

## Moree Landfill

Location: Newell Highway, Moree NSW 2400 Environment Protection Licence Number: 12788  
 Licensee under Protection of Environment Operations Act 1997 (POEO Act): Moree Plains Shire Council, PO Box 420, Moree NSW 2400

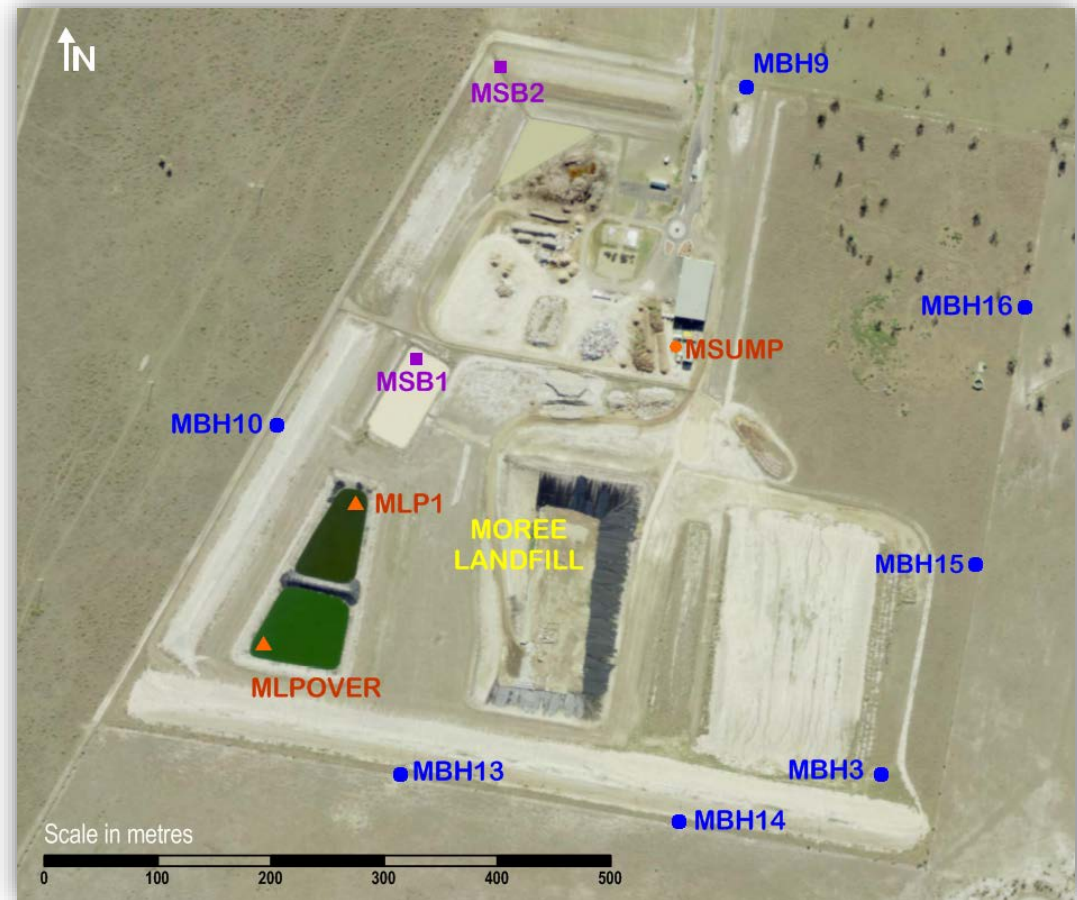
Activities: Waste disposal to land and waste processing

The internet link to Licence No. 12788 is <https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=118200&SYSUID=1&LICID=12788>

Council is required to monitor groundwater, surface water, leachate and methane at various sampling points. This document details recent results. To meet its obligation under Section 66 (6) of the POEO Act, a link to the current version of this document is available on Council's website.

Locations of the sampling points are shown on the adjacent figure. Historical names are used. MBH stands for Moree Bore Hole. [A bore hole is an investigative hole. When casing and screen are installed for monitoring, it is called a monitoring well.] S = Surface water; P = Pond. Corresponding Environment Protection Authority (EPA) Identification Numbers detailed on the Licence are provided below.

|            |                                      |
|------------|--------------------------------------|
| EPA No. 1  | MLP1 (leachate)                      |
| EPA No. 2  | MSB1 (surface water - flows to MSB2) |
| EPA No. 3  | MSB2 (surface water)                 |
| EPA No. 4  | MBH13 (groundwater monitoring well)  |
| EPA No. 5  | MBH14 (groundwater monitoring well)  |
| EPA No. 6  | MBH3 (groundwater monitoring well)   |
| EPA No. 7  | MBH9 (groundwater monitoring well)   |
| EPA No. 8  | MBH10 (groundwater monitoring well)  |
| EPA No. 9  | MBH15 (groundwater monitoring well)  |
| EPA No. 10 | MBH16 (groundwater monitoring well)  |
| EPA No. 11 | Surface methane monitoring           |
| EPA No. 12 | Building methane monitoring          |
| EPA No. 13 | MLPOVER (Leachate pond overflow)     |



Base map: NSW Land and Property Information, Spatial Information Exchange 2011

Monitoring results for at least the last four years are presented in the following tables, as required by licence.

**Water quality analytes** are organised in the following tables 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.

Tables are organised according to field and laboratory results. Field results start with the date the sampling and field tests were undertaken. Laboratory results tables start with the date the laboratory issued the results, followed by the date by which results were placed on the Moree Plains Shire Council website.

Abbreviations made in the tables are provided here in alphabetical order:

Al = Aluminium; Alk = Alkalinity measured as mg/L CaCO<sub>3</sub> equivalent; As = Arsenic; Ba = Barium; BTEX = Benzene, Toluene, Ethylbenzene, Xylene; Ca = Calcium; Cd = Cadmium; Cl = Chloride; Co = Cobalt; Cr = Chromium; D = Depth to water from either top of PVC casing or standpipe; DO = Dissolved Oxygen; EC = Electrical Conductivity; Eh = Redox Potential; Fe = Iron; Fl = Fluoride; Hg = Mercury; K = Potassium; Mg = Magnesium; Mn = Manganese; Na = Sodium; NC = Not continuing; ND = Nil detected; NH<sub>3</sub> = Ammonia as a measure of ammonium ions; NO<sub>x</sub> = Nitrite + Nitrate; NR = Not required; OC&OP = Organochlorine and Organophosphorus; PAH = Polynuclear aromatic hydrocarbons; Pb = Lead; RL = water level converted to Reduced Level relative to mean sea level; SO<sub>4</sub> = Sulphate; SS = Total suspended solids; TDS = Total Dissolved Solids; Temp = Temperature; TKN = Total Kjeldahl Nitrogen (organic nitrogen + ammonia); TOC = Total Organic Carbon; TP = Total Phosphorus; TRH = Total Recoverable Hydrocarbons; Zn = Zinc.

Measures:

mg/L = milligram per litre (equivalent to ppm);  $\mu$ S/cm = microSiemens per centimetre; mV = millivolts; °C = degrees Celsius; 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. The concentrations are usually 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, groundwater has particular characteristics that need to be taken into account so that false conclusions are not made. For example, groundwater may have naturally high salt levels due to the clay strata in which it resides. EC is an indicator of salt levels. The EC of the Moree Landfill groundwater is a case in point. Its high EC levels (Table 1) are not due to landfill leachate because they were these concentrations before any solid waste was accepted at the Moree Landfill. They are due to the clay strata.

Other analytes give us more 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 definitely 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. A general rule of thumb is that total nitrogen (TKN + NO<sub>x</sub>) should be <5 mg/L.
- Iron and manganese above 10 mg/L is an indicator that landfill leachate may be present in groundwater. However, these groundwater analytes may have increased due to leaching of iron and manganese from the soil after excessive rainfall or flood water infiltration.
- Organic analytes such as BTEX compounds are most likely to indicate landfill leachate, especially if they haven't been detected before.

So it is important to monitor on a regular basis to note any changes in water quality analyte concentrations and to judicially review the results. Increases in groundwater and surface water analyte concentrations due to landfill leachate intrusion are often at least three to four times the previous concentrations.

Comments on water quality monitoring results: There are no concerns with the groundwater results. Surface water has not discharged since 31 March 2012. Leachate has returned to more concentrated levels after being diluted by two extreme rainfall events: one in November 2011, and the other in February 2012. Due to licence changes some analyses are no longer required.

**Table 1: Groundwater quality well MBH3 (EPA Point 6)**

| Sampling date | Frequency required by licence | DO   | EC    | pH   | Eh   | Temp | Alk  | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl   | As     | Cd      | Cr     | Pb     | Zn     | Mn     | Fe    | NH <sub>3</sub> | NO <sub>x</sub> | TKN       | TN        | TOC  |
|---------------|-------------------------------|------|-------|------|------|------|------|-------|--------|--------------------------|----------------------------------|-----------------|------|--------|---------|--------|--------|--------|--------|-------|-----------------|-----------------|-----------|-----------|------|
| Measure       |                               | mg/L | µS/cm | 1-14 | mV   | °C   | mg/L | m     | m      |                          |                                  | 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 as N | mg/L |
| <b>MBH3</b>   | Six-monthly                   |      |       |      |      |      |      |       |        | <b>MBH3</b>              |                                  |                 |      |        |         |        |        |        |        |       |                 |                 |           |           |      |
| 20/11/19      |                               | 0.54 | 3558  | 6.95 | +106 | 24.0 | 427  | 32.85 | 184.83 | 03/12/19                 | 23/12/19                         | 49              | 896  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.006  | <0.001 | <0.05 | <0.01           | 0.25            | 0.1       | 0.4       | 4    |
| 27/05/20      |                               | 0.49 | 3600  | 7.05 | +101 | 22.0 | 433  | 33.03 | 184.65 | 09/06/20                 | 29/06/20                         | 50              | 905  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.008  | <0.001 | <0.05 | 0.07            | 0.26            | 0.1       | 0.4       | <5   |
| 10/12/20      |                               | 0.71 | 3475  | 7.01 | +117 | 26.0 | 430  | 32.69 | 184.99 | 29/12/20                 | 19/01/21                         | 47              | 876  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.006  | <0.001 | <0.05 | <0.01           | 0.20            | <0.1      | 0.2       | 3    |
| 27/06/21      |                               | 0.69 | 3318  | 7.03 | +88  | 21.2 | 450  | 32.65 | 185.03 | 19/07/21                 | 06/08/21                         | 47              | 878  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.006  | <0.001 | <0.05 | <0.01           | 0.16            | <0.1      | 0.2       | 2    |
| 12/12/21      |                               | 0.54 | 3378  | 6.97 | +76  | 23.4 | 447  | 32.54 | 185.14 | 30/12/21                 | 20/01/22                         | 46              | 902  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.006  | <0.001 | <0.05 | <0.01           | 0.19            | <0.1      | 0.2       | 6    |
| 11/07/22      |                               | 0.36 | 3338  | 6.94 | +73  | 23.3 | 427  | 32.54 | 185.14 | 25/07/22                 | 12/08/22                         | 44              | 921  | <0.001 | <0.0001 | <0.001 | 0.002  | 0.012  | 0.004  | <0.05 | <0.01           | 0.17            | <0.1      | 0.2       | 4    |
| 03/12/22      |                               | 0.52 | 3153  | 6.99 | +287 | 23.4 | 413  | 31.94 | 185.74 | 19/12/22                 | 10/01/23                         | 53              | 889  | <0.001 | <0.0001 | <0.001 | 0.001  | 0.008  | 0.002  | <0.05 | <0.01           | 0.11            | <0.1      | 0.1       | <1   |
| 17/07/23      |                               | 0.53 | 2868  | 6.99 | +121 | 24.1 | 433  | 31.98 | 185.70 | 26/07/23                 | 15/08/23                         | 43              | 772  | <0.001 | <0.0001 | <0.001 | 0.001  | <0.005 | 0.002  | <0.05 | 0.02            | 0.05            | <0.1      | <0.1      | <1   |
| 09/01/24      |                               | 0.39 | 3138  | 7.02 | +69  | 27.5 | 420  | 32.54 | 185.14 | 19/01/24                 | 09/02/24                         | 44              | 950  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.006  | 0.001  | <0.05 | 0.02            | 0.20            | <0.1      | 0.2       | 3    |
| 16/06/24      |                               | 0.57 | 3345  | 7.08 | +70  | 20.7 | 413  | 32.45 | 185.23 | 27/06/24                 | 17/07/24                         | 45              | 877  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.005  | 0.002  | 0.22  | 0.09            | 0.19            | <0.1      | 0.2       | <2   |

**Table 2: Groundwater quality well MBH9 (EPA Point 7)**

| Sampling date | Frequency required by licence | DO   | EC    | pH   | Eh   | Temp | Alk  | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl   | As     | Cd      | Cr     | Pb     | Zn     | Mn     | Fe    | NH <sub>3</sub> | NO <sub>x</sub> | TKN       | TN        | TOC  |
|---------------|-------------------------------|------|-------|------|------|------|------|-------|--------|--------------------------|----------------------------------|-----------------|------|--------|---------|--------|--------|--------|--------|-------|-----------------|-----------------|-----------|-----------|------|
| Measure       |                               | mg/L | µS/cm | 1-14 | mV   | °C   | mg/L | m     | m      |                          |                                  | 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 as N | mg/L |
| <b>MBH9</b>   | Six-monthly                   |      |       |      |      |      |      |       |        | <b>MBH9</b>              |                                  |                 |      |        |         |        |        |        |        |       |                 |                 |           |           |      |
| 19/11/19      |                               | 2.87 | 2167  | 7.26 | +99  | 23.5 | 470  | 30.97 | 186.35 | 03/12/19                 | 23/12/19                         | 60              | 464  | <0.001 | <0.0001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.05            | <0.1      | <0.1      | 3    |
| 27/05/20      |                               | 3.47 | 2613  | 7.46 | +91  | 22.1 | 483  | 31.04 | 186.28 | 09/06/20                 | 29/06/20                         | 85              | 568  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.05            | <0.1      | <0.1      | <5   |
| 10/12/20      |                               | 3.15 | 2585  | 7.40 | +94  | 26.9 | 477  | 31.00 | 186.32 | 29/12/20                 | 19/01/21                         | 91              | 558  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.04            | <0.1      | <0.1      | <1   |
| 26/06/21      |                               | 3.65 | 2459  | 7.38 | +60  | 21.4 | 500  | 31.08 | 186.24 | 19/07/21                 | 06/08/21                         | 116             | 603  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.15            | <0.1      | 0.2       | 3    |
| 09/12/21      |                               | 3.77 | 2353  | 7.34 | +64  | 24.4 | 467  | 30.94 | 186.38 | 30/12/21                 | 20/01/22                         | 117             | 545  | <0.001 | <0.0001 | 0.004  | <0.001 | <0.005 | 0.003  | <0.05 | <0.01           | 0.09            | <0.1      | <0.1      | 2    |
| 11/07/22      |                               | 3.64 | 2163  | 7.24 | +36  | 21.1 | 480  | 31.08 | 186.24 | 25/07/22                 | 12/08/22                         | 92              | 511  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.10            | <0.1      | 0.1       | 5    |
| 02/12/22      |                               | 3.44 | 1993  | 7.40 | +179 | 23.1 | 480  | 30.96 | 186.36 | 19/12/22                 | 10/01/23                         | 93              | 467  | <0.001 | <0.0001 | 0.004  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.12            | <0.1      | 0.1       | <1   |
| 17/07/23      |                               | 4.04 | 1835  | 7.41 | +115 | 24.5 | 493  | 31.12 | 186.20 | 26/07/23                 | 15/08/23                         | 74              | 472  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.004  | <0.05 | 0.01            | 0.10            | <0.1      | 0.1       | 2    |
| 10/01/24      |                               | 4.14 | 1813  | 7.50 | +83  | 26.5 | 500  | 30.97 | 186.35 | 19/01/24                 | 09/02/24                         | 71              | 509  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.10            | <0.1      | 0.1       | <1   |
| 17/07/23      |                               | 4.17 | 2239  | 7.48 | +99  | 22.3 | 493  | 31.00 | 186.32 | 27/06/24                 | 17/07/24                         | 72              | 511  | <0.001 | <0.0001 | 0.003  | <0.001 | 0.006  | 0.002  | <0.05 | <0.01           | 0.09            | <0.1      | <0.1      | <1   |

**Table 3: Groundwater quality well MBH10 (EPA Point 8)**

| Sampling date | Frequency required by licence | DO   | EC    | pH   | Eh   | Temp | Alk  | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl   | As     | Cd      | Cr     | Pb     | Zn     | Mn     | Fe    | NH <sub>3</sub> | NO <sub>x</sub> | TKN       | TN        | TOC  |
|---------------|-------------------------------|------|-------|------|------|------|------|-------|--------|--------------------------|----------------------------------|-----------------|------|--------|---------|--------|--------|--------|--------|-------|-----------------|-----------------|-----------|-----------|------|
|               |                               |      |       |      |      |      |      |       |        | mg/L                     | mg/L                             |                 |      |        |         |        |        |        |        |       |                 |                 |           |           |      |
| Measure       |                               | mg/L | µS/cm | 1-14 | mV   | °C   | mg/L | m     | m      |                          |                                  | 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 as N | mg/L |
| <b>MBH10</b>  | Six-monthly                   |      |       |      |      |      |      |       |        | <b>MBH10</b>             |                                  |                 |      |        |         |        |        |        |        |       |                 |                 |           |           |      |
| 19/11/19      |                               | 3.20 | 2083  | 7.11 | +92  | 23.4 | 349  | 29.07 | 188.62 | 03/12/19                 | 23/12/19                         | 29              | 513  | <0.001 | <0.0001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.28            | 0.1       | 0.4       | 3    |
| 27/05/20      |                               | 3.13 | 2094  | 7.19 | +139 | 22.7 | 357  | 29.08 | 188.61 | 09/06/20                 | 29/06/20                         | 28              | 506  | <0.001 | <0.0001 | 0.002  | <0.001 | <0.005 | <0.001 | <0.05 | 0.03            | 0.30            | <0.1      | 0.3       | <5   |
| 10/12/20      |                               | 3.17 | 2070  | 7.30 | +86  | 24.8 | 360  | 29.10 | 188.59 | 29/12/20                 | 19/01/21                         | 30              | 485  | <0.001 | <0.0001 | 0.002  | <0.001 | 0.005  | <0.001 | <0.05 | <0.01           | 0.30            | <0.1      | 0.3       | <1   |
| 26/06/21      |                               | 3.38 | 2011  | 7.28 | +66  | 20.8 | 387  | 28.90 | 188.79 | 19/07/21                 | 06/08/21                         | 28              | 539  | <0.001 | <0.0001 | 0.002  | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.30            | <0.1      | 0.3       | 4    |
| 09/12/21      |                               | 3.35 | 1970  | 7.23 | +69  | 23.5 | 367  | 28.73 | 188.96 | 30/12/21                 | 20/01/22                         | 29              | 526  | <0.001 | <0.0001 | 0.002  | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.32            | <0.1      | 0.3       | 4    |
| 11/07/22      |                               | 3.25 | 1967  | 7.23 | +65  | 22.2 | 367  | 28.77 | 188.92 | 25/07/22                 | 12/08/22                         | 27              | 529  | <0.001 | <0.0001 | 0.003  | <0.001 | 0.007  | 0.004  | <0.05 | <0.01           | 0.31            | <0.1      | 0.3       | 4    |
| 03/12/22      |                               | 3.50 | 1874  | 7.23 | +204 | 24.1 | 353  | 28.62 | 189.07 | 19/12/22                 | 10/01/23                         | 37              | 535  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.34            | <0.1      | 0.3       | <1   |
| 17/07/23      |                               | 4.63 | 3585  | 7.13 | +53  | 24.4 | 707  | 28.79 | 188.90 | 26/07/23                 | 15/08/23                         | 27              | 490  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.002  | <0.05 | 0.02            | 0.33            | <0.1      | 0.3       | <1   |
| 10/01/24      |                               | 3.33 | 1666  | 7.28 | +75  | 25.6 | 300  | 28.88 | 188.81 | 19/01/24                 | 09/02/24                         | 28              | 559  | <0.001 | <0.0001 | 0.004  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.34            | 0.2       | 0.5       | <1   |
| 16/06/24      |                               | 3.09 | 2080  | 7.32 | +81  | 18.6 | 357  | 28.88 | 188.81 | 27/06/24                 | 17/07/24                         | 28              | 529  | <0.001 | <0.0001 | 0.003  | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.36            | <0.1      | 0.4       | <1   |

**Table 4: Groundwater quality well MBH13 (EPA Point 4)**

| Sampling date | Frequency required by licence | DO   | EC    | pH   | Eh   | Temp | Alk  | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl   | As     | Cd      | Cr    | Pb     | Zn     | Mn     | Fe    | NH <sub>3</sub> | NO <sub>x</sub> | TKN       | TN        | TOC  |
|---------------|-------------------------------|------|-------|------|------|------|------|-------|--------|--------------------------|----------------------------------|-----------------|------|--------|---------|-------|--------|--------|--------|-------|-----------------|-----------------|-----------|-----------|------|
|               |                               |      |       |      |      |      |      |       |        | mg/L                     | mg/L                             |                 |      |        |         |       |        |        |        |       |                 |                 |           |           |      |
| Measure       |                               | mg/L | µS/cm | 1-14 | mV   | °C   | mg/L | m     | m      |                          |                                  | 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 as N | mg/L |
| <b>MBH13</b>  | Six-monthly                   |      |       |      |      |      |      |       |        | <b>MBH13</b>             |                                  |                 |      |        |         |       |        |        |        |       |                 |                 |           |           |      |
| 19/11/19      |                               | 4.67 | 1947  | 7.18 | +111 | 24.5 | 403  | 30.76 | 186.83 | 03/12/19                 | 23/12/19                         | 30              | 439  | <0.001 | <0.0001 | 0.006 | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.30            | <0.1      | 0.3       | 2    |
| 28/05/20      |                               | 4.92 | 2148  | 7.35 | +137 | 22.2 | 313  | 30.61 | 186.98 | 09/06/20                 | 29/06/20                         | 98              | 513  | <0.001 | <0.0001 | 0.006 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.17            | <0.1      | 0.2       | <5   |
| 10/12/20      |                               | 4.28 | 2683  | 7.33 | +80  | 24.0 | 263  | 30.52 | 187.07 | 29/12/20                 | 19/01/21                         | 72              | 703  | <0.001 | <0.0001 | 0.004 | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.16            | <0.1      | 0.2       | 2    |
| 26/06/21      |                               | 4.02 | 3125  | 7.28 | +96  | 19.8 | 223  | 30.39 | 187.20 | 19/07/21                 | 06/08/21                         | 73              | 933  | <0.001 | <0.0001 | 0.004 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.34            | 0.1       | 0.4       | 2    |
| 09/12/21      |                               | 4.42 | 3253  | 7.29 | +9   | 23.6 | 187  | 30.17 | 187.42 | 30/12/21                 | 20/01/22                         | 88              | 1040 | <0.001 | <0.0001 | 0.007 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.50            | <0.1      | 0.5       | 2    |
| 11/07/22      |                               | 4.19 | 3378  | 7.25 | -2   | 22.9 | 167  | 30.09 | 187.50 | 25/07/22                 | 12/08/22                         | 112             | 1160 | <0.001 | <0.0001 | 0.006 | <0.001 | <0.005 | 0.006  | <0.05 | <0.01           | 0.60            | 0.2       | 0.8       | 2    |
| 02/12/22      |                               | 3.63 | 3470  | 7.11 | +31  | 24.2 | 147  | 29.94 | 187.65 | 19/12/22                 | 10/01/23                         | 148             | 1220 | <0.001 | <0.0001 | 0.006 | <0.001 | <0.005 | 0.001  | <0.05 | <0.01           | 0.70            | <0.1      | 0.7       | <1   |
| 17/07/23      |                               | 4.63 | 3585  | 7.13 | +53  | 24.0 | 127  | 29.88 | 187.71 | 26/07/23                 | 15/08/23                         | 195             | 1310 | <0.001 | <0.0001 | 0.008 | <0.001 | <0.005 | 0.001  | <0.05 | 0.02            | 0.79            | <0.5      | 0.8       | <1   |
| 09/01/24      |                               | 4.42 | 3383  | 7.18 | +16  | 25.1 | 133  | 29.80 | 187.79 | 19/01/24                 | 09/02/24                         | 222             | 1300 | <0.001 | <0.0001 | 0.008 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.87            | <0.1      | 0.9       | <1   |
| 16/06/24      |                               | 4.01 | 4653  | 7.20 | +81  | 20.3 | 133  | 29.68 | 187.91 | 27/06/24                 | 17/07/24                         | 255             | 1380 | <0.001 | <0.0001 | 0.008 | <0.001 | <0.005 | <0.001 | 0.06  | <0.01           | 0.87            | <0.1      | 0.9       | <1   |



**Table 5: Groundwater quality well MBH14 (EPA Point 5)**

| Sampling date            | Frequency required by licence | DO   | EC    | pH   | Eh   | Temp | Alk  | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl   | As     | Cd      | Cr    | Pb     | Zn     | Mn     | Fe    | NH <sub>3</sub> | NO <sub>x</sub> | TKN       | TN        | TOC  |
|--------------------------|-------------------------------|------|-------|------|------|------|------|-------|--------|--------------------------|----------------------------------|-----------------|------|--------|---------|-------|--------|--------|--------|-------|-----------------|-----------------|-----------|-----------|------|
|                          |                               |      |       |      |      |      |      |       |        |                          |                                  |                 |      |        |         |       |        |        |        |       |                 |                 |           |           |      |
| Measure                  |                               | mg/L | µS/cm | 1-14 | mV   | °C   | mg/L | m     | m      |                          |                                  | 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 as N | mg/L |
| <b>MBH14</b> Six-monthly |                               |      |       |      |      |      |      |       |        | <b>MBH14</b>             |                                  |                 |      |        |         |       |        |        |        |       |                 |                 |           |           |      |
| 19/11/19                 |                               | 4.99 | 5078  | 7.18 | +102 | 25.3 | 443  | 32.81 | 185.13 | 03/12/19                 | 23/12/19                         | 67              | 1380 | <0.001 | <0.0001 | 0.012 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.66            | <0.1      | 0.7       | 3    |
| 28/05/20                 |                               | 4.79 | 5178  | 7.33 | +123 | 22.3 | 447  | 33.03 | 184.91 | 09/06/20                 | 29/06/20                         | 67              | 1400 | <0.001 | <0.0001 | 0.014 | <0.001 | <0.005 | <0.001 | <0.05 | 0.01            | 0.68            | <0.1      | 0.7       | <5   |
| 10/12/20                 |                               | 4.75 | 5135  | 7.33 | +56  | 23.7 | 453  | 32.83 | 185.11 | 29/12/20                 | 19/01/21                         | 61              | 1360 | <0.001 | <0.0001 | 0.014 | <0.001 | <0.005 | 0.002  | <0.05 | <0.01           | 0.65            | <0.1      | 0.6       | 3    |
| 26/06/21                 |                               | 5.02 | 5140  | 7.30 | +81  | 20.4 | 457  | 32.69 | 185.25 | 19/07/21                 | 06/08/21                         | 67              | 1450 | <0.001 | <0.0001 | 0.012 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.66            | 0.1       | 0.8       | 4    |
| 09/12/21                 |                               | 5.44 | 4908  | 7.32 | +52  | 25.9 | 453  | 31.52 | 186.42 | 30/12/21                 | 20/01/22                         | 63              | 1460 | <0.001 | <0.0001 | 0.014 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.68            | <0.1      | 0.7       | 4    |
| 11/07/22                 |                               | 4.41 | 4970  | 7.29 | +56  | 21.4 | 420  | 32.40 | 185.54 | 25/07/22                 | 12/08/22                         | 62              | 1470 | <0.001 | <0.0001 | 0.014 | <0.001 | <0.005 | 0.001  | <0.05 | <0.01           | 0.67            | <0.1      | 0.7       | 5    |
| 02/12/22                 |                               | 4.71 | 4675  | 7.15 | +73  | 25.4 | 447  | 32.12 | 185.82 | 19/12/22                 | 10/01/23                         | 73              | 1460 | <0.001 | <0.0001 | 0.015 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.75            | <0.1      | 0.8       | <1   |
| 17/07/23                 |                               | 5.06 | 4603  | 7.21 | +99  | 24.3 | 453  | 32.13 | 185.81 | 26/07/23                 | 15/08/23                         | 64              | 1450 | <0.001 | <0.0001 | 0.015 | <0.001 | <0.005 | <0.001 | <0.05 | 0.02            | 0.66            | <0.1      | 0.7       | <1   |
| 09/01/24                 |                               | 4.67 | 4328  | 7.26 | +38  | 25.9 | 440  | 32.49 | 185.45 | 19/01/24                 | 09/02/24                         | 66              | 1430 | <0.001 | <0.0001 | 0.014 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.67            | <0.1      | 0.7       | <1   |
| 16/06/24                 |                               | 4.15 | 5220  | 7.27 | +85  | 20.9 | 467  | 32.53 | 185.41 | 27/06/24                 | 17/07/24                         | 62              | 1470 | <0.001 | <0.0001 | 0.013 | <0.001 | <0.005 | <0.001 | <0.05 | <0.01           | 0.71            | <0.1      | 0.7       | <2   |

**Table 6: Groundwater quality well MBH15 (EPA Point 9)**

| Sampling date            | Frequency required by licence | DO   | EC    | pH   | Eh   | Temp | Alk  | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl   | As     | Cd      | Cr     | Pb     | Zn     | Mn    | Fe    | NH <sub>3</sub> | NO <sub>x</sub> | TKN       | TN        | TOC  |
|--------------------------|-------------------------------|------|-------|------|------|------|------|-------|--------|--------------------------|----------------------------------|-----------------|------|--------|---------|--------|--------|--------|-------|-------|-----------------|-----------------|-----------|-----------|------|
|                          |                               |      |       |      |      |      |      |       |        |                          |                                  |                 |      |        |         |        |        |        |       |       |                 |                 |           |           |      |
| Measure                  |                               | mg/L | µS/cm | 1-14 | mV   | °C   | mg/L | m     | m      |                          |                                  | 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 as N | mg/L |
| <b>MBH15</b> Six-monthly |                               |      |       |      |      |      |      |       |        | <b>MBH15</b>             |                                  |                 |      |        |         |        |        |        |       |       |                 |                 |           |           |      |
| 20/11/19                 |                               | 1.17 | 1691  | 7.03 | +83  | 25.4 | 410  | 33.06 | 184.70 | 03/12/19                 | 23/12/19                         | 42              | 326  | <0.001 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.007 | <0.05 | <0.01           | 0.03            | <0.1      | <0.1      | 3    |
| 26/05/20                 |                               | 0.72 | 1710  | 7.16 | +131 | 21.8 | 380  | 33.14 | 184.62 | 09/06/20                 | 29/06/20                         | 46              | 331  | <0.001 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.006 | 0.06  | 0.01            | 0.02            | <0.1      | <0.1      | <5   |
| 10/12/20                 |                               | 0.96 | 1697  | 7.12 | +76  | 31.6 | 377  | 32.92 | 184.84 | 29/12/20                 | 19/01/21                         | 44              | 320  | <0.001 | <0.0001 | <0.001 | <0.001 | 0.006  | 0.010 | 0.06  | <0.01           | 0.02            | <0.1      | <0.1      | 2    |
| 27/06/21                 |                               | 0.52 | 1710  | 7.04 | +17  | 21.6 | 383  | 32.69 | 185.07 | 19/07/21                 | 06/08/21                         | 49              | 372  | 0.001  | <0.0001 | <0.001 | <0.001 | <0.005 | 0.043 | <0.05 | 0.01            | 0.04            | <0.1      | <0.1      | 2    |
| 12/12/21                 |                               | 0.74 | 1678  | 7.03 | -20  | 25.9 | 400  | 32.63 | 185.13 | 30/12/21                 | 20/01/22                         | 53              | 364  | <0.001 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.025 | 0.07  | <0.01           | 0.04            | <0.1      | <0.1      | 5    |
| 13/07/22                 |                               | 0.51 | 1655  | 7.10 | -187 | 20.4 | 387  | 32.31 | 185.45 | 25/07/22                 | 12/08/22                         | 52              | 374  | 0.001  | <0.0001 | <0.001 | <0.001 | <0.005 | 0.043 | 0.14  | 0.06            | <0.01           | 0.1       | 0.1       | 5    |
| 02/12/22                 |                               | 0.49 | 1586  | 7.02 | -171 | 25.0 | 380  | 31.93 | 185.83 | 19/12/22                 | 10/01/23                         | 47              | 363  | 0.002  | <0.0001 | <0.001 | <0.001 | <0.005 | 0.061 | 0.42  | 0.03            | <0.01           | <0.1      | <0.1      | <1   |
| 18/07/23                 |                               | 0.66 | 1561  | 7.02 | -239 | 24.5 | 353  | 31.99 | 185.77 | 26/07/23                 | 15/08/23                         | 55              | 372  | 0.001  | <0.0001 | <0.001 | <0.001 | <0.005 | 0.026 | 0.15  | 0.02            | 0.16            | <0.1      | 0.2       | 3    |
| 09/01/24                 |                               | 0.96 | 1491  | 7.07 | -133 | 29.3 | 360  | 32.75 | 185.01 | 19/01/24                 | 09/02/24                         | 56              | 365  | 0.001  | <0.0001 | <0.001 | <0.001 | 0.005  | 0.016 | 0.11  | 0.02            | 0.14            | <0.1      | 0.1       | <1   |
| 17/06/24                 |                               | 1.02 | 1669  | 7.10 | -23  | 21.5 | 353  | 32.47 | 185.29 | 27/06/24                 | 17/07/24                         | 55              | 376  | 0.001  | <0.0001 | <0.001 | <0.001 | <0.005 | 0.016 | 0.11  | <0.01           | 0.12            | <0.1      | 0.1       | <1   |

**Table 7: Groundwater quality well MBH16 (EPA Point 10)**

| Sampling date     | Frequency required by licence | DO    | EC   | pH   | Eh   | Temp | Alk | D     | RL     | Received from laboratory | Accessible on Council website by | SO <sub>4</sub> | Cl  | As    | Cd      | Cr     | Pb     | Zn     | Mn    | Fe   | NH <sub>3</sub> | NO <sub>x</sub> | TKN  | TN   | TOC |
|-------------------|-------------------------------|-------|------|------|------|------|-----|-------|--------|--------------------------|----------------------------------|-----------------|-----|-------|---------|--------|--------|--------|-------|------|-----------------|-----------------|------|------|-----|
|                   |                               |       |      |      |      |      |     |       |        |                          |                                  |                 |     |       |         |        |        |        |       |      |                 |                 |      |      |     |
| MBH16 Six-monthly |                               | MBH16 |      |      |      |      |     |       |        |                          |                                  |                 |     |       |         |        |        |        |       |      |                 |                 |      |      |     |
| 20/11/19          |                               | 0.44  | 1441 | 7.35 | -76  | 25.4 | 427 | 32.44 | 184.67 | 03/12/19                 | 23/12/19                         | 19              | 233 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.105 | 0.09 | <0.01           | <0.01           | <0.1 | <0.1 | 3   |
| 26/05/20          |                               | 0.37  | 1446 | 7.53 | -36  | 22.0 | 440 | 32.48 | 184.63 | 09/06/20                 | 29/06/20                         | 18              | 232 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.110 | 0.10 | <0.01           | <0.01           | <0.1 | <0.1 | <5  |
| 10/12/20          |                               | 0.61  | 1445 | 7.50 | -79  | 23.5 | 433 | 32.36 | 184.75 | 29/12/20                 | 19/01/21                         | 19              | 225 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.110 | 0.07 | <0.01           | <0.01           | <0.1 | <0.1 | <1  |
| 27/06/21          |                               | 0.44  | 1438 | 7.29 | -151 | 21.8 | 440 | 32.36 | 184.75 | 19/07/21                 | 06/08/21                         | 19              | 254 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.116 | 0.13 | 0.02            | <0.01           | <0.1 | <0.1 | 2   |
| 12/12/21          |                               | 0.41  | 1397 | 7.36 | -124 | 24.4 | 433 | 31.99 | 185.12 | 30/12/21                 | 20/01/22                         | 19              | 250 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.112 | 0.23 | <0.01           | <0.01           | <0.1 | <0.1 | 6   |
| 13/07/22          |                               | 0.59  | 1385 | 7.32 | -123 | 22.2 | 443 | 31.65 | 185.46 | 25/07/22                 | 12/08/22                         | 20              | 253 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.107 | 0.21 | <0.01           | <0.01           | <0.1 | <0.1 | 5   |
| 02/12/22          |                               | 0.44  | 1357 | 7.35 | -48  | 23.9 | 443 | 31.20 | 185.91 | 19/12/22                 | 10/01/23                         | 27              | 253 | 0.001 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.108 | 0.21 | <0.01           | <0.01           | <0.1 | <0.1 | <1  |
| 18/07/23          |                               | 0.49  | 1322 | 7.32 | -66  | 24.3 | 440 | 31.27 | 185.84 | 26/07/23                 | 15/08/23                         | 24              | 220 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.106 | 0.16 | 0.02            | <0.01           | <0.1 | <0.1 | <1  |
| 09/01/24          |                               | 0.52  | 1283 | 7.36 | -45  | 26.3 | 433 | 32.20 | 184.91 | 19/01/24                 | 09/02/24                         | 29              | 239 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.092 | 0.10 | 0.04            | <0.01           | <0.1 | <0.1 | <1  |
| 17/06/24          |                               | 0.53  | 1438 | 7.42 | -35  | 21.7 | 427 | 31.75 | 185.36 | 27/06/24                 | 17/07/24                         | 29              | 245 | 0.002 | <0.0001 | <0.001 | <0.001 | <0.005 | 0.095 | 0.13 | <0.01           | <0.01           | <0.1 | <0.1 | <2  |

**Table 8: Surface water quality (EPA Point 3)**

| Sampling date     | Frequency required by licence | DO   | EC | pH | Eh | Temp | Alk | Received from laboratory | Accessible on Council website | SS | NH <sub>3</sub> | TKN | NO <sub>x</sub> | TN |
|-------------------|-------------------------------|------|----|----|----|------|-----|--------------------------|-------------------------------|----|-----------------|-----|-----------------|----|
|                   |                               |      |    |    |    |      |     |                          |                               |    |                 |     |                 |    |
| MSB2 on discharge |                               | MSB2 |    |    |    |      |     |                          |                               |    |                 |     |                 |    |
| no discharge      |                               |      |    |    |    |      |     |                          |                               |    |                 |     |                 |    |

**Table 9a: Leachate quality – field parameters and analytes, and laboratory analytes (a) (MLP1 – EPA Point 1)**

| Sampling date                 | Frequency required by licence | DO    | EC    | pH   | Eh   | Temp | Alk  | Received from laboratory      | Accessible on Council website by | SO <sub>4</sub> | Cl   | As    | Cd      | Cr    | Mn     | Pb     | Zn    | Fe   |
|-------------------------------|-------------------------------|-------|-------|------|------|------|------|-------------------------------|----------------------------------|-----------------|------|-------|---------|-------|--------|--------|-------|------|
|                               |                               |       |       |      |      |      |      | mg/L                          | µS/cm                            | 1-14            | mV   | °C    | mg/L    | mg/L  | mg/L   | mg/L   | mg/L  | mg/L |
| <b>MLP1</b>                   | Six monthly                   | NR    |       |      | NR   | NR   |      | <b>MLP1</b>                   |                                  |                 |      |       |         |       |        |        |       |      |
| 20/11/19                      |                               | 0.08  | 6575  | 7.97 | +67  | 24.8 | 1500 | 03/12/19                      | 23/12/19                         | 107             | 1020 | 0.036 | 0.0016  | 0.053 | 1.680  | 0.039  | 0.414 | 9.53 |
| 28/05/20                      |                               | 0.06  | 8560  | 8.46 | +68  | 22.5 | 2000 | 09/06/20                      | 29/06/20                         | 1050            | 1300 | 0.103 | 0.0022  | 0.090 | 0.220  | 1.020  | 1.720 | 34.5 |
| 10/12/20                      |                               | 0.09  | 9378  | 8.61 | +47  | 26.1 | 2200 | 29/12/20                      | 19/01/21                         | 86              | 405  | 0.019 | 0.0033  | 0.025 | 1.700  | 0.104  | 0.841 | 16.7 |
| 27/06/21                      |                               | 11.80 | 11685 | 8.72 | +53  | 21.6 | 1800 | 19/07/21                      | 06/08/21                         | 330             | 3100 | 0.081 | <0.0005 | 0.029 | 0.944  | 0.007  | 0.097 | 2.30 |
| 12/12/21                      |                               | 5.68  | 2890  | 8.06 | +22  | 28.7 | 640  | 30/12/21                      | 20/01/22                         | 117             | 603  | 0.023 | <0.0001 | 0.005 | 0.275  | <0.001 | 0.016 | 0.30 |
| 13/07/22                      |                               | 4.14  | 4000  | 7.80 | +81  | 15.7 | 1170 | 25/07/22                      | 12/08/22                         | 37              | 735  | 0.024 | 0.0002  | 0.012 | 1.020  | 0.002  | 0.021 | 0.78 |
| 03/12/22                      |                               | 6.68  | 3303  | 8.82 | +201 | 25.0 | 1400 | 19/12/22                      | 10/01/23                         | 221             | 1430 | 0.058 | <0.0001 | 0.010 | 0.792  | 0.001  | 0.028 | 0.57 |
| 18/07/23                      |                               | 24.44 | 7125  | 9.15 | -39  | 20.7 | 1700 | 26/07/23                      | 15/08/23                         | 188             | 1700 | 0.055 | <0.0001 | 0.006 | <0.001 | 0.014  | 0.391 | 0.17 |
| 10/01/24                      |                               | 13.79 | 13125 | 9.77 | +17  | 28.3 | 2500 | 19/01/24                      | 09/02/24                         | 229             | 3450 | 0.092 | <0.0001 | 0.008 | 0.001  | 0.011  | 0.117 | 0.11 |
| 17/06/24                      |                               | 5.99  | 10940 | 9.06 | +33  | 16.5 | 2490 | 27/06/24                      | 17/07/24                         | 10              | 2540 | 0.064 | <0.0001 | 0.014 | 0.831  | <0.001 | 0.015 | 1.52 |
| <b>MLPOVER</b><br>no overflow | overflow                      | NR    |       |      | NR   |      | NR   | <b>MLPOVER</b><br>no overflow |                                  | NR              | NR   | NR    | NR      | NR    | NR     | NR     | NR    | NR   |

Table 9b: Leachate quality – laboratory analytes (b) (MLP1 – EPA Point 1)

| Measure                       | SS<br>mg/L | NH <sub>3</sub><br>mg/L<br>as N | NO <sub>x</sub><br>mg/L<br>as N | TKN<br>mg/L<br>as N | TN<br>mg/L | TP<br>mg/L | TOC<br>mg/L | Phenols<br>mg/L | OC & OP<br>pesticides<br>mg/L | PAH<br>mg/L | TRH<br>C6-C10<br>mg/L | TRH<br>>C10-C16<br>mg/L | TRH<br>>C16-C34<br>mg/L | TRH<br>>C34-C40<br>mg/L | TRH<br>>C10-C40<br>(sum)<br>mg/L | BTEX/VOC compounds<br>mg/L   |
|-------------------------------|------------|---------------------------------|---------------------------------|---------------------|------------|------------|-------------|-----------------|-------------------------------|-------------|-----------------------|-------------------------|-------------------------|-------------------------|----------------------------------|--|
| <b>MLP1</b>                   | NR         |                                 |                                 |                     |            |            |             | NR              |                               |             |                       |                         |                         |                         |                                  |  |
| 20/11/19                      |            | 108                             | <0.10                           | 221                 | 221        | 21.3       | 576         |                 | ND                            | ND          | <0.020                | <0.020                  | 1.360                   | 4.280                   | 0.440                            | ND   |
| 28/05/20                      |            | 150                             | <0.01                           | 361                 | 361        | 33.0       | 542         |                 | ND                            | ND          | 0.040                 | 0.030                   | 0.770                   | 9.390                   | 1.390                            | Toluene 0.003; meta & para Xylene 0.003;<br>2-Butanone (MEK) 0.200 |
| 10/12/20                      |            | 71.2                            | 0.02                            | 134                 | 134        | 13.2       | 728         |                 | ND                            | ND          | 0.090                 | 2.980                   | 19.000                  | 1.790                   | 23.800                           | Toluene 0.007; 2-Butanone (MEK) 0.910                              |
| 27/06/21                      |            | 27.1                            | <0.10                           | 136                 | 136        | 12.9       | 537         |                 | ND                            | ND          | <0.010                | 0.420                   | 3.490                   | 0.260                   | 4.170                            | ND   |
| 12/12/21                      |            | 4.95                            | 1.04                            | 15.9                | 16.9       | 3.95       | 106         |                 | ND                            | ND          | <0.020                | 0.100                   | 0.430                   | <0.100                  | 0.530                            | ND   |
| 13/07/22                      |            | 11.8                            | <0.01                           | 29.5                | 29.5       | 7.22       | 177         |                 | ND                            | ND          | <0.020                | 0.110                   | 0.420                   | 0.110                   | 0.640                            | ND   |
| 03/12/22                      |            | 3.49                            | <0.01                           | 30.0                | 30.0       | 7.42       | 204         |                 | ND                            | ND          | <0.020                | 0.160                   | 0.730                   | <0.100                  | 0.890                            | ND   |
| 18/07/23                      |            | 2.89                            | 0.04                            | 38.2                | 38.2       | 5.46       | 283         |                 | ND                            | ND          | <0.020                | <0.100                  | 0.730                   | <0.100                  | 0.730                            | ND   |
| 10/01/24                      |            | 1.74                            | <0.01                           | 63.6                | 63.6       | 7.14       | 617         |                 | ND                            | ND          | <0.100                | 0.480                   | 1.970                   | 0.120                   | 2.570                            | ND   |
| 17/06/24                      |            | 12.1                            | <0.05                           | 51.7                | 51.7       | 6.62       | 444         |                 | ND                            | ND          | <0.100                | 0.220                   | 0.580                   | <0.100                  | 0.800                            | ND   |
| <b>MLPOVER</b><br>no overflow |            |                                 | NR                              | NR                  | NR         | NR         | NR          |                 | NR                            | NR          | NR                    | NR                      | NR                      | NR                      | NR                               | NR   |



**Methane** is a colourless, odourless gas that is flammable and explosive. It is generated approximately three months after the deposition of putrescible solid waste and once oxygen is depleted. Testing is conducted above ground surfaces to assure that none is escaping to air, and in buildings to assure against asphyxiation and explosion.

Comments on methane monitoring results: No methane has been detected on the ground surface or in buildings.

**Table 5: Methane detections (surface and buildings) (EPA Points 11 & 12)**

| Frequency required by licence | Detection locations | Methane (CH <sub>4</sub> ) by volume in air | Methane (CH <sub>4</sub> ) by volume in air | Methane (CH <sub>4</sub> ) (Lower Explosive Limit) | Accessible on Council website |
|-------------------------------|---------------------|---|---|--|-------------------------------|
| Measure                       |                     | ppm CH <sub>4</sub> in air                  | % CH <sub>4</sub> in air                    | % LEL  |                               |
| Reporting limit               |                     | 500   | 0.05%                                       | 1%   |                               |
| 3 monthly                     |                     |   |   |  |                               |
| 20/11/19                      | Nil detections      |   |   |  | 23/12/19                      |
| 12/02/20                      | Nil detections      |   |   |  | 29/06/20                      |
| 31/05/20                      | Nil detections      |   |   |  | 29/06/20                      |
| 09/09/20                      | Nil detections      |   |   |  | 19/01/21                      |
| 11/12/20                      | Nil detections      |   |   |  | 19/01/21                      |
| 23/02/21                      | Nil detections      |   |   |  | 06/08/21                      |
| 27/06/21                      | Nil detections      |   |   |  | 06/08/21                      |
| 22/09/21                      | Nil detections      |   |   |  | 20/01/22                      |
| 09/12/21                      | Nil detections      |   |   |  | 20/01/22                      |
| 09/03/22                      | Nil detections      |   |   |  | 04/05/22                      |
| 11/07/22                      | Nil detections      |   |   |  | 12/08/22                      |
| 02&03/12/22                   | Nil detections      |   |   |  | 10/01/23                      |
| 21/03/23                      | Nil detections      |   |   |  | 15/08/23                      |
| 17/07/23                      | Nil detections      |   |   |  | 15/08/23                      |
| 24/09/23                      | Nil detections      |   |   |  | 09/02/24                      |
| 10/01/24                      | Nil detections      |   |   |  | 09/02/24                      |
| 15/03/24                      | Nil detections      |   |   |  | 17/07/24                      |
| 22/06/24                      | Nil detections      |   |   |  | 17/07/24                      |

Note: 500 ppm CH<sub>4</sub> by volume in air = 0.05% CH<sub>4</sub> by volume in air = 1% LEL