

Armidale Regional Landfill

Location: Waterfall Way, Armidale NSW 2350 Environment Protection Licence (EPL) Number: 21362 Activity: Waste disposal (application to land)

The internet link to EPL No. 21362 is <https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=21362&id=21362&option=licence&searchrange=general&range=POEO%20licence&prp=no&status=Issued>

Licensee under Protection of Environment Operations Act 1997 (POEO Act): Armidale Regional Council, PO Box 75A, Armidale NSW 2350.

Under EPL 21362, Council is required to monitor groundwater, surface water, leachate, methane (after completion of Cell 1) and dust at various sampling points. This document details recent results to meet Council's obligation under Section 66 (6) of the POEO Act to provide monitoring data to the public via Council's website.

Figures on the following pages provide sampling locations. Groundwater and proximal surface water sampling locations are shown on Figure 1. Figure 2 displays the locations of overflow surface water sampling locations. (GARA6 is a voluntary sampling point.) Dust monitoring locations are pinpointed on Figure 3.

Abbreviations on the maps: A = Armidale; BH =BoreHole (monitoring well); L =Leachate; SB = Sediment Basin; DB = Dry Basin; D = Dust where N = North, S = South, E = East, and SW = South West.

Corresponding Environment Protection Authority (EPA) Identification Numbers from EPL 21362 are detailed below and on the figures displayed on the following pages.

| | | | |
|------------|---|------------|---|
| EPA No. 1 | GARA1R (surface water + dry basin overflow) | EPA No. 16 | ASB1 (surface water - sediment basin - dam) |
| EPA No. 2 | GARA2 (surface water + dry basin overflow) | EPA No. 17 | ADB1-IN (surface water – dry basin internal) |
| EPA No. 3 | GARA3 (surface water + dry basin overflow) | EPA No. 18 | ADB1-OUT (surface water – dry basin overflow) |
| EPA No. 4 | GARA5 (surface water + dry basin overflow) | EPA No. 22 | ABH13 (piezometric level – if groundwater) |
| EPA No. 5 | ABH02 (groundwater monitoring well) | EPA No. 23 | ABH14 (piezometric level – if groundwater) |
| EPA No. 6 | ABH02A (groundwater monitoring well) | EPA No. 24 | ABH15C (piezometric level – if groundwater) |
| EPA No. 7 | ABH4 (groundwater monitoring well) | EPA No. 25 | surface methane after Cell 1 completion |
| EPA No. 8 | ABH04 (groundwater monitoring well) | EPA No. 26 | building methane after Cell 1 completion |
| EPA No. 9 | ABH04A (groundwater monitoring well) | EPA No. 27 | ADN-EPA27 (dust gauge) |
| EPA No. 10 | ABH9 (groundwater monitoring well) | EPA No. 28 | ADS-EPA28 (dust gauge) |
| EPA No. 11 | ABH11 (groundwater monitoring well) | EPA No. 29 | ADE-EPA29 (dust gauge) |
| EPA No. 12 | ABH12 (groundwater monitoring well) | EPA No. 30 | ADSW-EPA30 (dust gauge) |
| EPA No. 13 | ABH15A (groundwater monitoring well) | EPA No. 31 | Meteorological station |
| EPA No. 14 | ABH15B (groundwater monitoring well) | EPA No. 32 | sub-surface methane after Cell 1 completion |
| EPA No. 15 | AL1 (leachate) | EPA No. 33 | ABH4A (groundwater monitoring well) |

Figure 1: Proximal groundwater and surface water sampling points, Armidale Regional Landfill



Figure 2: Armidale Regional Landfill overflow surface water sampling locations (GARA6 is a voluntary location.)

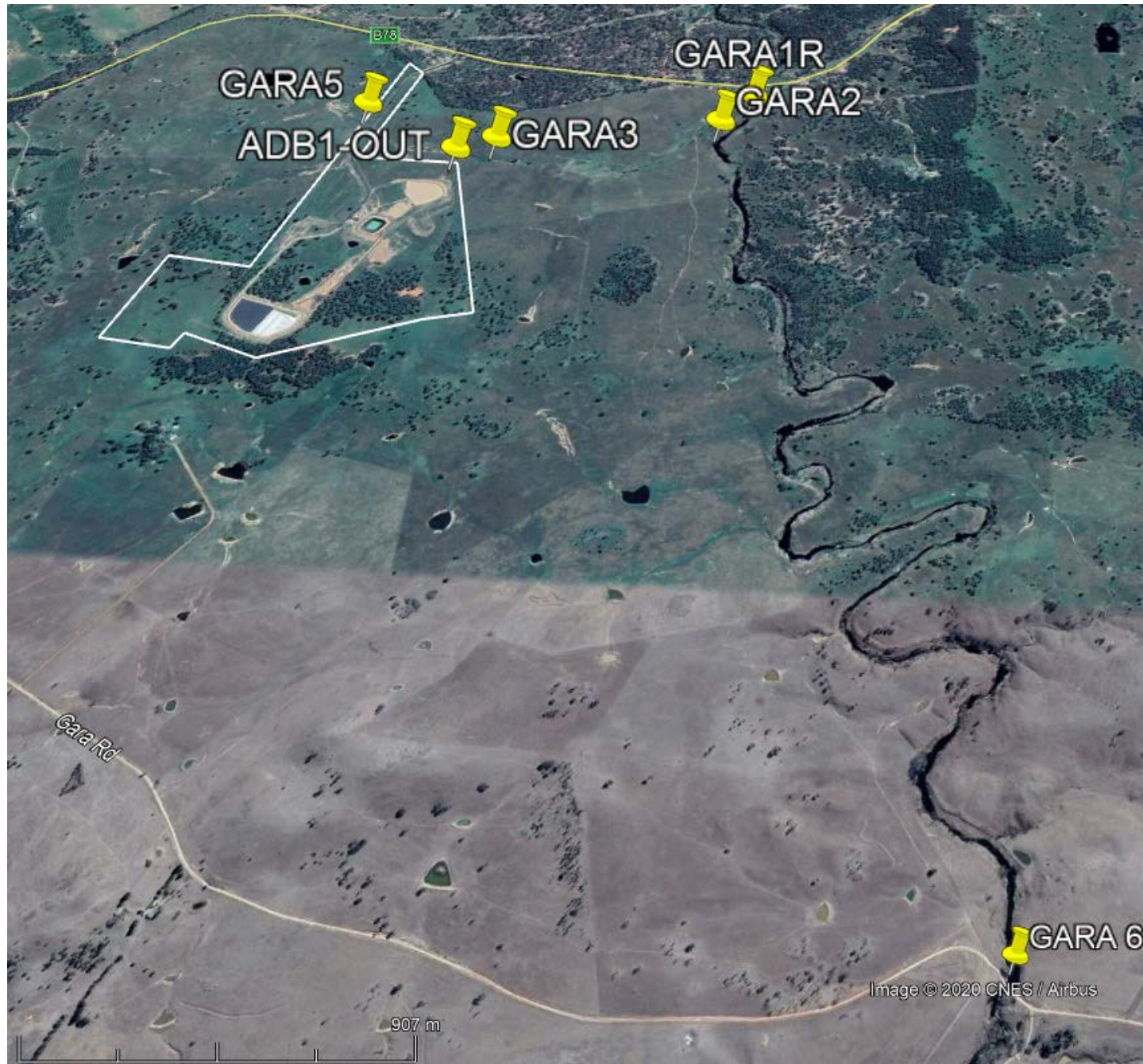


Figure 3: Armidale Regional Landfill dust gauge sampling locations



The EPA requires the publication of the last four year's monitoring results for an EPL. Where possible, eight rounds of baseline monitoring were conducted before the Armidale Regional Landfill opened on 18 November 2020. These results are important for comparison against monitoring results post solid waste acceptance at an engineered landfill cell.

Water quality analytes are organised in tables on following pages according to chemical grouping to assist chemical review. [Analytes are listed on the licence in alphabetical order.] They include analytes for groundwater, surface water and landfill leachate.

Abbreviations in the tables are provided here in alphabetical order:

Al = Aluminium; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; As = Arsenic; B = Boron; Ca = Calcium; Cd = Cadmium; Cl = Chloride; Cr = Chromium; Cu = Copper; D = Depth to water from top of internal well PVC casing; DO = Dissolved Oxygen; EC = Electrical Conductivity also called conductivity; Eh = Redox Potential; Fe = Iron; Fe (II) = Iron Oxide; Free CO₂ = Free carbon dioxide; K = Potassium; Mg = Magnesium; Mn = Manganese; Na = Sodium; NA = Not applicable; ND = Nil detected; NT = Not tested; NH₃ = Ammonia as a measure of ammonium ions; Ni = Nickel; NO_x = Nitrite + Nitrate; NR = Not Required by licence; WC = Water Column height; WL RL = water level converted to Reduced Level relative to mean sea level; PAH = Polynuclear aromatic hydrocarbons; Pb = Lead; SAR = Sodium adsorption ratio; SO₄ = Sulphate; SS = Total suspended solids; Temp = Temperature; TKN = Total Kjeldahl Nitrogen (organic nitrogen + ammonia); TN = Total Nitrogen; TOC = Total Organic Carbon; TP = Total Phosphorus; VFR = Volumetric Flow Rate; VOCs = Volatile Organ Compounds; Zn = Zinc.

Measures:

g = grams; mg/L = milligram per litre (equivalent to ppm); µS/cm = micro Siemens per centimetre; mV = millivolts; °C = degrees Celsius; kL = kilolitres; ppm = parts per million.

Choice of water quality analytes:

Some analytes are tested because they give a general understanding of groundwater, surface water and leachate quality. Commonly, the concentrations are greater in leachate than in groundwater and surface water. A simple comparison can tell us if landfill leachate may have escaped into groundwater or surface water. However, caution is needed when reviewing results so that false conclusions are not made.

Some analytes give us specific information about the possible presence of landfill leachate in groundwater and surface water. Even with these we must carefully consider if their increased concentrations are due to landfill leachate and are not from some other source.

- Nitrogen compounds indicate biodegradation of the plant and animal waste in our solid waste. They may also be due to fertilizer use on nearby properties or old night soil trenches. A general rule of thumb is that total nitrogen (TKN + NO_x) should be <5 mg/L.
- Iron and manganese above 10 mg/L are an indicator that landfill leachate may be present in groundwater. However, these groundwater analytes may increase due to leaching of iron and manganese from the soil after excessive rainfall or flood water infiltration.
- Organic analytes such as VOC compounds are most likely to indicate landfill leachate, especially if not detected before.

Thus, it is important to conduct baseline monitoring preferably before solid waste deposition, and then to monitor on a regular basis to note any changes in water quality parameter or analyte concentrations and to judicially review the results. Increases in groundwater and surface water concentrations due to landfill leachate intrusion are often at least three to four times the previous concentrations.

Groundwater - Quarterly

Table 1a: ABH9 - Groundwater quality & quarterly depth – field parameters & analytes

| EPA Point 10 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|--|------|-------|------|------|------|-------|--------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH9 - Baseline monitoring phase range – 8 sampling events 30/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 1.39 | 1464 | 6.11 | +31 | 15.9 | 45.85 | 968.18 | | 1.1 | 93 | 73 |
| Max | 2.85 | 1677 | 6.48 | +148 | 20.2 | 45.28 | 968.75 | | 50.0 | 109 | 111 |
| ABH9 - Detection monitoring phase | | | | | | | | | | | |
| 02/12/20 | 1.18 | 1327 | 6.35 | +46 | 22.5 | 46.45 | 967.58 | | 15.8 | 123 | 44 |
| 21/03/21 | 0.96 | 1300 | 6.34 | +17 | 19.6 | 46.17 | 967.86 | | 16.2 | 127 | 100 |
| 14/06/21 | 3.75 | 1344 | 6.59 | +86 | 18.5 | 45.43 | 968.60 | | 4.4 | 153 | 88 |
| 24/10/21 | 3.82 | 1302 | 6.69 | +14 | 17.8 | 44.62 | 969.41 | | 7.5 | 140 | 56 |
| 17/01/22 | 4.77 | 1217 | 6.73 | +37 | 20.7 | 43.34 | 970.69 | | 3.2 | 143 | 67 |
| 26/03/22 | 5.10 | 1154 | 6.57 | +26 | 17.3 | 42.49 | 971.54 | | 4.7 | 144 | 67 |
| 22/06/22 | 3.96 | 1018 | 6.54 | +73 | 18.4 | 41.73 | 972.30 | | 4.5 | 133 | 59 |
| 15/10/22 | 3.37 | 965 | 6.44 | +142 | 16.9 | 41.22 | 972.81 | | 7.9 | 120 | 62 |

Table 1b: ABH9 - Groundwater quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|-------|--------|--------|-------|-------|--------|-----------------|-----------------|-----------|------|------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH9 - Baseline monitoring phase range – 8 sampling events 30/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 102 | 356 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.004 | <0.001 | 0.013 | 0.676 | 0.05 | <0.05 | <0.01 | 0.39 | <0.1 | 0.4 | <1 | <0.05 |
| Max | | NA | 152 | 410 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.006 | 0.017 | 0.001 | 0.064 | 2.730 | 1.64 | 1.17 | 0.03 | 0.53 | 0.2 | 0.7 | 5 | <0.05 |
| ABH9 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 02/12/20 | 11/12/20 | 05/01/21 | 126 | 341 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.005 | <0.001 | 0.018 | 0.872 | 1.02 | 1.02 | <0.01 | 0.33 | 0.1 | 0.4 | 4 | <0.05 |
| 21/03/21 | 12/04/21 | 21/04/21 | 104 | 345 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.001 | 0.003 | <0.001 | 0.010 | 0.377 | 0.20 | 0.06 | <0.01 | 0.29 | <0.1 | 0.3 | 1 | <0.05 |
| 14/06/21 | 25/06/21 | 09/07/21 | 40 | 346 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.009 | <0.001 | <0.005 | 0.009 | 0.13 | <0.05 | 0.04 | 0.74 | 0.1 | 0.8 | 5 | <0.05 |
| 24/10/21 | 08/11/21 | 26/11/21 | 22 | 398 | <0.01 | <0.001 | <0.0001 | 0.030 | <0.001 | 0.020 | <0.001 | <0.005 | 0.003 | 0.24 | <0.05 | <0.01 | 0.65 | <0.1 | 0.6 | 1 | <0.05 |
| 17/01/22 | 27/01/22 | 11/02/22 | 21 | 376 | <0.01 | <0.001 | <0.0001 | 0.017 | <0.001 | 0.008 | <0.001 | <0.005 | 0.002 | 0.16 | <0.05 | <0.01 | 0.62 | <0.1 | 0.6 | <1 | <0.05 |
| 26/03/22 | 07/04/22 | 19/04/22 | 17 | 366 | <0.01 | <0.001 | <0.0001 | 0.017 | <0.001 | 0.014 | <0.001 | <0.005 | 0.003 | 0.25 | <0.05 | <0.01 | 0.64 | <0.1 | 0.6 | 4 | <0.05 |
| 22/06/22 | 01/07/22 | 14/07/22 | 14 | 314 | <0.01 | <0.001 | <0.0001 | 0.024 | <0.001 | 0.034 | <0.001 | <0.005 | 0.003 | 0.20 | <0.05 | <0.01 | 0.65 | 0.1 | 0.8 | 3 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | 15 | 256 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.036 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.88 | 0.2 | 1.1 | <1 | <0.05 |

Table 2a: ABH11 - Groundwater quality & quarterly depth – field parameters & analytes

| EPA Point 11 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|---|--------------------------------|-------|------|------|------|-------|--------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH11 - Baseline monitoring phase – 8 sampling events 30/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 3.33 | 1208 | 6.79 | +108 | 16.5 | 26.22 | 951.34 | | 0.0 | 277 | 73 |
| Max | 4.73 | 1352 | 6.94 | +230 | 18.3 | 25.72 | 951.84 | | 21.0 | 343 | 109 |
| ABH11 - Detection monitoring phase | | | | | | | | | | | |
| 05/12/20 | 2.54 | 1133 | 6.92 | +117 | 19.3 | 27.33 | 950.23 | | 3.9 | 303 | 88 |
| 21/03/21 | 3.29 | 1141 | 6.89 | +64 | 18.4 | 26.78 | 950.78 | | 2.5 | 307 | 91 |
| 14/06/21 | 2.63 | 1138 | 6.87 | +108 | 18.8 | 26.04 | 951.52 | | 1.3 | 307 | 97 |
| 24/10/21 | 5.19 | 1144 | 6.89 | +86 | 18.6 | 25.29 | 952.27 | | 2.1 | 333 | 94 |
| 17/01/22 | 5.89 | 1169 | 6.92 | +116 | 18.7 | 24.60 | 952.96 | | 1.7 | 363 | 91 |
| 16/04/22 | 5.80 | 1193 | 6.85 | +42 | 19.3 | 23.59 | 953.97 | | 0.0 | 353 | 120 |
| 22/06/22 | 6.76 | 1204 | 6.82 | +96 | 17.8 | 23.03 | 954.53 | | 0.1 | 350 | 79 |
| 16/10/22 | INACC ESSIBLE BY 4 WHEEL DRIVE | | | | | | | | | | |

Table 2b: ABH11 - Groundwater quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|---|-------------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|--------|-------|--------|-----------------|-----------------|-----------|------|------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH11 - Baseline monitoring phase – 8 sampling events 30/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 87 | 164 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.40 | <0.1 | 0.4 | <1 | <0.05 |
| Max | | NA | 100 | 188 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | 0.001 | 0.013 | <0.001 | <0.05 | <0.05 | 0.04 | 0.45 | 0.2 | 0.6 | 9 | <0.05 |
| ABH11 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 05/12/20 | 16/12/20 | 05/01/21 | 75 | 177 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.009 | <0.001 | <0.05 | <0.05 | <0.01 | 0.45 | <0.1 | 0.4 | <1 | <0.05 |
| 21/03/21 | 12/04/21 | 21/04/21 | 85 | 170 | 0.02 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | 0.05 | <0.05 | <0.01 | 0.39 | 0.1 | 0.5 | 2 | <0.05 |
| 14/06/21 | 25/06/21 | 09/07/21 | 79 | 159 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.50 | <0.1 | 0.5 | 8 | <0.05 |
| 24/10/21 | 08/11/21 | 26/11/21 | 85 | 178 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.46 | <0.1 | 0.5 | 3 | <0.05 |
| 17/01/22 | 27/01/22 | 11/02/22 | 88 | 190 | 0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.49 | <0.1 | 0.5 | <3 | <0.05 |
| 16/04/22 | 29/04/22 | 19/05/22 | 84 | 195 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.001 | <0.05 | <0.05 | 0.01 | 0.48 | <0.1 | 0.5 | 6 | <0.05 |
| 22/06/22 | 01/07/22 | 14/07/22 | 86 | 215 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.001 | <0.05 | <0.05 | <0.01 | 0.47 | <0.1 | 0.5 | 5 | <0.05 |
| 16/10/22 | INACCESSIBLE BY 4 WHEEL DRIVE | | | | | | | | | | | | | | | | | | | | |

Table 3a: ABH12 - Groundwater quality & quarterly depth – field parameters & analytes

| Point 12 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|---|-------|---------|------|-------|-------|-------|--------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | m | NTU | mg/L | mg/L |
| ABH12 - Baseline monitoring phase – 8 sampling events 30/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 0.45 | 1326 | 6.77 | +45 | 16.9 | 20.17 | 949.62 | | 0.0 | 487 | 132 |
| Max | 0.91 | 1414 | 7.17 | +131 | 19.3 | 19.79 | 950.00 | | 5.0 | 577 | 205 |
| ABH12 - Detection monitoring phase | | | | | | | | | | | |
| 02/12/20 | 0.59 | 1270 | 6.83 | +85 | 23.3 | 20.61 | 949.18 | | 2.3 | 520 | 85 |
| 20/03/21 | 0.93 | 1312 | 6.79 | +100 | 19.7 | 19.76 | 950.03 | | 4.9 | 500 | 205 |
| 13/06/21 | 0.71 | 1290 | 6.70 | +125 | 19.6 | 19.30 | 950.49 | | 2.3 | 552 | 173 |
| 22/10/21 | 0.82 | 1282 | 6.77 | +140 | 17.8 | 18.74 | 951.05 | | 7.8 | 520 | 185 |
| 17/01/22 | 0.78 | 1246 | 6.71 | +106 | 18.5 | 18.19 | 951.60 | | 0.0 | 513 | 188 |
| 15/04/22 | 0.85 | 1233 | 6.64 | +80 | 18.6 | 17.57 | 952.22 | | 1.7 | 500 | 205 |
| 21/06/22 | 0.82 | 1234 | 6.63 | +80 | 17.6 | 17.54 | 952.25 | | 1.3 | 500 | 117 |
| 16/10/22 | INACC | ESSIBLE | BY 4 | WHEEL | DRIVE | | | | | | |

Table 3b: ABH12 - Groundwater quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|---|-------------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|--------|-------|--------|-----------------|-----------------|-----------|------|------|------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH12 - Baseline monitoring phase – 8 sampling events 30/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 87 | 82 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.12 | <0.1 | 0.1 | 1 | 0.14 |
| Max | | NA | 112 | 96 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.004 | <0.001 | 0.001 | 0.035 | 0.027 | <0.05 | <0.05 | 0.04 | 0.15 | 0.2 | 0.3 | 11 | 0.17 |
| ABH12 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 02/12/20 | 11/12/20 | 05/01/21 | 107 | 99 | <0.01 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.021 | 0.001 | <0.05 | <0.05 | <0.01 | 0.13 | <0.1 | 0.1 | 7 | 0.15 |
| 20/03/21 | 12/04/21 | 21/04/21 | 109 | 104 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.006 | <0.001 | <0.001 | 0.016 | <0.001 | <0.05 | <0.05 | <0.01 | 0.13 | 0.2 | 0.3 | 4 | 0.13 |
| 13/06/21 | 25/06/21 | 09/07/21 | 106 | 91 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.15 | <0.1 | 0.2 | 11 | 0.14 |
| 22/10/21 | 08/11/21 | 26/11/21 | 108 | 106 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.013 | <0.001 | <0.05 | <0.05 | <0.01 | 0.15 | <0.1 | 0.2 | 6 | 0.12 |
| 17/01/22 | 27/01/22 | 11/02/22 | 108 | 109 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.16 | <0.1 | 0.2 | 4 | 0.14 |
| 15/04/22 | 29/04/22 | 19/05/22 | 106 | 111 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.16 | <0.1 | 0.2 | 10 | 0.12 |
| 21/06/22 | 01/07/22 | 14/07/22 | 107 | 112 | 0.04 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.05 | 0.15 | <0.1 | 0.2 | 8 | 0.12 |
| 16/10/22 | INACCESSIBLE BY 4 WHEEL DRIVE | | | | | | | | | | | | | | | | | | | | |

Table 4a: ABH15A - Groundwater quality & quarterly depth – field parameters & analytes

| EPA Point 13 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|--|------|-------|------|------|------|-------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH15A - Baseline monitoring phase | | | | | | | | | | | |
| 14/04/19 | 0.35 | 1218 | 6.68 | -26 | 17.2 | 15.27 | 946.541 | | 3.6 | 509 | NT |
| 21/09/19 | 0.23 | 1237 | 6.94 | -55 | 17.4 | 15.56 | 946.251 | | 4.9 | 504 | 112 |
| 23/02/20 | 0.23 | 1148 | 6.94 | -60 | 18.8 | 15.26 | 946.551 | | 0.0 | 485 | 66 |
| 09/05/20 | 0.13 | 1130 | 7.11 | -55 | 17.9 | 15.20 | 946.611 | | 1.7 | 485 | 66 |
| 04/09/20 | 0.04 | 1149 | 7.06 | -54 | 17.9 | 15.04 | 946.771 | | 0.0 | 485 | 88 |
| 05/12/20 | 0.14 | 1157 | 7.05 | -62 | 20.2 | 15.04 | 946.771 | | 1.4 | 484 | 120 |
| 20/03/21 | 0.18 | 1181 | 7.02 | -104 | 19.4 | 13.22 | 948.591 | | 1.1 | 480 | 126 |
| 14/06/21 | 0.11 | 1164 | 6.97 | -79 | 19.3 | 13.45 | 948.361 | | 0.4 | 540 | 126 |
| ABH15A - Detection monitoring phase | | | | | | | | | | | |
| 22/10/21 | 0.14 | 1127 | 7.00 | -92 | 18.1 | 12.98 | 948.831 | | 0.0 | 507 | 117 |
| 15/01/22 | 0.10 | 1088 | 6.96 | -101 | 19.2 | 12.17 | 949.641 | | 0.0 | 500 | 103 |
| 15/04/22 | 0.02 | 1095 | 6.96 | -42 | 19.6 | 11.05 | 950.761 | | 0.0 | 497 | 106 |
| 21/06/22 | 0.08 | 1075 | 6.89 | -67 | 16.5 | 12.08 | 949.731 | | 0.0 | 487 | 88 |
| 16/10/22 | 0.07 | 1056 | 6.93 | -59 | 17.7 | 11.10 | 950.711 | | 0.0 | 480 | 106 |

Table 4b: ABH15A - Groundwater quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|-------|------|--------|-----------------|-----------------|-----------|------|------|------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH15A - Baseline monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 14/04/19 | NA | NA | 41 | 92 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.003 | <0.001 | 0.020 | 0.118 | 1.36 | 1.53 | 0.03 | <0.01 | <0.1 | <0.1 | 5 | 0.12 |
| 21/09/19 | NA | NA | 43 | 90 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.004 | 0.003 | <0.001 | 0.034 | 0.144 | 1.62 | 1.59 | <0.01 | <0.01 | <0.1 | <0.1 | <5 | 0.15 |
| 23/02/20 | NA | NA | 40 | 89 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | 0.008 | 0.109 | 1.54 | 1.61 | 0.02 | <0.01 | <0.1 | <0.1 | <5 | 0.11 |
| 09/05/20 | NA | NA | 40 | 93 | 0.02 | <0.001 | <0.0001 | <0.001 | 0.006 | 0.002 | <0.001 | 0.031 | 0.112 | 1.50 | 1.40 | 0.02 | <0.01 | <0.1 | <0.1 | 4 | 0.12 |
| 04/09/20 | NA | NA | 41 | 95 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.123 | 1.43 | 1.49 | <0.01 | <0.01 | <0.1 | <0.1 | 6 | 0.13 |
| 05/12/20 | 16/12/20 | 05/01/21 | 38 | 95 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.005 | 0.122 | 1.34 | 1.38 | <0.01 | <0.01 | <0.1 | <0.1 | 3 | 0.13 |
| 20/03/21 | 12/04/21 | 21/04/21 | 48 | 105 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.005 | 0.130 | 1.72 | 1.55 | <0.01 | <0.01 | <0.1 | <0.1 | 2 | 0.12 |
| 14/06/21 | 25/06/21 | 09/07/21 | 46 | 95 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.005 | 0.124 | 1.77 | 1.61 | 0.02 | <0.01 | <0.1 | <0.1 | 11 | 0.10 |
| ABH15A - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 22/10/21 | 08/11/21 | 26/11/21 | 43 | 104 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.002 | 0.001 | <0.001 | 0.014 | 0.122 | 1.64 | 1.68 | <0.01 | <0.01 | <0.1 | <0.1 | 5 | 0.12 |
| 15/01/22 | 27/01/22 | 11/02/22 | 41 | 101 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.124 | 1.53 | 1.52 | 0.03 | <0.01 | <0.1 | <0.1 | <3 | 0.14 |
| 15/04/22 | 29/04/22 | 19/05/22 | 42 | 97 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.008 | 0.108 | 1.11 | 1.00 | 0.02 | <0.01 | 0.1 | 0.1 | 9 | 0.15 |
| 21/06/22 | 01/07/22 | 14/07/22 | 38 | 100 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.120 | 1.40 | 1.46 | <0.01 | <0.01 | <0.1 | <0.1 | 8 | 0.14 |
| 16/10/22 | 26/10/22 | 11/11/22 | 40 | 87 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.118 | 1.50 | 1.47 | <0.01 | <0.01 | <0.1 | <0.1 | <1 | 0.18 |

Table 5a: ABH15B - Groundwater quality & quarterly depth – field parameters & analytes

| EPA Point 14 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|--|------|-------|------|------|------|-------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH15B - Baseline monitoring phase | | | | | | | | | | | |
| 14/04/19 | 0.99 | 1560 | 6.74 | +158 | 19.0 | 15.56 | 946.119 | | 2.9 | 529 | NT |
| 21/09/19 | 0.56 | 1551 | 6.76 | +146 | 17.4 | 15.89 | 945.789 | | 4.9 | 500 | 191 |
| 23/02/20 | 0.52 | 1466 | 6.79 | +84 | 19.0 | 15.48 | 946.199 | | 4.6 | 453 | 100 |
| 09/05/20 | 0.41 | 1451 | 6.92 | +89 | 18.0 | 15.47 | 946.209 | | 4.1 | 567 | 109 |
| 04/09/20 | 0.59 | 1509 | 6.86 | +168 | 17.9 | 15.29 | 946.389 | | 8.2 | 547 | 111 |
| 05/12/20 | 0.50 | 1508 | 6.85 | +75 | 20.9 | 15.27 | 946.409 | | 0.2 | 533 | 176 |
| 20/03/21 | 0.52 | 1533 | 6.82 | +81 | 19.1 | 13.34 | 948.339 | | 1.0 | 520 | 176 |
| 14/06/21 | 0.42 | 1441 | 6.77 | +60 | 20.3 | 13.71 | 947.969 | | 2.2 | 560 | 197 |
| ABH15B - Detection monitoring phase | | | | | | | | | | | |
| 22/10/21 | 0.41 | 1482 | 6.82 | +65 | 17.8 | 13.26 | 948.419 | | 2.1 | 533 | 167 |
| 15/01/22 | 0.25 | 1513 | 6.81 | +54 | 19.2 | 12.45 | 949.229 | | 1.6 | 527 | 173 |
| 15/04/22 | 0.40 | 1465 | 6.73 | +66 | 18.3 | 11.22 | 950.459 | | 0.8 | 480 | 182 |
| 21/06/22 | 0.36 | 1429 | 6.78 | +58 | 16.7 | 12.45 | 949.229 | | 0.0 | 516 | 132 |
| 16/10/22 | 0.42 | 1403 | 6.70 | +67 | 17.8 | 11.37 | 950.309 | | 2.7 | 493 | 170 |

Table 5b: ABH15B - Groundwater quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B | |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|---------|--------|--------|--------|--------|-------|-------|--------|-----------------|-----------------|-----------|------|------|-------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L | |
| ABH15B - Baseline monitoring phase | | | | | | | | | | | | | | | | | | | | | | |
| 14/04/19 | | NA | NA | 89 | 171 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.010 | 0.012 | 0.002 | 0.104 | 0.030 | <0.05 | <0.05 | 0.04 | 0.37 | <0.1 | 0.4 | 5 | 0.06 |
| 21/09/19 | | NA | NA | 88 | 156 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.008 | 0.002 | <0.001 | 0.054 | 0.008 | <0.05 | <0.05 | <0.01 | 0.35 | <0.1 | 0.4 | <5 | 0.08 |
| 23/02/20 | | NA | NA | 96 | 162 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.006 | 0.003 | <0.05 | <0.05 | 0.02 | 0.36 | <0.1 | 0.4 | 6 | <0.05 |
| 09/05/20 | | NA | NA | 96 | 170 | 0.03 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | 0.015 | 0.004 | <0.05 | <0.05 | <0.01 | 0.35 | <0.1 | 0.4 | <1 | <0.05 |
| 04/09/20 | | NA | NA | 97 | 173 | 0.02 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.008 | 0.003 | <0.05 | <0.05 | <0.01 | 0.35 | <0.1 | 0.4 | 2 | 0.06 |
| 05/12/20 | 16/12/20 | 05/01/21 | 85 | 176 | 0.04 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.35 | <0.1 | 0.4 | 3 | 0.07 | |
| 20/03/21 | 12/04/21 | 21/04/21 | 102 | 199 | 0.02 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.003 | <0.05 | <0.05 | <0.01 | 0.38 | <0.1 | 0.4 | 4 | 0.06 | |
| 14/06/21 | 25/06/21 | 09/07/21 | 95 | 175 | 0.15 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.005 | <0.05 | <0.05 | <0.01 | 0.40 | <0.1 | 0.4 | 12 | <0.05 | |
| ABH15A - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | | |
| 22/10/21 | 08/11/21 | 26/11/21 | 94 | 203 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.005 | <0.001 | <0.001 | 0.022 | 0.004 | <0.05 | <0.05 | <0.01 | 0.39 | <0.1 | 0.4 | <2 | 0.06 | |
| 15/01/22 | 27/01/22 | 11/02/22 | 98 | 214 | 0.01 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.004 | <0.05 | <0.05 | 0.03 | 0.48 | <0.1 | 0.5 | 3 | 0.07 | |
| 15/04/22 | 29/04/22 | 19/05/22 | 97 | 206 | 0.01 | <0.001 | <0.0001 | <0.001 | 0.004 | <0.001 | <0.001 | 0.009 | 0.008 | <0.05 | <0.05 | 0.02 | 0.48 | 0.1 | 0.6 | 6 | 0.08 | |
| 21/06/22 | 01/07/22 | 14/07/22 | 91 | 210 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.45 | <0.1 | 0.4 | 5 | 0.08 | |
| 16/10/22 | 26/10/22 | 11/11/22 | 90 | 194 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.53 | <0.1 | 0.5 | <1 | 0.08 | |

Groundwater – Six-monthly

Table 6a: ABH02 - Groundwater quality & six-monthly depth – field parameters & analytes

| EPA Point 5 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|---|------|-------|------|------|------|------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH02 - Baseline monitoring phase – 8 sampling events 29/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 0.09 | 2063 | 6.83 | +73 | 17.2 | 8.22 | 945.534 | | 0.5 | 510 | 85 |
| Max | 0.58 | 2326 | 7.28 | +281 | 19.5 | 7.68 | 946.074 | | 33.7 | 613 | 214 |
| ABH02 - Detection monitoring phase | | | | | | | | | | | |
| 20/03/21 | 0.15 | 2049 | 6.89 | +66 | 18.9 | 6.71 | 947.044 | | 5.8 | 540 | 176 |
| 22/10/21 | 0.52 | 2041 | 6.87 | +147 | 17.3 | 6.40 | 947.350 | | 3.8 | 607 | 141 |
| 15/04/22 | 0.19 | 1227 | 7.12 | +51 | 17.4 | 4.65 | 949.104 | | 12.9 | 513 | 111 |
| 16/10/22 | 0.97 | 968 | 6.98 | +162 | 16.3 | 4.56 | 949.194 | | 26.7 | 400 | 91 |

Table 6b: ABH02 - Groundwater quality six-monthly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|---|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|-------|-------|--------|-----------------|-----------------|-----------|------|------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH02 - Baseline monitoring phase – 8 sampling events 29/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 141 | 329 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.005 | 0.013 | <0.05 | <0.05 | <0.01 | 0.84 | <0.1 | 0.9 | <1 | <0.05 |
| Max | | NA | 176 | 419 | <0.01 | <0.001 | 0.0002 | <0.001 | 0.006 | 0.006 | <0.001 | 0.031 | 0.155 | <0.05 | <0.05 | 0.06 | 0.98 | 0.2 | 1.2 | 28 | <0.05 |
| ABH02 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 20/03/21 | 12/04/21 | 21/04/21 | 145 | 386 | 0.10 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.006 | <0.001 | 0.042 | 0.144 | 0.11 | <0.05 | <0.01 | 0.71 | 0.2 | 0.9 | 4 | <0.05 |
| 22/10/21 | 08/11/21 | 26/11/21 | 139 | 408 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.001 | <0.001 | 0.022 | 0.013 | <0.05 | <0.05 | <0.01 | 0.96 | <0.1 | 1.0 | 2 | <0.05 |
| 15/04/22 | 29/04/22 | 19/05/22 | 60 | 147 | 1.91 | 0.001 | <0.0001 | 0.002 | 0.001 | 0.001 | 0.006 | <0.005 | 0.025 | 0.92 | <0.05 | 0.05 | 2.53 | 0.7 | 3.2 | 9 | <0.05 |
| 16/10/22 | 26/10/22 | 11/11/22 | 50 | 138 | 0.04 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.005 | 0.002 | 0.10 | <0.05 | <0.01 | 1.16 | 0.8 | 2.0 | 10 | <0.05 |

Table 7a: ABH02A - Groundwater quality & six-monthly depth – field parameters & analytes

| EPA Point 6 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|--|------|-------|------|------|------|------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH02A - Baseline monitoring phase – 8 sampling events 28/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 0.01 | 1728 | 6.77 | +112 | 16.3 | 8.10 | 945.889 | | 0.0 | 525 | 88 |
| Max | 0.55 | 1847 | 6.93 | +293 | 18.9 | 7.52 | 946.469 | | 20.0 | 627 | 232 |
| ABH02A - Detection monitoring phase | | | | | | | | | | | |
| 20/03/21 | 0.02 | 1669 | 6.83 | +92 | 18.4 | 6.49 | 947.499 | | 3.5 | 540 | 205 |
| 22/10/21 | 0.11 | 1627 | 6.84 | +154 | 17.6 | 6.24 | 947.750 | | 1.1 | 560 | 188 |
| 15/04/22 | 0.08 | 1595 | 6.73 | +64 | 17.9 | 4.49 | 949.499 | | 0.2 | 547 | 199 |
| 16/10/22 | 0.08 | 1525 | 6.68 | +150 | 16.7 | 4.41 | 949.579 | | 2.1 | 540 | 188 |

Table 7b: ABH02A - Groundwater quality six-monthly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|--------|-------|--------|-----------------|-----------------|-----------|------|-------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH02A - Baseline monitoring phase - – 8 sampling events 28/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 141 | 207 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.05 | <0.01 | 0.59 | <0.1 | 0.6 | <1 | <0.05 |
| Max | | NA | 164 | 242 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.023 | 0.003 | <0.05 | <0.05 | 0.05 | 0.66 | 0.2 | 0.9 | 31 | 0.05 |
| ABH02A - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 20/03/21 | 12/04/21 | 21/04/21 | 140 | 219 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.001 | <0.05 | <0.05 | <0.01 | 0.46 | 0.1 | 0.6 | 4 | <0.05 |
| 22/10/21 | 08/11/21 | 26/11/21 | 135 | 227 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.005 | <0.001 | 0.023 | <0.001 | <0.05 | <0.05 | <0.01 | 0.49 | <0.1 | 0.5 | 3 | <0.05 |
| 15/04/22 | 29/04/22 | 19/05/22 | 140 | 234 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.51 | <0.1 | 0.5 | 13 | 0.06 |
| 16/10/22 | 26/10/22 | 11/11/22 | 136 | 205 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.006 | <0.001 | <0.05 | <0.05 | <0.01 | 0.52 | 0.2 | 0.7 | <0.01 | 0.07 |

Table 8a: ABH4 - Groundwater quality & six-monthly depth – field parameters & analytes

| EPA Point 7 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|--|------|-------|------|------|------|------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH4 - Baseline monitoring phase – 8 sampling events 29/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 0.24 | 1693 | 6.88 | +32 | 14.1 | 4.93 | 948.084 | | 0.0 | 546 | 79 |
| Max | 1.46 | 1777 | 7.01 | +159 | 20.5 | 4.89 | 949.124 | | 93.0 | 593 | 188 |
| ABH4 - Detection monitoring phase | | | | | | | | | | | |
| 21/03/21 | 0.23 | 395 | 6.62 | -160 | 17.8 | 4.02 | 949.994 | | 2184.0 | 160 | 88 |
| 21/10/21 | 0.51 | 558 | 6.70 | -4 | 17.3 | 3.58 | 950.430 | | 192.0 | 200 | 73 |
| 16/04/22 | 0.86 | 1533 | 6.66 | -174 | 17.6 | 2.13 | 951.884 | | 29.2 | 483 | 176 |
| 15/10/22 | 0.57 | 1590 | 6.70 | -117 | 16.9 | 1.76 | 952.254 | | 4.2 | 520 | 182 |

Table 8b: ABH4 - Groundwater quality six-monthly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|-------|--------|-------|-------|-------|--------|-----------------|-----------------|-----------|------|------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH4 - Baseline monitoring phase - - 8 sampling events 29/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 137 | 161 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.002 | 0.002 | <0.01 | 0.006 | 0.084 | <0.05 | <0.05 | <0.01 | 0.40 | <0.1 | 0.5 | <1 | <0.05 |
| Max | | NA | 167 | 180 | 0.02 | <0.001 | <0.0001 | <0.001 | 0.019 | 0.021 | 0.001 | 0.121 | 0.117 | <0.05 | 0.15 | 0.04 | 0.51 | 0.4 | 0.9 | 9 | <0.05 |
| ABH4 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 21/03/21 | 12/04/21 | 21/04/21 | 19 | 53 | 0.10 | 0.001 | <0.0001 | <0.001 | 0.001 | 0.005 | <0.001 | 0.010 | 0.107 | 0.45 | 0.10 | 0.17 | <0.01 | 3.8 | 3.8 | 15 | <0.05 |
| 21/10/21 | 08/11/21 | 26/11/21 | 34 | 83 | <0.01 | 0.001 | <0.0001 | <0.001 | 0.002 | 0.006 | <0.001 | 0.143 | 0.621 | 1.42 | 1.21 | 0.10 | 0.02 | 0.9 | 0.9 | 8 | <0.05 |
| 16/04/22 | 29/04/22 | 19/05/22 | 170 | 207 | <0.01 | 0.002 | <0.0001 | <0.001 | <0.001 | 0.011 | <0.001 | 0.044 | 1.490 | 5.11 | 5.40 | 0.12 | 0.01 | 0.3 | 0.3 | 11 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | 167 | 210 | <0.01 | 0.002 | <0.0001 | <0.001 | 0.001 | 0.008 | <0.001 | 0.052 | 1.220 | 4.27 | 4.44 | 0.06 | 0.01 | 0.2 | 0.2 | 5 | 0.06 |

Table 9a: ABH4A - Groundwater quality & six-monthly depth – field parameters & analytes

| EPA Point 33 Measure | DO mg/L | EC μ S/cm | pH 1-14 | Eh mV | Temp $^{\circ}$ C | D m | WL m | RL m | Turbidity NTU | Alkalinity mg/L | Free CO ₂ mg/L |
|---|---------|---------------|---------|-------|-------------------|------|---------|------|---------------|-----------------|---------------------------|
| ABH4A - Baseline monitoring – 8 sampling events 29/07/15 to 27/11/16 – water only once | | | | | | | | | | | |
| 09/10/16 | 8.40 | 501 | 7.22 | -6 | 17.6 | 2.81 | 951.204 | | very high | 327 | 82 |
| 21/03/21 | 4.23 | 437 | 6.75 | -35 | 19.7 | 1.07 | 952.859 | | 52.7 | 117 | 18 |
| ABH4A - Detection monitoring phase | | | | | | | | | | | |
| 21/10/21 | 0.44 | 273 | 6.83 | -25 | 14.7 | 1.11 | 952.82 | | 1278 | 80 | 35 |
| 16/04/22 | 0.37 | 362 | 6.85 | -203 | 18.1 | 1.10 | 952.829 | | 112.3 | 125 | 41 |
| 15/10/22 | 1.46 | 402 | 6.69 | +121 | 15.2 | 1.00 | 952.929 | | 36.1 | 113 | 41 |

Note: Well ABH4A is usually dry or has insufficient water for sampling.

Table 9b: ABH4A - Groundwater quality six-monthly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ mg/L | Cl mg/L | Al mg/L | As mg/L | Cd mg/L | Cr mg/L | Cu mg/L | Ni mg/L | Pb mg/L | Zn mg/L | Mn mg/L | Fe mg/L | Fe(II) mg/L | NH ₃ mg/L as N | NO _x mg/L as N | TKN mg/L as N | TN mg/L | TOC mg/L | B mg/L |
|---|--------------------------|----------------------------------|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|---------------------------|---------------------------|---------------|---------|----------|--------|
| ABH4A - Baseline monitoring phase - - 8 sampling events 29/07/15 to 27/11/16 – only once had water | | | | | | | | | | | | | | | | | | | | | |
| 09/10/16 | NA | NA | 32 | 92 | 0.08 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.001 | <0.001 | 0.026 | 0.001 | 0.09 | <0.05 | 0.08 | 0.85 | 1.9 | 2.8 | 5 | NT |
| 21/03/21 | 12/04/21 | 21/04/21 | 6 | 67 | 0.02 | <0.001 | <0.0001 | <0.001 | 0.005 | 0.006 | <0.001 | 0.009 | 0.010 | 0.17 | <0.05 | 0.01 | 0.14 | 0.8 | 0.9 | 11 | <0.05 |
| ABH4A - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 21/10/21 | 08/11/21 | 26/11/21 | 12 | 50 | 0.28 | <0.001 | <0.0001 | <0.001 | 0.018 | 0.006 | 0.002 | 0.100 | 0.143 | 0.29 | 0.07 | 0.02 | 0.03 | 2.5 | 2.5 | 8 | <0.05 |
| 16/04/22 | 29/04/22 | 19/05/22 | 6 | 42 | 0.12 | 0.002 | <0.0001 | <0.001 | <0.001 | 0.005 | <0.001 | 0.021 | 0.390 | 1.66 | 1.42 | 0.63 | <0.01 | 1.5 | 1.5 | 11 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | 10 | 49 | 0.02 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.001 | <0.001 | 0.018 | 0.017 | <0.05 | 0.40 | <0.01 | 0.07 | 0.3 | 0.4 | 5 | <0.05 |

Table 10a: ABH04 - Groundwater quality & six-monthly depth – field parameters & analytes

| EPA Point 8 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|---|------|-------|------|------|------|------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | m | NTU | mg/L | mg/L |
| ABH04 - Baseline monitoring phase – 8 sampling events 28/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 0.00 | 2253 | 6.74 | -90 | 16.2 | 5.38 | 947.771 | | 0.0 | 557 | 97 |
| Max | 0.21 | 2436 | 6.91 | -243 | 19.1 | 4.88 | 948.271 | | 16.0 | 610 | 235 |
| ABH04 - Detection monitoring phase | | | | | | | | | | | |
| 21/03/21 | 0.00 | 2026 | 6.88 | -31 | 18.4 | 4.12 | 949.031 | | 54.5 | 607 | 18 |
| 21/10/21 | 0.07 | 2042 | 6.83 | -28 | 16.1 | 3.61 | 949.540 | | 30.3 | 633 | 173 |
| 16/04/22 | 0.01 | 1941 | 6.73 | -32 | 17.0 | 2.18 | 950.971 | | 30.8 | 573 | 202 |
| 15/10/22 | 0.06 | 1967 | 6.69 | -6 | 16.7 | 1.80 | 951.351 | | 14.2 | 540 | 185 |

Table 10b: ABH04 - Groundwater quality six-monthly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|-------|------|--------|-----------------|-----------------|-----------|------|------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH04 - Baseline monitoring phase - -8 sampling events 28/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 288 | 309 | <0.01 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 1.20 | 0.89 | 1.16 | <0.01 | <0.01 | <0.1 | <0.1 | <1 | <0.05 |
| Max | | NA | 340 | 373 | <0.01 | 0.002 | <0.0001 | <0.001 | 0.001 | 0.001 | <0.001 | 0.026 | 1.69 | 1.75 | 1.70 | 0.04 | 0.01 | 0.1 | 0.1 | 12 | <0.05 |
| ABH04 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 21/03/21 | 12/04/21 | 21/04/21 | 282 | 272 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.010 | 1.58 | 0.42 | 0.28 | <0.01 | <0.01 | 0.2 | 0.2 | 6 | <0.05 |
| 21/10/21 | 08/11/21 | 26/11/21 | 282 | 297 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.006 | 1.70 | 0.42 | 0.42 | <0.01 | <0.01 | 0.2 | 0.2 | 3 | <0.05 |
| 16/04/22 | 29/04/22 | 19/05/22 | 354 | 237 | <0.01 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.012 | 0.765 | 0.67 | 0.63 | 0.05 | <0.01 | 0.4 | 0.4 | 16 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | 292 | 302 | <0.01 | 0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.019 | 0.479 | 0.57 | 0.57 | <0.01 | <0.01 | 0.2 | 0.2 | 7 | <0.05 |

Table 11a: ABH04A - Groundwater quality & six-monthly depth – field parameters & analytes

| EPA Point 9 | DO | EC | pH | Eh | Temp | D | WL | RL | Turbidity | Alkalinity | Free CO ₂ |
|--|------|-------|------|------|------|------|---------|----|-----------|------------|----------------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | m | | NTU | mg/L | mg/L |
| ABH04A - Baseline monitoring phase – 8 sampling events 29/07/15 to 27/11/16 | | | | | | | | | | | |
| Min | 1.46 | 1508 | 7.18 | -37 | 15.7 | 5.41 | 947.559 | | 0.0 | 510 | 59 |
| Max | 3.46 | 1660 | 7.95 | +142 | 19.2 | 4.89 | 948.079 | | 48.0 | 603 | 103 |
| ABH04A - Detection monitoring phase | | | | | | | | | | | |
| 21/03/21 | 1.65 | 1572 | 7.35 | +19 | 18.0 | 4.03 | 948.939 | | 0.7 | 573 | 85 |
| 21/10/21 | 3.50 | 1466 | 7.35 | +137 | 15.9 | 3.60 | 949.370 | | 0.0 | 600 | 67 |
| 16/04/22 | 1.77 | 1469 | 7.21 | +32 | 16.9 | 3.60 | 949.369 | | 0.0 | 600 | 97 |
| 15/10/22 | 1.79 | 1389 | 7.15 | +175 | 15.5 | 1.76 | 951.209 | | 0.9 | 587 | 79 |

Table 11b: ABH04A - Groundwater quality six-monthly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | SO ₄ | Cl | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TOC | B |
|--|--------------------------|----------------------------------|-----------------|------|-------|--------|---------|--------|--------|--------|--------|--------|--------|-------|--------|-----------------|-----------------|-----------|------|------|-------|
| | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L |
| ABH04A - Baseline monitoring phase - – 8 sampling events 29/07/15 to 27/11/16 | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | 278 | 31 | <0.01 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.002 | <0.05 | <0.05 | <0.01 | 0.14 | <0.1 | 0.2 | <1 | <0.05 |
| Max | | NA | 335 | 40 | <0.01 | 0.001 | <0.0001 | <0.001 | 0.005 | 0.003 | <0.001 | 0.020 | 0.391 | <0.05 | <0.05 | 0.04 | 1.34 | 0.3 | 1.6 | 17 | <0.05 |
| ABH04A - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 21/03/21 | 12/04/21 | 21/04/21 | 323 | 37 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.001 | 0.001 | <0.001 | 0.005 | 0.050 | <0.05 | <0.05 | <0.01 | 1.22 | 0.2 | 1.4 | 6 | <0.05 |
| 21/10/21 | 08/11/21 | 26/11/21 | 276 | 36 | <0.01 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.010 | <0.001 | <0.05 | <0.05 | <0.01 | 2.19 | 0.2 | 2.4 | 4 | <0.05 |
| 16/04/22 | 29/04/22 | 19/05/22 | 246 | 29 | <0.01 | 0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.006 | 0.014 | <0.05 | <0.05 | 0.02 | 3.13 | 0.5 | 3.6 | 13 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | 238 | 29 | <0.01 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.045 | <0.05 | <0.05 | <0.01 | 3.12 | 0.8 | 3.9 | <1 | <0.05 |

Dedicated water column bore loggers

Table 12a: Water column logger measurements and water level calculations

| Date range | ABH13 | ABH14 | ABH15A WC MIN | ABH15A WC MAX | ABH15A WL MIN | ABH15A WL MAX | ABH15A WL RL MIN | ABH15A WL RL MAX |
|--------------------------------------|-------|-------|------------------|------------------|------------------|------------------|------------------------|------------------------|
| Measure | | | m | m | m | m | m | m |
| 1 Oct 19 to 31 Dec 19 | DRY | DRY | 31.772 | 31.957 | 15.543 | 15.728 | 946.083 | 946.268 |
| 1 Jan 20 to 31 Mar 20 | DRY | DRY | 31.757 | 32.340 | 15.160 | 15.743 | 946.068 | 946.651 |
| 1 Apr 20 to 30 Jun 20 | DRY | DRY | 32.213 | 32.364 | 15.136 | 15.287 | 946.524 | 946.675 |
| 1 Jul 20 to 30 Sep 20 | DRY | DRY | 32.212 | 32.564 | 14.936 | 15.288 | 946.523 | 946.875 |
| 1 Oct 20 to 31 Dec 20 | DRY | DRY | 32.336 | 34.399 | 13.101 | 15.164 | 946.647 | 948.710 |
| 1 Jan 21 to 31 Mar 21 | DRY | DRY | 33.684 | 35.765 | 11.735 | 13.816 | 947.995 | 950.076 |
| 1 Apr 21 to 30 Jun 21 | DRY | DRY | 33.900 | 35.226 | 12.274 | 13.600 | 948.211 | 949.537 |
| 1 Jul 21 to 30 Sep 21 | DRY | DRY | 33.937 | 35.639 | 11.861 | 13.563 | 948.248 | 949.950 |
| 1 Oct 21 to 31 Dec 21 | DRY | DRY | 34.377 | 36.459 | 11.041 | 13.123 | 948.688 | 950.770 |
| 1 Jan 22 to 31 Mar 22 | DRY | DRY | 35.121 | 37.493 | 10.017 | 12.389 | 949.422 | 951.794 |
| 1 Apr 22 to 30 Jun 22 | DRY | DRY | 35.312 | 37.461 | 10.049 | 12.198 | 949.613 | 951.762 |
| 1 Jul 22 to 30 Sep 22 | DRY | DRY | 35.308 | 36.907 | 10.603 | 12.202 | 949.609 | 951.208 |
| Overall min & max to date | DRY | DRY | | | | | 946.068 | 951.794 |
| | | | | | | Range from | 1 Oct 19 | 5.726 |

| Date range | ABH15B WC MIN | ABH15B WC MAX | ABH15B WL MIN | ABH15B WL MAX | ABH15B WL RL MIN | ABH15B WL RL MAX | ABH15C WC MIN | ABH15C WC MAX | ABH15C WL MIN | ABH15C WL MAX | ABH15C WL RL MIN | ABH15C WL RL MAX |
|--------------------------------------|------------------|------------------|------------------|------------------|------------------------|------------------------|------------------|------------------|------------------|------------------|------------------------|------------------------|
| Measure | m | m | m | m | m | m | m | m | m | m | m | m |
| 1 Oct 19 to 31 Dec 19 | 14.983 | 15.161 | 15.869 | 16.047 | 945.632 | 945.810 | DRY | | | | | |
| 1 Jan 20 to 31 Mar 20 | 14.972 | 15.639 | 15.391 | 16.058 | 945.621 | 946.288 | DRY | | | | | |
| 1 Apr 20 to 30 Jun 20 | 15.452 | 15.634 | 15.396 | 15.578 | 946.101 | 946.283 | DRY | | | | | |
| 1 Jul 20 to 30 Sep 20 | 15.464 | 15.874 | 15.156 | 15.566 | 946.113 | 946.523 | DRY | | | | | |
| 1 Oct 20 to 31 Dec 20 | 15.608 | 18.045 | 12.985 | 15.450 | 946.229 | 948.694 | DRY | | | | | |
| 1 Jan 21 to 31 Mar 21 | 16.953 | 19.585 | 11.445 | 14.077 | 947.602 | 950.234 | DRY | | | | | |
| 1 Apr 21 to 30 Jun 21 | 17.114 | 18.717 | 12.313 | 13.916 | 947.763 | 949.366 | DRY | | | | | |
| 1 Jul 21 to 30 Sep 21 | 17.139 | 19.184 | 11.846 | 13.891 | 947.788 | 949.833 | DRY | | | | | |
| 1 Oct 21 to 31 Dec 21 | 17.565 | 20.132 | 10.898 | 13.465 | 948.214 | 950.781 | 0.000 | 2.120 | 5.930 | 8.019 | 953.549 | 955.638 |
| 1 Jan 22 to 31 Mar 22 | 18.327 | 21.311 | 9.719 | 12.703 | 948.976 | 951.960 | 0.000 | 4.105 | 3.945 | 8.012 | 953.556 | 957.623 |
| 1 Apr 22 to 30 Jun 22 | 18.418 | 21.253 | 9.777 | 12.612 | 949.067 | 951.902 | 0.000 | 4.014 | 4.036 | 8.091 | 953.477 | 957.532 |
| 1 Jul 22 to 30 Sep 22 | 18.416 | 20.395 | 10.635 | 12.614 | 949.065 | 951.044 | 0.000 | 4.312 | 3.738 | 8.094 | 953.523 | 957.830 |
| Overall min & max to date | | | | | 945.621 | 951.960 | | | | | 953.477 | 957.830 |
| | | | | Range from | 1 Oct 19 | 6.339 | | | | Range from | 1 Oct 19 | 4.353 |

← Recorded above logger base
 ← Recorded above logger base
 ← Recorded above logger base
 ← Recorded above logger base

Notes: WC = Water column from base of sensor to water level (WL) in well. Depth to WL from the top of the PVC casing is calculated from the known position of the logger in the well.

WL Relative Level (RL) is calculated from the surveyed RL for the top of PVC casing minus the WL.

Wells ABH13 and ABH14 have always been dry, information which is also captured by the water column loggers which are close to zero barometric adjusted WC measurements.

Surface water - Quarterly

Table 13a: ASB1 – Sediment basin – volume and surface water quality quarterly - field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 16 | Total Capacity | Volume | Freeboard (remaining capacity) | DO | EC | pH | Eh | Temp | D | Turbidity | Alkalinity | Free CO ₂ | SO ₄ | Cl | Ca | Mg | Na | K | SS | SAR | Hard-ness |
|--|----------------|--------|--------------------------------|-------|-------|------|------|------|------|-----------|------------|----------------------|-----------------|------|------|------|------|------|------|-------|-----------|
| Measure | kL | kL | kL | mg/L | µS/cm | 1-14 | mV | °C | m | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | ratio | mg/L |
| ASB1 - Baseline monitoring phase - since 23/02/20 | | | | | | | | | | | | | | | | | | | | | |
| 23/02/20 | | | | 7.56 | 81 | 7.17 | +126 | 21.9 | 0.25 | 880 | 27 | 15 | 4 | 3 | 4 | 2 | 10 | <1 | 52 | 1.02 | 18 |
| 10/05/20 | | | | 9.85 | 98 | 7.37 | +186 | 13.9 | 0.25 | 414 | 33 | 15 | 5 | 4 | 6 | 3 | 11 | 1 | 13 | 0.92 | 27 |
| 04/09/20 | | | | 9.81 | 106 | 7.51 | +123 | 18.9 | 0.30 | 374 | 37 | 15 | 6 | 4 | 6 | 2 | 10 | 1 | 32 | 0.90 | 23 |
| ASB1 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 03/12/20 | | | | 7.46 | 140 | 7.46 | +112 | 24.4 | 0.50 | 807 | 42 | 15 | 6 | 4 | 9 | 3 | 12 | 2 | 75 | 0.88 | 35 |
| 18/03/21 | | | | 7.92 | 135 | 6.92 | +168 | 20.8 | 0.30 | 453 | 3 | 15 | 6 | 2 | 8 | 2 | 7 | 2 | 33 | 0.57 | 28 |
| 14/06/21 | | | | 10.01 | 155 | 7.22 | +91 | 13.5 | 0.20 | 284 | 34 | 12 | 7 | 4 | 8 | 3 | 9 | 2 | 27 | 0.69 | 32 |
| 25/10/21 | | | | 7.83 | 271 | 7.15 | +142 | 20.1 | 0.20 | 274 | 35 | 12 | 8 | 9 | 9 | 3 | 12 | 2 | 17 | 0.88 | 35 |
| 17/01/22 | | | | 6.96 | 151 | 7.91 | +117 | 31.4 | 0.40 | 250 | 41 | 12 | 7 | 7 | 11 | 3 | 12 | 3 | 40 | 0.83 | 40 |
| 28/03/22 | | | | 7.55 | 120 | 7.31 | +155 | 18.3 | 0.20 | 309 | 30 | 13 | 5 | 5 | 8 | 2 | 8 | 2 | 62 | 0.66 | 28 |
| 22/06/22 | | | | 10.32 | 136 | 6.65 | +113 | 11.3 | 0.20 | 227 | 42 | 23 | 9 | 8 | 10 | 3 | 13 | 2 | 12 | 0.92 | 37 |
| 15/10/22 | | | | 8.42 | 147 | 7.67 | +82 | 22.4 | 0.15 | 147 | 39 | 12 | 10 | 6 | 12 | 4 | 11 | 2 | 18 | 0.70 | 46 |

Table 13b: ASB1 – Sediment basin surface water quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TP | TOC | B |
|--|--------------------------|----------------------------------|--------------------|------|--------|---------|--------|--------|--------|--------|--------|-------|------|--------|-----------------|-----------------|-----------|------|-------|------|-------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L | mg/L |
| ASB1 - Baseline monitoring phase - since 23/02/20 | | | | | | | | | | | | | | | | | | | | | |
| 23/02/20 | NA | NA | N | 14.4 | 0.002 | <0.0001 | 0.011 | 0.008 | 0.005 | 0.007 | 0.002 | 0.165 | 13.2 | NT | 0.07 | 0.50 | 0.8 | 1.3 | 0.26 | 4 | <0.05 |
| 10/05/20 | NA | NA | Y - field | 0.15 | <0.001 | <0.0001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.002 | 0.25 | | | | | | | | |
| 10/05/20 | NA | NA | N | 12.2 | 0.001 | <0.0001 | 0.009 | 0.006 | 0.005 | 0.004 | 0.001 | 0.054 | 10.8 | NT | <0.01 | 0.47 | 0.8 | 1.3 | 0.14 | 4 | <0.05 |
| 04/09/20 | NA | NA | N | 10.6 | 0.002 | <0.0001 | 0.009 | 0.007 | 0.004 | 0.004 | 0.002 | 0.051 | 8.83 | NT | 0.03 | 0.57 | 0.8 | 1.4 | 0.10 | 6 | <0.05 |
| ASB1 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 03/12/20 | 16/12/20 | 05/01/21 | N | 11.7 | 0.002 | <0.0001 | 0.011 | 0.009 | 0.005 | 0.008 | 0.002 | 0.218 | 12.5 | NT | <0.01 | 0.86 | 2.7 | 3.6 | 0.31 | 6 | <0.05 |
| 18/03/21 | 30/03/21 | 21/04/21 | Y - field | 0.09 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.004 | 0.08 | <0.05 | 0.05 | 0.27 | 1.1 | 1.4 | 0.15 | 5 | <0.05 |
| 14/06/21 | 25/06/21 | 09/07/21 | Y - field | 0.32 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | 0.009 | 0.011 | 0.34 | <0.05 | 0.09 | 0.38 | 1.1 | 1.5 | 0.08 | 8 | <0.05 |
| 25/10/21 | 08/11/21 | 26/11/21 | Y - field | 0.26 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.005 | 0.033 | 0.29 | 0.07 | 0.18 | 0.66 | 1.4 | 2.1 | 0.12 | 11 | <0.05 |
| 17/01/22 | 27/01/22 | 11/02/22 | Y - field | 0.25 | 0.001 | <0.0001 | <0.001 | 0.004 | 0.002 | <0.001 | <0.005 | 0.176 | 0.44 | 0.06 | 0.03 | 0.67 | 0.3 | 1.0 | 0.02 | 11 | <0.05 |
| 28/03/22 | 07/04/22 | 19/04/22 | Y - field | 0.59 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | <0.005 | 0.036 | 0.59 | 0.05 | 0.40 | 1.08 | 1.9 | 3.0 | 0.13 | 11 | <0.05 |
| 22/06/22 | 01/07/22 | 14/07/22 | Y - field | 9.60 | 0.002 | <0.0001 | 0.009 | 0.010 | 0.006 | 0.005 | 0.024 | 0.130 | 8.90 | <0.05 | <0.05 | 0.82 | 1.0 | 1.8 | 0.05 | 13 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | Y - field | 0.22 | <0.001 | <0.0001 | 0.001 | 0.003 | 0.001 | <0.001 | <0.005 | 0.025 | 0.38 | 0.06 | 0.06 | 2.03 | 2.0 | 4.0 | <0.10 | 11 | <0.05 |

Table 14a: ADB1-IN – Dry basin – volume and surface water quality quarterly - field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 17 | Total Capacity | Freeboard Volume (remaining capacity) | DO | EC | pH | Eh | Temp | Sample Depth | Turbidity | Alkalinity | Free CO ₂ | SO ₄ | Cl | Ca | Mg | Na | K | SS | SAR | Hard-ness |
|---|----------------|---------------------------------------|-------|------|-------|------|------|--------------|-----------|------------|----------------------|-----------------|------|------|------|------|------|-------|-------|-----------|
| | | | | | | | | | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | ratio |
| Measure | kL | kL | kL | mg/L | µS/cm | 1-14 | mV | °C | m | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | ratio | ratio | mg/L |
| ADB1-IN - Baseline monitoring phase -since 23/02/20 | | | | | | | | | | | | | | | | | | | | |
| 23/02/20 | | | 8.21 | 127 | 7.57 | +117 | 21.4 | 0.25 | 1459 | 33 | 15 | 8 | 9 | 2 | 1 | 21 | <1 | 74 | 3.03 | 9 |
| 10/05/20 | | | 10.01 | 143 | 7.64 | +200 | 13.8 | 0.15 | 1460 | 37 | 18 | 10 | 11 | 2 | 2 | 30 | <1 | 21 | 3.59 | 13 |
| 04/09/20 | | | 10.48 | 132 | 8.03 | +56 | 19.4 | 0.15 | 1094 | 37 | 18 | 9 | 9 | 2 | 1 | 25 | <1 | 28 | 3.60 | 9 |
| ADB1-IN - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | |
| 03/12/20 | | | 8.04 | 155 | 7.32 | +178 | 23.7 | 0.15 | 1067 | 40 | 21 | 9 | 9 | 2 | 1 | 27 | <1 | 37 | 3.89 | 9 |
| 18/03/21 | | | 7.85 | 150 | 6.94 | +133 | 26.1 | 0.10 | 301 | 217 | 32 | 2 | 8 | 5 | 4 | 18 | 4 | 15 | 1.46 | 29 |
| 14/06/21 | | | 10.51 | 96 | 7.34 | +114 | 12.7 | 0.25 | 574 | 31 | 12 | 5 | 5 | 2 | 1 | 17 | <1 | 17 | 2.45 | 9 |
| 25/10/21 | | | 8.95 | 188 | 7.55 | +119 | 18.9 | 0.20 | 445 | 23 | 7 | 6 | 6 | 2 | 1 | 18 | <1 | 14 | 2.59 | 9 |
| 17/01/22 | | | 10.72 | 113 | 8.98 | +32 | 30.2 | 0.25 | 419 | 30 | 3 | 6 | 6 | 2 | <1 | 19 | <1 | 41 | 3.11 | 5 |
| 17/04/22 | | | 7.71 | 93 | 7.06 | +135 | 15.7 | 0.20 | 2322 | 33 | 15 | 3 | 7 | 2 | 2 | 12 | 2 | 69 | 1.44 | 13 |
| 22/06/22 | | | 12.26 | 93 | 6.99 | +96 | 12.8 | 0.15 | 1654 | 27 | 18 | 4 | 7 | 2 | 1 | 15 | <1 | 64 | 2.16 | 9 |
| 15/10/22 | | | 8.98 | 87 | 6.91 | +60 | 20.9 | 0.10 | 670 | 19 | 18 | 4 | 5 | 1 | 1 | 12 | <1 | 44 | 2.03 | 9 |

Table 14b: ADB1-IN – Dry basin surface water quality quarterly – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TP | TOC | B |
|---|--------------------------|----------------------------------|--------------------|------|--------|---------|--------|-------|--------|--------|--------|-------|------|--------|-----------------|-----------------|------|------|------|------|-------|
| | | | | 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 | mg/L | mg/L |
| ADB1-IN - Baseline monitoring phase -since 23/02/20 | | | | | | | | | | | | | | | | | | | | | |
| 23/02/20 | NA | NA | N | 35.5 | 0.003 | <0.0001 | 0.027 | 0.019 | 0.014 | 0.018 | 0.048 | 0.242 | 32.9 | NT | 0.02 | 0.97 | 1.4 | 2.4 | 0.40 | 5 | <0.05 |
| 10/05/20 | NA | NA | Y - field | 1.33 | <0.001 | <0.0001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.005 | 0.002 | 0.79 | 0.12 | | | | | | | |
| 10/05/20 | NA | NA | N | 31.5 | 0.003 | <0.0001 | 0.024 | 0.018 | 0.014 | 0.016 | 0.047 | 0.184 | 29.8 | NT | 0.03 | 1.10 | 1.7 | 2.8 | 0.32 | 4 | <0.05 |
| 04/09/20 | NA | NA | N | 43.0 | 0.003 | <0.0001 | 0.032 | 0.022 | 0.017 | 0.016 | 0.059 | 0.171 | 38.0 | NT | <0.01 | 0.92 | 1.3 | 2.2 | 0.28 | 5 | <0.05 |
| ADB1-IN - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 03/12/20 | 16/12/20 | 05/01/21 | N | 36.7 | 0.003 | <0.0001 | 0.031 | 0.021 | 0.016 | 0.016 | 0.059 | 0.210 | 37.4 | NT | 0.01 | 0.87 | 2.5 | 3.4 | 0.37 | 6 | <0.05 |
| 18/03/21 | 30/03/21 | 21/04/21 | Y - field | 0.45 | 0.001 | <0.0001 | <0.001 | 0.002 | 0.001 | <0.001 | <0.005 | 0.047 | 0.43 | 0.10 | 0.03 | <0.01 | 1.6 | 1.6 | 0.23 | 10 | <0.05 |
| 14/06/21 | 25/06/21 | 09/07/21 | Y - field | 0.11 | <0.001 | <0.0001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.005 | 0.001 | 0.05 | <0.05 | 0.02 | 0.69 | 1.2 | 1.9 | 0.17 | 7 | <0.05 |
| 25/10/21 | 08/11/21 | 26/11/21 | Y - field | 0.56 | <0.001 | <0.0001 | <0.001 | 0.003 | <0.001 | <0.001 | <0.005 | 0.002 | 0.27 | <0.05 | <0.01 | 0.79 | 0.9 | 1.7 | 0.17 | 6 | <0.05 |
| 17/01/22 | 27/01/22 | 11/02/22 | Y - field | 0.85 | <0.001 | <0.0001 | <0.001 | 0.012 | <0.001 | <0.001 | 0.007 | 0.003 | 0.44 | <0.05 | <0.01 | 0.30 | 2.0 | 2.3 | 0.20 | 7 | <0.05 |
| 17/04/22 | 29/04/22 | 19/05/22 | Y-lab | 1.25 | 0.005 | <0.0001 | <0.001 | 0.003 | 0.002 | <0.001 | <0.005 | 0.003 | 0.96 | 0.05 | 0.08 | 0.29 | 2.5 | 2.8 | 0.50 | 10 | <0.05 |
| 22/06/22 | 01/07/22 | 14/07/22 | N | 48.3 | 0.003 | <0.0001 | 0.037 | 0.026 | 0.021 | 0.017 | 0.077 | 0.292 | 44.7 | <0.05 | <0.01 | 0.42 | 2.1 | 2.5 | 0.42 | 8 | <0.05 |
| 15/10/22 | 26/10/22 | 11/11/22 | N | 32.4 | 0.004 | <0.0001 | 0.025 | 0.018 | 0.014 | 0.010 | 0.064 | 0.155 | 31.0 | 0.08 | <0.01 | 0.43 | 2.5 | 2.9 | 0.29 | 8 | <0.05 |

Surface water - Six-monthly

Table 15a: GARA1 & GARA1R – surface water quality six-monthly & if discharge ADB1- field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 1 | DO | EC | pH | Eh | Temp | Sample Depth | Volumetric Flow Rate | Turbidity | Alkalinity | Free CO ₂ | SO ₄ | Cl | Ca | Mg | Na | K | SS | Hardness | Discharge ADB1 |
|---|------|-------|------|------|------|--------------|----------------------|-----------|------------|----------------------|-----------------|------|------|------|------|------|------|----------|----------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | kL/day | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | Yes or No |
| GARA1 - Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | |
| Min | 3.85 | 144 | 6.19 | +266 | 6.4 | NT | NT | NT | 35 | NT | 4 | 6 | 8 | 6 | 9 | 0.2 | <2 | 45 | No |
| Max | 8.51 | 685 | 8.05 | +267 | 25.9 | NT | NT | NT | 190 | NT | 20 | 27 | 29 | 26 | 22 | 4 | 20 | 179 | No |
| 04/05/15 | 6.61 | 300 | 7.94 | +172 | 16.3 | 0.35 | 37,800 | 26.9 | 117 | 15 | NT | NT | NT | NT | NT | 13 | NT | NT | No |
| GARA1R - Detection monitoring phase | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | NR | 356 | 7.94 | NR | NR | 0.30 | 15,552 | 3.8 | 141 | NR | 22 | 16 | 27 | 21 | 21 | 4 | <5 | 154 | Yes |
| 18/03/21 | 8.03 | 258 | 7.37 | +129 | 23.9 | 0.50 | 28,800 | 11.3 | 103 | 18 | 15 | 10 | 19 | 14 | 15 | 4 | 6 | 105 | No |
| 25/10/21 | 8.03 | 258 | 7.37 | +129 | 23.9 | 0.25 | 64,800 | 4.5 | 120 | 7 | 7 | 8 | 20 | 15 | 11 | 2 | <5 | 112 | No |
| 15/03/22 | 9.76 | 240 | 8.07 | +86 | 16.3 | 0.55 | 158,400 | 4.4 | 119 | NR | 5 | 7 | 18 | 14 | 9 | 3 | <5 | 102 | Yes |
| 17/04/22 | 8.45 | 281 | 7.08 | +124 | 18.4 | 0.45 | 36,000 | 4.4 | 127 | 12 | 6 | 8 | 20 | 16 | 10 | 2 | <5 | 116 | No |
| 17/10/22 | 9.09 | 263 | 8.04 | +134 | 18.9 | 0.70 | 30,240 | 5.4 | 123 | 12 | 6 | 7 | 20 | 17 | 11 | 2 | <5 | 120 | No |

Note: GARA1R replaced GARA1 sampling point from 30/06/20 to be downstream of Gara River Bridge.

Table 15b: GARA1 & GARA1R – Surface water quality six-monthly & if discharge ADB1– laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TP | TOC | B |
|--|--------------------------|----------------------------------|--------------------|--------|-------|---------|--------|--------|-------|--------|--------|-------|-------|--------|-----------------|-----------------|-----------|------|-------|------|--------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L | mg/L |
| GARA1 – Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. Minimum & maximum results given below. | | | | | | | | | | | | | | | | | | | | | |
| Min | NA | NA | N | <0.005 | 0.001 | <0.0001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 | 0.001 | <0.01 | NT | <0.01 | 0.01 | <0.1 | 0.1 | <0.01 | NT | <0.005 |
| Max | NA | NA | N | 1.490 | 0.005 | <0.0001 | 0.026 | 0.006 | 0.003 | <0.001 | 0.014 | 0.055 | 4.48 | NT | 0.13 | 0.42 | 1.7 | 1.7 | 0.49 | NT | 0.411 |
| 04/05/15 | NA | NA | Y - field | 0.020 | 0.002 | <0.0001 | <0.001 | 0.001 | 0.001 | <0.001 | <0.005 | 0.046 | 0.230 | NT | 0.06 | 0.02 | 1.7 | 1.7 | 0.08 | 15 | NT |
| GARA1R - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | NA | NA | N | 0.05 | 0.003 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.005 | 0.110 | 0.50 | <0.05 | 0.15 | 0.48 | 0.9 | 1.4 | 0.07 | 8 | <0.05 |
| 18/03/21 | 30/03/21 | 21/04/21 | Y - field | 0.04 | 0.003 | <0.0001 | <0.001 | 0.002 | 0.003 | <0.001 | 0.013 | 0.031 | 0.36 | 0.20 | 0.05 | 0.04 | 1.5 | 1.5 | 0.28 | 15 | <0.05 |
| 25/10/21 | 08/11/21 | 26/11/21 | Y - field | <0.01 | 0.003 | <0.0001 | <0.001 | 0.003 | 0.003 | <0.001 | 0.016 | 0.043 | 0.21 | 0.09 | <0.01 | 0.02 | 0.6 | 0.6 | 0.10 | 9 | <0.05 |
| 15/03/22 | 30/03/22 | 19/04/22 | N | 0.18 | 0.004 | <0.0001 | <0.001 | 0.002 | 0.004 | <0.001 | <0.005 | 0.056 | 0.64 | <0.05 | 0.08 | 0.18 | 0.7 | 0.9 | 0.14 | 11 | <0.05 |
| 17/04/22 | 29/04/22 | 19/05/22 | Y - field | 0.02 | 0.003 | <0.0001 | <0.001 | 0.003 | 0.003 | <0.001 | 0.012 | 0.042 | 0.29 | 0.17 | 0.07 | 0.15 | 0.8 | 1.0 | 0.11 | 11 | <0.05 |
| 17/10/22 | 26/10/22 | 11/11/22 | Y - field | <0.01 | 0.002 | <0.0001 | <0.001 | 0.002 | 0.003 | <0.01 | 0.007 | 0.033 | 0.14 | 0.08 | <0.01 | <0.01 | 0.6 | 0.6 | 0.10 | 8 | <0.05 |

Table 16a: GARA2 – surface water quality six-monthly & if discharge ADB1 - field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 2 | DO | EC | pH | Eh | Temp | Sample Depth | Volumetric Flow Rate | Turbidity | Alkalinity | Free CO ₂ | SO ₄ | Cl | Ca | Mg | Na | K | SS | Hardness | Discharge ADB1 |
|---|-------|-------|------|------|------|--------------|----------------------|-----------|------------|----------------------|-----------------|------|------|------|------|------|------|----------|----------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | kL/day | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | Yes or No |
| GARA2 - Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | |
| Min | 3.32 | 140 | 6.27 | NT | 8.4 | NT | NT | NT | 32 | NT | 3 | 6 | 8 | 6 | 9 | <1 | 2 | 108 | No |
| Max | 8.54 | 710 | 7.96 | NT | 25.5 | NT | NT | NT | 185 | NT | 20 | 22 | 30 | 26 | 22 | 4 | 20 | 45 | No |
| 04/05/15 | 6.88 | 386 | 8.24 | +168 | 18.1 | ~≥2.5 | 16941 | 3.6 | 140 | 12 | NT | NT | NT | NT | NT | 13 | NT | NT | No |
| GARA2 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | NR | 397 | 7.83 | NR | NR | 0.8 | 41472 | 6.0 | 141 | NR | 25 | 26 | 29 | 23 | 26 | 4 | <5 | 167 | Yes |
| 18/03/21 | 7.82 | 257 | 7.01 | +158 | 24.9 | 1.0 | 43200 | 9.6 | 120 | 18 | 15 | 10 | 18 | 14 | 16 | 4 | 8 | 102 | No |
| 25/10/21 | 9.76 | 319 | 7.90 | +137 | 20.4 | 1.0 | 64,800 | 3.5 | 122 | 12 | 7 | 8 | 21 | 15 | 11 | 2 | <5 | 114 | No |
| 15/03/22 | 10.05 | 239 | 8.05 | +100 | 16.4 | 1.1 | 190,080 | 11.8 | 119 | NR | 5 | 7 | 18 | 14 | 9 | 3 | <5 | 102 | Yes |
| 17/04/22 | 8.31 | 269 | 7.40 | +149 | 18.0 | 1.4 | 34,560 | 6.7 | 123 | 12 | 5 | 8 | 20 | 16 | 10 | 3 | <5 | 116 | No |
| 17/10/22 | 9.41 | 251 | 8.15 | +181 | 18.6 | 1.4 | 55,296 | 7.1 | 127 | 9 | 6 | 7 | 20 | 17 | 11 | 2 | 5 | 120 | No |

Table 16b: GARA2 – Surface water quality six-monthly & if discharge ADB1 – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | B | NH ₃ | NO _x | TKN | TN | TP | TOC | B | |
|---|--------------------------|----------------------------------|--------------------|-----------|--------|---------|---------|--------|--------|--------|--------|--------|-------|--------|-------|-----------------|-----------------|-----------|------|------|-------|-------|--------|
| | | | | 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 as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L | mg/L | mg/L |
| GARA2 - Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | NA | N | <0.005 | 0.001 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 | 0.001 | <0.01 | NT | <0.005 | <0.01 | 0.01 | <0.1 | 0.2 | <0.01 | NT | <0.005 |
| Max | | NA | NA | N | 1.130 | 0.006 | <0.0001 | 0.001 | 0.003 | 0.003 | <0.001 | 0.014 | 0.055 | 4.48 | NT | 10.0 | 0.26 | 0.54 | 1.7 | 1.7 | 0.34 | NT | 10.0 |
| 04/05/15 | | NA | NA | Y - field | <0.010 | 0.002 | <0.0001 | <0.001 | 0.001 | 0.001 | <0.001 | <0.005 | 0.044 | 0.090 | NT | NT | 0.03 | <0.01 | 0.9 | 0.9 | 0.03 | 13 | NT |
| GARA2 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | | NA | NA | N | 0.280 | 0.002 | <0.0001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.005 | 0.100 | 0.580 | <0.05 | <0.05 | 0.08 | 0.43 | 1.2 | 1.2 | 0.06 | 6 | <0.05 |
| 18/03/21 | 30/03/21 | 21/04/21 | Y - field | 0.05 | 0.003 | <0.0001 | <0.001 | 0.006 | 0.003 | <0.001 | 0.063 | 0.034 | 0.36 | 0.21 | <0.05 | 0.06 | 0.05 | 1.6 | 1.6 | 0.20 | 15 | <0.05 | |
| 25/10/21 | 08/11/21 | 26/11/21 | Y - field | <0.01 | 0.003 | <0.0001 | <0.001 | 0.002 | 0.003 | <0.001 | 0.014 | 0.074 | 0.20 | 0.09 | <0.05 | 0.02 | 0.02 | 0.7 | 0.7 | 0.10 | 9 | <0.05 | |
| 15/03/22 | 30/03/22 | 19/04/22 | N | 0.68 | 0.004 | <0.0001 | 0.001 | 0.002 | 0.004 | <0.001 | <0.005 | 0.058 | 0.97 | <0.05 | <0.05 | 0.03 | 0.18 | 0.7 | 0.9 | 0.14 | 12 | <0.05 | |
| 17/04/22 | 29/04/22 | 19/05/22 | Y-field | 0.01 | 0.003 | <0.0001 | <0.001 | 0.005 | 0.004 | <0.001 | 0.022 | 0.037 | 0.24 | 0.16 | <0.05 | 0.04 | 0.15 | 0.7 | 0.8 | 0.11 | 11 | <0.05 | |
| 17/10/22 | 26/10/22 | 11/11/22 | Y-field | 0.01 | 0.002 | <0.0001 | 0.001 | 0.002 | 0.003 | <0.001 | <0.005 | 0.032 | 0.16 | 0.08 | <0.05 | <0.01 | <0.01 | 0.6 | 0.6 | 0.10 | 8 | <0.05 | |

Table 17a: GARA3 – Surface water quality six-monthly & if discharge ADB1 - field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 3 | DO | EC | pH | Eh | Temp | Sample Depth | Volumetric Flow Rate | Turbidity | Alkalinity | Free CO ₂ | SO ₄ | Cl | Ca | Mg | Na | K | SS | Hardness | Discharge ADB1 |
|--|------|-------|------|------|------|--------------|----------------------|-----------|------------|----------------------|-----------------|------|------|------|------|------|------|----------|----------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | kL/day | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | Yes or No |
| GARA3– Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | |
| Min | 2.18 | 77 | 6.11 | +264 | 4.6 | NT | NT | NT | 24 | NT | <1 | 1 | 3 | 3 | 8 | 0.3 | 5 | 22 | No |
| Max | 9.72 | 1360 | 6.98 | +317 | 26.1 | NT | NT | NT | 287 | NT | 103 | 101 | 53 | 58 | 147 | 9.4 | 440 | 370 | No |
| 04/05/15 | 6.35 | 94 | 7.58 | +209 | 17.9 | 0.05 | 259.2 | 283 | 20 | 12 | NT | NT | NT | NT | NT | NT | 65 | NT | No |
| GARA3 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | NR | 137 | 7.29 | NR | NR | 0.43 | 27,864 | 1070 | 39 | NR | 10 | 11 | 1 | 1 | 29 | <1 | 26 | 7 | Yes |
| 18/03/21 | 6.26 | 66.2 | 7.14 | +149 | 23.3 | 0.40 | 230 | 86.8 | 20 | 18 | <1 | 3 | 4 | 2 | 6 | 2 | 14 | 18 | No |
| 25/10/21 | 7.47 | 254 | 6.85 | +144 | 19.4 | 0.25 | 0 | 50.8 | 57 | 22 | <1 | 10 | 8 | 5 | 17 | 2 | 28 | 40 | No |
| 15/03/22 | 8.97 | 92.0 | 7.22 | +135 | 15.9 | 0.55 | 47,520 | 283.0 | 36 | NR | 4 | 6 | 3 | 2 | 13 | 1 | 14 | 16 | Yes |
| 17/04/22 | 5.63 | 279.5 | 6.55 | +138 | 17.9 | 0.15 | 0 | 16.8 | 110 | 44 | <1 | 13 | 19 | 9 | 19 | 2 | 8 | 84 | No |
| 17/10/22 | 8.09 | 168.0 | 7.18 | +236 | 21.1 | 0.35 | 0 | 20.2 | 58 | 13 | <1 | 11 | 10 | 6 | 15 | 3 | 13 | 50 | No |

Table 17b: GARA3 – Surface water quality six-monthly & if discharge ADB1 – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TP | TOC | B | |
|---|--------------------------|----------------------------------|--------------------|-----------|--------|---------|---------|--------|-------|--------|--------|--------|-------|--------|-----------------|-----------------|-----------|------|-------|------|--------|-------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L | mg/L | |
| GARA3 – Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | NA | N | 0.012 | <0.001 | <0.0001 | <0.001 | 0.001 | 0.001 | <0.001 | <0.001 | 0.58 | NT | <0.02 | <0.01 | <0.2 | 0.2 | <0.01 | NT | <0.005 | |
| Max | | NA | NA | N | 41.2 | 0.005 | <0.0001 | 0.029 | 0.021 | 0.018 | 0.013 | 0.069 | 3.42 | 17.5 | NT | 0.50 | 0.62 | 7.0 | 7.2 | 0.74 | NT | 0.049 |
| 04/05/15 | | NA | NA | Y - field | 0.720 | <0.001 | <0.0001 | <0.001 | 0.004 | 0.002 | <0.001 | 0.006 | 0.013 | 0.84 | NT | 0.04 | <0.01 | 3.4 | 3.4 | 0.36 | 16 | NT |
| GARA3 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | | NA | NA | N | 32.5 | 0.002 | <0.0001 | 0.025 | 0.018 | 0.014 | 0.018 | 0.047 | 0.165 | 30.0 | <0.05 | <0.01 | 1.03 | 1.7 | 2.7 | 0.31 | 4 | <0.05 |
| 18/03/21 | 30/03/21 | 21/04/21 | Y - field | 0.59 | <0.001 | <0.0001 | <0.001 | 0.004 | 0.002 | <0.001 | 0.010 | 0.025 | 0.74 | 0.31 | 0.02 | <0.01 | 1.8 | 1.8 | 0.12 | 14 | <0.05 | |
| 25/10/21 | 08/11/21 | 26/11/21 | Y - field | 0.16 | <0.001 | <0.0001 | <0.001 | 0.005 | 0.002 | <0.001 | 0.019 | 0.195 | 0.57 | 0.22 | 0.22 | <0.01 | 1.3 | 1.3 | 0.08 | 17 | <0.05 | |
| 15/03/22 | 30/03/22 | 19/04/22 | N | 13.6 | 0.002 | <0.0001 | 0.010 | 0.007 | 0.006 | 0.005 | 0.023 | 0.075 | 11.70 | <0.05 | 0.01 | 0.18 | 1.0 | 1.2 | 0.14 | 8 | <0.05 | |
| 17/04/22 | 29/04/22 | 19/05/22 | Y - field | 0.01 | 0.001 | <0.0001 | <0.001 | 0.008 | 0.006 | <0.001 | 0.048 | 1.770 | 1.20 | 0.38 | 0.25 | <0.01 | 1.2 | 1.2 | 0.07 | 20 | <0.05 | |
| 17/10/22 | 26/10/22 | 11/11/22 | Y - field | 0.10 | <0.001 | <0.0001 | <0.001 | 0.002 | 0.002 | <0.001 | 0.007 | 0.190 | 0.76 | 0.28 | <0.01 | <0.01 | 1.3 | 1.3 | 0.06 | 15 | <0.05 | |

Table 18a: GARA5 – Surface water quality six-monthly & if discharge ADB1 - field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 4 | DO | EC | pH | Eh | Temp | Sample Depth | Volumetric Flow Rate | Turbidity | Alkalinity | Free CO ₂ | SO ₄ | Cl | Ca | Mg | Na | K | SS | Hardness | Discharge ADB1 |
|---|------|-------|------|------|------|--------------|----------------------|-----------|------------|----------------------|-----------------|------|------|------|------|------|------|----------|----------------|
| Measure | mg/L | µS/cm | 1-14 | mV | °C | m | kL/day | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | Yes or No |
| GARA5 – Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | |
| Min | 1.80 | 81 | 6.10 | NT | 5.6 | NT | NT | NT | 24 | NT | <1 | 5 | 2 | 2 | 7 | <1 | 5 | 19 | No |
| Max | 6.78 | 265 | 7.07 | NT | 23.7 | NT | NT | NT | 94 | NT | 3 | 40 | 18 | 12 | 25 | 4 | 440 | 95 | No |
| 04/05/15 | 5.61 | 45 | 8.17 | +206 | 20.4 | 0.25 | 270 | 63.8 | 13 | 9 | NT | NT | NT | NT | NT | 17 | NT | NT | No |
| GARA5 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | DRY | | | NR | NR | | | | | NR | | | | | | | | | Yes |
| 18/03/21 | 7.23 | 116.3 | 6.84 | +192 | 19.0 | 0.20 | 162 | 25.2 | 12 | 15 | <1 | 1 | 2 | 1 | 4 | 1 | 9 | 9 | No |
| 24/10/21 | 4.92 | 137.8 | 7.54 | +110 | 24.1 | 0.15 | 0 | 35.7 | 43 | 23 | <5 | 7 | 9 | 5 | 9 | 3 | 20 | 43 | No |
| 15/03/22 | 3.39 | 139.0 | 7.03 | +100 | 15.4 | 0.30 | 259 | 22.1 | 70 | NR | <1 | 4 | 11 | 6 | 7 | 3 | 12 | 52 | Yes |
| 17/04/22 | 4.80 | 154.4 | 6.67 | +124 | 14.9 | 0.15 | 0 | 29.6 | 47 | 23 | <1 | 6 | 7 | 4 | 8 | 3 | 13 | 34 | No |
| 16/10/22 | 5.36 | 184.5 | 6.56 | +140 | 20.8 | 0.30 | HINT | 18.2 | 87 | 26 | <1 | 7 | 14 | 8 | 13 | 2 | 8 | 68 | No |

Table 18b: GARA5 – Surface water quality six-monthly & if discharge ADB1 – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al | As | Cd | Cr | Cu | Ni | Pb | Zn | Mn | Fe | Fe(II) | NH ₃ | NO _x | TKN | TN | TP | TOC | B | |
|---|--------------------------|----------------------------------|--------------------|-----------|--------|---------|---------|--------|-------|--------|--------|-------|--------|--------|-----------------|-----------------|-----------|------|------|------|-------|--------|
| | | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L as N | mg/L as N | mg/L as N | mg/L | mg/L | mg/L | mg/L | |
| GARA5 – Main baseline monitoring phase was 14 sampling events from 17/12/08 to 05/06/13. | | | | | | | | | | | | | | | | | | | | | | |
| Min | | NA | NA | N | 0.398 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.002 | <0.001 | 0.004 | <0.005 | 0.46 | NT | <0.02 | <0.02 | 0.6 | 0.6 | 0.05 | NT | <0.005 |
| Max | | NA | NA | N | 14.1 | 0.005 | <0.0001 | 0.014 | 0.013 | 0.010 | 0.013 | 0.035 | 0.035 | 9.66 | NT | 0.30 | 0.55 | 2.6 | 2.9 | 0.61 | NT | 0.037 |
| 04/05/15 | | NA | NA | Y - field | 0.410 | <0.001 | <0.0001 | <0.001 | 0.004 | 0.001 | <0.001 | 0.011 | 0.004 | 0.32 | NT | 0.03 | <0.01 | 4.6 | 4.6 | 0.11 | 21 | NT |
| GARA5 - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | | NA | NA | DRY | | | | | | | | | | | | | | | | | | |
| 18/03/21 | 30/03/21 | 21/04/21 | Y - field | 0.23 | <0.001 | <0.0001 | <0.001 | 0.003 | 0.001 | <0.001 | 0.012 | 0.031 | 0.45 | 0.28 | <0.01 | <0.01 | 1.0 | 1.0 | 0.04 | 11 | <0.05 | |
| 24/10/21 | 08/11/21 | 26/11/21 | Y - field | 0.15 | 0.010 | <0.0001 | 0.002 | 0.011 | 0.003 | <0.001 | 0.069 | 0.298 | 5.18 | 1.26 | 0.09 | <0.01 | 2.9 | 2.9 | 0.24 | 34 | <0.05 | |
| 15/03/22 | 30/03/22 | 19/04/22 | N | 0.35 | 0.008 | <0.0001 | 0.001 | 0.003 | 0.002 | <0.001 | 0.041 | 0.544 | 7.66 | 0.12 | 0.02 | <0.01 | 1.2 | 1.2 | 0.12 | 23 | <0.05 | |
| 17/04/22 | 29/04/22 | 19/05/22 | Y - field | 0.05 | 0.002 | <0.0001 | <0.001 | 0.002 | 0.002 | <0.001 | 0.009 | 0.065 | 1.88 | 0.60 | 0.04 | <0.01 | 1.4 | 1.4 | 0.12 | 20 | <0.05 | |
| 16/10/22 | 26/10/22 | 11/11/22 | Y - field | 0.03 | 0.003 | <0.0001 | <0.001 | 0.005 | 0.002 | <0.001 | 0.038 | 0.251 | 2.87 | 0.72 | <0.01 | <0.01 | 1.3 | 1.3 | 0.07 | 19 | <0.05 | |

Table 19a: ADB1-OUT – Dry basin – surface water quality if discharging ADB1 - field parameters & analytes + laboratory basic ions, sediment & calculations

| EPA Point 18 Measure | DO mg/L | EC μ S/cm | pH 1-14 | Eh mV | Temp $^{\circ}$ C | Sample Depth m | Volumetric Flow Rate kL/day | Turbidity NTU | Alkalinity mg/L | Free CO ₂ mg/L | SO ₄ mg/L | Cl mg/L | Ca mg/L | Mg mg/L | Na mg/L | K mg/L | SS mg/L | Hardness mg/L | Discharge ADB1 Yes or No |
|---------------------------------------|---------|---------------|---------|-------|-------------------|----------------|-----------------------------|---------------|-----------------|---------------------------|----------------------|---------|---------|---------|---------|--------|---------|---------------|--------------------------|
| ADB1-OUT - Detection monitoring phase | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | NR | 138 | 7.17 | NR | NR | 0.3 | 23,328 | 1080 | 39 | NR | 10 | 10 | 2 | 1 | 28 | <1 | 26 | 9 | Yes |
| 15/03/22 | NR | 89 | 7.22 | NR | NR | 0.3 | 38,880 | 290 | 37 | NR | 5 | 5 | 2 | 2 | 13 | 1 | 13 | 5 | Yes |

Table 19b: ADB1-OUT – Dry basin – surface water quality if discharging ADB1 – laboratory analytes

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al mg/L | As mg/L | Cd mg/L | Cr mg/L | Cu mg/L | Ni mg/L | Pb mg/L | Zn mg/L | Mn mg/L | Fe mg/L | Fe(II) mg/L | NH ₃ mg/L as N | NO _x mg/L as N | TKN mg/L as N | TN mg/L | TP mg/L | TOC mg/L | B mg/L |
|---------------------------------------|--------------------------|----------------------------------|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|---------------------------|---------------------------|---------------|---------|---------|----------|--------|
| ADB1-OUT - Detection monitoring phase | | | | | | | | | | | | | | | | | | | | | |
| 30/06/20 | NA | NA | N | 36.0 | 0.003 | <0.0001 | 0.028 | 0.019 | 0.016 | 0.018 | 0.048 | 0.172 | 34.2 | <0.05 | <0.01 | 1.09 | 1.5 | 2.6 | 0.28 | 6 | <0.05 |
| 15/03/22 | 30/03/22 | 19/04/22 | N | 14.9 | 0.002 | <0.0001 | 0.011 | 0.008 | 0.006 | 0.005 | 0.024 | 0.078 | 13.0 | <0.05 | 0.05 | 0.22 | 1.0 | 1.2 | 0.15 | 8 | <0.05 |

Concentrated leachate – Six-monthly

Table 20a: AL1 – Leachate dam volume & leachate quality – six-monthly – volume calcs, field parameters & analytes + laboratory basic ions, solids, organics

| EPA Point 15 Measure | Capacity kL | Volume kL | Freeboard kL | DO mg/L | EC µS/cm | pH 1-14 | Eh mV | Temp °C | Alkalinity mg/L | Free CO ₂ mg/L | SO ₄ mg/L | Cl mg/L | Ca mg/L | Mg mg/L | Na mg/L | K mg/L | SS mg/L |
|---|-------------|-----------|--------------|---------|----------|---------|-------|---------|-----------------|---------------------------|----------------------|---------|---------|---------|---------|--------|---------|
| AL1 – to compare concentrated leachate concentrations to groundwater & surface water | | | | | | | | | | | | | | | | | |
| 18/03/21 | | | | 6.51 | 727 | 6.93 | +156 | 20.2 | 13 | 9 | 12 | 59 | 33 | 16 | 33 | 56 | 17 |
| 25/10/21 | | | | 0.19 | 3780 | 7.93 | -145 | 21.0 | 1767 | 59 | <5 | 480 | 140 | 114 | 301 | 267 | 117 |
| 15/03/22 | | | | 10.78 | 1600 | 8.59 | +24 | 17.9 | 478 | NR | 36 | 248 | 30 | 49 | 137 | 140 | 52 |
| 28/03/22 | | | | 20.77 | 1539 | 8.08 | +85 | 19.6 | 490 | 12 | 83 | 217 | 53 | 52 | 147 | 113 | NT |
| 17/10/22 | | | | 7.19 | 1880 | 8.54 | +164 | 19.1 | 687 | 38 | 69 | 282 | 70 | 67 | 198 | 156 | 33 |

Table 20b: AL1 – Leachate dam leachate quality – six-monthly – laboratory analytes – metals - nonfiltered

| Sample date | Received from laboratory | Accessible on Council website by | Metal filtered Y/N | Al mg/L | As mg/L | Cd mg/L | Cr mg/L | Cu mg/L | Ni mg/L | Pb mg/L | Zn mg/L | Mn mg/L | Fe mg/L | Fe(II) mg/L | NH ₃ as N mg/L | NO _x as N mg/L | TKN as N mg/L | TN mg/L | TP mg/L | TOC mg/L | B mg/L |
|--|--------------------------|----------------------------------|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|---------------------------|---------------------------|---------------|---------|---------|----------|--------|
| AL1 – to compare concentrated leachate concentrations to groundwater & surface water quality concentrations | | | | | | | | | | | | | | | | | | | | | |
| 18/03/21 | 30/03/21 | 21/04/21 | N | 0.03 | 0.002 | <0.0001 | 0.001 | 0.001 | 0.004 | <0.001 | 0.014 | 0.566 | 1.85 | <0.05 | 3.30 | <0.01 | 9.3 | 9.3 | 0.23 | 23 | 0.12 |
| 25/10/21 | 08/11/21 | 26/11/21 | N | 0.12 | 0.016 | <0.0001 | 0.016 | 0.003 | 0.036 | 0.002 | 0.059 | 1.220 | 1.19 | 0.10 | 46.2 | 0.09 | 75.9 | 76.0 | 2.12 | 202 | 1.43 |
| 15/03/22 | 30/03/22 | 19/04/22 | N | 0.02 | 0.006 | <0.0001 | 0.003 | <0.001 | 0.015 | <0.001 | 0.006 | 0.306 | 0.12 | <0.05 | 2.32 | 0.01 | 18.8 | 18.8 | 0.46 | 58 | 0.58 |
| 28/03/22 | 07/04/22 | 19/04/22 | N | 0.08 | 0.007 | <0.0001 | 0.005 | 0.004 | 0.021 | <0.001 | 0.015 | 0.689 | 0.57 | <0.05 | 12.00 | 0.69 | 29.2 | 29.9 | 0.92 | 68 | 0.59 |
| 17/10/22 | 26/10/22 | 11/11/22 | N | 0.05 | 0.007 | <0.0001 | 0.005 | 0.001 | 0.022 | <0.001 | 0.011 | 0.412 | 0.21 | <0.05 | 14.50 | 0.26 | 149.0 | 149.0 | 3.06 | 73 | 0.54 |

Table 20c: AL1 – Leachate dam leachate quality – six-monthly – organic compounds

| EPA Point 15 Measure | Phenols mg/L | PAH mg/L | VOCs mg/L |
|----------------------|--|----------|--|
| 18/03/21 | ND | ND | ND |
| 25/10/21 | 0.0021 mg/L 2-Methylphenol; 0.158 mg/L 3- & 4-Methylphenol | ND | 0.011 mg/L Toluene; 0.230 mg/L Acetone; 0.150 mg/L Butanone (MEK); 0.006 mg/L Carbon disulphide; 0.003mg/L Iodomethane; 0.005 mg/L Methylene chloride. |
| 15/03/22 | ND | ND | ND |
| 28/03/22 | ND | ND | 0.020 mg/L 2-Propanone (Acetone) |
| 17/10/22 | ND | ND | 0.040 mg/L 2-Propanone (Acetone); 0.030 mg/L Butanone (MEK). |

Depositional dust monitoring - Monthly

Table 21: ADN-EPA27 Depositional dust

| Date range | Insoluble matter/solids | Combustible matter/solids | Ash content | Received from laboratory | Accessible on Council website |
|-----------------------|-------------------------|---------------------------|-----------------------|--------------------------|-------------------------------|
| | g/m ² /mth | g/m ² /mth | g/m ² /mth | | |
| 03/12/2020-05/01/2021 | 0.3 | 0.1 | 0.2 | 15/01/2021 | 01/02/2021 |
| 05/01/2021-01/02/2021 | 0.1 | <0.1 | 0.1 | 12/02/2021 | 01/04/2021 |
| 01/02/2021-02/03/2021 | 0.2 | <0.1 | 0.2 | 12/03/2021 | 01/04/2021 |
| 02/03/2021-01/04/2021 | 0.1 | 0.1 | <0.1 | 15/04/2021 | 05/05/2021 |
| 01/04/2021-05/05/2021 | 0.1 | <0.1 | 0.1 | 14/05/2021 | 04/06/2021 |
| 05/05/2021-07/06/2021 | 0.1 | <0.1 | 0.1 | 21/06/2021 | 09/07/2021 |
| 07/06/2021-06/07/2021 | 0.1 | <0.1 | 0.1 | 16/07/2021 | 05/08/2021 |
| 06/07/2021-05/08/2021 | 0.2 | 0.1 | 0.1 | 16/08/2021 | 03/09/2021 |
| 05/08/2021-01/09/2021 | Collection bottle | broken in transit | to lab | 13/09/2021 | 01/10/2021 |
| 01/09/2021-07/10/2021 | 0.1 | <0.1 | 0.1 | 19/10/2021 | 08/11/2021 |
| 07/10/2021-02/11/2021 | 0.1 | <0.1 | 0.1 | 12/11/2021 | 02/12/2021 |
| 02/11/2021-07/12/2021 | 0.3 | 0.1 | 0.2 | 17/12/2021 | 10/01/2022 |
| 07/12/2021-07/01/2022 | 10.9 | 5.8 | 5.1 | 21/01/2022 | 11/02/2022 |
| 07/01/2022-08/02/2022 | 0.7 | 0.1 | 0.6 | 21/02/2022 | 11/03/2022 |
| 08/02/2022-08/03/2022 | 0.1 | <0.1 | 0.1 | 22/03/2022 | 11/04/2022 |
| 08/03/2022-10/05/2022 | 0.1 | <0.1 | 0.1 | 23/05/2022 | 14/06/2022 |
| 10/05/2022-10/06/2022 | 0.3 | <0.1 | 0.3 | 01/07/2022 | 14/07/2022 |
| 10/06/2022-12/07/2022 | 0.2 | 0.1 | 0.1 | 22/07/2022 | 11/07/2022 |
| 12/07/2022-10/08/2022 | 0.2 | 0.1 | 0.1 | 23/08/2022 | 12/09/2022 |
| 10/08/2022-08/09/2022 | 0.2 | <0.1 | 0.2 | 21/09/2022 | 11/10/2022 |
| 08/09/2022-11/10/2022 | 0.1 | <0.1 | 0.1 | 24/10/2022 | 11/11/2022 |
| 11/10/2022-08/11/2022 | 0.1 | <0.1 | 0.1 | 21/11/2022 | 09/12/2022 |

Table 22: ADS-EPA28 Depositional dust

| Date range | Insoluble matter/solids | Combustible matter/solids | Ash content | Received from laboratory | Accessible on Council website |
|-----------------------|-------------------------|---------------------------|-----------------------|--------------------------|-------------------------------|
| | g/m ² /mth | g/m ² /mth | g/m ² /mth | | |
| 03/12/2020-05/01/2021 | 0.6 | 0.4 | 0.2 | 15/01/2021 | 01/02/2021 |
| 05/01/2021-01/02/2021 | 1.6 | 0.7 | 0.9 | 12/02/2021 | 01/04/2021 |
| 01/02/2021-02/03/2021 | 0.2 | 0.1 | 0.1 | 12/03/2021 | 01/04/2021 |
| 02/03/2021-01/04/2021 | 2.8 | 2.0 | 0.8 | 15/04/2021 | 05/05/2021 |
| 01/04/2021-05/05/2021 | 2.0 | 1.2 | 0.8 | 14/05/2021 | 04/06/2021 |
| 05/05/2021-07/06/2021 | 0.3 | 0.2 | 0.1 | 21/06/2021 | 09/07/2021 |
| 07/06/2021-06/07/2021 | 0.2 | 0.1 | 0.1 | 16/07/2021 | 05/08/2021 |
| 06/07/2021-05/08/2021 | 0.3 | 0.1 | 0.2 | 16/08/2021 | 03/09/2021 |
| 05/08/2021-01/09/2021 | 0.1 | <0.1 | 0.1 | 13/09/2021 | 01/10/2021 |
| 01/09/2021-07/10/2021 | 0.4 | 0.2 | 0.2 | 19/10/2021 | 08/11/2021 |
| 07/10/2021-02/11/2021 | 0.3 | <0.1 | 0.3 | 12/11/2021 | 02/12/2021 |
| 02/11/2021-07/12/2021 | 0.2 | <0.1 | 0.2 | 17/12/2021 | 10/01/2022 |
| 07/12/2021-07/01/2022 | 0.5 | 0.3 | 0.2 | 21/01/2022 | 11/02/2022 |
| 07/01/2022-08/02/2022 | 0.4 | 0.2 | 0.2 | 21/02/2022 | 11/03/2022 |
| 08/02/2022-08/03/2022 | 0.1 | <0.1 | 0.1 | 22/03/2022 | 11/04/2022 |
| 08/03/2022-10/05/2022 | 0.3 | 0.2 | 0.1 | 23/05/2022 | 14/06/2022 |
| 10/05/2022-10/06/2022 | 0.3 | 0.1 | 0.2 | 01/07/2022 | 14/07/2022 |
| 10/06/2022-12/07/2022 | 0.2 | <0.1 | 0.2 | 22/07/2022 | 11/07/2022 |
| 12/07/2022-10/08/2022 | 0.1 | <0.1 | 0.1 | 23/08/2022 | 12/09/2022 |
| 10/08/2022-08/09/2022 | 1.5 | 0.7 | 0.8 | 21/09/2022 | 11/10/2022 |
| 08/09/2022-11/10/2022 | 0.4 | 0.1 | 0.3 | 24/10/2022 | 11/11/2022 |
| 11/10/2022-08/11/2022 | 0.3 | 0.3 | <0.1 | 21/11/2022 | 09/12/2022 |

Notes: 1. Dust is collected in dust gauges specified in AS/NZS 3580 to measure dust fall nuisance. The bottles are forwarded monthly to ALS Lab Newcastle who measure the mass of dust deposited in each dust gauge and express it as m² per month, that is, as g/m²/mth. This method provides overall dust accumulation results to compare between locations on site, and over time. For example, the dust at ADSW-EPA30 is upgradient of the operational road to the landfill which was bitumen sealed in February 2021. The dust measured at ADSW-EPA30 has overall decreased since that time.

Table 23: ADE-EPA29 Depositional dust

| Date range | Insoluble matter/solids | Combustible matter/solids | Ash content | Received from laboratory | Accessible on Council website |
|-----------------------|-------------------------|---------------------------|-----------------------|--------------------------|-------------------------------|
| | g/m ² /mth | g/m ² /mth | g/m ² /mth | | |
| 03/12/2020-05/01/2021 | 0.6 | 0.3 | 0.3 | 15/01/2021 | 01/02/2021 |
| 05/01/2021-01/02/2021 | 0.6 | 0.5 | 0.1 | 12/02/2021 | 01/04/2021 |
| 01/02/2021-02/03/2021 | 0.3 | 0.2 | 0.1 | 12/03/2021 | 01/04/2021 |
| 02/03/2021-01/04/2021 | 0.4 | 0.3 | 0.1 | 15/04/2021 | 05/05/2021 |
| 01/04/2021-05/05/2021 | 2.0 | 1.1 | 0.9 | 14/05/2021 | 04/06/2021 |
| 05/05/2021-07/06/2021 | 0.2 | 0.1 | 0.1 | 21/06/2021 | 09/07/2021 |
| 07/06/2021-06/07/2021 | 0.1 | <0.1 | 0.1 | 16/07/2021 | 05/08/2021 |
| 06/07/2021-05/08/2021 | 0.1 | <0.1 | 0.1 | 16/08/2021 | 03/09/2021 |
| 05/08/2021-01/09/2021 | 0.1 | 0.1 | <0.1 | 13/09/2021 | 01/10/2021 |
| 01/09/2021-07/10/2021 | 0.1 | <0.1 | 0.1 | 19/10/2021 | 08/11/2021 |
| 07/10/2021-02/11/2021 | 0.3 | 0.1 | 0.2 | 12/11/2021 | 02/12/2021 |
| 02/11/2021-07/12/2021 | 0.2 | <0.1 | 0.2 | 17/12/2021 | 10/01/2022 |
| 07/12/2021-07/01/2022 | 0.8 | 0.6 | 0.2 | 21/01/2022 | 11/02/2022 |
| 07/01/2022-08/02/2022 | 0.2 | <0.1 | 0.2 | 21/02/2022 | 11/03/2022 |
| 08/02/2022-08/03/2022 | 0.2 | 0.1 | 0.1 | 22/03/2022 | 11/04/2022 |
| 08/03/2022-10/05/2022 | 0.1 | <0.1 | 0.1 | 23/05/2022 | 14/06/2022 |
| 10/05/2022-10/06/2022 | 0.1 | <0.1 | 0.2 | 01/07/2022 | 14/07/2022 |
| 10/06/2022-12/07/2022 | 0.1 | <0.1 | 0.1 | 22/07/2022 | 11/07/2022 |
| 12/07/2022-10/08/2022 | 0.1 | <0.1 | 0.1 | 23/08/2022 | 12/09/2022 |
| 10/08/2022-08/09/2022 | 0.3 | 0.3 | <0.1 | 21/09/2022 | 11/10/2022 |
| 08/09/2022-11/10/2022 | 0.1 | <0.1 | 0.1 | 24/10/2022 | 11/11/2022 |
| 11/10/2022-08/11/2022 | 0.1 | <0.1 | 0.1 | 21/11/2022 | 09/12/2022 |

Table 24: ADSW-EPA30 Depositional dust

| Date range | Insoluble matter/solids | Combustible matter/solids | Ash content | Received from laboratory | Accessible on Council website |
|-----------------------|-------------------------|---------------------------|-----------------------|--------------------------|-------------------------------|
| | g/m ² /mth | g/m ² /mth | g/m ² /mth | | |
| 03/12/2020-05/01/2021 | 0.8 | 0.5 | 0.3 | 15/01/2021 | 01/02/2021 |
| 05/01/2021-01/02/2021 | 5.8 | 4.7 | 1.1 | 12/02/2021 | 01/04/2021 |
| 01/02/2021-02/03/2021 | 0.4 | 0.1 | 0.3 | 12/03/2021 | 01/04/2021 |
| 02/03/2021-01/04/2021 | 0.2 | 0.2 | <0.1 | 15/04/2021 | 05/05/2021 |
| 01/04/2021-05/05/2021 | 0.3 | 0.2 | 0.1 | 14/05/2021 | 04/06/2021 |
| 05/05/2021-07/06/2021 | 0.3 | 0.2 | 0.1 | 21/06/2021 | 09/07/2021 |
| 07/06/2021-06/07/2021 | 0.2 | 0.1 | 0.1 | 16/07/2021 | 05/08/2021 |
| 06/07/2021-05/08/2021 | 4.8 | 2.0 | 2.8 | 16/08/2021 | 03/09/2021 |
| 05/08/2021-01/09/2021 | 0.6 | 0.2 | 0.4 | 13/09/2021 | 01/10/2021 |
| 01/09/2021-07/10/2021 | 0.8 | 0.4 | 0.4 | 19/10/2021 | 08/11/2021 |
| 07/10/2021-02/11/2021 | 0.6 | 0.3 | 0.3 | 12/11/2021 | 02/12/2021 |
| 02/11/2021-07/12/2021 | 0.3 | 0.2 | 0.1 | 17/12/2021 | 10/01/2022 |
| 07/12/2021-07/01/2022 | 0.5 | 0.3 | 0.2 | 21/01/2022 | 11/02/2022 |
| 07/01/2022-08/02/2022 | 0.4 | 0.2 | 0.2 | 21/02/2022 | 11/03/2022 |
| 08/02/2022-08/03/2022 | 0.3 | 0.1 | 0.2 | 22/03/2022 | 11/04/2022 |
| 08/03/2022-10/05/2022 | 0.1 | <0.1 | 0.1 | 23/05/2022 | 14/06/2022 |
| 10/05/2022-10/06/2022 | 0.2 | <0.1 | 0.2 | 01/07/2022 | 14/07/2022 |
| 10/06/2022-12/07/2022 | 0.1 | <0.1 | 0.1 | 22/07/2022 | 11/07/2022 |
| 12/07/2022-10/08/2022 | 0.5 | <0.1 | 0.5 | 23/08/2022 | 12/09/2022 |
| 10/08/2022-08/09/2022 | 0.9 | 0.4 | 0.5 | 21/09/2022 | 11/10/2022 |
| 08/09/2022-11/10/2022 | 0.2 | 0.1 | 0.1 | 24/10/2022 | 11/11/2022 |
| 11/10/2022-08/11/2022 | 0.2 | <0.1 | 0.2 | 21/11/2022 | 09/12/2022 |