

Martyn Grant  
Environmental Manager  
The Royal Mint  
Llantrisant  
Pontyclun  
CF72 8YT

Dear Martyn

## FACTUAL REPORT ON SURFACE WATER SAMPLING IN AUGUST 2018

Date 26/09/2018

Ramboll Environment & Health UK Ltd ('Ramboll') has been instructed by The Royal Mint to carry out surface water monitoring during 2018 to 2019 at its site in Llantrisant, South Wales (Ramboll Quote ref: LQ1700002116, dated 13<sup>th</sup> April 2018). This letter presents a factual report on surface water sampling from selected locations in the Nant Mychydd River, undertaken in August 2018.

### Background

Surface water monitoring during 2017/18 identified elevated concentrations of copper in the culverted stream that enters the Nant Mychydd (sampling point R7A). While the source of contamination is being addressed by The Royal Mint, Ramboll recommended that the surface water monitoring programme should be continued from selected sampling points at a reduced frequency of once every six months, or until the contamination reduces to below the respective environmental quality standards (EQS).

Natural Resources Wales (NRW) issued a Compliance Assessment Report (CAR), (Ref: KP3135KV CAR\_NRW0033153) in relation to surface and groundwater monitoring results at the site. NRW agreed that monitoring of surface water should continue at a reduced frequency of every six months.

### Surface Water Sampling

Surface water samples were collected on the 24<sup>th</sup> August 2018 from five sampling locations on the Nant Mychydd River and the culverted watercourse that passes through the site (sampling points R1, R6, R7, R7A and C1), as shown on Figure 1. Samples were analysed for a range of metals, pH, alkalinity cyanide and total petroleum hydrocarbons (TPH) at a UKAS accredited laboratory. The laboratory certificates of analysis are attached which provide

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Ref 1700002116\_01 August  
2018 SW Monitoring  
Report

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Registered Office:  
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the method of analysis for each determinand. The surface water analysis results from April 2011 to August 2018 are summarised in the attached table and are presented graphically on Figures 2, 3 and 4.

- During the August 2018 monitoring, the maximum concentration of copper (0.04mg/l) was recorded at sampling point R7A, where the culverted stream emerges from site prior to entering the Nant Mychydd. This concentration exceeds the EQS of 0.006mg/l (for hardness between 50mg/l and 100mg/l CaCO<sub>3</sub>).
- The concentration of zinc remained below the EQS at sampling points C1, R1, R6 and R7 during the most recent round of monitoring. However, a concentration of 0.104mg/l was recorded at sampling point R7A, which exceeds the EQS value of 0.05mg/l (for hardness between 50mg/l and 100mg/l CaCO<sub>3</sub>). The most recent zinc concentration in R7A is among the highest recorded at this location; higher concentrations have been recorded in May 2010 (0.113mg/l), and October 2014 (0.141mg/l) only.
- A maximum recorded concentration of nickel (0.024mg/l) was recorded at sampling point R7A, which slightly exceeds the EQS value of 0.02mg/l. Concentrations recorded at all other surface water sampling locations were below the EQS.
- Cyanide was not recorded above the laboratory limit of detection (LOD) at any of the sampling points, during the August 2018 monitoring round.
- The TPH concentrations in this monitoring round were above the laboratory limit of detection in all five sampling locations; therefore slightly exceeding the UK DWS of 0.01mg/l. Maximum TPH concentrations of 0.015mg/l were recorded at sampling points R7 and R7A. TPH concentrations are comparable to those previously recorded at each sampling location.

NRW has requested that rainfall data is collected at the time of sampling since this may influence the levels of contaminants in the receiving watercourse. In order to provide data for the August 2018 round of monitoring, weather station information for a location approximately 13km east of the site (weather station reference IMIDGLAM3) has been obtained ([www.wunderground.com](http://www.wunderground.com)).

This data is presented in Table 1 below. Rainfall data has been provided for the five days preceding the monitoring visit and compared with the daily average rainfall for 25<sup>th</sup> July to 24<sup>th</sup> August 2018 and the daily average based on data from the same period in 2006 to 2018.

| Table 1: Rainfall Data |                      |                                                                            |                                           |
|------------------------|----------------------|----------------------------------------------------------------------------|-------------------------------------------|
| Date                   | Rainfall data (mm) * | 25 <sup>th</sup> July to 24 <sup>th</sup> August 2018 daily average (mm) * | 2006 – 2018 May/June daily average (mm) * |
| 19/08/18               | 1.3                  | 3.15                                                                       | 3.52                                      |
| 20/08/18               | 0.5                  |                                                                            |                                           |
| 21/08/18               | 0.0                  |                                                                            |                                           |
| 22/08/18               | 0.5                  |                                                                            |                                           |
| 23/08/18               | 3.3                  |                                                                            |                                           |
| 24/08/18               | 1.5                  |                                                                            |                                           |

\* Data gathered from 'IMIDGLAM3' weather station in Caerphilly located 13km East of site  
([www.wunderground.com](http://www.wunderground.com)) (accessed 17/09/18)

The rainfall data indicates that rainfall in the period of 25<sup>th</sup> July to 24<sup>th</sup> August 2018 was similar to (albeit slightly lower than) the average for recent years. Relatively low amounts of rainfall had occurred in the days leading up to the sampling date, the river level was noted to be approximately average during sampling.

The next round of surface water monitoring is due to be carried out in February 2019. Please do not hesitate to contact me if there is anything you wish to discuss.

Yours sincerely



Lucy Cleverley  
Managing Consultant  
Site Solutions

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Encl.                    Appendix 1, Laboratory Test Report  
                              Appendix 2, Results Summary Table  
                              Appendix 3, Figures and Graphs

## Appendix 1

### Laboratory Test Report

Our Ref: EXR/268718 (Ver. 3)

Your Ref: 1700002116

September 25, 2018



Environmental Chemistry

SOCOTEC UK Limited

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Rob Hodgson  
Ramboll Environ  
8 Village Way  
Cardiff  
CF15 7NE

For the attention of Rob Hodgson

Dear Rob Hodgson

**Sample Analysis - Royal Mint SW/GW Monitoring**

Samples from the above site have been analysed in accordance with the schedule supplied.

The sample details and the results of analyses for these samples are given in the appended report.

An invoice for this work will follow under a separate cover.

Please be aware that our policy for the retention of paper based laboratory records and analysis reports is 6 years.

The work was carried out in accordance with SOCOTEC UK Limited (Multi-Sector Services) Standard Terms and Conditions of Contract.

If I can be of any further assistance please do not hesitate to contact me.

Yours sincerely

for SOCOTEC UK Limited

A handwritten signature in dark ink, appearing to read 'S. Akhtar', written over a light blue horizontal line.

S Akhtar

Project Co-ordinator

01283 554458

# TEST REPORT



Report No. EXR/268718 (Ver. 3)

Ramboll Environ  
8 Village Way  
Cardiff  
CF15 7NE

**Site: Royal Mint SW/GW Monitoring**

The 5 samples described in this report were registered for analysis by SOCOTEC UK Limited on 29-Aug-2018. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 25-Sep-2018

Tests where the accreditation is set to N or No, and any individual data items marked with a \* are not UKAS accredited. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 3)  
Analytical and Deviating Sample Overview (Pages 4 to 5)  
Table of Method Descriptions (Page 6)  
Table of Report Notes (Page 7)  
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of  
SOCOTEC UK Lim  
Tim Barnes

A handwritten signature in black ink, appearing to read 'Tim Barnes'.

Operations Director  
Energy & Waste Services

Date of Issue: 25-Sep-2018

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

| Units :<br>Method Codes :<br>Method Reporting Limits :<br>UKAS Accredited :                                                                                                                                                                                                |                           |                 | mg/l                        | mg/l                      | mg/l                      | mg/l                       | mg/l                     | mg/l                   | mg/l                      | mg/l                     | mg/l                       | mg/l                      | mg/l                   | mg/l                          | mg/l                     | mg/l                        | mg/l                          | mg/l                  |        |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------|-----------------------------|---------------------------|---------------------------|----------------------------|--------------------------|------------------------|---------------------------|--------------------------|----------------------------|---------------------------|------------------------|-------------------------------|--------------------------|-----------------------------|-------------------------------|-----------------------|--------|------|
|                                                                                                                                                                                                                                                                            |                           |                 | Calc_HD                     | ICPMSW                    | ICPMSW                    | ICPMSW                     | ICPMSW                   | ICPMSW                 | ICPMSW                    | ICPMSW                   | ICPMSW                     | ICPMSW                    | ICPMSW                 | ICPMSW                        | ICPMSW                   | ICPMSW                      | ICPMSW                        | ICPMSW                | ICPMSW |      |
|                                                                                                                                                                                                                                                                            |                           |                 | 7                           | 0.001                     | 0.0001                    | 0.001                      | 0.001                    | 0.001                  | 0.001                     | 0.0001                   | 0.001                      | 0.001                     | 0.001                  | 0.001                         | 0.002                    | 0.01                        | 0.01                          | 1                     | 1      | 0.02 |
|                                                                                                                                                                                                                                                                            |                           |                 | Yes                         | Yes                       | Yes                       | Yes                        | Yes                      | Yes                    | Yes                       | Yes                      | Yes                        | Yes                       | Yes                    | Yes                           | Yes                      | No                          | Yes                           | Yes                   | Yes    | Yes  |
| LAB ID Number EX/                                                                                                                                                                                                                                                          | Client Sample Description | Sample Date     | Total Hardness as CaCO3     | Arsenic as As (Dissolved) | Cadmium as Cd (Dissolved) | Chromium as Cr (Dissolved) | Copper as Cu (Dissolved) | Lead as Pb (Dissolved) | Mercury as Hg (Dissolved) | Nickel as Ni (Dissolved) | Selenium as Se (Dissolved) | Vanadium as V (Dissolved) | Zinc as Zn (Dissolved) | Beryllium as Be (Dissolved) a | Boron as B (Dissolved) a | Calcium as Ca (Dissolved) a | Magnesium as Mg (Dissolved) a | Cyanide (Total) as CN |        |      |
| 1911799                                                                                                                                                                                                                                                                    | C1                        | 24-Aug-18 09:15 | 60                          | <0.001                    | <0.0001                   | <0.001                     | 0.005                    | <0.001                 | <0.0001                   | 0.005                    | <0.001                     | <0.001                    | 0.004                  | <0.01                         | <0.01                    | 14                          | 6                             | <0.02                 |        |      |
| 1911800                                                                                                                                                                                                                                                                    | R1                        | 24-Aug-18 09:30 | 94                          | <0.001                    | <0.0001                   | <0.001                     | <0.001                   | <0.001                 | <0.0001                   | 0.002                    | <0.001                     | <0.001                    | <0.002                 | <0.01                         | 0.02                     | 26                          | 7                             | <0.02                 |        |      |
| 1911801                                                                                                                                                                                                                                                                    | R6                        | 24-Aug-18 09:45 | 103                         | <0.001                    | <0.0001                   | <0.001                     | <0.001                   | <0.001                 | <0.0001                   | 0.002                    | <0.001                     | <0.001                    | 0.004                  | <0.01                         | 0.01                     | 28                          | 8                             | <0.02                 |        |      |
| 1911802                                                                                                                                                                                                                                                                    | R7                        | 24-Aug-18 10:00 | 94                          | <0.001                    | <0.0001                   | <0.001                     | 0.003                    | <0.001                 | <0.0001                   | 0.003                    | <0.001                     | <0.001                    | 0.007                  | <0.01                         | 0.01                     | 26                          | 7                             | <0.02                 |        |      |
| 1911803                                                                                                                                                                                                                                                                    | R7A                       | 24-Aug-18 10:15 | 80                          | <0.001                    | <0.0001                   | <0.001                     | 0.04                     | <0.001                 | <0.0001                   | 0.024                    | <0.001                     | <0.001                    | 0.104                  | <0.01                         | 0.02                     | 22                          | 6                             | <0.02                 |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |
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|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |
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| <div><div>SOCOTEC</div><div>Bretby Business Park, Ashby Road<br/>Burton-on-Trent, Staffordshire, DE15 0YZ<br/><br/>Tel +44 (0) 1283 554400<br/><br/>Fax +44 (0) 1283 554422</div></div> |                           |                 | Client Name                 | Ramboll Environ           |                           |                            |                          |                        |                           |                          |                            | Sample Analysis           |                        |                               |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 | Contact                     | Rob Hodgson               |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 | Royal Mint SW/GW Monitoring |                           |                           |                            |                          |                        |                           |                          |                            |                           | Date Printed           | 25-Sep-2018                   |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           | Report Number          | EXR/268718                    |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           | Table Number           | 1                             |                          |                             |                               |                       |        |      |
|                                                                                                                                                                                                                                                                            |                           |                 |                             |                           |                           |                            |                          |                        |                           |                          |                            |                           |                        |                               |                          |                             |                               |                       |        |      |

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**Client Name**

**Contact**

# Ramboll Environ

Rob Hodgson

# Royal Mint SW/GW Monitoring

## Sample Analysis

|                      |                    |
|----------------------|--------------------|
| <b>Date Printed</b>  | <b>25-Sep-2018</b> |
| <b>Report Number</b> | <b>EXR/268718</b>  |
| <b>Table Number</b>  | <b>1</b>           |

|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|-----------------------------------------------------------------------------|---------------------------|-------------|--------|-----------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------|-----------------------------|----|-----------------|--|--|--|--------------|--|-----------------|--|--|--|--|--|
| Units :<br>Method Codes :<br>Method Reporting Limits :<br>UKAS Accredited : |                           |             | mg/l   | mg/l                        | pH units   |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             | TPHFID | WSLM12                      | WSLM3      |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             | 0.01   |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             | Yes    | Yes                         | Yes        |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
| LAB ID Number EX/                                                           | Client Sample Description | Sample Date | TPH GC | Total Alkalinity as CaCO3 w | pH units w |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            | 1911799                                                                                                                                                                                                                                                                     | C1  | 24-Aug-18 09:15 | 0.011                       | 26 | 6.8             |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            | 1911800                                                                                                                                                                                                                                                                     | R1  | 24-Aug-18 09:30 | 0.012                       | 55 | 7.2             |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            | 1911801                                                                                                                                                                                                                                                                     | R6  | 24-Aug-18 09:45 | 0.013                       | 54 | 7.2             |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            | 1911802                                                                                                                                                                                                                                                                     | R7  | 24-Aug-18 10:00 | 0.015                       | 57 | 7.2             |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            | 1911803                                                                                                                                                                                                                                                                     | R7A | 24-Aug-18 10:15 | 0.015                       | 41 | 7               |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            | <div>SOCOTEC</div> <div>Bretby Business Park, Ashby Road</div> <div>Burton-on-Trent, Staffordshire, DE15 0YZ</div> <div>Tel +44 (0) 1283 554400</div> <div>Fax +44 (0) 1283 554422</div> |     |                 | Client Name                 |    | Ramboll Environ |  |  |  |              |  | Sample Analysis |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 | Contact                     |    | Rob Hodgson     |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 | Royal Mint SW/GW Monitoring |    |                 |  |  |  | Date Printed |  | 25-Sep-2018     |  |  |  |  |  |
| Report Number                                                               |                           | EXR/268718  |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
| Table Number                                                                |                           | 1           |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |
|                                                                             |                           |             |        |                             |            |                                                                                                                                                                                                                                                                             |     |                 |                             |    |                 |  |  |  |              |  |                 |  |  |  |  |  |

Customer  
Site  
Report No

Ramboll Environ  
Royal Mint SW/GW Monitoring  
W268718

Consignment No W142440  
Date Logged 29-Aug-2018  
In-House Report Due 18-Sep-2018

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

| ID Number | Description | Matrix Type | MethodID | Calc_HD | CUSTSERV | ICPMSW | ICPMATVAR | TPHFID                    | SFAPI                           | TPH GC                     |                                 |                               |                              |                               |                              |                              |                           |                           |                             |                              |                               |                             |          |                                |         |                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|           |             |             |          |         |          |        |           | Cyanide (Total) as CN SFA | Beryllium as Be (Dissolved) VAR | Boron as B (Dissolved) VAR | Magnesium as Mg (Dissolved) VAR | Calcium as Ca (Dissolved) VAR | Vanadium as V MS (Dissolved) | Selenium as Se MS (Dissolved) | Mercury as Hg MS (Dissolved) | Arsenic as As MS (Dissolved) | Zinc as Zn MS (Dissolved) | Lead as Pb MS (Dissolved) | Copper as Cu MS (Dissolved) | Cadmium as Cd MS (Dissolved) | Chromium as Cr MS (Dissolved) | Nickel as Ni MS (Dissolved) | Report A | Total Hardness as CaCO3 (CALC) | Sampled | Accredited to ISO17025 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|           |             |             |          |         |          |        |           |                           |                                 |                            |                                 |                               |                              |                               |                              |                              |                           |                           |                             |                              |                               |                             |          |                                |         |                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.**

**If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.**

| Deviating Sample Key   |                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------|
| A                      | The sample was received in an inappropriate container for this analysis                            |
| B                      | The sample was received without the correct preservation for this analysis                         |
| C                      | Headspace present in the sample container                                                          |
| D                      | The sampling date was not supplied so holding time may be compromised - applicable to all analysis |
| E                      | Sample processing did not commence within the appropriate holding time                             |
| F                      | Sample processing did not commence within the appropriate handling time                            |
| Requested Analysis Key |                                                                                                    |
|                        | Analysis Required                                                                                  |
|                        | Analysis dependant upon trigger result - <b>Note: due date may be affected if triggered</b>        |
|                        | No analysis scheduled                                                                              |
| ^                      | Analysis Subcontracted - <b>Note: due date may vary</b>                                            |

The integrity of data for samples/analysis that have been categorised as Deviating may be compromised. Data may not be representative of the sample at the time of sampling. Where individual results are flagged see report notes for status.

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

| ID Number                          | Description | MethodID      |          | WSLM12                    | WSLM3    |
|------------------------------------|-------------|---------------|----------|---------------------------|----------|
|                                    |             | Matrix Type   | Sampled  | Total Alkalinity as CaCO3 | pH units |
| Test Method Accredited to ISO17025 |             |               |          | •                         | •        |
| EX/1911799                         | C1          | Surface Water | 24/08/18 |                           |          |
| EX/1911800                         | R1          | Surface Water | 24/08/18 |                           |          |
| EX/1911801                         | R6          | Surface Water | 24/08/18 |                           |          |
| EX/1911802                         | R7          | Surface Water | 24/08/18 |                           |          |
| EX/1911803                         | R7A         | Surface Water | 24/08/18 |                           |          |

**Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.**

**If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.**

| Deviating Sample Key   |                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------|
| A                      | The sample was received in an inappropriate container for this analysis                            |
| B                      | The sample was received without the correct preservation for this analysis                         |
| C                      | Headspace present in the sample container                                                          |
| D                      | The sampling date was not supplied so holding time may be compromised - applicable to all analysis |
| E                      | Sample processing did not commence within the appropriate holding time                             |
| F                      | Sample processing did not commence within the appropriate handling time                            |
| Requested Analysis Key |                                                                                                    |
|                        | Analysis Required                                                                                  |
|                        | Analysis dependant upon trigger result - <b>Note: due date may be affected if triggered</b>        |
|                        | No analysis scheduled                                                                              |
| ^                      | Analysis Subcontracted - <b>Note: due date may vary</b>                                            |

The integrity of data for samples/analysis that have been categorised as Deviating may be compromised. Data may not be representative of the sample at the time of sampling.  
Where individual results are flagged see report notes for status.

# Method Descriptions

| Matrix | MethodID  | Analysis Basis | Method Description                                                        |
|--------|-----------|----------------|---------------------------------------------------------------------------|
| Water  | Calc_HD   | As Received    | Calculation based on Dissolved metals analysis by ICPOES                  |
| Water  | ICPMSW    | As Received    | Direct quantitative determination of Metals in water samples using ICPMS  |
| Water  | ICPWATVAR | As Received    | Direct determination of Metals and Sulphate in water samples using ICPOES |
| Water  | SFAPI     | As Received    | Segmented flow analysis with colorimetric detection                       |
| Water  | TPHFID    | As Received    | Determination of pentane extractable hydrocarbons in water by GCFID       |
| Water  | WSLM12    | As Received    | Titration with Sulphuric Acid to required pH                              |
| Water  | WSLM3     | As Received    | Determination of the pH of water samples by pH probe                      |

Where individual results are flagged see report notes for status.

# Report Notes

## Generic Notes

### Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.  
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

### Waters Analysis

Unless stated otherwise results are expressed as mg/l

**Nil:** Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

### Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm<sup>3</sup> @ 15°C

### Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

### Asbestos Analysis

**CH** Denotes Chrysotile

**TR** Denotes Tremolite

**CR** Denotes Crocidolite

**AC** Denotes Actinolite

**AM** Denotes Amosite

**AN** Denotes Anthophyllite

**NAIIS** No Asbestos Identified in Sample

**NADIS** No Asbestos Detected In Sample

## Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

\* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

**Note:** The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

## Sample Descriptions

**Client :** Ramboll Environ  
**Site :** Royal Mint SW/GW Monitoring  
**Report Number :** W26\_8718

## Appendix 2

### Results Summary table

## 1700002116 Surface Water Monitoring 2018/19 - Summary of Results

|              |        | Analysis |            |                           |                         |                           |                          |                         |                       |                       |                          |                        |                          |                           |                           |                        |            |  |
|--------------|--------|----------|------------|---------------------------|-------------------------|---------------------------|--------------------------|-------------------------|-----------------------|-----------------------|--------------------------|------------------------|--------------------------|---------------------------|---------------------------|------------------------|------------|--|
| Sample Point | Date   | pH       | CaCO3 mg/l | Sulphate (dissolved) mg/l | Nickel (dissolved) mg/l | Chromium (dissolved) mg/l | Cadmium (dissolved) mg/l | Copper (dissolved) mg/l | Lead (dissolved) mg/l | Zinc (dissolved) mg/l | Arsenic (dissolved) mg/l | Boron (dissolved) mg/l | Mercury (dissolved) mg/l | Selenium (dissolved) mg/l | Vanadium (dissolved) mg/l | Cyanide (total) (mg/l) | TPH (mg/l) |  |
| R1           | Jan-10 | 7.5      | NT         | 9                         | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | 0.005                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.002                    | <0.02                  | 0.06       |  |
|              | May-10 | 7.9      | NT         | 9                         | 0.001                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.002                    | 0.03                   | <0.01      |  |
|              | Jun-10 | 7.5      | NT         | 13                        | 0.001                   | 0.002                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.002                    | <0.02                  | <0.01      |  |
|              | Aug-10 | 7.5      | NT         | 21                        | 0.001                   | 0.002                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.01       |  |
|              | Oct-10 | 7.7      | NT         | 10                        | <0.001                  | 0.001                     | <0.0001                  | 0.001                   | <0.001                | <0.002                | <0.001                   | 0.02                   | <0.0001                  | 0.002                     | <0.001                    | <0.02                  | 0.01       |  |
|              | Dec-10 | 7.6      | NT         | 12                        | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Apr-11 | 7.4      | 56         | NT                        | 0.001                   | 0.001                     | <0.0001                  | 0.002                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.03      |  |
|              | May-11 | 7.6      | 21         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.41                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |  |
|              | Jul-11 | 8        | 61         | NT                        | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.0001                    | <0.02                  | 0.02       |  |
|              | Sep-11 | 7.5      | 64         | NT                        | 0.001                   | 0.003                     | <0.0001                  | <0.001                  | <0.001                | 0.009                 | <0.001                   | 0.06                   | <0.0001                  | 0.001                     | <0.001                    | <0.02                  | 0.02       |  |
|              | Nov-11 | 8.6      | 61         | NT                        | 0.001                   | 0.002                     | <0.0001                  | 0.001                   | <0.001                | 0.003                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.01       |  |
|              | Jan-12 | 8.1      | 52         | NT                        | 0.001                   | 0.005                     | <0.0001                  | 0.001                   | <0.001                | 0.005                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | 0.002                     | <0.02                  | 0.01       |  |
|              | Mar-12 | 8.2      | 51         | NT                        | 0.001                   | 0.002                     | <0.0001                  | 0.002                   | <0.001                | 0.006                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | <0.01      |  |
|              | May-12 | 8        | 39         | NT                        | 0.001                   | 0.001                     | <0.0001                  | 0.002                   | <0.001                | 0.009                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.016      |  |
|              | Jul-12 | 7.7      | 45         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                   | <0.001                | 0.009                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |  |
|              | Sep-12 | 7.8      | 47         | NT                        | 0.001                   | 0.001                     | <0.0001                  | 0.002                   | <0.001                | 0.006                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Nov-12 | 7.8      | 53         | NT                        | 0.001                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.006                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |  |
|              | Jan-13 | 7.5      | 58         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.005                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |  |
|              | Apr-13 | 7.7      | 46         | NT                        | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |  |
|              | May-13 | 8        | 62         | NT                        | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Jul-13 | 7.6      | 68         | NT                        | 0.001                   | 0.001                     | <0.0001                  | 0.003                   | <0.001                | 0.005                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.105      |  |
|              | Oct-13 | 7.2      | 55         | NT                        | 0.001                   | 0.001                     | <0.0001                  | 0.001                   | <0.001                | 0.006                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | <0.01      |  |
|              | Nov-13 | 7.7      | 62         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Jan-14 | 7.2      | 36         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |  |
|              | Jun-14 | 6.9      | 60         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |  |
|              | Oct-14 | 8.1      | 50         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.002                   | <0.001                | 0.008                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |  |
|              | Feb-15 | 7.4      | 53         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Jun-15 | 7.4      | 38         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Oct-15 | 7.4      | 68         | NT                        | 0.003                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.006                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Feb-16 | 6.8      | 45         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | 0.02                   | 0.06       |  |
|              | Jun-16 | 7.1      | 60         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.003                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | 0.04                   | 0.01       |  |
|              | Oct-16 | 7.4      | 66         | NT                        | 0.001                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |  |
|              | Feb-17 | 6.6      | 59         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |  |
|              | Jun-17 | 6.4      | 56         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Oct-17 | 7.0      | 66         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Feb-18 | 7.2      | 61         | NT                        | <0.01                   | <0.01                     | <0.001                   | <0.01                   | <0.01                 | <0.02                 | <0.01                    | <0.01                  | <0.001                   | <0.01                     | <0.01                     | <0.02                  | 0.01       |  |
|              | Aug-18 | 7.2      | 94         | NT                        | 0.002                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.012      |  |
| R6           | Jan-10 | 7.5      | NT         | 9                         | 0.001                   | 0.001                     | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | <0.01                  | 0.0001                   | <0.001                    | <0.002                    | <0.02                  | 0.64       |  |
|              | May-10 | 7.6      | NT         | 10                        | 0.002                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.002                    | 0.24                   | <0.01      |  |
|              | Jun-10 | 7.5      | NT         | 14                        | 0.002                   | 0.002                     | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.002                    | <0.02                  | <0.01      |  |
|              | Aug-10 | 7.7      | NT         | 22                        | 0.001                   | 0.001                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |  |
|              | Oct-10 | 7.7      | NT         | 11                        | 0.001                   | 0.001                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Dec-10 | 7.4      | NT         | 11                        | 0.001                   | 0.001                     | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |  |
|              | Apr-11 | 7.4      | 52         | NT                        | 0.002                   | 0.001                     | <0.0001                  | 0.002                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.04       |  |
|              | May-11 | 7.4      | 23         | NT                        | 0.001                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | 0.39                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.04       |  |
|              | Jul-11 | 7.2      | 71         | NT                        | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |  |
|              | Sep-11 | 7.7      | 64         | NT                        | 0.001                   | 0.001                     | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | 0.04                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |  |
|              | Nov-11 | 7.7      | 61         | NT                        | 0.002                   | 0.002                     | <0.0001                  | 0.002                   | <0.001                | 0.003                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.002                     | <0.02                  | 0.02       |  |
|              | Jan-12 | 8        | 57         | NT                        | 0.002                   | 0.003                     | <0.0001                  | 0.002                   | <0.001                | 0.008                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | 0.002                     | <0.02                  | 0.02       |  |
|              | Mar-12 | 8.2      | 57         | NT                        | 0.001                   | 0.002                     | <0.0001                  | <0.001                  | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |  |

|              |        | Analysis |            |                           |                         |                           |                          |                         |                       |                       |                          |                        |                          |                           |                           |                        |            |
|--------------|--------|----------|------------|---------------------------|-------------------------|---------------------------|--------------------------|-------------------------|-----------------------|-----------------------|--------------------------|------------------------|--------------------------|---------------------------|---------------------------|------------------------|------------|
| Sample Point | Date   | pH       | CaCO3 mg/l | Sulphate (dissolved) mg/l | Nickel (dissolved) mg/l | Chromium (dissolved) mg/l | Cadmium (dissolved) mg/l | Copper (dissolved) mg/l | Lead (dissolved) mg/l | Zinc (dissolved) mg/l | Arsenic (dissolved) mg/l | Boron (dissolved) mg/l | Mercury (dissolved) mg/l | Selenium (dissolved) mg/l | Vanadium (dissolved) mg/l | Cyanide (total) (mg/l) | TPH (mg/l) |
| R6 Cont.     | May-12 | 7.9      | 50         | NT                        | 0.001                   | 0.002                     | <0.0001                  | 0.002                   | <0.001                | 0.014                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.016      |
|              | Jul-12 | 7.7      | 56         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.005                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Sep-12 | 7.9      | 53         | NT                        | 0.001                   | 0.001                     | <0.0001                  | 0.001                   | <0.001                | <0.002                | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Nov-12 | 7.9      | 64         | NT                        | 0.001                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Jan-13 | 7.6      | 65         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.025                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |
|              | Apr-13 | 7.8      | 51         | NT                        | <0.001                  | 0.007                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | May-13 | 8        | 74         | NT                        | <0.001                  | 0.001                     | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Jul-13 | 7.6      | 74         | NT                        | 0.002                   | 0.001                     | <0.0001                  | 0.001                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.019      |
|              | Oct-13 | 7.3      | 52         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.008                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Nov-13 | 7.7      | 77         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Jan-14 | 7.5      | 42         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jun-14 | 6.9      | 50         | NT                        | 0.002                   | <0.001                    | 0.0001                   | 0.003                   | <0.001                | 0.018                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.04       |
|              | Oct-14 | 8.1      | 34         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.004                   | <0.001                | 0.087                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.15       |
|              | Feb-15 | 7.3      | 53         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Jun-15 | 7.4      | 40         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Oct-15 | 7.5      | 76         | NT                        | 0.002                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.13       |
|              | Feb-16 | 6.5      | 42         | NT                        | 0.001                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.006                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |
|              | Jun-16 | 7.2      | 64         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Oct-16 | 7.2      | 69         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.005                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Feb-17 | 6.7      | 64         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jun-17 | 6.6      | 59         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.011                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.04       |
|              | Oct-17 | 7.1      | 68         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Feb-18 | 7.1      | 71         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.05       |
|              | Aug-18 | 7.2      | 103        | NT                        | 0.002                   | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.004                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.013      |
| R7           | Jan-10 | 7.7      | NT         | 7                         | 0.005                   | 0.003                     | <0.0001                  | 0.01                    | <0.001                | 0.009                 | <0.001                   | 0.01                   | 0.0001                   | <0.001                    | <0.002                    | <0.02                  | <0.01      |
|              | May-10 | 8        | NT         | 14                        | 0.019                   | <0.001                    | <0.0001                  | 0.039                   | <0.001                | 0.097                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.002                    | 0.05                   | <0.01      |
|              | Jun-10 | 7.5      | NT         | 18                        | 0.013                   | 0.002                     | <0.0001                  | 0.028                   | <0.001                | 0.071                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.002                    | <0.02                  | <0.01      |
|              | Aug-10 | 7.8      | NT         | 29                        | 0.008                   | 0.001                     | <0.0001                  | 0.011                   | <0.001                | 0.017                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | <0.01      |
|              | Oct-10 | 7.7      | NT         | 20                        | 0.004                   | 0.001                     | <0.0001                  | 0.007                   | <0.001                | 0.009                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Dec-10 | 7.4      | NT         | 12                        | 0.004                   | 0.001                     | <0.0001                  | 0.008                   | <0.001                | 0.012                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Apr-11 | 7.5      | 47         | NT                        | 0.017                   | 0.001                     | <0.0001                  | 0.039                   | <0.001                | 0.037                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.03      |
|              | May-11 | 7.7      | 29         | NT                        | 0.011                   | <0.001                    | <0.0001                  | 0.023                   | <0.001                | 0.038                 | <0.001                   | 0.39                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |
|              | Jul-11 | 7.4      | 61         | NT                        | 0.003                   | 0.001                     | <0.0001                  | 0.007                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |
|              | Sep-11 | 7.7      | 50         | NT                        | 0.019                   | 0.001                     | <0.0001                  | 0.017                   | <0.001                | 0.012                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Nov-11 | 7.7      | 59         | NT                        | 0.009                   | 0.002                     | <0.0001                  | 0.009                   | <0.001                | 0.008                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |
|              | Jan-12 | 8        | 52         | NT                        | 0.001                   | 0.003                     | <0.0001                  | <0.001                  | <0.001                | 0.005                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | 0.002                     | <0.02                  | 0.01       |
|              | Mar-12 | 8.1      | 37         | NT                        | 0.006                   | 0.001                     | <0.0001                  | 0.009                   | <0.001                | 0.009                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | <0.01      |
|              | May-12 | 7.9      | 46         | NT                        | 0.002                   | 0.001                     | <0.0001                  | 0.003                   | <0.001                | 0.006                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.022      |
|              | Jul-12 | 7.7      | 38         | NT                        | 0.008                   | <0.001                    | <0.0001                  | 0.013                   | <0.001                | 0.016                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Sep-12 | 7.9      | 54         | NT                        | 0.002                   | 0.001                     | <0.0001                  | 0.001                   | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Nov-12 | 7.8      | 51         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.003                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Jan-13 | 7.6      | 49         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.01                    | <0.001                | 0.023                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.02       |
|              | Apr-13 | 7.8      | 48         | NT                        | 0.002                   | 0.001                     | <0.0001                  | 0.004                   | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | May-13 | 8.1      | 54         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.007                   | <0.001                | 0.007                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jul-13 | 7.6      | 72         | NT                        | 0.002                   | 0.002                     | <0.0001                  | 0.003                   | <0.001                | 0.005                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.031      |
|              | Oct-13 | 7.3      | 57         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.002                   | <0.001                | 0.005                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Nov-13 | 7.7      | 69         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.004                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jan-14 | 7.4      | 36         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jun-14 | 7        | 55         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.003                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |
|              | Oct-14 | 8.1      | 33         | NT                        | 0.012                   | 0.001                     | <0.0001                  | 0.043                   | 0.002                 | 0.093                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 1.04       |
|              | Feb-15 | 7.3      | 49         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.004                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |

|              |        | Analysis |            |                           |                         |                           |                          |                         |                       |                       |                          |                        |                          |                           |                           |                        |            |
|--------------|--------|----------|------------|---------------------------|-------------------------|---------------------------|--------------------------|-------------------------|-----------------------|-----------------------|--------------------------|------------------------|--------------------------|---------------------------|---------------------------|------------------------|------------|
| Sample Point | Date   | pH       | CaCO3 mg/l | Sulphate (dissolved) mg/l | Nickel (dissolved) mg/l | Chromium (dissolved) mg/l | Cadmium (dissolved) mg/l | Copper (dissolved) mg/l | Lead (dissolved) mg/l | Zinc (dissolved) mg/l | Arsenic (dissolved) mg/l | Boron (dissolved) mg/l | Mercury (dissolved) mg/l | Selenium (dissolved) mg/l | Vanadium (dissolved) mg/l | Cyanide (total) (mg/l) | TPH (mg/l) |
| R7 Cont.     | Jun-15 | 7.4      | 44         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.003                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Oct-15 | 7.7      | 68         | NT                        | 0.01                    | <0.001                    | <0.0001                  | 0.004                   | <0.001                | 0.027                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Feb-16 | 6.5      | 42         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.003                   | <0.001                | 0.008                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | 0.02                   | 0.06       |
|              | Jun-16 | 7.2      | 59         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.003                   | <0.001                | 0.004                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.04       |
|              | Oct-16 | 7.4      | 62         | NT                        | 0.004                   | <0.001                    | <0.0001                  | 0.007                   | <0.001                | 0.03                  | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Feb-17 | 6.6      | 61         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | 0.002                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | 0.04                   | 0.01       |
|              | Jun-17 | 6.4      | 59         | NT                        | <0.001                  | <0.001                    | <0.0001                  | 0.001                   | <0.001                | 0.007                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Oct-17 | 7.1      | 59         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.002                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Feb-18 | 7.2      | 64         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                  | <0.001                | <0.002                | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |
|              | Aug-18 | 7.2      | 94         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.003                   | <0.001                | 0.007                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.015      |
| R7A          | Jan-10 | 7.8      | NT         | 7                         | 0.004                   | 0.001                     | <0.0001                  | 0.009                   | <0.001                | 0.009                 | <0.001                   | <0.01                  | 0.0001                   | <0.001                    | <0.002                    | <0.02                  | 0.25       |
|              | May-10 | 8.1      | NT         | 14                        | 0.021                   | <0.001                    | <0.0001                  | 0.041                   | <0.001                | 0.113                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.002                    | 0.03                   | 0.02       |
|              | Jun-10 | 7.5      | NT         | 16                        | 0.013                   | 0.002                     | <0.0001                  | 0.027                   | <0.001                | 0.085                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.002                    | <0.02                  | <0.01      |
|              | Aug-10 | 7.8      | NT         | 32                        | 0.013                   | 0.001                     | <0.0001                  | 0.017                   | <0.001                | 0.04                  | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Oct-10 | 7.7      | NT         | 19                        | 0.004                   | 0.001                     | <0.0001                  | 0.007                   | <0.001                | 0.009                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Dec-10 | 7.5      | NT         | 15                        | 0.008                   | 0.001                     | <0.0001                  | 0.015                   | <0.001                | 0.033                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Apr-11 | 7.5      | 47         | NT                        | 0.017                   | 0.001                     | <0.0001                  | 0.038                   | <0.001                | 0.037                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.03      |
|              | May-11 | 7.7      | 29         | NT                        | 0.011                   | <0.001                    | <0.0001                  | 0.022                   | <0.001                | 0.036                 | <0.001                   | 0.38                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Jul-11 | 7.5      | 56         | NT                        | 0.008                   | 0.001                     | <0.0001                  | 0.018                   | <0.001                | 0.014                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.01       |
|              | Sep-11 | 7.4      | 50         | NT                        | 0.021                   | 0.001                     | <0.0001                  | 0.018                   | <0.001                | 0.012                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Nov-11 | 7.7      | 47         | NT                        | 0.041                   | 0.002                     | <0.0001                  | 0.029                   | <0.001                | 0.03                  | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.01       |
|              | Jan-12 | 7.9      | 45         | NT                        | 0.011                   | 0.002                     | <0.0001                  | 0.011                   | <0.001                | 0.016                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | 0.002                     | <0.02                  | <0.01      |
|              | Mar-12 | 8.1      | 38         | NT                        | 0.006                   | 0.001                     | <0.0001                  | 0.009                   | <0.001                | 0.008                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | <0.01      |
|              | May-12 | 7.9      | 20         | NT                        | 0.017                   | 0.001                     | <0.0001                  | 0.052                   | 0.001                 | 0.07                  | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.057      |
|              | Jul-12 | 7.8      | 41         | NT                        | 0.008                   | <0.001                    | <0.0001                  | 0.013                   | <0.001                | 0.016                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Sep-12 | 7.9      | 44         | NT                        | 0.017                   | 0.001                     | <0.0001                  | 0.031                   | <0.001                | 0.042                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Nov-12 | 7.8      | 47         | NT                        | 0.004                   | <0.001                    | <0.0001                  | 0.007                   | <0.001                | 0.008                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Jan-13 | 7.6      | 32         | NT                        | 0.02                    | <0.001                    | 0.0002                   | 0.044                   | 0.002                 | 0.089                 | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.04       |
|              | Apr-13 | 7.8      | 37         | NT                        | 0.003                   | 0.001                     | <0.0001                  | 0.008                   | <0.001                | 0.004                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | May-13 | 8.3      | 53         | NT                        | 0.006                   | <0.001                    | <0.0001                  | 0.017                   | <0.001                | 0.018                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jul-13 | 7.5      | 53         | NT                        | 0.018                   | 0.001                     | <0.0001                  | 0.026                   | <0.001                | 0.064                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | 0.012      |
|              | Oct-13 | 7.3      | 62         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.010                   | <0.001                | 0.011                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Nov-13 | 7.8      | 61         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.009                   | <0.001                | 0.014                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jan-14 | 7.4      | 26         | NT                        | 0.004                   | <0.001                    | <0.0001                  | 0.005                   | <0.001                | 0.062                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Jun-14 | 7.1      | 44         | NT                        | 0.013                   | <0.001                    | 0.0001                   | 0.039                   | 0.001                 | 0.067                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.06       |
|              | Oct-14 | 8.2      | 20         | NT                        | 0.015                   | 0.001                     | <0.0001                  | 0.057                   | 0.003                 | 0.141                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.6        |
|              | Feb-15 | 7.2      | 38         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.013                   | <0.001                | 0.013                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Jun-15 | 7.5      | 35         | NT                        | 0.007                   | <0.001                    | <0.0001                  | 0.006                   | <0.001                | 0.01                  | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Oct-15 | 7.5      | 56         | NT                        | 0.006                   | <0.001                    | <0.0001                  | 0.012                   | <0.001                | 0.018                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|              | Feb-16 | 6.4      | 35         | NT                        | 0.008                   | <0.001                    | <0.0001                  | 0.011                   | <0.001                | 0.035                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.05       |
|              | Jun-16 | 7.2      | 49         | NT                        | 0.006                   | <0.001                    | <0.0001                  | 0.016                   | <0.001                | 0.018                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |
|              | Oct-16 | 7.3      | 55         | NT                        | 0.006                   | <0.001                    | <0.0001                  | 0.012                   | <0.001                | 0.051                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Feb-17 | 6.7      | 56         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.006                   | <0.001                | 0.012                 | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|              | Jun-17 | 6.6      | 59         | NT                        | 0.008                   | <0.001                    | <0.0001                  | 0.024                   | <0.001                | 0.032                 | <0.001                   | 0.01                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Oct-17 | 7.1      | 54         | NT                        | 0.004                   | <0.001                    | <0.0001                  | 0.007                   | <0.001                | 0.01                  | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.03       |
|              | Feb-18 | 7.1      | 54         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.005                   | <0.001                | 0.009                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|              | Aug-18 | 7        | 80         | NT                        | 0.024                   | <0.001                    | <0.0001                  | 0.040                   | <0.001                | 0.104                 | <0.001                   | 0.02                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.015      |

|                            |        | Analysis   |            |                           |                         |                           |                          |                                      |                       |                                   |                          |                        |                          |                           |                           |                        |            |
|----------------------------|--------|------------|------------|---------------------------|-------------------------|---------------------------|--------------------------|--------------------------------------|-----------------------|-----------------------------------|--------------------------|------------------------|--------------------------|---------------------------|---------------------------|------------------------|------------|
| Sample Point               | Date   | pH         | CaCO3 mg/l | Sulphate (dissolved) mg/l | Nickel (dissolved) mg/l | Chromium (dissolved) mg/l | Cadmium (dissolved) mg/l | Copper (dissolved) mg/l              | Lead (dissolved) mg/l | Zinc (dissolved) mg/l             | Arsenic (dissolved) mg/l | Boron (dissolved) mg/l | Mercury (dissolved) mg/l | Selenium (dissolved) mg/l | Vanadium (dissolved) mg/l | Cyanide (total) (mg/l) | TPH (mg/l) |
| C1                         | Mar-12 | 8.1        | 40         | NT                        | 0.004                   | 0.001                     | <0.0001                  | 0.009                                | 0.002                 | 0.01                              | 0.001                    | <0.01                  | <0.0001                  | <0.001                    | 0.002                     | <0.02                  | <0.01      |
|                            | May-12 | 7.9        | 43         | NT                        | 0.011                   | 0.001                     | <0.0001                  | 0.026                                | <0.001                | 0.01                              | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.014      |
|                            | Jul-12 | 7.8        | 45         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.004                                | <0.001                | 0.007                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|                            | Sep-12 | 7.7        | 43         | NT                        | 0.003                   | 0.001                     | <0.0001                  | 0.004                                | <0.001                | <0.002                            | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Nov-12 | 7.7        | 45         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | 0.002                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Jan-13 | 7.7        | 30         | NT                        | 0.006                   | <0.001                    | <0.0001                  | 0.009                                | <0.001                | 0.016                             | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | 0.001                     | <0.02                  | <0.01      |
|                            | Apr-13 | 7.8        | 41         | NT                        | 0.001                   | 0.002                     | <0.0001                  | 0.001                                | <0.001                | <0.002                            | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.04       |
|                            | May-13 | 7.9        | 69         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | <0.002                            | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|                            | Jul-13 | 7.4        | 50         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.003                                | <0.001                | 0.004                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.058      |
|                            | Oct-13 | 7.7        | 88         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.004                                | <0.001                | 0.002                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|                            | Nov-13 | 7.6        | 37         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | <0.002                            | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Jan-14 | 7.6        | 39         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | <0.002                            | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|                            | Jun-14 | 7.0        | 34         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.01                                 | <0.001                | 0.003                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Oct-14 | 8.1        | 14         | NT                        | 0.008                   | <0.001                    | <0.0001                  | 0.014                                | <0.001                | 0.012                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.3        |
|                            | Feb-15 | 7.0        | 38         | NT                        | <0.001                  | <0.001                    | <0.0001                  | 0.001                                | <0.001                | 0.002                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | <0.01      |
|                            | Jun-15 | 7.4        | 33         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | 0.003                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|                            | Oct-15 | 7.6        | 42         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | 0.007                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Feb-16 | 6.4        | 30         | NT                        | 0.007                   | <0.001                    | <0.0001                  | 0.005                                | <0.001                | 0.012                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|                            | Jun-16 | 7.0        | 41         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.006                                | <0.001                | 0.004                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|                            | Oct-16 | 7.0        | 38         | NT                        | 0.003                   | <0.001                    | <0.0001                  | 0.003                                | <0.001                | 0.005                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Feb-17 | 6.4        | 42         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.001                                | <0.001                | 0.002                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Jun-17 | 6.2        | 46         | NT                        | 0.001                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | <0.002                            | <0.001                   | 0.03                   | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Oct-17 | 6.7        | 42         | NT                        | 0.002                   | <0.001                    | <0.0001                  | 0.002                                | <0.001                | 0.011                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.02       |
|                            | Feb-18 | 7.0        | 45         | NT                        | <0.001                  | <0.001                    | <0.0001                  | <0.001                               | <0.001                | <0.002                            | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.01       |
|                            | Aug-18 | 6.8        | 60         | NT                        | 0.005                   | <0.001                    | <0.0001                  | 0.005                                | <0.001                | 0.004                             | <0.001                   | <0.01                  | <0.0001                  | <0.001                    | <0.001                    | <0.02                  | 0.011      |
| Assessment Criteria (mg/l) |        | 6 to 9 (2) |            | 400                       | 0.02 (1)                | 0.0047 (3)                | 0.00009 (1)              | 0 - 50 = 0.001 (3)<br>50-100 = 0.006 | 0.0072 (1)            | 0-50 = 0.008 (3)<br>50-100 = 0.05 | 0.05 (2)                 | 2 (2)                  | 0.001 (1)                | 0.01 (4)                  | 0.02 (3)                  | 0.001 (1)              | 0.01(4)    |

**Notes:**

2018-2019 Sampling Points

EQS Adjusted for Hardness

Yellow cells indicate elevated concentrations compared with Assessment Criteria (e.g. EQS).

NG = No Guideline

NT = Not Tested

1 = Annex I of Directive 2008/105/EC of the European Parliament & of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending

2 = Table 2a: Environmental Quality Standards (EQS) for List 2 dangerous substances, EC Dangerous Substances Directive (76/464/EEC)

3 = Table 2b: Environmental Quality Standards (EQS) for hardness related List 2 dangerous substances, EC dangerous substances Directive (76/464/EEC)

NB - in the absence of hardness data, a conservative approach has been adopted and the lowest EQS values used

4 = Water Supply (Water Quality) (England and Wales) Regulations 2000 (SI 2000/3184) (as amended); Water Supply (Water Quality) (Wales) Regulations 2001 (SI 3911 W.323) (as amended)

## Appendix 3

### Figures and Graphs



Legend

● River Sampling Locations

Title **River Sampling Locations**

Site **The Royal Mint,  
Llantrisant  
Pontyclun,  
Mid Glamorgan,  
CF72 8YT**

Client **The Royal Mint**

Project No. **1700002116**

Issue **1**

Date **August 2018**

Drawn by **RH**



Scale

NTS

Figure 2: Graphical Representation of Copper Concentrations in Surface Water

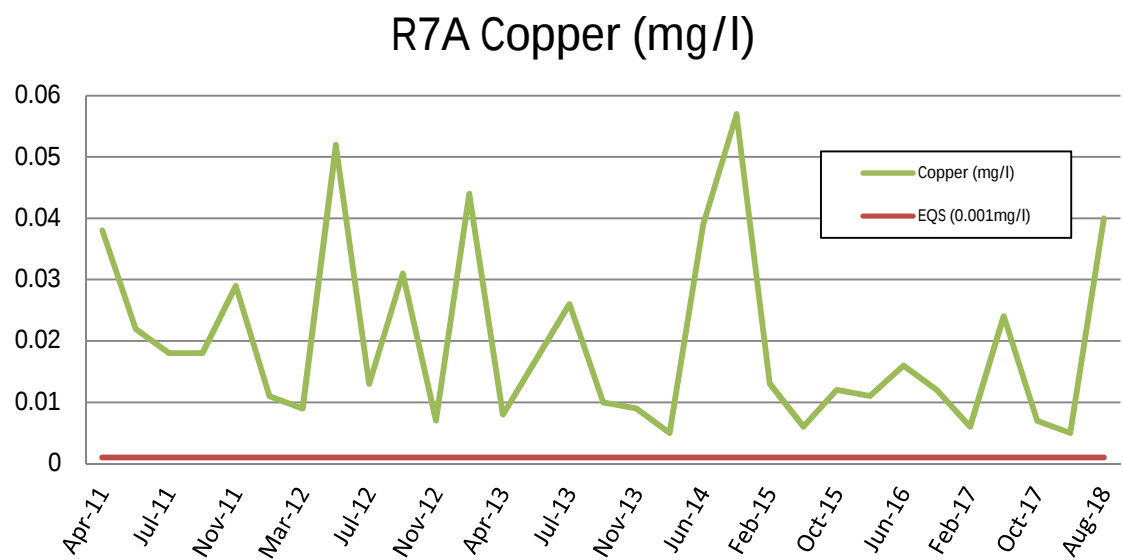
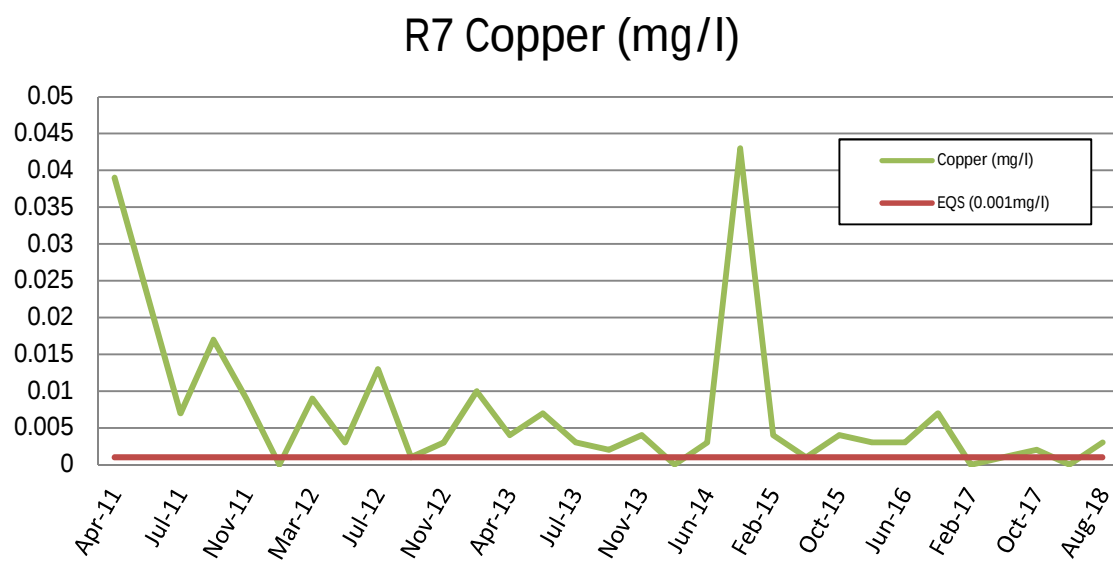
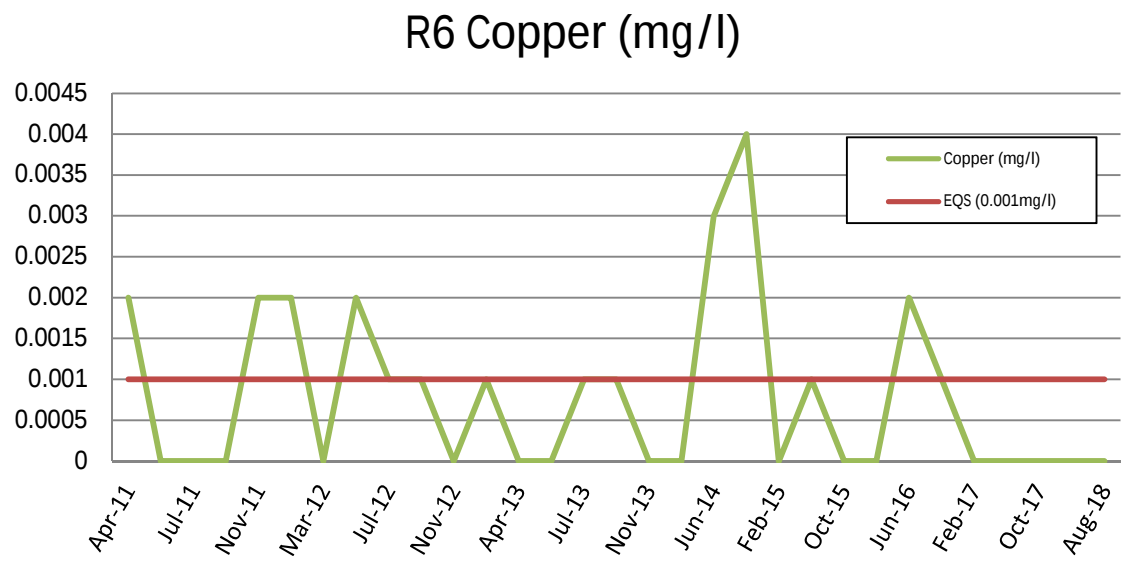
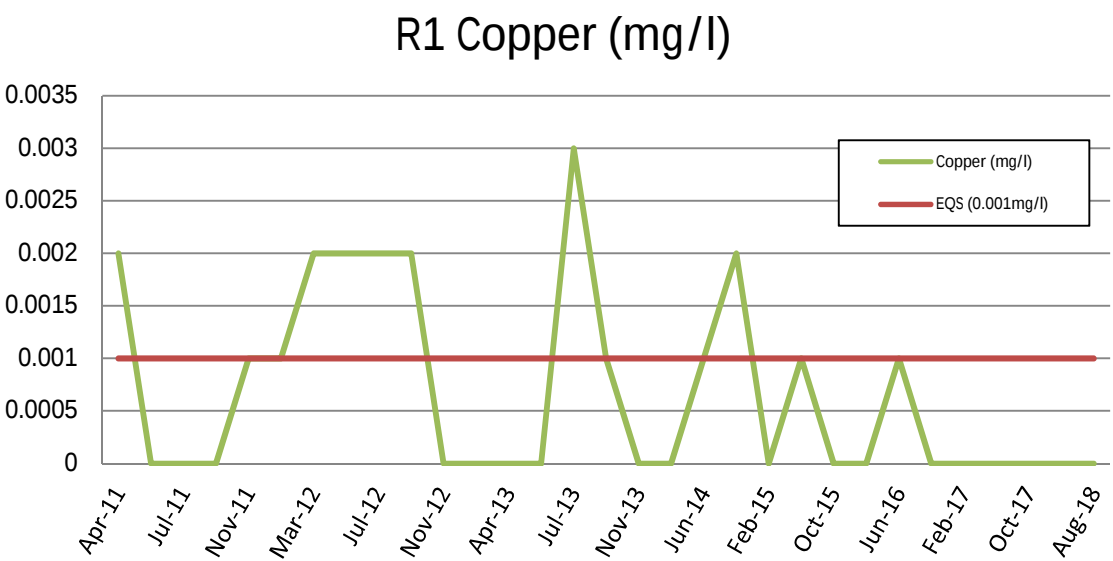
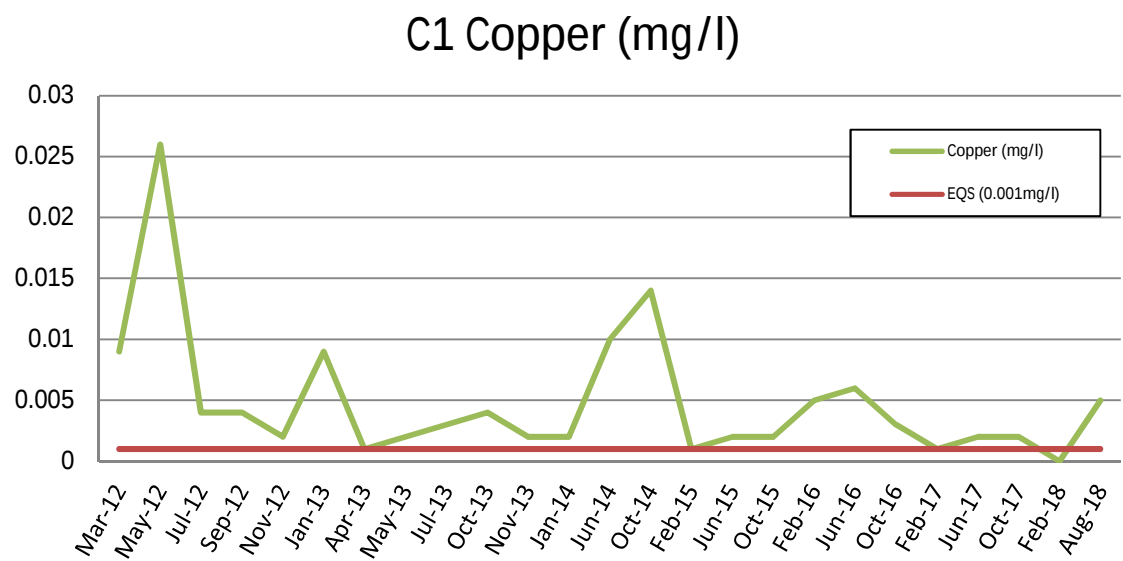


Figure 3: Graphical Representation of Nickel Concentrations in Surface Water

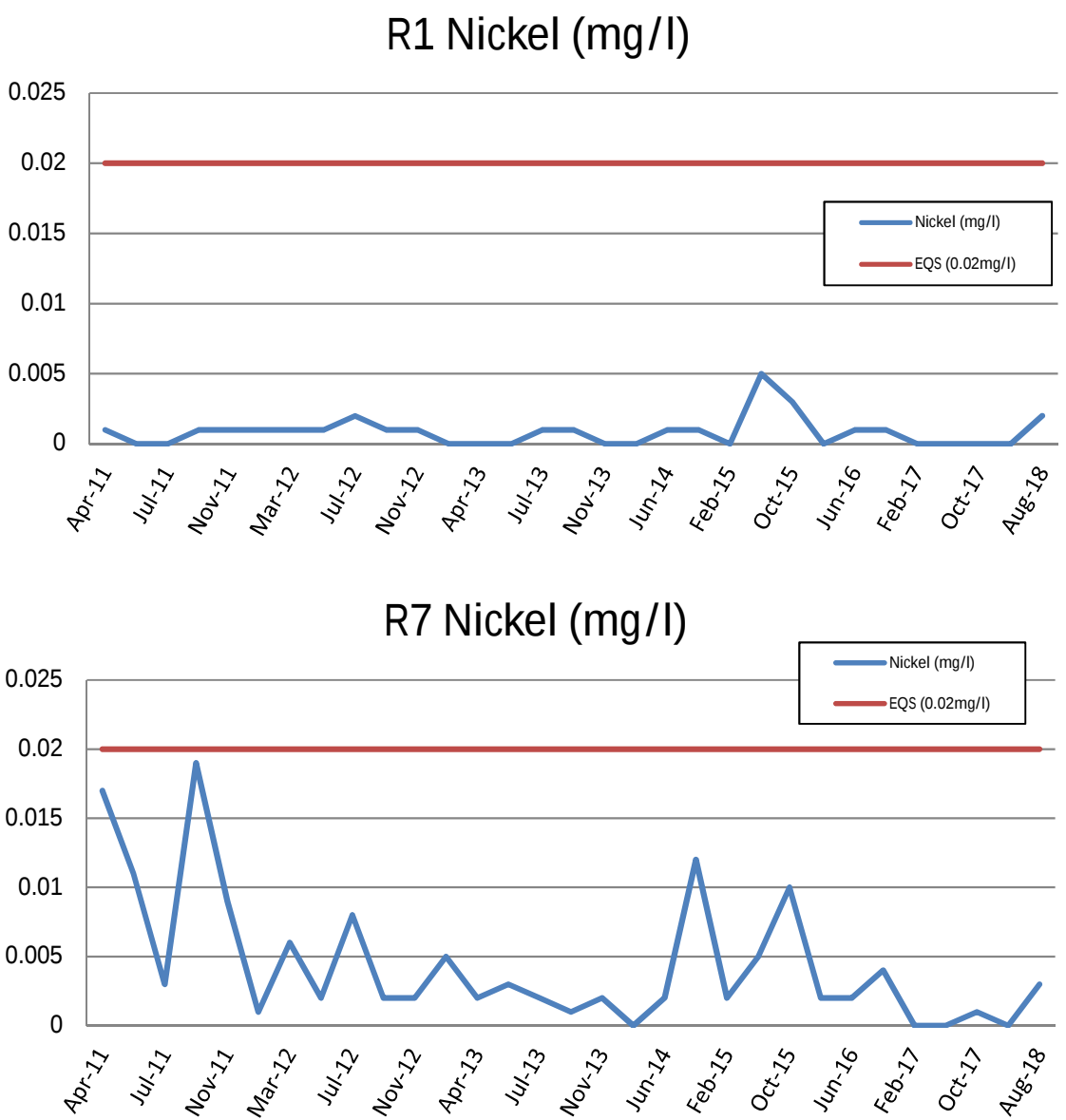
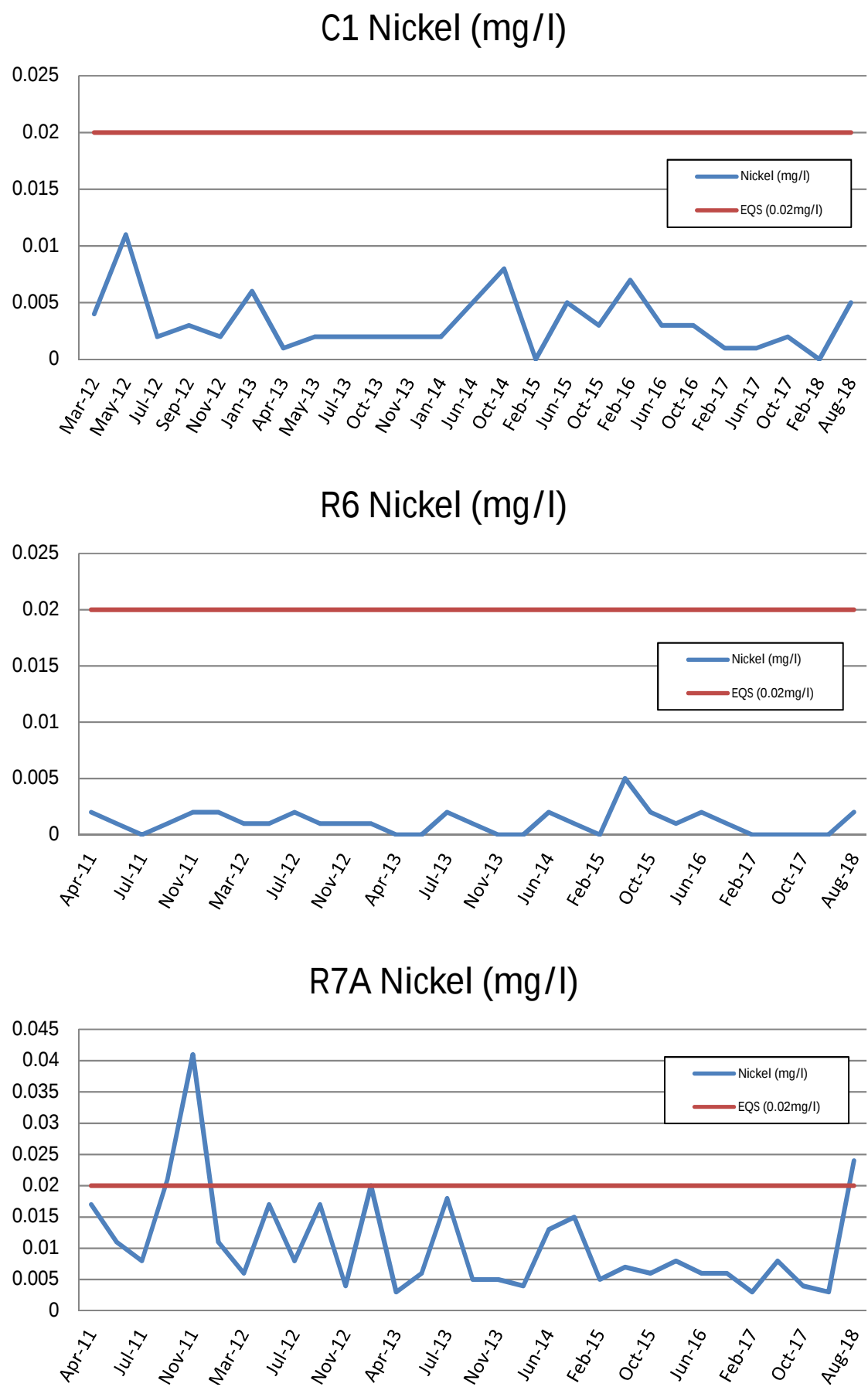


Figure 4: Graphical Representation of Zinc Concentrations in Surface Water

