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| **New South Rd Fictitious Site** | | |
| **for the period 01 May 2014 to 30 April 2015** | | |
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|  | **Published: 14 July 2016** |  |
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| Introduction | | | |
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|  | About this report | |  |
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|  | This report has been produced by AAA Resources Ltd and presents environmental monitoring results from the AAA Resources Ltd New South Road site in Lancashire for the monitoring period 01 May 2014 to 30 April 2015. | |  |
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|  | It is noted that this report provides a summary of the comprehensive data that are available for inspection by members of the public on the Public Registers maintained by the Environment Agency. This report is also available on the AAA Resources Ltd website: | |  |
|  |  |  |  |
|  |  | [www.AAAresources.com](http://www.cuadrillaresources.com/) |  |
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|  | About the site | |  |
|  |  |  |  |
|  | The New South Road site is located in Lancashire. | |  |
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|  | Why we monitor the site | |  |
|  |  |  |  |
|  | Our operations at New South Road site are subject to an Environmental Permit issued by the Environment Agency. | |  |
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|  | What we monitor at the site | |  |
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|  | To be completed | |  |
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| Monitoring results | | |
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|  | Meteorology |  |
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|  | Surface water quality |  |
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|  | This report has been produced by AAA Resources Ltd and presents environmental monitoring results from the AAA Resources Ltd New South Road site in Lancashire for the monitoring period 01 May 2014 to 30 April 2015. |  |
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|  | Surface water quality is monitored every month at 7 locations in and around the site. These locations are presented in Figure 1 and Table 1. |  |
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|  | Map figure to be Inserted |  |
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|  | **Figure 1: Location of surface water monitoring points** |  |
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|  | **Table 1: Type of surface water at the monitoring points** | | |  |
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|  |  | |  |  | | --- | --- | | **Location ID** | **Type of surface water** | | NM030215RW01 |  | | PNR1 | Pond in field | | PNR2 | Upstream of site operations (Carr Bridge Brook) | | PNR3 | Pond in field | | PNR4 | Downstream of site operations (Carr Bridge Brook) | | PNR5 | Pond in field | | PNR6 | Pond in field | |  |  |
|  |  |  |  |  |
|  | Surface water samples are taken on a monthly basis and over the reporting period a total of 69 samples have been taken. These samples are analysed in a laboratory to determine the concentration of substances in the water. | | |  |
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|  | Surface water monitoring results are compared to UK national standards such as the UK Drinking Water Standard (UK DWS) and freshwater Environmental Quality Standard (EQS). | | |  |
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|  | Table 2 presents a statistical summary of the surface water quality data. Overall, the surface water quality monitoring results show that: | | |  |
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|  | **Table 2: Statistical summary of surface water quality** |  |
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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Parameter** | **Unit** | **Freshwater EQS** | **UK DWS** | **Number of Results** | **Number of Detects** | **Min.** | **Average** | **Max.** | **Number exceeding EQS or UK DWS (Detects Only)** | | Ac\_228 | Bq/l |  |  | 1 | 0 | <0.02 |  | <0.02 | 0 | | Acidity | mg/l |  |  | 2 | 2 | 10 | 13 | 16 | 0 | | Acrylamide | µg/L |  | 0.1 | 68 | 0 | <10 | 164 | <1000 | 0 | | Alkalinity (Total) | mg/L |  |  | 68 | 68 | 85 | 210 | 1315 | 0 | | Aluminium | mg/L |  | 0.2 | 68 | 57 | <0.01 | 0.031 | 0.16 | 0 | | Americium-241 | Bq/l |  |  | 1 | 0 | <0.004 |  | <0.004 | 0 | | Ammonia as N | µg/L | 15 |  | 68 | 68 | 10 | 1225 | 16200 | 66 | | Antimony | mg/L |  | 0.005 | 68 | 7 | <0.001 | 0.00058 | 0.002 | 0 | | Arsenic | mg/L | 0.05 | 0.01 | 68 | 66 | <0.001 | 0.0028 | 0.013 | 1 | | Barium | mg/L |  | 1 | 68 | 65 | <0.01 | 0.042 | 0.12 | 0 | | Benzene | µg/L | 30 | 1 | 68 | 0 | <5 | 2.5 | <5 | 0 | | Beryllium | mg/L |  |  | 68 | 0 | <0.01 | 0.005 | <0.01 | 0 | | Bi\_212 | Bq/l |  |  | 1 | 0 | <0.07 |  | <0.07 | 0 | | Bi\_214 | Bq/l |  |  | 1 | 0 | <0.09 |  | <0.09 | 0 | | Biochemical Oxygen Demand w | mg/L |  |  | 59 | 40 | <2 | 7.3 | 38.7 | 0 | | Boron | mg/L | 2 | 1 | 68 | 50 | <0.01 | 0.02 | 0.08 | 0 | | Bromide | mg/L |  |  | 68 | 15 | 0.1 | 0.26 | 0.8 | 0 | | Cadmium | mg/L | 0.005 | 0.005 | 68 | 2 | <0.0001 | 5.1E-05 | 0.0001 | 0 | | Calcium | mg/L |  | 250 | 68 | 68 | 20 | 71 | 200 | 0 | | Cesium-137 | Bq/L |  |  | 1 | 0 | <0.005 |  | <0.005 | 0 | | Chloride | mg/L | 250 | 250 | 68 | 68 | 27 | 49 | 116 | 0 | |  |
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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Parameter** | **Unit** | **Freshwater EQS** | **UK DWS** | **Number of Results** | **Number of Detects** | **Min.** | **Average** | **Max.** | **Number exceeding EQS or UK DWS (Detects Only)** | | Chromium (III+VI) | mg/L | 0.005 | 0.05 | 68 | 10 | <0.001 | 0.00057 | 0.001 | 0 | | Cobalt | mg/L |  |  | 68 | 30 | <0.001 | 0.00076 | 0.002 | 0 | | Cobalt-60 | Bq/l |  |  | 1 | 0 | <0.009 |  | <0.009 | 0 | | COD | mg/L |  |  | 68 | 65 | <5 | 50 | 230 | 0 | | Copper | mg/L | 0.001 | 2 | 68 | 57 | <0.0001 | 0.0034 | 0.02 | 57 | | DRO (nC10 to nC24) | mg/L |  |  | 62 | 26 | <0.01 | 0.049 | 0.81 | 0 | | Ethylbenzene | µg/L |  |  | 68 | 0 | <5 | 2.5 | <5 | 0 | | Fluoride | mg/L |  | 1.5 | 68 | 56 | 0.1 | 0.34 | 3 | 1 | | GRO (nC5 to nC10) | mg/L |  |  | 68 | 0 | <0.1 | 0.05 | <0.1 | 0 | | Gross Alpha Activity | Bq/L |  |  | 1 | 1 | 0.21 |  | 0.21 | 0 | | Gross Beta Activity | Bq/L |  |  | 1 | 1 | 0.4 |  | 0.4 | 0 | | Iron | mg/L | 1 | 0.2 | 68 | 65 | <0.01 | 0.4 | 4.01 | 42 | | Lead | mg/L | 0.004 | 0.025 | 68 | 5 | <0.001 | 0.00057 | 0.002 | 0 | | Lead-210 | Bq/L |  |  | 1 | 0 | <0.05 |  | <0.05 | 0 | | Lithium | mg/L |  |  | 68 | 0 | <0.01 | 0.005 | <0.01 | 0 | | Magnesium | mg/L |  | 50 | 68 | 68 | 5 | 16 | 33 | 0 | | Mercury | mg/L | 0.001 | 0.001 | 59 | 0 | <0.0001 | 5E-05 | <0.0001 | 0 | | Methyl Tertiary Butyl Ether | mg/L |  |  | 68 | 0 | <0.01 | 0.005 | <0.01 | 0 | | Nickel | mg/L | 0.05 | 0.02 | 59 | 58 | <0.001 | 0.002 | 0.003 | 0 | | Nitrate (as N) | mg/L |  |  | 68 | 44 | <0.2 | 3.7 | 34.5 | 0 | | Nitrite (as N) | mg/L |  |  | 68 | 44 | <0.01 | 0.057 | 0.51 | 0 | | Pb\_212 | Bq/l |  |  | 1 | 0 | <0.006 |  | <0.006 | 0 | | Pb\_214 | Bq/l |  |  | 1 | 0 | <0.01 |  | <0.01 | 0 | |  |
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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Parameter** | **Unit** | **Freshwater EQS** | **UK DWS** | **Number of Results** | **Number of Detects** | **Min.** | **Average** | **Max.** | **Number exceeding EQS or UK DWS (Detects Only)** | | pH (Lab) | pH\_Units |  |  | 68 | 68 | 7 | 7.7 | 8.7 | 0 | | Potassium | mg/L |  | 12 | 68 | 68 | 2 | 16 | 54 | 31 | | Potassium-40 | µg/L |  |  | 1 | 1 | 10.53 |  | 10.53 | 0 | | Radium-226 | Bq/L |  |  | 1 | 0 | <0.06 |  | <0.06 | 0 | | Selenium | mg/L |  | 0.01 | 59 | 6 | <0.001 | 0.00055 | 0.001 | 0 | | Silver | mg/L | 5E-05 | 0.01 | 68 | 0 | <0.002 | 0.001 | <0.002 | 0 | | Sodium | mg/L | 170 | 200 | 68 | 68 | 15 | 26 | 57 | 0 | | Strontium | mg/L |  |  | 68 | 68 | 0.03 | 0.19 | 0.46 | 0 | | Thorium-234 | Bq/l |  |  | 1 | 0 | <0.05 |  | <0.05 | 0 | | Tl\_208 | Bq/l |  |  | 1 | 0 | <0.05 |  | <0.05 | 0 | | Toluene | µg/L | 50 |  | 68 | 0 | <5 | 2.5 | <5 | 0 | | Total Dissolved Solids | mg/L |  |  | 68 | 67 | <5 | 463 | 4771 | 0 | | Uranium-235 | Bq/l |  |  | 1 | 0 | <0.02 |  | <0.02 | 0 | | Vanadium | mg/L | 0.02 |  | 68 | 49 | <0.001 | 0.0013 | 0.004 | 0 | | Xylene (m & p) | µg/L |  |  | 68 | 0 | <10 | 5 | <10 | 0 | | Xylene (o) | µg/L |  |  | 68 | 0 | <5 | 2.5 | <5 | 0 | | Xylene Total | µg/L | 30 |  | 68 | 0 | <15 | 7.5 | <15 | 0 | | Zinc | mg/L | 0.008 | 5 | 68 | 60 | <0.002 | 0.018 | 0.262 | 39 | |  |
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|  | Notes: |  |
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|  | Shaded cells indicate values which exceed the freshwater EQS and/or UK DWS. |  |
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|  | UK DWS = UK Drinking Water Standard. UK DWS are presented for comparative purposes only. Where concentrations exceed the UK DWS this does not necessarily indicate that a pollution event has occurred nor does it indicate non-compliance of any threshold or control level specified in the Environmental Permit. |  |
|  |  |  |
|  | \*The UK DWS for ammoniacal nitrogen is based on the UK DWS for the ammonium ion. Ammoniacal nitrogen concentrations includes both ammonia and ammonium. It is assumed that the bulk of ammoniacal nitrogen occurs as ammonium in solution under near neutral pH conditions. |  |
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|  | In line with common practise when generating statistics, the results below the limit of detection are multiplied by 0.5 when calculating an average concentration for statistical purposes. |  |

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|  | The following figures present graphs of the concentrations of those substances which have frequently been detected above the freshwater EQS and/or the UK DWS. |  |
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|  | Figure 2 shows... To be completed |  |
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|  | ooxWord://media/image.emf |  |
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|  | **Figure 2: Graph showing ammonia as N concentrations in surface water at the surface water monitoring points** |  |
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|  | Figure 3 shows... To be completed |  |
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|  | **Figure 3: Graph showing copper concentrations in surface water at the surface water monitoring points** |  |
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|  | Figure 4 shows... To be completed |  |
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|  | **Figure 4: Graph showing iron concentrations in surface water at the surface water monitoring points** |  |
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|  | Figure 5 shows... To be completed |  |
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|  | **Figure 5: Graph showing zinc concentrations in surface water at the surface water monitoring points** |  |
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|  | Groundwater quality |  |
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|  | Site discharge |  |
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|  | Air quality |  |
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|  | Ground gas |  |
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|  | Soil quality |  |
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|  | Noise |  |
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|  | Light |  |
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|  | Traffic |  |
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|  | Seismicity |  |
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| Summary | | |
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|  | Summary interpretation |  |
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| Glossary | | | | | |
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|  | Glossary of terms and abbreviations | | |  |  |
|  |  |  |  |  |  |
|  | **ug/l** |  | microgram per litre. Equivalent to one thousandth of a milligram. | |  |
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|  | **EQS** |  | Environmental Quality Standard. | |  |
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