05/2015
Customer Ref	DCS 2	Sample Type	Trade Effluent
Ref 2		,	
Ref 3			

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Industrial Eff.)	177	ICPMS	2.214	ug/L	UKAS
BOD (Industrial Eff.)	113	Electrometry	<2	mg/L	UKAS
Cadmium (Industrial Eff.)	177	ICPMS	< 0.05	ug/L	UKAS
Chromium (Industrial Eff.)	177	ICPMS	<0.28	ug/L	UKAS
Copper (Industrial Eff.)	177	ICPMS	4.765	ug/L	UKAS
Hardness Total (Industrial Eff.)	111	Colorimetry	159	mg/L CaCO3	UKAS
Iron mg/L	177	ICPMS	0.18	mg/L	
Lead (Industrial Eff.)	177	ICPMS	<0.12	ug/L	UKAS
Mercury (Industrial Eff)	178	ICPMS	<0.04	ug/L	UKAS
Nickel (Industrial Eff.)	177	ICPMS	5.578	ug/L	UKAS
Oils, Fats & Grease	101	Solvent Extraction/ Gravimetry	<1	mg/L	
pH (Industrial Eff)	110	Electrometry	7.9	pH Units	UKAS
Solids (Total Suspended) Industrial E	106	Gravimetry	10	mg/L	UKAS
TPH (>C10-40)	188	GC-FID	<1	ug/L	
Zinc (Industrial Eff.)	177	ICPMS	<3.73	ug/L	UKAS

Acc.: Accredited Parameters by ISO 17025:2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P) : Presumptive Results



Date: 15/05/2015



Monitoring and Testing Services

Tel: Fax:

Fax: Web: email

A copy of this certificate is available on Customer

Customer PO
Customer Ref DCS4
Ref 2
Ref 3

Lab Report Ref. No.

Date of Receipt

Sampled On

Date Testing Commenced

Received or Collected

Condition on Receipt

Date of Report

Sample Type

23/04/2015 23/04/2015 23/04/2015 Delivered by Customer Acceptable 15/05/2015 Surface Water

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Surface Water)	177	ICPMS	1,399	ug/L	UKAS
BOD (Surface Water)	113	Electrometry	<2	mg/L	UKAS
Cadmium (Surface Water)	177	ICPMS	<0.01	ug/L	UKAS
Chromium (Surface Water)	177	ICPMS	<0.58	ug/L	UKAS
Copper (Surface Water)	177	ICPMS	0.445	ug/L	UKAS
lardness Total (Surface Water)	111	Colorimetry	38	mg/L CaCO3	UKAS
ron mg/L	177	ICPMS	0.806	mg/L	UIVIG
.ead (Surface Water)	177	ICPMS	<0.02	ug/L	UKAS
Mercury (Surface water)	178	ICPMS	<0.03	ug/L	UKAS
Nickel (Surface Water)	177	ICPMS	0.569	ug/L	UKAS
Oils, Fats & Grease	101	Solvent Extraction/ Gravimetry	<1	mg/L	Olono
H (Surface Water)	110	Electrometry	7.2	pH Units	UKAS
Solids (Total Suspended)	106	Filtration/ Drying @ 104C	<2	rng/L	51010
PH (>C10-40)	188	GC-FID	<1	ug/L	
Zinc (Surface Water)	177	ICPMS	<0.63	ug/L	UKAS

Signed:

Acc.: Accredited Parameters by ISO 17025:2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P): Presumptive Results

- (\$\frac{1}{2}) - \frac{1}{2} \frac{1} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \f

Date: 15/05/2015

Asumntive Results

	Page:	1 of 2
	Test Cer	tificate
Analytical Services	Certificate: Issue No:	1
Job No ORD-06082	STREET GRAND	
Sample Receipt Date 21/05/2015		
Date Analysis Started 21/05/2015		
Completion Date 04/06/2015	inequines in	
Turnaround Time 10		
No of Samples 2		
Purchase Order Number PO1830		
Quote Number ECA-01585		
Dear		
Analysis of your sample(s) is now complete and we have pleasure in enclosing the appropriate	- tt	
	·	
All analysis was completed within Analytical Laborator unless of that was subcontracted to a Companies Approved Laboratory is indicated by 'S'. Pof your test certificate for explanations of sample deviations.	therwise specified. Any ana lease refer to the table at th	alysis ne end

Lab Technician





Analytical Services

Page:

Test Certificate

Certificate:

2 of 2

							Issue I	Vo*	
							15500 1	10.	
b Ref	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Sample Deviation
020292	DCS1	21/05/2015	N/A	Arsenic, Ultra-low Total as As	2.2	ug/l	Y	S	
_			SAM018	BOD	1.29	mg/l	Y		\$
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Υ	s	
			N/A	Chromium - Hexavalent	<5	ug/î	Y	5	
			N/A	Chromium III	<30	ugđ	N	S	
			N/A	Chromlum, Filtered as Cr	<2	ug/l	Y	S	
			N/A	Copper, Filtered as Cu	<9	ug/l	Υ	5	
			N/A	Iron, Filtered as Fe	1.34	mg/l	Y	S	
			N/A	Lead, Filtered as Pb	<6	ug/l	Y	S	
			N/A	Mercury, Filtered as Hg	<0,1	ug/l	Y	S	
			N/A	Nickel, Filtered as Ni	<3	ug/l	Y	S	
			SAM004	pH	7.19	Units	Y		
			SAM001	Suspended Solids	3	mg/I	Υ		
			N/A	Total Hardness as CaCO3	17.8	mg/l	Y	S	
			N/A N/A	TPH / Oil & Greases Zinc, Total as Zn	<1	mg/t	Υ	s	
	Sample Matrix	: Surface Water	Analyst Commen	t This sample has been analysed for Chromiu	ım - Hexavalent, Arsenic, L	Jitra-low Tot	al as As outs	ide	
		:: Surface Water		recommended stability lines, it is therefore p to This sample has been analysed for Chromiu	ossible that the results pro m - Hexivalent, Arsenic, t	ovided may t Atra-low Tot	si as As outs	ised, ide	
				recommended stability times, it is therefore p	ossible that the results pro m - Hexivalent, Arsenic, t	ovided may t Atra-low Tot	si as As outs	ised, ide	
020294				recommended stability lines, it is therefore p to This sample has been analysed for Chromiu	ossible that the results pro m - Hexivalent, Arsenic, t	ovided may t Atra-low Tot	si as As outs	ised, ide	
020294	Sample Matrix	u Surface Water	Analyst Comment	recommended stability times. It is therefore p This sample has been analysed for Chromiu recommended stability times. It is therefore p	ossible that the results prome Hexavalent, Arsenic, I, cossible that the results pro-	ovided may t Atra-low Tot ovided may t	e compromi al as As outs se compromi	ised.	
020294	Sample Matrix	u Surface Water	Analyst Comment	recommended stability times. It is therefore p this sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As	ossible that the results pro m - Hexitvalent, Arsenic, i, cossible that the results pro <1,0	Mrs-low Tot ovided may b ug/s	e compromi al as As outs se compromi Y	ised.	
220294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016	recommended stability times. It is therefore p this sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD	ossible that the resulta promise the Mexical Arsenic, University of the Mexical Arsenic Arseni	ovided may b Mrs-low Tob ovided may b ugs mg/l	e compromi al as As outs se compromi Y Y	ised.	
020294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A N/A N/A	recommended stability times. It is therefore p to This sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Filtered as Cd	m - Hexavalent, Arsenic, L cossible that the results pro <1,0 <1 <0.6	ovided may b Mrs-low Tot ovided may b ug/l mg/l ug/l	e compromi al as As outs se compromi Y Y Y	ised.	
220294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A N/A	recommended stability times. It is therefore p It This sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavafent	ossible that the results pro m - Hexitvalent, Arsenic, t cossible that the results pro <1.0 <1 <0.6 <5	ovided may b ittra-fow Tot ovided may b ugst ugst ugst ugst	al as As outs be compromi Y Y Y Y	sect.	
220294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A N/A N/A N/A N/A	recommended stability times. It is therefore p this sample has been analysed for Chromiu recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavalent Chromium III	onsable that the results prome Hexitivalent, Arsenic, Loosable that the results pro- <1.0 <1.0 <0.6 <5 <30	intra-fow Tot posited may be ugh mg/l ug/l ug/l ug/l	al as As outs ou compromi Y Y Y Y N	sect.	
220294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A N/A N/A N/A N/A N/A N/A N/A	recommended stability times. It is therefore p this sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-fow Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavatent Chromium, Filtered as Cr	onsable that the results promine - Hexaivalent, Arsenic, I, consable that the results profile - < 1.0	Atra-low Tot ovided may b ugst mgst ugst ugst ugst ugst ugst	al as As outs ou compromi Y Y Y Y N N	sed.	
220294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A	recommended stability times. It is therefore p to This sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-fow Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavatent Chromium III Chromium, Filtered as Cr Copper, Filtered as Cu	onsable that the results promine - Hexavalent, Arsenic, I, consable that the results profile	ittra-low Tot vided may b ug/f mg/l ug/l ug/l ug/l ug/l ug/l	al as As outs to compromi Y Y Y Y N N Y Y	sed.	
120294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A	recommended stability times. It is therefore p It his sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavatent Chromium III Chromium III Chromium, Filtered as Cr Copper, Filtered as Cr Inn, Filtered as Ce Lead, Filtered as Pb Mercury, Filtered as Hg	onsable that the results prome Hexalvalent, Arsenic, Loosable that the results provided the resul	Attra-low Tot vided may to ugA mgA ugA ugA ugA ugA ugA ugA ugA ugA	al as As outs to compromi Y Y Y Y N N Y Y Y Y N Y Y Y Y Y Y Y Y	seed.	
) 20294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A	recommended stability times. It is therefore p It his sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Fittered as Cd Chromium - Hexavalent Chromium III Chromium, Fittered as Cr Copper, Fittered as Cu Iron, Fittered as Cu Iron, Fittered as Fe Lead, Fittered as Hg Nickel, Fittered as NI	ossible that the results prome Hexitivalent, Arsenic, to cossible that the results prome the results prome the results prome to the res	wided may be up for the up for th	al as As outs be compromi Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	seed. S S S S S S S S S S S S S S S S S S S	
) 20294	Sample Matrix	u Surface Water	Analyst Comment N/A SAM016 N/A N/A N/A N/A N/A N/A N/A N/	recommended stability times. It is therefore p It This sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-fow Total as As BOD Cadmium, Fittered as Cd Chromium - Hexavatent Chromium - Hexavatent Chromium, Fittered as Cr Copper, Fittered as Cu Iron, Fittered as Fe Lead, Fittered as Hg Nickel, Fittered as Ni pH	oneshie that the results prome Hexinology (No. 10) oneshie that the results prome 1.0 (1.0)	wided may be up for the up for th	al as As outs to compromi Y Y Y Y Y Y Y N Y Y Y Y Y Y Y Y Y Y Y	seed. S S S S S S S S S S S S S S S S S S	
220294	Sample Matrix	u Surface Water	N/A SAM016 N/A	recommended stability times. It is therefore p It his sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavatent Chromium - Hexavatent Chromium, Filtered as Cr Copper, Filtered as Cu Iron, Filtered as Fe Lead, Filtered as Pb Mercury, Filtered as NI pH Suspended Solids	oneshie that the results prome Hexitivalent, Arsenic, too sable that the results prome that the results prome to t	wided may be ugs and was a second may be ugs	al as As outs se compromi Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	seed. S S S S S S S S S S S S S S S S S S	
D2O294	Sample Matrix	u Surface Water	N/A SAM016 N/A	tecommended stability times. It is therefore p This sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOO Cadmium, Filtered as Cd Chromium - Hexavatent Chromium - Hexavatent Chromium, Filtered as Cr Copper, Filtered as Cr Copper, Filtered as Cu Iron, Filtered as Fe Lead, Filtered as Pb Mercury, Filtered as Ni pH Suspended Solids Total Hardness as CaCO3	m - Hexivalent, Arsenic, toosable that the results pro- <1.0 <1.0 <1. <0.6 <5 <30 <2 <9 <0.23 <6 <0.1 <3 <4 <4 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <6 <7 <6 <6 <6 <6 <7 <6 <6 <7 <6 <6 <7 <6 <7 <7 <7 <7 <6 <6 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7 <7<	wided may be ugh	al as As outs se compromi Y Y Y Y N Y Y Y Y Y Y Y Y Y Y Y Y Y Y	seed. S S S S S S S S S S S S S S S S S S	
)20294	Sample Matrix	u Surface Water	N/A SAM016 N/A	recommended stability times. It is therefore p It his sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOD Cadmium, Filtered as Cd Chromium - Hexavafent Chromium - Hexavafent Chromium, Filtered as Cr Copper, Filtered as Cr Long, Filtered as Cu Iron, Filtered as Fe Lead, Filtered as Hg Nickel, Filtered as Ni pH Suspended Solids Total Hardness as CaCO3 TPH / Oil & Greases	oneshie that the results pro- m - Hexavalent, Arsenic, toosable that the results pro- <1.0 <1, <0.6 <5 <30 <2 <9 <0.23 <6 <0.1 <3 6,41 <3	wided may be ugh	el compromi	seed.	
D2O294	Sample Matrix	u Surface Water	N/A SAM016 N/A	tecommended stability times. It is therefore p This sample has been analysed for Chromius recommended stability times. It is therefore p Arsenic, Ultra-low Total as As BOO Cadmium, Filtered as Cd Chromium - Hexavatent Chromium - Hexavatent Chromium, Filtered as Cr Copper, Filtered as Cr Copper, Filtered as Cu Iron, Filtered as Fe Lead, Filtered as Pb Mercury, Filtered as Ni pH Suspended Solids Total Hardness as CaCO3	m - Hexitvalent, Arsenic, t, cossible that the results pro-	wided may be up for the control of t	al as As outs be compromi	adde seed.	

Samp	ole Dev	lations Legend	
Results may be compre	omised	If the following deviations apply	
Comment	С	Incorrect Container	‡
Container with Headspace provided	8	Insufficient sample volume	C
BOD Overdiluted, therefore result indicative only	\$	800 Underdiluted, therefore result indicative only	#
High Chloride concentration, COD could not be	§	Holding time exceeded due to sampled on date	0
Holding time exceeded in Lab	±	Holding time exteeded due to delayed instructions	8.

alytical Services		Test Certificate:	ifica
FINE N	Job No ORD-06084		
7818000	Sample:Receipt Date 21/05/2015		
	Date Analysis Started 21/05/2015		
SMSB	Completion Date 04/06/2015		
	Turnaround Time 10		
	No of Samples 2		
	Purchase Order Number PO1830		
	Quote Number ECA-01585		
r			
iyaia di yadi sample(s) is	now complete and we have pleasure in enclosing the appro-	priate test report.	
nalysis was completed w		ss otherwise specified. Any ana	alvsis
was subcontracted to a	Approved Laboratory is indicated by 'S	iss otherwise specified. Any ana	ilysis

Lab Technician



Analytical Services

Page: 2 of 2

Test Certificate

Certificate:

20							issue i	No:	
ab Ref	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Sample Deviatio
20297	DCS3	21/05/2015	N/A	Arsenic, Ultra-low Total as As	8.3	ug/l	Y	s	Separate services
			SAM016	BOD	1,25	mg/l	Υ		\$
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Y	S	
			N/A	Chromium - Hexavalent	<5	ug/l	Y	S	
			N/A	Chromium III	<30	ug/l	N	S	
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	S	
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	S	
			N/A	Iron, Filtered as Fe	1.13	mg/l	Y	S	
			N/A	Lead, Filtered as Pb	<6	ug/l	Y	S	
			N/A	Mercury, Filtered as Hg	<0.1	ug/I	Y	s	
			N/A	Nickel, Filtered as Ni	<3	ug/I	Y	S	
			SAM004	pH	7,88	Units	Υ		
			SAM001	Suspended Solids	< 3	mg/l	Y		
			N/A	Total Hardness as CaCO3	38,6	mg/l	Y	S	
			N/A	TPH / Oil & Greases	<1	mg/l	Υ	s	
			N/A	Zinc, Total as Zn	<18	ug/I	Y	S	
.	Sample Matrix:		remiges bottimas	t: This sample has been analysed for Chramk, recommended stability times, it is therefore j	m - Hexavalent, Arsenic, U possible that the results pro	ittra-low Tota rvided may be	as As outs compromi	ide red.	
020298	DCS4	21/05/2015	N/A	Arsenic, Ultra-fow Total as As	1.4	ug/l	Υ	s	
			SAM016	BOD	1.95	mg/l	Y		
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Y	S	
			N/A	Chromium - Hexavalent	<5	ug/l	Y	S	
			N/A	Chromium III	<30	ug/l	N	S	
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	S	
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	s	
			N/A	Iron, Filtered as Fe	0.53	mg/l	Y	Š	
			N/A	Lead, Filtered as Pb	<8	ug/l	Ý	s	
			N/A	Mercury, Filtered as Hg	<0.1	ue/i	Y	s	
			N/A	Nickel, Filtered as Ni	<3	ug/l	Y	S	
			SAM004	ρH	7.23	Units	Ý	ف	
			SAM001	Suspended Solids	6	mg/l	Ý		
			N/A	Total Hardness as CaCO3	23.7	mg/l	Ý	s	
			N/A	TPH / Oil & Greases	<1	mg/l	Ý	s	
			N/A	Zinc, Total as Zn	<18	ug/l	Ý	s	
	Sample Matrix:	Surface Water	Analyst Comment	This sample has been analysed for Chromiu	- Hammindans &				

Sample Deviations Legend Results may be compromised if the following deviations apply С Incorrect Container \$ Container with Headspace provided 8 Insufficient sample volume ¢ BOD Overdiluted, therefore result indicative only \$ § BOO UnderdSuted, therefore result indicative only # High Chloride concentration, COO could not be Holding time exceeded in Lab Holding time exceeded due to sampled on date 0 Molding time exceeded due to delayed instructions ± å

		Test Cer	tific
nytical Services		Certificate:	
		Issue No:	
		Tel: Fax:	
	Job No ORD-06083		
	Sample Receipt Date 21/05/2015		
	Date Analysis Started 21/05/2015		
	Completion Date 04/06/2015		
	Turnaround Time 10		
	No of Samples 1		
	Purchase Order Number PO1830		
	Quote Number ECA-01585		
	Maria de la companya		
ysis or your sample(s) is now complete and we have pleasure in enclosing the appro	priate test report.	
nalysis was complete		ess otherwise specified. Any ana	alvsis
was subcontracted to	a Approved Laboratory is indicated by 's explanations of sample deviations.	S'. Please refer to the table at the	ne end
di test certificate for t	explanations of sample deviations.		



Analytical Services

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Test Certificate

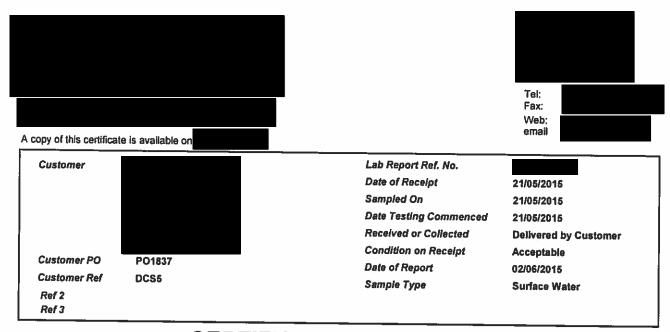
Certificate: Issue No:

Lab Ref	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Sample Deviations
020296	DCS5	21/05/2015	N/A	Arsenic, Ultra-low Total as As	1.3	ug/l	Y	S	and the second second
_			SAM016	BOD	1.17	mg/l	Y		2
			N/A	Cadmium, Filtered as Cd	<0.6	ug/l	Y	S	•
			N/A	Chromium - Hexavalent	<5	ug/l	Y	s	
			N/A	Chromium III	<30	ug/l	N	S	
			N/A	Chromium, Filtered as Cr	<2	ug/l	Y	S	
			N/A	Copper, Filtered as Cu	<9	ug/l	Y	S	
			N/A	fron, Fillered as Fe	0.56	mg/l	Y	5	
			N/A	Lead, Filtered as Pb	<8	ug/l	Y	S	
			N/A	Mercury, Filtered as Hg	<0.1	ug/l	Y	S	
			N/A	Nickel, Filtered as Ni	<3	ug/l	Υ	S	
			SAM004	pH	6,94	Units	Y		
			SAM001	Suspended Solids	< 3	mg/l	Y		
			N/A	Total Hardness as CaCO3	23	mg/l	Y	5	
			N/A	TPH / Oil & Greases	<1	mg/I	Y	S	
			N/A	Zinc, Total as Zn	<18	ug/t	Y	S	

Sample Matrix: Surface Water

Analyst Comment: This sample has been analysed for Chromium - Hexavalent, Arsenic, Ultra-low Total as As outside recommended stability times, it is therefore possible that the results provided may be compromised.

Sam	ple Devi	lations Legend	p- 20-00/00dda-1
Results may be compre	omised	If the following deviations apply	
Comment	C	Incorrect Container	T
Container with Headspace provided	8	Insufficient sample volume	6
800 Overditated, therefore result indicative only	\$	BOD Underdiluted, therefore result indicative only	4
High Chloride concentration, CDD could not be	§	Holding time exceeded due to sempled on date	0
Holding time encreded in Lab	+	Holding time exceeded due to delayed instructions	1



CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Arsenic (Dissolved)	177	ICPMS	1.183	ug/L	
BOD (Surface Water)	113	Electrometry	<2	mg/L	UKAS
Cadmium (Dissolved)	177	ICPMS	<0.09	ug/L	UIVAG
Chromium (Dissolved)	177	ICPMS	<0.68	ug/L	
Copper (Dissolved)	177	ICPMS	2.819	ug/L	
lardness Total (Surface Water)	111	Colorimetry	25	mg/L CaCO3	UKAS
ron (Dissolved)	177	ICPMS	521.8	ug/L	21010
ead (Dissolved)	177	ICPMS	<0.173	ug/L	
Mercury (Dissolved)	178	ICPMS	<0.2	ug/L	
lickel (Dissolved)	177	ICPMS	0.997	ug/L	
Oils, Fats & Grease	101	Solvent Extraction/ Gravimetry	<1	mg/L	
oH (Surface Water)	110	Electrometry	7.5	pH Units	UKAS
Solids (Total Suspended)	106	Filtration/ Drying @ 104C	2	mg/L	5,410
Zinc (Surface Water)	177	ICPMS	4.396	ug/L	UKAS

Signed:

Acc. : Accredited Parameters by ISO 17025:2005

PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)

For bacterial analysis a result of 0 means none detected in volume examined

All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results shall not be reproduced, except in full, without the approval of

Results contained in this report relate only to the samples tested

(P): Presumptive Results

UKAS TISSING.

Date: 02/06/2015

**: The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2012)

		Test	Certifica
alytical Services		Certificate:	
		Issue No:	
			•
	Job No ORD-06136		
Bernand Comp	Sample Receipt Date 28/05/2015		
	Date Analysis Started 28/05/2015		
	Completion Date 12/06/2015		
	Turnaround Time 10		
	No of Samples 2		
	Purchase Order Number PO1856		
	Quote Number EGA-01585	ALCONOMICS TO SERVICE	
ar			
llysis of your sample(s) is	now complete and we have pleasure in enclosing the appro	poriate test report	
analysis was completed v		ess otherwise specified. /	

Lab Technician



Analytical Services

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Test Certificate

Certificate:

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							Issue I	No:	
ab Ref	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Samp Deviat
20468	DCS1	28/05/2015	N/A	Arsenic (tot.unfilt)	3.69	100/1	Y	S	
			SAM018	BOD	<1	mg/l	Y		
			N/A	Cadmlum (diss.fit)	<0.1	ug/l	Y	s	
			N/A	Chromium (diss.filt)	0.958	ug/l	Y	5	
			N/A	Chromium, Hexavalent	<30	ug/l	Y	S	
			N/A	Chromium, Trivalent	<30	ug/l	N	S	
			N/A	Copper (diss.filt)	2.58	ug/l	Y	S	
			N/A	Hardness, Total as CaCO3 unfiltered	29,4	mg/l	Y	S	
			N/A	tron (diss.fit)	1.47	mg/l	Y	S	
			N/A	Lead (diss,fift)	0,315	ug/l	Y	S	
			N/A	Mercury (diss.fit)	<0.01	սքվ	Y	S	
			N/A	Nickel (diss.fit)	0.913	սը/Ո	Y	S	
			SAM004	pH	7.70	Units	Y		
			SAM001	Suspended Solids	5	mg/l	Y		
			N/A	TPH / Oil & Greases	<1	mg/l	Y	S	
			N/A	Zinc (tot.unfit)	7,49	Ngu	Υ	S	
	Sample Matrix	t: Gurface Water	Analyst Commen	t					
020489	DCS3	28/05/2015	N/A	Arsenic (tot.unfilt)	7.77	ug/l	Y	s	
_			SAM018	BOD	1.22	mg/l	Ÿ		\$
			N/A	Cadmium (disa.fit)	<0.1	ug/l	Ÿ	s	
			N/A	Chromium (diss.filt)	1.8	ug/l	Ý	s	
			N/A	Chromium, Hexavalent	<30	ug/l	Y	S	
			N/A	Chromium, Trivalent	<30	ug/l	N	s	
			N/A	Copper (diss.filt)	5.58	ug/l	Υ	s	
			N/A	Hardness, Total as CaCO3 unfiltered	65.1	mg/l	Υ	S	
			N/A	Iron (diss.fit)	1.03	mg/1	Υ	s	
			, ,,,,						
			N/A	Lead (diss.fill)	0.187	ug/I	Ÿ	\$	
				-		•		S S	
			N/A	Lead (diss.fill)	0.187	ug/ī	Y		
			N/A N/A	Lead (diss.fill) Mercury (diss.fil)	0.187 <0.01	ug/I Ug/I	Y	S	
			N/A N/A N/A	Lead (diss.fit) Mercury (diss.fit) Nickel (diss.fit)	0.187 <0.01 2.12	ug/I ug/I	Y Y Y	S	
			N/A N/A N/A SAM004	Lead (diss.filt) Mercury (diss.filt) Nickel (diss.filt) pH	0.187 <0.01 2.12 7.76	ug/l ug/l ug/l Units	Y Y Y	S	

Sami	ole Dev	ations Legend	- 20
Results may be compre	omised	If the following deviations apply	
Comment	C	Incorrect Container	1
Container with Headspace provided	8	Insufficient sample volume	¢
800 Overdikted, therefore result indicative only	\$	BOD Underdiluted, therefore result indicative only	#
High Chloride concentration, COD could not be	6	Holding time exceeded due to sampled on date	Q
Holding time exceeded in Lab	+	Holding time exceeded due to delayed instructions	8

Page: 1 of 2 **Test Certificate Analytical Services** Certificate: Issue No: Jöb No ORD-06135 Sample Receipt Date 28/05/2015 Date Analysis Started 28/05/2015 Completion Date 08/06/2015 Turnaround Time 7 No of Samples 2 Purchase Order Number PO1856 Quote Number ECA-01585 Dear Analysis of your sample(s) is now complete and we have pleasure in enclosing the appropriate test report. All analysis was completed within Analytical Laboratory unless otherwise specified. Any analysis Approved Laboratory is indicated by 'S'. Please refer to the table at the end that was subcontracted to a of your test certificate for explanations of sample deviations.

Lab Technician



Analytical Services

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Issue No:	
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∍	No:			2

	Sample Details	Sample Date	Method No.	Test	Result	Units	ACC	Lab	Sample Deviations
020468	DCS2a	28/05/2015	N/A	Arsenic (tot.unfilt)	16	ug/l	Υ	S	
			SAM018	BOD	1.71	mg/l	Ý		8
			N/A	Cadmium (diss.fit)	<0.1	ug/l	Y	S	5.70
			N/A	Chromium Dissolved (W)	2.13	ug/l	Y	S	
			N/A	Chromium, Hexavalent	<30	ug/l	Y	S	
			N/A	Chromium, Trivalent	<30	ug/l	N	5	
			N/A	Copper (diss.filt)	9.39	ug/l	Y	S	
			N/A	Hardness, Total as CaCO3	140	mg/l	Y	S	
			N/A	fron (diss.filt)	< 0.019	mg/l	Y	s	
			N/A	Lead (diss.filt)	<0.02	ug/l	Y	s	
			N/A	Mercury (diss.fit)	<0.01	up/l	Y	5	
			N/A	Nickel (diss.fit)	5.22	ug/l	Y	s	
			SAM004	pH	8,29	Units	Y		
			\$AM001	Suspended Solids	23	mg/l	Y		
			N/A	TPH / Oil & Greases	<1	mg/l	Y	S	
			N/A	Zinc (tot.unfit)	17.8	ug/I	Y	s	
	Sample Matrix	t: Surface Water	Analyst Commen	t:					
020467	Sample Matrix DCS2b	t: Surface Water 26/05/2015	Analyst Commen		13.7	un/l	v	e	
020467	-			Arsenic (tot.untit)	13.7	ug/l	Y	s	
020467	-		N/A	Arsenic (tot.unfit) BOD	1.49	mg/l	Y		
020467	-		N/A SAM018	Arsenic (tot.unfilt) BOD Cadmium (diss.filt)	1.49 <0.1	mg/l ug/l	Y	S	\$
020467	-		N/A SAM018 N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W)	1.49 <0.1 2.01	mg/l ug/l ug/l	Y Y Y	s s	\$
020467	-		N/A SAM016 N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent	1.49 <0.1 2.01 <30	ng/l ug/l ug/l	Y Y Y	s s	s :
020467	-		N/A SAM016 N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent Chromium, Trivalent	1,49 <0.1 2.01 <30 <30	Ngu Ngu Ngu Ngm	Y Y Y N	s s s	\$ (
020467	-		N/A SAM016 N/A N/A N/A	Arsenic (tot.unfilt) BOD Cadmium (diss.filt) Chromium Dissolved (W) Chromium, Hexavelent Chromium, Trivalent Copper (diss.filt)	1.49 <0.1 2.01 <30 <30 8.77	Ngu Ngu Ngu Ngu Ngu	Y Y Y N Y	១១១១១	\$
020467	-		N/A SAMO18 N/A N/A N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Hexavalent Chromium, Trivalent Copper (diss.fit) Hardness, Total as CaCO3	1.49 <0.1 2.01 <30 <30 8.77	Ngm Ngu Ngu Ngu Ngu Ngu	Y Y Y N Y	5 5 5 5 5 5	\$ (
020467	-		N/A SAMO18 N/A N/A N/A N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent Chromium, Trivalent Copper (diss.fit) Hardness, Total as CaCO3 Iron (diss.fit)	1.49 <0.1 2.01 <30 <30 8.77 148 <0.019	mg/l ug/l ug/l ug/l ug/l ug/l mg/l mg/l	Y Y Y N Y Y	5 5 5 5 5 5 5	**
020467	-		N/A SAM016 N/A N/A N/A N/A N/A N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent Chromium, Trivalent Copper (diss.fit) Handness, Total as CaCO3 Iron (diss.fit) Lead (diss.fit)	1.49 <0.1 2.01 <30 <30 8.77 148 <0.019	mg/l ug/l ug/l ug/l ug/l ug/l mg/l ug/l	Y Y Y N Y Y	55555555	S (
020467	-		N/A SAMO16 N/A N/A N/A N/A N/A N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent Chromium, Trivalent Copper (diss.fit) Hardness, Total as CaCO3 Iron (diss.fit) Lead (diss.fit) Mercury (diss.fit)	1.49 <0.1 2.01 <30 <30 8.77 148 <0.019 <0.02 <0.01	mg/l ug/l ug/l ug/l ug/l ug/l mg/l mg/l ug/l	Y Y Y N Y Y Y	5555555555	\$
020467	-		N/A SAMO16 N/A N/A N/A N/A N/A N/A N/A N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent Chromium, Trivalent Copper (diss.fit) Hardness, Total as CaCO3 Iron (diss.fit) Lead (diss.fit) Nickel (diss.fit)	1.49 <0.1 2.01 <30 <30 8.77 148 <0.019 <0.02 <0.01 5.09	mg/l ug/l ug/l ug/l ug/l ug/l ug/l mg/l mg/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	Y Y Y N Y Y Y	55555555	\$
020467	-		N/A SAM018 N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Hexavalent Chromium, Trivalent Copper (diss.fit) Hardness, Total as CaCO3 Iron (diss.fit) Mercury (diss.fit) Nickel (diss.fit) pH	1.49 <0.1 2.01 <30 8.77 148 <0.019 <0.02 <0.01 5.09 8.27	mg/l ug/l ug/l ug/l ug/l ug/l ug/l mg/l mg/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l u	Y Y Y N Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	5555555555	\$
020467	-		N/A SAMO18 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	Arsenic (tot.unfit) BOD Cadmium (diss.fit) Chromium Dissolved (W) Chromium, Haxavalent Chromium, Trivalent Copper (diss.fit) Hardness, Total as CaCO3 Iron (diss.fit) Lead (diss.fit) Nickel (diss.fit)	1.49 <0.1 2.01 <30 <30 8.77 148 <0.019 <0.02 <0.01 5.09	mg/l ug/l ug/l ug/l ug/l ug/l ug/l mg/l mg/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	Y Y Y N Y Y Y	5555555555	\$

Sample Matrix: Surface Water Analyst Comment:

Samp	ole Dev	ations Legend	
Results may be compre	omised	If the following deviations apply	
Comment	С	Incorrect Container	1
Container with Headspace provided	8	Insufficient sample volume	C
BOD Overdiluted, therefore result indicative only	\$	800 Underdiluted, therefore result indicative only	#
High Chloride concentration, CDD could not be	§	Holding time exceeded due to sampled on date	(
Holding time exceeded in Lab	+	Holding time exceeded due to delayed instructions	8

Appendix C
Hanna MultiParameter Meter Calibration Certificate

Certificate Number: 213529

Date of Calibration: 14th January 2015

Instrument tested

Serial Number: 08592409 Part Number: HI-9828

Description: Multiparameter Water Quality meter

Test Equipment Used

The above product has been tested against the following test equipment:

- 1. Digital Indicator with Probe, certificate serial number: BC114138 & BC121446 which has a current UKAS calibration certificate serial number: 0371236
- 2. Fluke JF23, Serial Number 63390735R which has a current UKAS calibration certificate serial number 1352570
- 3. Hanna Instruments HI-931001 pH/mV Simulator serial number S24387
- 4. A range of high precision resistor
- 5. PH4.01 Lot 6942, pH7.01 lot 7063, pH10.01 lot 7086, 1413us lot 6647

Test Results

The aforementioned instrument has been calibrated and subsequently tested at + 4.00, +7.00, +10.00pH and is certified accurate to within +/-0.05pH

The aforementioned instrument has been tested at +10°C and +40°C and is certified accurate to within ±0.5°C

The aforementioned instrument has been calibrated at 1413us and is certified accurate to ±1%

The aforementioned instrument has been calibrated to 100% dissolved oxygen and is certified accurate to ±3%

This certificate is valid only if signed by an authorised signatory as below



