

| Facility Information Summary | |
|--|------------------------------------|
| AER Reporting Year | 2016 |
| Licence Register Number | W0076-1 |
| Name of site | Longpavement Landfill |
| Site Location | Longpavement, Monabraher, Limerick |
| NACE Code | 3821 |
| Class/Classes of Activity | D4, D7, R4,R9,R10 |
| National Grid Reference (6E, 6 N) | -8.63592, 52.68034 |
| <p>A description of the activities/processes at the site for the reporting year. This should include information such as production increases or decreases on site, any infrastructural changes, environmental performance which was measured during the reporting year and an overview of compliance with your licence listing all exceedances of licence limits (where applicable) and what they relate to e.g. air, water, noise.</p> <p>No material was imported onto the site in 2016. All works on the site are now complete.</p> | |

Declaration:

All the data and information presented in this report has been checked and certified as being accurate. The quality of the information is assured to meet licence requirements.

| | |
|---|------------|
| Ursula Ahern | 07/04/2017 |
| Signature | Date |
| Group/Facility manager | |
| (or nominated, suitably qualified and experienced deputy) | |

AIR-summary template Lic No: W0076-1 Year 2016

Answer all questions and complete all tables where relevant

Additional information

1 Does your site have licensed air emissions? If yes please complete table A1 and A2 below for the current reporting year and answer further questions. **If you do not have** licenced emissions and **do not complete a solvent management plan** (table A4 and A5) you do not need to complete the tables

| | |
|----|--|
| No | |
|----|--|

Periodic/Non-Continuous Monitoring

2 Are there any results in breach of licence requirements? If yes please provide brief details in the comment section of TableA1 below

| | |
|--------|--|
| SELECT | |
|--------|--|

3 Was all monitoring carried out in accordance with EPA guidance [Basic air monitoring checklist](#) note AG2 and using the basic air monitoring checklist? [AGN2](#)

| | |
|--------|--|
| SELECT | |
|--------|--|

Table A1: Licensed Mass Emissions/Ambient data-periodic monitoring (non-continuous)

| Emission reference no. | Parameter/ Substance | Frequency of Monitoring | ELV in licence or any revision thereof | Licence Compliance criteria | Measured value | Unit of measurement | Compliant with licence limit | Method of analysis | Annual mass load (kg) | Comments - reason for change in % mass load from previous year if applicable |
|------------------------|----------------------|-------------------------|--|-----------------------------|----------------|---------------------|------------------------------|--------------------|-----------------------|--|
| | SELECT | | | SELECT | | SELECT | SELECT | SELECT | | |
| | SELECT | | | SELECT | | SELECT | SELECT | SELECT | | |
| | SELECT | | | SELECT | | SELECT | SELECT | SELECT | | |
| | SELECT | | | SELECT | | SELECT | SELECT | SELECT | | |

Note 1: Volumetric flow shall be included as a reportable parameter

| | | |
|------------------------------|-----------------|------------|
| AIR-summary template | Lic No: W0076-1 | Year: 2016 |
| Continuous Monitoring | | |

| | | |
|--|--------|--|
| <p>4 Does your site carry out continuous air emissions monitoring? If yes please review your continuous monitoring data and report the required fields below in Table A2 and compare it to its relevant Emission Limit Value (ELV)</p> | SELECT | |
| <p>5 Did continuous monitoring equipment experience downtime? If yes please record downtime in table A2 below</p> | SELECT | |
| <p>6 Do you have a proactive service agreement for each piece of continuous monitoring equipment?</p> | SELECT | |
| <p>7 Did your site experience any abatement system bypasses? If yes please detail them in table A3 below</p> | SELECT | |

Table A2: Summary of average emissions -continuous monitoring

| Emission reference no: | Parameter/ Substance | ELV in licence or any revision thereof | Averaging Period | Compliance Criteria | Units of measurement | Annual Emission | Annual maximum | Monitoring Equipment downtime (hours) | Number of ELV exceedences in current reporting year | Comments |
|------------------------|----------------------|--|------------------|---------------------|----------------------|-----------------|----------------|---------------------------------------|---|----------|
| | SELECT | | | SELECT | SELECT | | | | | |
| | SELECT | | | | SELECT | | | | | |
| | SELECT | | | | SELECT | | | | | |
| | SELECT | | | | SELECT | | | | | |
| | SELECT | | | | SELECT | | | | | |

note 1: Volumetric flow shall be included as a reportable parameter.

Table A3: Abatement system bypass reporting table Bypass protocol

| Date* | Duration** (hours) | Location | Reason for bypass | Impact magnitude | Corrective action |
|-------|--------------------|----------|-------------------|------------------|-------------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

* this should include all dates that an abatement system bypass occurred

** an accurate record of time bypass beginning and end should be logged on site and maintained for future Agency inspections please refer to bypass protocol link

AER Monitoring returns summary template-WATER/WASTEWATER(SEWER) Lic No: #REF! Year: #REF!

1 Does your site have licensed emissions direct to surface water or direct to sewer? If yes please complete table W2 and W3 below for the current reporting year and answer further questions. If you do not have licenced emissions you only need to complete table W1 and or W2 for storm water analysis and visual inspections

| | |
|-----|------------------------|
| Yes | Additional information |
| Yes | |

2 Was it a requirement of your licence to carry out visual inspections on any surface water discharges or watercourses on or near your site? If yes please complete table W2 below summarising only any evidence of contamination noted during visual inspections

Table W1 Storm water monitoring

| Location reference | Location relative to site activities | PRTR Parameter | Licensed Parameter | Monitoring date | ELV or trigger level in licence or any revision thereof* | Licence Compliance criteria | Measured value | Unit of measurement | Compliant with licence | Comments |
|--------------------|--------------------------------------|----------------|--------------------|-----------------|--|-----------------------------|----------------|---------------------|------------------------|----------|
| | SELECT | SELECT | SELECT | | | SELECT | | SELECT | SELECT | |
| | SELECT | SELECT | SELECT | | | SELECT | | SELECT | SELECT | |

*trigger values may be agreed by the Agency outside of licence conditions

Table W2 Visual inspections-Please only enter details where contamination was observed.

| Location Reference | Date of inspection | Description of contamination | Source of contamination | Corrective action | Comments |
|--------------------|--------------------|------------------------------|-------------------------|-------------------|----------|
| | | | SELECT | | |
| | | | SELECT | | |

Licensed Emissions to water and /or wastewater(sewer)-periodic monitoring (non-continuous)

3 Was there any result in breach of licence requirements? If yes please provide brief details in the comment section of Table W3 below

| | |
|-----|------------------------|
| Yes | Additional information |
| Yes | |

4 Was all monitoring carried out in accordance with EPA guidance and checklists for Quality of Aqueous Monitoring Data Reported to the EPA? If no please detail what areas require improvement in additional information box

External/Internal Lab Quality Assessment of results checklist
 External/Internal Lab Quality Assessment of results checklist
 Yes

Table W3: Licensed Emissions to water and /or wastewater (sewer)-periodic monitoring (non-continuous)

| Emission reference no: | Emission released to | Parameter/ Substance>Note 1 | Type of sample | Frequency of monitoring | Averaging period | ELV or trigger values in licence or any revision thereof ^{Note 2} | Licence Compliance criteria | Measured value | Unit of measurement | Compliant with licence | Method of analysis | Procedural reference source | Procedural reference standard number | Annual mass load (kg) | Comments |
|--------------------------|----------------------|---|----------------|-------------------------|------------------|--|-----------------------------|-------------------|---------------------|---|------------------------------------|-------------------------------|--------------------------------------|-----------------------|--|
| SW1 - Quarter 1 22/03/16 | Water | Odour | discrete | Quarterly | N/A | | All values < ELV | No Odour | | N/A | Visual Assessment | APHA /AWWA "Standard Methods" | APHA - 2150 - 11 | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Visual Inspection | discrete | Quarterly | N/A | | All values < ELV | Dark Brown/Turbid | | N/A | Visual Assessment | APHA /AWWA "Standard Methods" | APHA - 2110 | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Ammomiacal Nitrogen (as NH ₂ -N) | discrete | Quarterly | N/A | 0.14 | All values < ELV | 0.78 | mg/L | no (if no please enter details in comments box) | DISCRETE METHODS | APHA /AWWA "Standard Methods" | APHA - 4500 - NH ₂ - D | | Ammomiacal Nitrogen (as NH ₂ -N) is above the limit of 0.14 mg/L, in S.I. No. 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009). |
| SW1 - Quarter 1 22/03/16 | Water | B.O.D. | discrete | Quarterly | N/A | 2.6 | All values < ELV | 66 | mg/L | no (if no please enter details in comments box) | Dissolved Oxygen Meter (Electrode) | APHA /AWWA "Standard Methods" | APHA - 5210 - B | | BOD is above the limit of 2.6 mg/L, in S.I. No. 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW1 - Quarter 1 22/03/16 | Water | (T.O.D) | discrete | Quarterly | N/A | | All values < ELV | 3035 | mg/L | N/A | Spectrophotometry (Colorimetry) | APHA /AWWA "Standard Methods" | APHA - 5220 - D | | N/A |

AER Monitoring returns summary template-WATER/WASTEWATER(SEWER)

| | | Lic No: | | #REF! | | Year | | #REF! | | | | | | | |
|-----------------------------|-------|---|----------|-----------|-----|------------------|------------------|------------------------|---------------|---|------------------------------------|-----------------------------------|-----------------------------------|--|---|
| SW1 - Quarter 1 22/03/16 | Water | Chloride | discrete | Quarterly | N/A | - | All values < ELV | 32 | mg/L | N/A | DISCRETE METHODS | APHA / AWWA "Standard Methods" | APHA - 4110 - D | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Dissolved Oxygen | discrete | Quarterly | N/A | 80% < 95% < 120% | All values < ELV | 5 | % | no (if no please enter details in comments box) | Dissolved Oxygen Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 4500 - O - G | | Dissolved Oxygen is outside the limit of 80% < 95% < 120% in S.I. No 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW1 - Quarter 1 22/03/16 | Water | Electrical Conductivity | discrete | Quarterly | N/A | - | All values < ELV | 623 | µS/cm (25 °C) | N/A | Conductivity Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 2510 - H | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | pH | discrete | Quarterly | N/A | 6.0 < pH < 9.0 | All values < ELV | 7.39 | - | yes | pH Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 4500 - H | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Total Suspended Solids | discrete | Quarterly | N/A | - | All values < ELV | 988 | mg/L | N/A | Gravimetric analysis | APHA / AWWA "Standard Methods" | APHA - 2540 - D | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Temperature | discrete | Quarterly | N/A | - | All values < ELV | 8.1 | °C | N/A | Thermometer | APHA / AWWA "Standard Methods" | APHA - 2550 - H | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Odour | discrete | Quarterly | N/A | - | All values < ELV | No Odour | - | N/A | Visual Assessment | APHA / AWWA "Standard Methods" | APHA - 2150 - H | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Visual Inspection | discrete | Quarterly | N/A | - | All values < ELV | No Colour/Not turbid | - | N/A | Visual Assessment | APHA / AWWA "Standard Methods" | APHA - 2110 | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Ammoniacal Nitrogen (as NH ₃ -N) | discrete | Quarterly | N/A | 0.14 | All values < ELV | 0.79 | mg/L | no (if no please enter details in comments box) | DISCRETE METHODS | APHA / AWWA "Standard Methods" | APHA - 4500 - NH ₃ - D | | Ammoniacal Nitrogen (as NH ₃ -N) is above the limit of 0.14 mg/L in S.I. No 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW2 - Quarter 1 22/03/16 | Water | B.O.D. | discrete | Quarterly | N/A | 2.6 | All values < ELV | 2 | mg/L | yes | Dissolved Oxygen Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 5210 - H | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | C.O.D. | discrete | Quarterly | N/A | - | All values < ELV | 15 | mg/L | N/A | Spectrophotometry (Colorimetry) | APHA / AWWA "Standard Methods" | APHA - 5220 - D | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Chloride | discrete | Quarterly | N/A | - | All values < ELV | 20 | mg/L | N/A | DISCRETE METHODS | APHA / AWWA "Standard Methods" | APHA - 4110 - D | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Dissolved Oxygen | discrete | Quarterly | N/A | 80% < 95% < 120% | All values < ELV | 5 | % | no (if no please enter details in comments box) | Dissolved Oxygen Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 4500 - O - G | | Dissolved Oxygen is outside the limit of 80% < 95% < 120% in S.I. No 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW2 - Quarter 1 22/03/16 | Water | Electrical Conductivity | discrete | Quarterly | N/A | - | All values < ELV | 324 | µS/cm (25 °C) | N/A | Conductivity Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 2510 - H | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | pH | discrete | Quarterly | N/A | 6.0 < pH < 9.0 | All values < ELV | 7.80 | - | yes | pH Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 4500 - H | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Total Suspended Solids | discrete | Quarterly | N/A | - | All values < ELV | 65 | mg/L | N/A | Gravimetric analysis | APHA / AWWA "Standard Methods" | APHA - 2540 - D | | N/A |
| SW2 - Quarter 1 22/03/16 | Water | Temperature | discrete | Quarterly | N/A | - | All values < ELV | 8.4 | °C | N/A | Thermometer | APHA / AWWA "Standard Methods" | APHA - 2550 - H | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Odour | discrete | Quarterly | N/A | - | All values < ELV | No Odour | - | N/A | Visual Assessment | APHA / AWWA "Standard Methods" | APHA - 2150 - H | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Visual Inspection | discrete | Quarterly | N/A | - | All values < ELV | Pale Yellow/Not turbid | - | N/A | Visual Assessment | APHA / AWWA "Standard Methods" | APHA - 2110 | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Ammoniacal Nitrogen (as NH ₃ -N) | discrete | Quarterly | N/A | 0.14 | All values < ELV | 0.44 | mg/L | no (if no please enter details in comments box) | DISCRETE METHODS | APHA / AWWA "Standard Methods" | APHA - 4500 - NH ₃ - D | | Ammoniacal Nitrogen (as NH ₃ -N) is above the limit of 0.14 mg/L in S.I. No 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW1 - Quarter 1 22/03/16 | Water | B.O.D. | discrete | Quarterly | N/A | 2.6 | All values < ELV | 3 | mg/L | no (if no please enter details in comments box) | Dissolved Oxygen Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 5210 - H | | BOD is above the limit of 2.6 mg/L in S.I. No 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW1 - Quarter 1 22/03/16 | Water | C.O.D. | discrete | Quarterly | N/A | - | All values < ELV | 27 | mg/L | N/A | Spectrophotometry (Colorimetry) | APHA / AWWA "Standard Methods" | APHA - 5220 - D | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Chloride | discrete | Quarterly | N/A | - | All values < ELV | 17 | mg/L | N/A | DISCRETE METHODS | APHA / AWWA "Standard Methods" | APHA - 4110 - D | | N/A |
| SW1 - Quarter 1 22/03/16 | Water | Dissolved Oxygen | discrete | Quarterly | N/A | 80% < 95% < 120% | All values < ELV | 5 | % | no (if no please enter details in comments box) | Dissolved Oxygen Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 4500 - O - G | | Dissolved Oxygen is outside the limit of 80% < 95% < 120% in S.I. No 272 of 2009 (European Communities Environmental Objectives (Surface Water) Regulations 2009) |
| SW1 - Quarter 1 22/03/16 | Water | Electrical Conductivity | discrete | Quarterly | N/A | - | All values < ELV | 212 | µS/cm (25 °C) | N/A | Conductivity Meter (Electrode) | APHA / AWWA "Standard Methods" | APHA - 2510 - H | | N/A |

Bund testing

dropdown menu click to see options

Additional information

Are you required by your licence to undertake integrity testing on bunds and containment structures? If yes please fill out table B1 below listing all new bunds and containment structures on site, in addition to all bunds which failed the integrity test- all bunding structures which failed including mobile bunds must be listed in the table below, please include all bunds outside the licenced testing period (mobile bunds and chemstore included)

- 1
- 2 Please provide integrity testing frequency period
- Does the site maintain a register of bunds, underground pipelines (including stormwater and foul), Tanks, sumps and containers? (containers refers to "Chemstore" type units and mobile bunds)
- 3
- 4 How many bunds are on site?
- 5 How many of these bunds have been tested within the required test schedule?
- 6 How many mobile bunds are on site?
- 7 Are the mobile bunds included in the bund test schedule?
- 8 How many of these mobile bunds have been tested within the required test schedule?
- 9 How many sumps on site are included in the integrity test schedule?
- 10 How many of these sumps are integrity tested within the test schedule?
- Please list any sump integrity failures in table B1
- 11 Do all sumps and chambers have high level liquid alarms?
- 12 If yes to Q11 are these failsafe systems included in a maintenance and testing programme?
- 13 Is the Fire Water Retention Pond included in your integrity test programme?

| | |
|--------|--|
| No | |
| SELECT | |
| SELECT | |
| SELECT | |
| SELECT | |
| SELECT | |
| SELECT | |
| SELECT | |
| SELECT | |
| SELECT | |

Table B1: Summary details of bund /containment structure integrity test

| Bund/Containment structure ID | Type | Specify Other type | Product containment | Actual capacity | Capacity required* | Type of integrity test | Other test type | Test date | Integrity reports maintained on site? | Results of test | Integrity test failure explanation <50 words | Corrective action taken | Scheduled date for retest | Results of retest (if in current reporting year) |
|-------------------------------|--------|--------------------|---------------------|-----------------|--------------------|------------------------|-----------------|-----------|---------------------------------------|-----------------|--|-------------------------|---------------------------|--|
| | SELECT | | | | | SELECT | | | SELECT | SELECT | | SELECT | | |
| | SELECT | | | | | SELECT | | | SELECT | SELECT | | SELECT | | |

*Capacity required should comply with 25% or 110% containment rule as detailed in your licence

- Has integrity testing been carried out in accordance with licence requirements and are all structures tested in line with BS8007/EPA Guidance? [bundings and storage guidelines](#)
- 15
- 16 Are channels/transfer systems to remote containment systems tested?
- 17 Are channels/transfer systems compliant in both integrity and available volume?

Commentary

| | |
|--------|--|
| SELECT | |
| SELECT | |
| SELECT | |

Pipeline/underground structure testing

Are you required by your licence to undertake integrity testing* on underground structures e.g. pipelines or sumps etc? If yes please fill out table 2 below listing all underground structures and pipelines on site which failed the integrity test and all which have not been tested within the integrity test period as specified

- 2 Please provide integrity testing frequency period
- *please note integrity testing means water tightness testing for process and foul pipelines (as required under your licence)

| | |
|--------|--|
| SELECT | |
| SELECT | |

Table B2: Summary details of pipeline/underground structures integrity test

| Structure ID | Type system | Material of construction: | Does this structure have Secondary containment? | Type of secondary containment | Type integrity testing | Integrity reports maintained on site? | Results of test | Integrity test failure explanation <50 words | Corrective action taken | Scheduled date for retest | Results of retest (if in current reporting year) |
|--------------|-------------|---------------------------|---|-------------------------------|------------------------|---------------------------------------|-----------------|--|-------------------------|---------------------------|--|
| | SELECT | SELECT | SELECT | SELECT | SELECT | SELECT | SELECT | | | | SELECT |
| | | | | | | | | | | | |

Please use commentary for additional details not answered by tables/ questions above

| | | Comments | |
|---|-----|--|----------|
| 1 Are you required to carry out groundwater monitoring as part of your licence requirements? | yes | Please provide an interpretation of groundwater monitoring data in the interpretation box below or if you require additional space please include a groundwater/contaminated land monitoring results interpretation as an additional section in this AER | |
| 2 Are you required to carry out soil monitoring as part of your licence requirements? | no | | |
| 3 Do you extract groundwater for use on site? If yes please specify use in comment section | no | | |
| 4 Do monitoring results show that groundwater generic assessment criteria such as GTVs or IGVs are exceeded or is there an upward trend in results for a substance? If yes, please complete the Groundwater Monitoring Guideline Template Report (link in cell G8) and submit separately through ALDER as a licensee return AND answer questions 5-12 below. | yes | No Groundwater exceedances as per the licence . However There is exceedances to the GTV and IGVs a Groundwater report is being prepared and will be submitted through ALDER. | |
| 5 Is the contamination related to operations at the facility (either current and/or historic) | yes | | historic |
| 6 Have actions been taken to address contamination issues? If yes please summarise remediation strategies proposed/undertaken for the site | yes | | |
| 7 Please specify the proposed time frame for the remediation strategy | no | | |
| 8 Is there a licence condition to carry out/update ELRA for the site? | no | | |
| 9 Has any type of risk assessment been carried out for the site? | yes | | |
| 10 Has a Conceptual Site Model been developed for the site? | yes | | |
| 11 Have potential receptors been identified on and off site? | yes | | |
| 12 Is there evidence that contamination is migrating offsite? | no | | |

Table 1: Upgradient Groundwater monitoring results

| Date of sampling | Sample location reference | Parameter/ Substance | Methodology | Monitoring frequency | Maximum Concentration++ | Average Concentration+ | unit | GTV's* | SELECT** | Upward trend in pollutant concentration over last 5 years of monitoring data |
|------------------|---------------------------|----------------------|-------------|----------------------|-------------------------|------------------------|--------|--------|----------|--|
| | | | | | | | SELECT | | | SELECT |
| | | | | | | | SELECT | | | SELECT |

.+ where average indicates arithmetic mean

++.+ maximum concentration indicates the maximum measured concentration from all monitoring results produced during the reporting year

Table 2: Downgradient Groundwater monitoring results

| Date of sampling | Sample location reference | Parameter/ Substance | Methodology | Monitoring frequency | Maximum Concentration | Average Concentration | unit | GTV's* | SELECT** | Upward trend in yearly average pollutant concentration over last 4 years of monitoring data |
|----------------------------|---------------------------|----------------------|-------------|----------------------|-----------------------|-----------------------|------|--------|----------|---|
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Odour | Fieldwork | Quarterly | Slight Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Visual Inspection | Fieldwork | Quarterly | Grey/Turbid | Grey/Turbid | N/A | N/A | SW EQS | no |

| Groundwater/Soil monitoring template | | | | Lic No: | W0076-1 | Year | 2016 | | | |
|--------------------------------------|--------------|----------------------------------|------------------|-----------|-------------------|-------------------|---------|--------------------|--------|--------------------|
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 3.8 | 3.3 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Chloride | Colourimetry | Quarterly | 280 | 224 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Dissolved Oxygen | Electrochemistry | Quarterly | 76 | 32 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Conductivity (25 °C) | Electrochemistry | Quarterly | 6593 | 3842 | µS/cm | 1000 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | pH | Electrochemistry | Quarterly | 7.15 | 6.98 | pH unit | 6.5spHs9.5 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Temperature | Thermometer | Quarterly | 14.7 | 11.5 | °C | 25 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Shallow | Total Organic Carbon | Colourimetry | Quarterly | 11 | 7.6 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Odour | Fieldwork | Quarterly | Slight Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Visual Inspection | Fieldwork | Quarterly | Grey/Turbid | Grey/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 36 | 34 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Chloride | Colourimetry | Quarterly | 173 | 168 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Dissolved Oxygen | Electrochemistry | Quarterly | 114 | 60 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Conductivity (25 °C) | Electrochemistry | Quarterly | 5740 | 2922 | µS/cm | 1000 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | pH | Electrochemistry | Quarterly | 7.89 | 7.27 | pH unit | 6.5spHs9.5 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Temperature | Thermometer | Quarterly | 12.9 | 11.8 | °C | 25 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW01 Deep | Total Organic Carbon | Colourimetry | Quarterly | 20 | 17 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Odour | Fieldwork | Quarterly | No Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Visual Inspection | Fieldwork | Quarterly | Grey-Brown/Turbid | Grey-Brown/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 0.21 | 0.16 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Chloride | Colourimetry | Quarterly | 124 | 87 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Dissolved Oxygen | Electrochemistry | Quarterly | 116 | 61 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Conductivity (25 °C) | Electrochemistry | Quarterly | 1357 | 1263 | µS/cm | 1000 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | pH | Electrochemistry | Quarterly | 7.61 | 7.44 | pH unit | 6.5spHs9.5 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Temperature | Thermometer | Quarterly | 15.0 | 12.5 | °C | 25 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Shallow | Total Organic Carbon | Colourimetry | Quarterly | 9.2 | 4.8 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Odour | Fieldwork | Quarterly | Slight Odour | No Odour | N/A | N/A | SW EQS | no |

| Groundwater/Soil monitoring template | | | | Lic No: | W0076-1 | Year | 2016 | | | |
|--------------------------------------|--------------|----------------------------------|------------------|-----------|--------------------------|--------------------------|---------|--------------------|--------|--------------------|
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Visual Inspection | Fieldwork | Quarterly | Grey/Turbid | Grey/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 19 | 15 | mg/l | 0.12 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Chloride | Colourimetry | Quarterly | 194 | 143 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Dissolved Oxygen | Electrochemistry | Quarterly | 92 | 40 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Conductivity (25 °C) | Electrochemistry | Quarterly | 2444 | 1922 | µS/cm | 1000 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | pH | Electrochemistry | Quarterly | 7.30 | 7.12 | pH unit | 6.5≤pH≤9.5 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Temperature | Thermometer | Quarterly | 13.5 | 12.1 | °C | 25 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW02 Deep | Total Organic Carbon | Colourimetry | Quarterly | 20 | 17 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Odour | Fieldwork | Quarterly | No Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Visual Inspection | Fieldwork | Quarterly | Straw Yellow/ Not Turbid | Straw Yellow/ Not Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 0.23 | 0.23 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Chloride | Colourimetry | Quarterly | 8.0 | 8.0 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Dissolved Oxygen | Electrochemistry | Quarterly | 6 | 6 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Conductivity (25 °C) | Electrochemistry | Quarterly | 449 | 449 | µS/cm | 1000 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | pH | Electrochemistry | Quarterly | 7.55 | 7.55 | pH unit | 6.5≤pH≤9.5 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Temperature | Thermometer | Quarterly | 8.5 | 8.5 | °C | 25 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Shallow | Total Organic Carbon | Colourimetry | Quarterly | 8 | 8 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Odour | Fieldwork | Quarterly | No Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Visual Inspection | Fieldwork | Quarterly | Brown/Turbid | Brown/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 1 | 1.01 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Chloride | Colourimetry | Quarterly | 14 | 12 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Dissolved Oxygen | Electrochemistry | Quarterly | 88 | 36 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Conductivity (25 °C) | Electrochemistry | Quarterly | 1139 | 894 | µS/cm | 1000 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | pH | Electrochemistry | Quarterly | 7.35 | 7.09 | pH unit | 6.5≤pH≤9.5 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Temperature | Thermometer | Quarterly | 12.8 | 11.7 | °C | 25 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW03 Deep | Total Organic Carbon | Colourimetry | Quarterly | 19 | 17 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Odour | Fieldwork | Quarterly | No Odour | No Odour | N/A | N/A | SW EQS | no |

| Groundwater/Soil monitoring template | | | | Lic No: | W0076-1 | Year | 2016 | | | |
|--------------------------------------|--------------|----------------------------------|------------------|-----------|-------------------|-------------------|---------|--------------------|--------|--------------------|
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Visual Inspection | Fieldwork | Quarterly | Light Grey/Turbid | Light Grey/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | <0.1 | <0.1 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Chloride | Colourimetry | Quarterly | 32 | 32 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Dissolved Oxygen | Electrochemistry | Quarterly | 9 | 9 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Conductivity (25 °C) | Electrochemistry | Quarterly | 810 | 810 | µS/cm | 1000 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | pH | Electrochemistry | Quarterly | 7.39 | 7.39 | pH unit | 6.5≤pH≤9.5 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Temperature | Thermometer | Quarterly | 7.9 | 7.9 | °C | 25 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Shallow | Total Organic Carbon | Colourimetry | Quarterly | 3 | 3 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Odour | Fieldwork | Quarterly | No Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Visual Inspection | Fieldwork | Quarterly | Brown/Turbid | Brown/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 3 | 1.7 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Chloride | Colourimetry | Quarterly | 183 | 132 | mg/l | 30 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Dissolved Oxygen | Electrochemistry | Quarterly | 114 | 43 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Conductivity (25 °C) | Electrochemistry | Quarterly | 2163 | 1371 | µS/cm | 1000 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | pH | Electrochemistry | Quarterly | 7.10 | 6.76 | pH unit | 6.5≤pH≤9.5 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Temperature | Thermometer | Quarterly | 14.0 | 12.3 | °C | 25 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW04 Deep | Total Organic Carbon | Colourimetry | Quarterly | 19 | 16 | mg/l | No abnormal change | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Odour | Fieldwork | Quarterly | DRY | DRY | N/A | N/A | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Visual Inspection | Fieldwork | Quarterly | DRY | DRY | N/A | N/A | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | DRY | DRY | mg/l | 0.12 | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Chloride | Colourimetry | Quarterly | DRY | DRY | mg/l | 30 | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Dissolved Oxygen | Electrochemistry | Quarterly | DRY | DRY | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Conductivity (25 °C) | Electrochemistry | Quarterly | DRY | DRY | µS/cm | 1000 | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | pH | Electrochemistry | Quarterly | DRY | DRY | pH unit | 6.5≤pH≤9.5 | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Temperature | Thermometer | Quarterly | DRY | DRY | °C | 25 | SW EQS | data not available |

| Groundwater/Soil monitoring template | | | | Lic No: | W0076-1 | Year | 2016 | | | |
|--------------------------------------|--------------|------------------------------------|--------------------|-----------|--------------|---------------------|---------|--------------------|--------|--------------------|
| 22/03, 16/06, 29/09, 06/12 | GW05 Shallow | Total Organic Carbon | Colourimetry | Quarterly | DRY | DRY | mg/l | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Odour | Fieldwork | Quarterly | No Odour | No Odour | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Visual Inspection | Fieldwork | Quarterly | Brown/Turbid | Orange-Brown/Turbid | N/A | N/A | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Total Ammoniacal Nitrogen (as N) | Colourimetry | Quarterly | 1.24 | 0.78175 | mg/l | 0.12 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Chloride | Colourimetry | Quarterly | 379.523 | 371.76575 | mg/l | 30 | SW EQS | no |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Dissolved Oxygen | Electrochemistry | Quarterly | 56 | 32.2 | % | No abnormal change | SW EQS | data not available |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Conductivity (25 °C) | Electrochemistry | Quarterly | 2554 | 2081.5 | µS/cm | 1000 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | pH | Electrochemistry | Quarterly | 7.28 | 6.825 | pH unit | 6.5spH≤9.5 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Temperature | Thermometer | Quarterly | 13.4 | 12.4 | °C | 25 | SW EQS | yes |
| 22/03, 16/06, 29/09, 06/12 | GW05 Deep | Total Organic Carbon | Colourimetry | Quarterly | 45 | 31 | mg/l | No abnormal change | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Boron | ICP | Annual | DRY | DRY | mg/l | 0.75 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Cadmium | ICP | Annual | DRY | DRY | mg/l | 0.00375 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Calcium | ICP | Annual | DRY | DRY | mg/l | 200 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Chromium | ICP | Annual | DRY | DRY | mg/l | 0.0375 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Copper | ICP | Annual | DRY | DRY | mg/l | 1.5 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Iron | ICP | Annual | DRY | DRY | mg/l | 0.2 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Lead | ICP | Annual | DRY | DRY | mg/l | 0.01875 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Magnesium | ICP | Annual | DRY | DRY | mg/l | 50 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Manganese | ICP | Annual | DRY | DRY | mg/l | 0.05 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Nickel | ICP | Annual | DRY | DRY | mg/l | 0.015 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Potassium | ICP | Annual | DRY | DRY | mg/l | 5 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Sodium | ICP | Annual | DRY | DRY | mg/l | 150 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Zinc | ICP | Annual | DRY | DRY | mg/l | 0.1 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Mercury | ICP | Annual | DRY | DRY | mg/l | 0.00075 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Fluoride | Ion Chromatography | Annual | DRY | DRY | mg/l | 1.0 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Sulphate (as SO ₄) | Colourimetry | Annual | DRY | DRY | mg/l | 187.5 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Orthophosphate (as P) | Colourimetry | Annual | DRY | DRY | mg/l | 0.035 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Nitrate (as NO ₃) | Ion Chromatography | Annual | DRY | DRY | mg/l | 37.5 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Nitrite (as NO ₂) | Ion Chromatography | Annual | DRY | DRY | mg/l | 0.375 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Total Oxidised Nitrogen (as N) | Ion Chromatography | Annual | DRY | DRY | mg/l | No abnormal change | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Cyanide | Colourimetry | Annual | DRY | DRY | mg/l | 0.0375 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Alkalinity (as CaCO ₃) | Colourimetry | Annual | DRY | DRY | mg/l | No abnormal change | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Residue on Evaporation | Gravimetry | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Dichlorodifluoromethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Chloromethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Chloroethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |

| Groundwater/Soil monitoring template | | | | Lic No: | W0076-1 | Year | 2016 | | | |
|--------------------------------------|--------------|---------------------------|-------|---------|---------|------|------|----------|--------|----|
| 06/12/2016 | GW01 Shallow | Bromomethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Trichlorofluoromethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1-Dichloroethene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Dichloromethane | GC-MS | Annual | DRY | DRY | mg/l | 0.01 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1-Dichloroethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | cis-1,2-Dichloroethene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 2,2-Dichloropropane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Chloroform | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Bromochloromethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1,1-Trichloroethane | GC-MS | Annual | DRY | DRY | mg/l | 0.5 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1-Dichloropropene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,2-Dichloroethane | GC-MS | Annual | DRY | DRY | mg/l | 0.00225 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Benzene | GC-MS | Annual | DRY | DRY | mg/l | 0.00075 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,2-Dichloropropane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Trichloroethene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Bromodichloromethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Dibromomethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | cis-1,3-Dichloropropene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Toluene | GC-MS | Annual | DRY | DRY | mg/l | 0.01 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | trans-1,3-Dichloropropene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1,2-Trichloroethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Carbon Tetrachloride | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Vinyl Chloride | GC-MS | Annual | DRY | DRY | mg/l | 0.000375 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,3-Dichloropropane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Tetrachloroethene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Dibromochloromethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,2-Dibromoethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Chlorobenzene | GC-MS | Annual | DRY | DRY | mg/l | 0.001 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1,1,2-Tetrachloroethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Ethyl Benzene | GC-MS | Annual | DRY | DRY | mg/l | 0.01 | SW EQS | no |
| 06/12/2016 | GW01 Shallow | m&p-Xylene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | o-Xylene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Styrene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Bromoform | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | trans-1,2-Dichloroethene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Isopropylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,1,2,2-Tetrachloroethane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,2,3-Trichloropropane | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | n-Propylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | Bromobenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 2-Chlorotoluene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,3,5-Trimethylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 4-Chlorotoluene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | tert-Butylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,2,4-Trimethylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | sec-Butylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | p-Isopropyltoluene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,3-Dichlorobenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,4-Dichlorobenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | n-Butylbenzene | GC-MS | Annual | DRY | DRY | mg/l | - | SW EQS | no |
| 06/12/2016 | GW01 Shallow | 1,2-Dichlorobenzene | GC-MS | Annual | DRY | DRY | mg/l | 0.01 | SW EQS | no |

[Click here to access EPA guidance on Environmental Liabilities and Financial provision](#)

| | | Commentary | |
|----|---|-------------------|--------------|
| 1 | ELRA initial agreement status | SELECT | not required |
| 2 | ELRA review status | SELECT | |
| 3 | Amount of Financial Provision cover required as determined by the latest ELRA | Specify | |
| 4 | Financial Provision for ELRA status | SELECT | |
| 5 | Financial Provision for ELRA - amount of cover | Specify | |
| 6 | Financial Provision for ELRA - type | SELECT | |
| 7 | Financial provision for ELRA expiry date | Enter expiry date | |
| 8 | Closure plan initial agreement status | SELECT | |
| 9 | Closure plan review status | SELECT | |
| 10 | Financial Provision for Closure status | SELECT | |
| 11 | Financial Provision for Closure - amount of cover | Specify | |
| 12 | Financial Provision for Closure - type | SELECT | |
| 13 | Financial provision for Closure expiry date | Enter expiry date | |

Environmental Management Programme/Continuous Improvement Programme template Lic No: W0076-1 Year 2016

Highlighted cells contain dropdown menu click to view

Additional Information

| | | | |
|---|---|-----|--|
| 1 | Do you maintain an Environmental Mangement System (EMS) for the site. If yes, please detail in additional information | Yes | |
| 2 | Does the EMS reference the most significant environmental aspects and associated impacts on-site | Yes | |
| 3 | Does the EMS maintain an Environmental Management Programme (EMP) as required in accordance with the licence requirements | Yes | |
| 4 | Do you maintain an environmental documentation/communication system to inform the public on environmental performance of the facility, as required by the licence | No | |

Environmental Management Programme (EMP) report

| Objective Category | Target | Status (% completed) | How target was progressed | Responsibility | Intermediate outcomes |
|-------------------------------|--------|----------------------|---------------------------|----------------|-----------------------|
| Reduction of emissions to Air | | SELECT | | SELECT | SELECT |
| SELECT | | SELECT | | SELECT | SELECT |
| SELECT | | SELECT | | SELECT | SELECT |

Noise monitoring summary report Lic No: W0076-1 Year 2016

- 1 Was noise monitoring a licence requirement for the AER period?
If yes please fill in table N1 noise summary below No
- 2 Was noise monitoring carried out using the EPA Guidance note, including completion of the "Checklist for noise measurement report" included in the guidance note as table 6? Noise Guidance note NG4 SELECT
- 3 Does your site have a noise reduction plan? SELECT
- 4 When was the noise reduction plan last updated? Enter date
- 5 Have there been changes relevant to site noise emissions (e.g. plant or operational changes) since the last noise survey? SELECT

Table N1: Noise monitoring summary

| Date of monitoring | Time period | Noise location (on site) | Noise sensitive location -NSL (if applicable) | LA _{eq} | LA ₉₀ | LA ₁₀ | LA _{max} | Tonal or Impulsive noise* (Y/N) | If tonal /impulsive noise was identified was 5dB penalty applied? | Comments (ex. main noise sources on site, & extraneous noise ex. road traffic) | Is <u>site</u> compliant with noise limits (day/evening/night)? |
|--------------------|-------------|--------------------------|---|------------------|------------------|------------------|-------------------|---------------------------------|---|--|---|
| | | | | | | | | SELECT | SELECT | | SELECT |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

*Please ensure that a tonal analysis has been carried out as per guidance note NG4. These records must be maintained onsite for future inspection

If noise limits exceeded as a result of noise attributed to site activities, please choose the corrective action from the following options? SELECT

** please explain the reason for not taking action/resolution of noise issues?

Any additional comments? (less than 200 words)

- 1 When did the site carry out the most recent energy efficiency audit? Please list the recommendations in table 3 below
- 2 Is the site a member of any accredited programmes for reducing energy usage/water conservation such as the SEAI programme linked to the right? If yes please list them in additional information
- 3 Where Fuel Oil is used in boilers on site is the sulphur content compliant with licence conditions? Please state percentage in additional information

| Additional information | |
|---|--|
| Enter date of audit | |
| SEAI - Large Industry Energy Network (LIEN) | |
| SELECT | |
| SELECT | |

| Table R1 Energy usage on site | | | | |
|--|---------------|--------------|--|--|
| Energy Use | Previous year | Current year | Production +/- % compared to previous reporting year** | Energy Consumption +/- % vs overall site production* |
| Total Energy Used (MWHrs) | | | | |
| Total Energy Generated (MWHrs) | | | | |
| Total Renewable Energy Generated (MWHrs) | | | | |
| Electricity Consumption (MWHrs) | | | | |
| Fossil Fuels Consumption: | | | | |
| Heavy Fuel Oil (m3) | | | | |
| Light Fuel Oil (m3) | | | | |
| Natural gas (m3) | | | | |
| Coal/Solid fuel (metric tonnes) | | | | |
| Peat (metric tonnes) | | | | |
| Renewable Biomass | | | | |
| Renewable energy generated on site | | | | |

* where consumption of energy can be compared to overall site production please enter this information as percentage increase or decrease compared to the previous reporting year.

** where site production information is available please enter percentage increase or decrease compared to previous year

| Table R2 Water usage on site | | | | | Water Emissions | Water Consumption | |
|------------------------------|--------------------------------------|-------------------------------------|--|--|--|--|------------------------|
| Water use | Water extracted Previous year m3/yr. | Water extracted Current year m3/yr. | Production +/- % compared to previous reporting year** | Energy Consumption +/- % vs overall site production* | Volume Discharged back to environment(m ³ /yr): | Volume used i.e not discharged to environment e.g. released as steam m3/yr | Unaccounted for Water: |
| Groundwater | | | | | | | |
| Surface water | | | | | | | |
| Public supply | | | | | | | |
| Recycled water | | | | | | | |
| Total | | | | | | | |

* where consumption of water can be compared to overall site production please enter this information as percentage increase or decrease compared to the previous reporting year.

** where site production information is available please enter percentage increase or decrease compared to previous year

| Table R3 Waste Stream Summary | | | | | |
|-------------------------------|-------|----------|--------------|----------|-------|
| | Total | Landfill | Incineration | Recycled | Other |
| Hazardous (Tonnes) | | | | | |
| Non-Hazardous (Tonnes) | | | | | |

Resource Usage/Energy efficiency summary Lic No: W0076-1 Year 2016

| Table R4: Energy Audit finding recommendations | | | | | | | | |
|--|-----------------|----------------------------------|--------------------|----------------------------|---------------------|----------------|-----------------|---------------------|
| Date of audit | Recommendations | Description of Measures proposed | Origin of measures | Predicted energy savings % | Implementation date | Responsibility | Completion date | Status and comments |
| | | | SELECT | | | | | |
| | | | SELECT | | | | | |
| | | | SELECT | | | | | |

Table R5: Power Generation: Where power is generated onsite (e.g. power generation facilities/food and drink industry)please complete the following information

| | Unit ID | Unit ID | Unit ID | Unit ID | Station Total |
|---|---------|---------|---------|---------|---------------|
| Technology | | | | | |
| Primary Fuel | | | | | |
| Thermal Efficiency | | | | | |
| Unit Date of Commission | | | | | |
| Total Starts for year | | | | | |
| Total Running Time | | | | | |
| Total Electricity Generated (GWH) | | | | | |
| House Load (GWH) | | | | | |
| KWH per Litre of Process Water | | | | | |
| KWH per Litre of Total Water used on Site | | | | | |

| | | | | | |
|----------------------|--|---------|---------|-------|------|
| WASTE SUMMARY | | Lic No: | W0076-1 | Year: | 2016 |
|----------------------|--|---------|---------|-------|------|

Table 4 Environmental monitoring-landfill only [Landfill Manual Monitoring Standards](#)

| | | | | | | | | |
|---|---|---|---|---|--|---|---|----------|
| Was meteorological monitoring in compliance with Landfill Directive (LD) standard in reporting year + | Was leachate monitored in compliance with LD standard in reporting year | Was Landfill Gas monitored in compliance with LD standard in reporting year | Was SW monitored in compliance with LD standard in reporting year | Have GW trigger levels been established | Were emission limit values agreed with the Agency (ELVs) | Was topography of the site surveyed in reporting year | Has the statement under S53(A)(5) of WMA been submitted in reporting year | Comments |
|---|---|---|---|---|--|---|---|----------|

+ please refer to Landfill Manual linked above for relevant Landfill Directive monitoring standards

Table 5 Capping-Landfill only

| | | | | | | |
|----------------|-------------------------|--|-------------------|---|------------------------------------|----------|
| Area uncapped* | Area with temporary cap | Area with final cap to LD Standard m2 ha.a | Area capped other | Area with waste that should be permanently capped to date under licence | What materials are used in the cap | Comments |
| SELECT UNIT | SELECT UNIT | | | | | |

*please note this includes daily cover area

Table 6 Leachate-Landfill only

9 Is leachate from your site treated in a Waste Water Treatment Plant?

| |
|--------|
| SELECT |
| SELECT |

10 Is leachate released to surface water? If yes please complete leachate mass load information below

| | | | | | | | |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--|----------------------------|------------------------------------|----------|
| Volume of leachate in reporting year(m3) | Leachate (BOD) mass load (kg/annum) | Leachate (COD) mass load (kg/annum) | Leachate (NH4) mass load (kg/annum) | Leachate (Chloride) mass load kg/annum | Leachate treatment on-site | Specify type of leachate treatment | Comments |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--|----------------------------|------------------------------------|----------|

Please ensure that all information reported in the landfill gas section is consistent with the Landfill Gas Survey submitted in conjunction with PRTR returns

Table 7 Landfill Gas-Landfill only

| | | | | |
|---------------------------------------|----------------------------|----------------------------------|---|----------|
| Gas Captured&Treated by LPG System m3 | Power generated (MW / KWh) | Used on-site or to national grid | Was surface emissions monitoring performed during the reporting year? | Comments |
| | | | SELECT | |



Environmental Protection Agency

[Guidance to completing the PRTR workbook](#)

PRTR Returns Workbook

Version 1.1.15

REFERENCE YEAR | 2016

1. FACILITY IDENTIFICATION

| | |
|----------------------------|--------------------------------|
| Parent Company Name | Limerick City & County Council |
| Facility Name | Longpavement landfill site |
| PRTR Identification Number | W0076 |
| Licence Number | W0076-01 |

| Classes of Activity | |
|---------------------|--------------------------------------|
| No. | class_name |
| | Refer to PRTR class activities below |

| | |
|---|--|
| Address 1 | Monabraher |
| Address 2 | |
| Address 3 | |
| Address 4 | |
| Country | Limerick |
| Country | Ireland |
| Coordinates of Location | -8.6335 52.6832 |
| River Basin District | IEGBNISH |
| NACE Code | 3900 |
| Main Economic Activity | Remediation activities and other waste management services |
| AER Returns Contact Name | Ursula Ahern |
| AER Returns Contact Email Address | ursula.ahern@limerick.ie |
| AER Returns Contact Position | Assistant Scientist |
| AER Returns Contact Telephone Number | 061 496592 |
| AER Returns Contact Mobile Phone Number | 0879795576 |
| AER Returns Contact Fax Number | |
| Production Volume | 0.0 |
| Production Volume Units | |
| Number of Installations | 0 |
| Number of Operating Hours in Year | 0 |
| Number of Employees | 1 |
| User Feedback/Comments | |
| Web Address | |

2. PRTR CLASS ACTIVITIES

| Activity Number | Activity Name |
|-----------------|---|
| 50.1 | General |
| 5(c) | Installations for the disposal of non-hazardous waste |
| 50.1 | General |

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

| | |
|--|----|
| Is it applicable? | No |
| Have you been granted an exemption? | |
| If applicable which activity class applies (as per Schedule 2 of the regulations)? | |
| Is the reduction scheme compliance route being used? | |

4. WASTE IMPORTED/ACCEPTED ONTO SITE

[Guidance on waste imported/accepted onto site](#)

| | |
|---|----|
| Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities)? | No |
|---|----|

This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF AIR QUALITY MANAGEMENT, AIR QUALITY INFORMATION SYSTEM

UNIT FORM 1300-01

SECTION A - SECTOR SPECIFIC PRTR POLLUTANTS

| RELEASERS TO AIR | | METHOD | | | | Please enter all quantities in this section in KGs | | | |
|------------------|----------------------|-------------|-------------|----------------------------|------------------|--|------------------------|----------------------|--|
| POLLUTANT | | METHOD USED | | QUANTITY | | | | | |
| No. Annex II | Name | M/C/E | Method Code | Designation or Description | Emission Point 1 | T (Total) KG/Year | A (Accidental) KG/Year | F (Fugitive) KG/Year | |
| 01 | Methane (CH4) | C | OTH | US EPA Land Gem | 411019.0 | 411019.0 | 0.0 | 0.0 | |
| 03 | Carbon dioxide (CO2) | C | OTH | US EPA Land Gem | 161129.0 | 161129.0 | 0.0 | 0.0 | |

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B - REMAINING PRTR POLLUTANTS

| RELEASERS TO AIR | | METHOD | | | | Please enter all quantities in this section in KGs | | | |
|------------------|------|-------------|-------------|----------------------------|------------------|--|------------------------|----------------------|-----|
| POLLUTANT | | METHOD USED | | QUANTITY | | | | | |
| No. Annex II | Name | M/C/E | Method Code | Designation or Description | Emission Point 1 | T (Total) KG/Year | A (Accidental) KG/Year | F (Fugitive) KG/Year | |
| | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C - REMAINING POLLUTANT EMISSIONS (As required in your licence)

| RELEASERS TO AIR | | METHOD | | | | Please enter all quantities in this section in KGs | | | |
|------------------|------|-------------|-------------|----------------------------|------------------|--|------------------------|----------------------|-----|
| POLLUTANT | | METHOD USED | | QUANTITY | | | | | |
| Pollutant No | Name | M/C/E | Method Code | Designation or Description | Emission Point 1 | T (Total) KG/Year | A (Accidental) KG/Year | F (Fugitive) KG/Year | |
| | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T (total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

| Landfill: | Longpavement landfill site | T (Total) kg/Year | M/C/E | Method Used | | Facility Total Capacity m3 per hour |
|--|----------------------------|-------------------|-------|-------------|----------------------------|-------------------------------------|
| | | | | Method Code | Designation or Description | |
| Total estimated methane generation (as per site model) | | 411019.2 | C | OTH | US EPA Land Gem | N/A |
| Methane flared | | 79707.0 | C | OTH | enclosed flare | 150.0 (Total Flaring Capacity) |
| Methane utilised in engines | | 0.0 | | | | 0.0 (Total Utilising Capacity) |
| Net methane emission (as reported in Section A above) | | 331312.2 | C | OTH | US EPA Land Gem | N/A |

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Waste Facility Name: [Redacted] Licence No: [Redacted] WASTE 2015 PRT- [Redacted] Permit No: [Redacted]

WASTE 17 13 06

Please enter all quantities on this sheet in Tonnes

| Transfer Destination | European Waste Code | Hazardous | Quantity (Tonnes per Year) | Description of Waste | Waste Treatment Operation | Method Used | | Location of Treatment | Haz Waste | Name and Licence/Permit No of Next Destination Facility | Non | Haz Waste | Name and Licence / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY) | Actual Address of Final Destination (i.e. Final Recovery / Disposal Site) (HAZARDOUS WASTE ONLY) |
|----------------------|---------------------|-----------|----------------------------|--|---------------------------|-------------|--------------------|-----------------------|-----------------------|---|-----|--|--|--|
| | | | | | | M/C/E | Method Used | | Haz Waste | | | Address of Next Destination Facility / Non Haz Waste | | |
| Within the Country | 19 07 03 | No | 182.0 in 19 07 02 | landfill leachate other than those mentioned | DB | C | Volume Calculation | Offsite in Ireland | Limerick City Council | | | Bunlickey Waste Water Treatment Plant,,Limerick,,Ireland | | |

* Select a row by double clicking the Description of Waste then click the delete button

- [Link to previous years waste data](#)
- [Link to previous years waste summary data & percentage change](#)
- [Link to Waste Guidance](#)

