

| Facility Information Summary | |
|-----------------------------------|---|
| AER Reporting Year | 2018 |
| Licence Register Number | P0007-03 |
| Name of site | Astellas Ireland Co., Ltd. |
| Site Location | Damastown Industrial Park, Damastown Road, Mulhuddart, Dublin |
| NACE Code | 2110 |
| Class/Classes of Activity | 5.16, 11.1, 11.2(e), 11.6 |
| National Grid Reference (6E, 6 N) | 304900E, 241400N |

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.

Note: PRTR data was submitted on EDEN via the new EPR template.

Production: Astellas Ireland Co., Ltd. manufacture bulk API. Overall site output in 2018 was slightly lower than 2017 (campaign related).

AIR: The incinerator, solvent recovery unit and P1 scrubbers remained off-line in 2018, following cessation of manufacturing in P1 in 2016. Hence, no emissions from EP-IN-001, EP-P1-001 or EP-P1-002 in 2018 (excluded in AER).

Boilers: due to varying firing conditions and operating hours, there was a slight increase in CO, NO_x and particulate emissions with a decrease in SO_x. **Scrubbers:** An increase in total VOC mass emission was noted due to inclusion of <LOD values for extra VOCs as per revised AG2 requirements (solvents not used on-site). Total scrubber particulates decreased. **Wastewater:** Total volumetric emissions to municipal sewer decreased by 1% in 2018 in line with less production activity. Mass emissions of BOD, COD, TSS and Chlorides decreased significantly in 2018 with continuing lower organic loading to WWTP.

There was no Licence limit exceedances or environmental complaints in 2018. 1 minor fgas release from chiller.

Resource usage: Total energy consumed was 5.5% lower (Electricity -14.7%, Natural gas +0.22%). Extra gas usage due to unusually long cold spring period. All electricity supplied is from renewable resources. There was a 3% reduction in water usage.

Waste: There was a 4% reduction in the total quantity generated. A 17% increase in hazardous wastes was due mainly to higher aqueous waste associated with production campaigns. The majority was treated at a facility within Ireland (R1). There was a 51% decrease in non hazardous waste, as there was a higher than normal quantity of project related waste generated in 2017. No wastes were landfilled. ☐

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.

| | |
|---|------------|
| <u>Catherine Gaines</u> | 30/04/2019 |
| Signature | Date |
| Group/Facility manager | |
| (or nominated, suitably qualified and experienced deputy) | |

| | | |
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| AIR-summary template | Lic No: P0007-03 | Year: 2018 |
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Answer all questions and complete all tables where relevant

- 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

| Additional information | |
|------------------------|---|
| Yes | As per Facility Information Summary, there are no longer emissions from EP-IN-001, EP-P1-001 or EP-P1-002 . Variations in solvent usage in 2018 vs 2017 are due to an SL campaign in 2018. Unaccounted for emissions for 2018 are 0.3%. |

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

| | |
|-----|--|
| No | |
| Yes | |

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 |
|------------------------|------------------------------------|-------------------------|--|----------------------------------|----------------|---------------------|------------------------------|------------------------|-----------------------|---|
| EP-UT-001 | volumetric flow | Annually | 6500 | All 1-hour averages < ELV | 1990 | Nm3/hour | yes | OTH | n/a | Slight decrease from 2017 - boiler operates duty standby basis, can vary based on site demand and weather. |
| EP-UT-001 | Particulates | Annually | 5 | No 30min mean can exceed the ELV | 0.78 | mg/Nm3 | yes | Based on EN3284-1:2002 | 3 | Slight increase on result for 2017 - boiler can be on low or high fire during monitoring depending on site requirements and run hours vary as above. |
| EP-UT-001 | Carbon monoxide (CO) | Annually | 100 | No 30min mean can exceed the ELV | 2.8 | mg/Nm3 | yes | EN 15058:2006 | 12 | Decrease in mass emission for 2018 - lower run hours |
| EP-UT-001 | Nitrogen oxides (NOx/NO2) | Annually | 200 | No 30min mean can exceed the ELV | 154.3 | mg/Nm3 | yes | EN 14792:2006 | 662.9 | as above |
| EP-UT-001 | Sulphur oxides (SOx/SO2) | Annually | 35 | No 30min mean can exceed the ELV | 2.7 | mg/Nm3 | yes | EN 14971:2005 | 11.6 | as above |
| EP-UT-002 | volumetric flow | Annually | 6500 | All 1-hour averages < ELV | 2256 | Nm3/hour | yes | OTH | n/a | Increase on result for 2017 - boiler operation varies as above. |
| EP-UT-002 | Particulates | Annually | 5 | No 30min mean can exceed the ELV | 0.95 | mg/Nm3 | yes | Based on EN3284-1:2002 | 5.4 | Slight increase on result for 2017. |
| EP-UT-002 | Carbon monoxide (CO) | Annually | 100 | No 30min mean can exceed the ELV | 7 | mg/Nm3 | yes | EN 15058:2006 | 42.5 | as above |
| EP-UT-002 | Nitrogen oxides (NOx/NO2) | Annually | 200 | No 30min mean can exceed the ELV | 156.7 | mg/Nm3 | yes | EN 14792:2006 | 952.4 | as above |
| EP-UT-002 | Sulphur oxides (SOx/SO2) | Annually | 35 | No 30min mean can exceed the ELV | 2.6 | mg/Nm3 | yes | Based on EN3284-1:2002 | 15.8 | Lower result in 2018 |
| EP-P2-001 | volumetric flow | Monthly | 10000 | All 1-hour averages < ELV | 3892 | Nm3/hour | yes | OTH | N/A | Decrease on average for 2017 |
| EP-P2-001 | TA Luft organic substances class 1 | Monthly | 20 | No 30min mean can exceed the ELV | 3.3 | mg/Nm3 | yes | EN 13649:2001 | 59.7 | With the exception of 1 month during cleaning, all monthly results in 2018 for TA Luft Class I are below the limit of detection (LOD). Run hours decreased in 2018, hence slightly lower annual kg. |

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|----------------------|------------------------------------|---------|------|----------------------------------|------|----------|-----|---------------------|-------|---|
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| EP-P2-001 | TA Luft organic substances class 2 | Monthly | 100 | No 30min mean can exceed the ELV | 5.9 | mg/Nm3 | yes | EN 13649:2001 | 106.8 | With the exception of 1 month, all monthly results in 2018 for TA Luft Class II are < LOD. Run hours decreased in 2018, however overall concentration and mass emission reported increased due to the revised AG2 requirements. Full suite of VOCs were analysed (including solvents not used on-site). Sum of positive and < LOD values were reported. |
| EP-P2-001 | TA Luft organic substances class 3 | Monthly | 150 | No 30min mean can exceed the ELV | 8.8 | mg/Nm3 | yes | EN 13649:2001 | 119 | With the exception of 2 months, all monthly results in 2018 for TA Luft Class III are <LOD. Run hours decreased in 2018, however overall concentration & kg reported increased as detailed above. |
| EP-P2-001 | Total Particulates | Monthly | 1 | No 30min mean can exceed the ELV | 0.22 | mg/Nm3 | yes | OTH | 4 | Slight decrease on result for 2017 |
| EP-P2-001 | Hydrogen Chloride | Monthly | 30 | No 30min mean can exceed the ELV | 0.25 | mg/Nm3 | yes | EN 1911-1 to 3:2003 | 4.7 | Slight decrease on mass emission for 2017 |
| EP-P3-001 | volumetric flow | Monthly | 7000 | All 1-hour averages < ELV | 2299 | Nm3/hour | yes | OTH | N/A | Slight decrease on average 2017 |
| EP-P3-001 | TA Luft organic substances class 1 | Monthly | 20 | No 30min mean can exceed the ELV | <3.7 | mg/Nm3 | yes | EN 13649:2001 | <52.3 | All monthly results in 2018 for TA Luft Class I are < LOD. Run hours decreased slightly, however overall concentration and mass emission reported increased due to the revised AG2 requirements as above. |
| EP-P3-001 | TA Luft organic substances class 2 | Monthly | 100 | No 30min mean can exceed the ELV | 8.2 | mg/Nm3 | yes | EN 13649:2001 | 141.1 | With the exception of 3 months where low Toluene was noted, all monthly results in 2018 for TA Luft Class II are < LOD. Increase in reported values due to the revised AG2 requirements as above. |
| EP-P3-001 | TA Luft organic substances class 3 | Monthly | 150 | No 30min mean can exceed the ELV | 23.7 | mg/Nm3 | yes | EN 13649:2001 | 396.3 | With the exception of 3 months where within limit Ethanol was noted, all monthly results in 2018 for TA Luft Class III are < LOD. Lower overall average concentration and mass emission vs 2017. |
| EP-P3-001 | Total Particulates | Monthly | 1 | No 30min mean can exceed the ELV | 0.16 | mg/Nm3 | yes | OTH | 2.9 | Decrease on result for 2017. |
| EP-P3-001 | Hydrogen Chloride | Monthly | 30 | No 30min mean can exceed the ELV | 0.25 | mg/Nm3 | yes | EN 1911-1 to 3:2003 | 4.3 | Slight decrease on 2017. |

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

| AIR-summary template | | | |
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| Continuous Monitoring | | | |

4

Does your site carry out continuous air emissions monitoring?

No

See additional information in point 1 above. Incinerator was off-line in 2018, hence no continuous monitoring data from EP-IN-001.

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)

5

Did continuous monitoring equipment experience downtime? If yes please record downtime in table A2 below

No

n/a

6

Do you have a proactive service agreement for each piece of continuous monitoring equipment?

No

n/a

7

Did your site experience any abatement system bypasses? If yes please detail them in table A3 below

No

n/a

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 (kg) | Annual maximum (mg/Nm ³) | Monitoring Equipment downtime (hours) | Number of ELV exceedances in current reporting year | Comments |
|------------------------|----------------------|--|------------------|---------------------|----------------------|----------------------|--------------------------------------|---------------------------------------|---|----------|
|------------------------|----------------------|--|------------------|---------------------|----------------------|----------------------|--------------------------------------|---------------------------------------|---|----------|

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 |
|-------|--------------------|----------|-------------------|------------------|-------------------|
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

* 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

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|--|----------------------------------|---|--|---|-------------------------------|--|--|---------------------------------------|
| Solvent use and management on site | | | | | | | | |
| 8 Do you have a total Emission Limit Value of direct and fugitive emissions on site? if yes please fill out tables A4 and A5 | | | | | No | | | |
| Table A4: Solvent Management Plan Summary Total VOC Emission limit value | | | Solvent regulations Please refer to linked solvent regulations to complete table 5 and 6 | | | | | |
| Reporting year | Total solvent input on site (kg) | Total VOC emissions to Air from entire site (direct and fugitive) | Total VOC emissions as % of solvent input | Total Emission Limit Value (ELV) in licence or any revision thereof | Compliance | | | |
| | | | | | SELECT | | | |
| | | | | | SELECT | | | |
| Table A5: Solvent Mass Balance summary | | | | | | | | |
| | (I) Inputs (kg) | (O) Outputs (kg) | | | | | | |
| Solvent | (I) Inputs (kg) | Organic solvent emission in waste gases(kg) | Solvents lost in water (kg) | Collected waste solvent (kg) | Fugitive Organic Solvent (kg) | Solvent released in other ways e.g. by-passes (kg) | Solvents destroyed onsite through physical reaction e.g. incineration (kg) | Total emission of Solvent to air (kg) |
| Toluene | 41,614 | 40 | 0 | 0 | 278 | 0 | 71 | 318 |
| Other NMVOCs | 280,418 | 466 | 1 | 0 | 673 | 0 | 10,403 | 1,139 |
| | | | | | | | | |
| Total NMVOCs | 322,032 | 506 | 1 | 0 | 951 | 0 | 10,974 | 1,457 |

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| AER Monitoring returns summary template-WATER/WASTEWATER(SEWER) | | | | Lic No: | P0007-03 | Year | 2018 |
|---|--|--|--|---------|----------|------|------|
|---|--|--|--|---------|----------|------|------|

| | | | | Additional information | | | |
|---|---|--|--|------------------------|--|--|--|
| 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 licensed emissions you only need to complete table W1 and or W2 for storm water analysis and visual inspections | | | Yes | The incinerator was off-line in 2018, hence no associated wastewater from EP-WW-002. | | |
| 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 | | | Yes | All surface water is visually inspected before discharge to river Tolka - no contaminated noted. | | |

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* | License Compliance criteria | Measured value | Unit of measurement | Compliant with licence | Comments |
|--------------------|--------------------------------------|----------------|--------------------|-----------------|--|-----------------------------|----------------|---------------------|------------------------|--|
| EP-SW-001 | onsite | SELECT | COD | Weekly | 30 | N/A | 15.2 | mg/L | yes | Minor increase on 2017 figure of 14.4 mg/l |
| EP-SW-001 | onsite | SELECT | pH | Weekly | 6 to 9 | N/A | 7 | pH units | yes | No change |

*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 | | | No | None in 2018 | | |
| 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 | | | Yes | External/Internal Lab Quality checklist Assessment of results checklist | | |

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} | License 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 |
|------------------------|----------------------|-----------------------------|----------------|-------------------------|------------------|--|--|----------------|---------------------|------------------------|------------------------------------|---------------------------------|---|-----------------------|--|
| EP-WW-001 | Wastewater/ Sewer | Ammonia (as N) | composite | Quarterly | Annual | See comments | N/A | 0.43 | mg/L | yes | Digestion + Spectrophotometry | B.S. (British Standard) | BS 2690: Part 7:1969 / BS 6068 Part 2:11:1984 | 16.5 | Higher values in 2018. Action level of 40 mg/l agreed with Dublin City Council. |
| EP-WW-001 | Wastewater/ Sewer | BOD | composite | Monthly | Annual | 300 mg/l | All results < 1.2 times ELV, plus 8 from ten results must be < ELV | 9.56 | mg/L | yes | Dissolved Oxygen Meter (Electrode) | MEWAM BOD5 2nd Ed. Method 5210B | Standard 5-day test | 366 | Average concentration & mass emission lower in 2018 - less organic loading input to WWTP |
| EP-WW-001 | Wastewater/ Sewer | COD | composite | Weekly | Annual | 1000 mg/l | All results < 1.2 times ELV, plus 8 from ten results must be < ELV | 141.5 | mg/L | yes | Digestion + Spectrophotometry | ISO | 6060-1989 | 5416 | Average concentration & mass emission lower in 2018 - less organic loading input to WWTP |
| EP-WW-001 | Wastewater/ Sewer | Sulphate | composite | Fortnightly | Annual | 800 mg/l | All results < 1.2 times ELV, plus 8 from ten results must be < ELV | 74.1 | mg/L | yes | Spectrophotometry (Colorimetry) | US EPA | 325.1 & 325.2 | 2836 | Higher in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Suspended Solids | composite | Weekly | Annual | 400 mg/l | All results < 1.2 times ELV, plus 8 from ten results must be < ELV | 91.4 | mg/L | yes | Gravimetric analysis | APHA / AWWA "Standard Methods" | Method 2540D | 3495 | Average concentration & mass emission lower in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Chlorides (as Cl) | composite | Fortnightly | Annual | 2000 mg/l | All results < 1.2 times ELV, plus 8 from ten results must be < ELV | 357.1 | mg/L | yes | Spectrophotometry (Colorimetry) | US EPA | 325.1 & 325.2 | 13668 | Significantly lower in 2018 - less process input |
| EP-WW-001 | Wastewater/ Sewer | Phosphate (as P) | composite | Monthly | Annual | 10 mg/l | All results < 1.2 times ELV, plus 8 from ten results must be < ELV | <0.02 | mg/L | yes | Spectrophotometry (Colorimetry) | US EPA | 325.1 & 325.2 | 0.77 | No significant change in 2018 |

| AER Monitoring returns summary template-WATER/WASTEWATER(SEWER) | | | | | | Lic No: | P0007-03 | Year | | 2018 | | | | | |
|---|----------------------|--|-----------|--------|--------|---------|----------|--------|------|------|---|--------------------------------------|--|--------|--|
| EP-WW-001 | Wastewater/ Sewer | Nitrate (as N) | composite | Annual | Annual | N/A | N/A | 0.29 | mg/L | N/A | Spectrophotometry (Colorimetry) | US EPA | 325.1 & 325.2 | 11 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Phenols | composite | Annual | Annual | N/A | N/A | <0.016 | mg/L | N/A | LC (Liquid Chromatography) | Other (please specify) | HPLC | <1.61 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Arsenic and compounds (as As) | composite | Annual | Annual | N/A | N/A | <0.5 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | 0.02 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Cadmium and compounds (as Cd) | composite | Annual | Annual | N/A | N/A | <0.1 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | <0.01 | No change |
| EP-WW-001 | Wastewater/ Sewer | Chromium and compounds (as Cr) | composite | Annual | Annual | N/A | N/A | <1.0 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | 0.04 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Copper and compounds (as Cu) | composite | Annual | Annual | N/A | N/A | 0.33 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | 0.01 | Lower concentration recorded in 2018 annual sample. More in line with previous years than 2017 sample |
| EP-WW-001 | Wastewater/ Sewer | Mercury and compounds (as Hg) | composite | Annual | Annual | N/A | N/A | <0.01 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | <0.001 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Nickel and compounds (as Ni) | composite | Annual | Annual | N/A | N/A | 1.3 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | 0.05 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Lead and compounds (as Pb) | composite | Annual | Annual | N/A | N/A | 0.02 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | <0.01 | No significant change in 2018 |
| EP-WW-001 | Wastewater/ Sewer | Zinc and compounds (as Zn) | composite | Annual | Annual | N/A | N/A | 38.2 | µg/L | N/A | ICP / ICPMS (Inductively Coupled Plasma - Mass Spectrometry) | APHA / AWWA "Standard Methods" | Method 3125B | 1.5 | Lower concentration recorded in 2018 annual sample. |
| EP-WW-001 | Wastewater/ Sewer | Non-methane volatile organic compounds (NMVOC) | composite | n/a | Annual | N/A | N/A | n/a | N/A | N/A | Other (please describe) | Other (please specify) | Solvent Mass Balance calculation | 0.8 | In line with 2017. |
| EP-WW-001 | Wastewater/ Sewer | Toluene | composite | n/a | Annual | N/A | N/A | n/a | N/A | N/A | Other (please describe) | Other (please specify) | Solvent Mass Balance calculation | 0 | In line with 2017. |

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

Note 2: Where Emission Limit Values (ELV) do not apply to your licence please compare results against EQS for Surface water or relevant receptor quality standards

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

Lic No:

P0007-03

Year

2018

Continuous monitoring

5 Does your site carry out continuous emissions to water/sewer monitoring?

Yes

Additional Information

If yes please summarise your continuous monitoring data below in Table W4 and compare it to its relevant Emission Limit Value (ELV)

6 Did continuous monitoring equipment experience downtime? If yes please record downtime in table W4 below

No

7 Do you have a proactive service contract for each piece of continuous monitoring equipment on site?

Yes

8 Did abatement system bypass occur during the reporting year? If yes please complete table W5 below

No

Table W4: Summary of average emissions -continuous monitoring

| Emission reference no: | Emission released to | Parameter/ Substance | ELV or trigger values in licence or any revision thereof | Averaging Period | Compliance Criteria | Units of measurement | Annual Emission for current reporting year (kg) | % change +/- from previous reporting year | Monitoring Equipment downtime (hours) | Number of ELV exceedances in reporting year | Comments |
|------------------------|----------------------|----------------------|--|------------------|---|----------------------|---|---|---------------------------------------|---|---|
| EP-WW-001 | Wastewater/ Sewer | volumetric flow | 800 | 24 hour | No flow value shall exceed the .specific limit | m ³ /day | 102.88m ³ /day | -1% | 0 | 0 | Total volumetric emissions to sewer decreased by 1% in 2018 (37,551 vs 37,920m3) due to less production activity. |
| EP-WW-001 | Wastewater/ Sewer | volumetric flow | 125 | 1 hour | No flow value shall exceed the .specific limit | m ³ /hour | 95.9 m ³ /hour | 9% | 0 | 0 | Minor flow rate increase from 2017 . |
| EP-WW-001 | Wastewater/ Sewer | Temperature | 42 | | No temperature value shall exceed the limit .value | degrees C | 12.1°C | -12% | 0 | 0 | Minor decrease in effluent temperature in 2018 - not process related. |
| EP-WW-001 | Wastewater/ Sewer | pH | >6 <10 | | No pH value shall deviate from the specified range. | pH units | 7.5 | 1% | 0 | 0 | Minor decrease in average pH in 2018. |

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

Table W5: Abatement system bypass reporting table

| Date | Duration (hours) | Location | Resultant emissions | Reason for bypass | Corrective action* | Was a report submitted to the EPA? | When was this report submitted? |
|------|------------------|----------|---------------------|-------------------|--------------------|------------------------------------|---------------------------------|
| | | | | | | SELECT | |
| | | | | | | | |
| | | | | | | | |

*Measures taken or proposed to reduce or limit bypass frequency

| | | | | |
|---------------------------------------|---------|----------|------|------|
| Bund/Pipeline testing template | Lic No: | P0007-03 | Year | 2018 |
|---------------------------------------|---------|----------|------|------|

| 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 | Please provide integrity testing frequency period | Yes |
| | 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 years |
| 2 | How many bunds are on site? | Yes |
| 3 | How many of these bunds have been tested within the required test schedule? | 19 |
| 4 | How many mobile bunds are on site? | 19 |
| 5 | Are the mobile bunds included in the bund test schedule? | 15 |
| 6 | How many of these mobile bunds have been tested within the required test schedule? | Yes |
| 7 | How many sumps on site are included in the integrity test schedule? | 15 |
| 8 | How many of these sumps are integrity tested within the test schedule? | |
| Please list any sump integrity failures in table B1 | | |
| 9 | Do all sumps and chambers have high level liquid alarms? | Yes |
| 10 | If yes to Q11 are these failsafe systems included in a maintenance and testing programme? | Yes |
| 11 | Is the Fire Water Retention Pond included in your integrity test programme? | Yes |

| 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) |
| WP0520 WWB Tank | reinforced concrete | | Feed for WWTP | N/A | N/A | Hydraulic test | | 10/03/2016 | Yes | Pass | | N/A | 2019 | |
| WP0530 pH Adjusting tank | reinforced concrete | | Process water | N/A | N/A | Hydraulic test | | 19/04/2016 | Yes | Pass | | N/A | 2019 | |
| WP0793 Stormwater tank | reinforced concrete | | Stormwater | 300 m ³ | N/A | Hydraulic test | | 29/03/2016 | Yes | Pass | | N/A | 2019 | |
| WP0792 Stormwater tank | reinforced concrete | | Stormwater | 300 m ³ | N/A | Hydraulic test | | 24/03/2016 | Yes | Pass | | N/A | 2019 | |
| WP0791 Stormwater tank | reinforced concrete | | Stormwater | 300 m ³ | N/A | Hydraulic test | | 14/03/2016 | Yes | Pass | | N/A | 2019 | |
| WP0570 Final water tank | reinforced concrete | | Treated process water | 500 m ³ | N/A | Hydraulic test | | 23/05/2016 | Yes | Pass | | N/A | 2019 | |
| WP0580 Dump tank | reinforced concrete | | Normally empty | 400 m ³ | N/A | Hydraulic test | | 21/03/2016 | Yes | Pass | | N/A | 2019 | |
| Drum Stores sump | reinforced concrete | | Stormwater - any potential spill | N/A | N/A | Hydraulic test | | 30/03/2016 | Yes | Pass | | N/A | 2019 | |
| Firewater Retention Pond | other (please specify) | Butyl liner | Empty | 3000 m ³ | | Hydraulic test | | 13/04/2016 | Yes | Pass | | N/A | 2019 | |

* 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?

- 16 Are channels/transfer systems to remote containment systems tested?
 17 Are channels/transfer systems compliant in both integrity and available volume?

| Pipeline/underground structure testing | Commentary |
|--|------------|
| 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 | |
| 1 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 | Yes |
| 2 Please provide integrity testing frequency period | 3 years |

*please note integrity testing means water tightness testing for process and foul pipelines (as required under your licence)

| 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) |
| Process water pipework system | Process | polypropylene | Yes | N/A | Pressure tested. | Yes | All lines tested and passed as per scheduled. | n/a | n/a | 2021 | N/A |
| WWC1 tank | Process | polypropylene | Yes | Double lined tank | Visual | Yes | Pass | | | Monthly | |
| WWC2 tank | Process | polypropylene | Yes | Double lined tank | Visual | Yes | Pass | | | Monthly | |
| WWC3 tank | Process | polypropylene | Yes | Double lined tank | Visual | Yes | Pass | | | Monthly | |

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

| | | | | |
|---|---------|----------|------|------|
| Groundwater/Soil monitoring template | Lic No: | P0007-03 | Year | 2018 |
|---|---------|----------|------|------|

| Comments | | |
|--|--------|--|
| 1 Are you required to carry out groundwater monitoring as part of your licence requirements? | yes | |
| 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. | SELECT | |
| 5 Is the contamination related to operations at the facility (either current and/or historic) | N/A | |
| 6 Have actions been taken to address contamination issues? If yes please summarise remediation strategies proposed/undertaken for the site | N/A | |
| 7 Please specify the proposed time frame for the remediation strategy | N/A | |
| 8 Is there a licence condition to carry out/update ELRA for the site? | yes | |
| 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? | no | |
| 11 Have potential receptors been identified on and off site? | no | |
| 12 Is there evidence that contamination is migrating offsite? | no | |

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

Detailed groundwater monitoring report for 2018 is available on-site.

- With the exception of the parameters mentioned below (not related to site sources), measured values for all groundwater samples taken in October 2018 are within the relevant GW regulation limit values and generally in line with previous years:
- Slightly higher levels for ammonical nitrogen were noted in all locations. In line with previous event, levels in the downgradient locations YMW3, YMW4 and upgradient locations YMW 6 and YMW8 are in exceedence of the GW regulations value, with upward trends (except YMW4) and suggests non site related sources.
- Chloride exceedence at up gradient location YMW8 suggests off-site localised source.
- Total aluminium and iron levels were higher at all locations in 2018, not indicating site related issue.
- Minor exceedence of Potassium at up gradient YMW1.
- Manganese concentrations elevated in all locations except YMW1 and 9, not indicating site related issue. Downward trends.
- TPH - used GC-FID method to meet new GTV (2016) of 7.5ug/l. All locations were detected at <2ug/l except YMW9 where EPH (DRO) was detected.
- VOCs and SVOCs suites (& site specific solvents). Method LOD were sourced in 2018 to within 2016 GTVs limit.
- All levels of PAH6 were below the LODs and GTV limit, with the exception of Levels PAH 6 and benzo (a) pyrene in YMW9 (shallow well in contractors yard) all levels were below the LODs. Levels of PAH6, benzo (a) pyrene and TPH at YMW9 are likely related to localised historical minor fuel from vehicles and not related to contamination issues. These parameters are not used on-site. ☐

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 |
|------------------|---------------------------|----------------------|--------------------|----------------------|-------------------------|------------------------|----------|--------|-------------|--|
| 18/10/2018 | YMW1 | Conductivity | Conductivity meter | Annual | 752 | | µS/cm | 1875 | | No |
| 18/10/2018 | YMW2 | Conductivity | Conductivity meter | Annual | 800 | | µS/cm | 1875 | | No |
| 18/10/2018 | YMW5 | Conductivity | Conductivity meter | Annual | 963 | | µS/cm | 1875 | | yes |
| 18/10/2018 | YMW6 | Conductivity | Conductivity meter | Annual | 948 | | µS/cm | 1875 | | No |
| 18/10/2018 | YMW8 | Conductivity | Conductivity meter | Annual | 1350 | | µS/cm | 1875 | | yes |
| 18/10/2018 | YMW1 | pH | pH meter | Annual | 7.7 | | pH units | N/A | IGV 6.5-9.5 | No |
| 18/10/2018 | YMW2 | pH | pH meter | Annual | 7.23 | | pH units | N/A | IGV 6.5-9.5 | No |
| 18/10/2018 | YMW5 | pH | pH meter | Annual | 8.03 | | pH units | N/A | IGV 6.5-9.5 | No |
| 18/10/2018 | YMW6 | pH | pH meter | Annual | 7.39 | | pH units | N/A | IGV 6.5-9.5 | No |
| 18/10/2018 | YMW8 | pH | pH meter | Annual | 7.35 | | pH units | N/A | IGV 6.5-9.5 | No |

| Groundwater/Soil monitoring template | | | | | | | | | |
|--------------------------------------|------|----------------------------|--|--------|--------------|------|---------|------------------------|-----|
| Lic No: P0007-03 | | | | Year | | 2018 | | | |
| 18/10/2018 | YMW1 | Alkalinity-total | Method 2320B, AWWA /APHA | Annual | 282 | mg/l | N/A | IGV No abnormal change | no |
| 18/10/2018 | YMW2 | Alkalinity-total | as above | Annual | 430 | mg/l | N/A | as above | No |
| 18/10/2018 | YMW5 | Alkalinity-total | as above | Annual | 205 | mg/l | N/A | as above | no |
| 18/10/2018 | YMW6 | Alkalinity-total | as above | Annual | 305 | mg/l | N/A | as above | no |
| 18/10/2018 | YMW8 | Alkalinity-total | as above | Annual | 375 | mg/l | N/A | as above | no |
| 18/10/2018 | YMW1 | Ammoniacal nitrogen | BS 2690:Part 7:1968 / BS 6068: Part2.11:1984 | Annual | 0.33 | mg/l | 0.175 | | no |
| 18/10/2018 | YMW2 | Ammoniacal nitrogen | as above | Annual | 0.47 | mg/l | 0.175 | | no |
| 18/10/2018 | YMW5 | Ammoniacal nitrogen | as above | Annual | 0.48 | mg/l | 0.175 | | no |
| 18/10/2018 | YMW6 | Ammoniacal nitrogen | as above | Annual | 0.74 | mg/l | 0.175 | | yes |
| 18/10/2018 | YMW8 | Ammoniacal nitrogen | as above | Annual | 0.66 | mg/l | 0.175 | | yes |
| 18/10/2018 | YMW1 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 62 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW2 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 21 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW5 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 160 | mg/l | 187.5 | | yes |
| 18/10/2018 | YMW6 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 98 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW8 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 230 | mg/l | 187.5 | | yes |
| 18/10/2018 | YMW1 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | <0.5 | mg/l | 37.5 | IGV 25 | no |
| 18/10/2018 | YMW2 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | 1 | mg/l | 37.5 | IGV 25 | no |
| 18/10/2018 | YMW5 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | 1.8 | mg/l | 37.5 | IGV 25 | yes |
| 18/10/2018 | YMW6 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | <0.5 | mg/l | 37.5 | IGV 25 | no |
| 18/10/2018 | YMW8 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | <0.5 | mg/l | 37.5 | IGV 25 | no |
| 18/10/2018 | YMW1 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | mg/l | 0.375 | IGV 0.10 | no |
| 18/10/2018 | YMW2 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | mg/l | 0.375 | IGV 0.10 | no |
| 18/10/2018 | YMW5 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | 0.14 | mg/l | 0.375 | IGV 0.10 | no |
| 18/10/2018 | YMW6 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | mg/l | 0.375 | IGV 0.10 | no |
| 18/10/2018 | YMW8 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | mg/l | 0.375 | IGV 0.10 | no |
| 18/10/2018 | YMW1 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW2 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |

| Groundwater/Soil monitoring template | | | | Lic No: | P0007-03 | Year | 2018 | | |
|--------------------------------------|------|--------------------------------------|----------------------------------|---------|--------------|------|---------|--------------|-----|
| 18/10/2018 | YMW5 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW6 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW8 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW1 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW2 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW5 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW6 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW8 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW1 | Sulphate | EPA method 325.1 & 325.2 | Annual | 77 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW2 | Sulphate | EPA method 325.1 & 325.2 | Annual | 50 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW5 | Sulphate | EPA method 325.1 & 325.2 | Annual | 94 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW6 | Sulphate | EPA method 325.1 & 325.2 | Annual | 120 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW8 | Sulphate | EPA method 325.1 & 325.2 | Annual | 140 | mg/l | 187.5 | | yes |
| 18/10/2018 | YMW1 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW2 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW5 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW6 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW8 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW1 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW2 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW5 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW6 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW8 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW1 | Calcium | US EPA 6010B | Annual | 80 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW2 | Calcium | US EPA 6010B | Annual | 140 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW5 | Calcium | US EPA 6010B | Annual | 120 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW6 | Calcium | US EPA 6010B | Annual | 130 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW8 | Calcium | US EPA 6010B | Annual | 150 | mg/l | N/A | IGV 200 mg/l | no |

| Groundwater/Soil monitoring template | | | | | | | | | |
|--------------------------------------|------|------------------|--------------|--------|---------|------|--------|---------------|-----|
| Lic No: P0007-03 | | | | Year | | 2018 | | | |
| 18/10/2018 | YMW1 | Potassium | US EPA 6010B | Annual | 5.9 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW2 | Potassium | US EPA 6010B | Annual | 2.9 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW5 | Potassium | US EPA 6010B | Annual | 3.1 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW6 | Potassium | US EPA 6010B | Annual | 3 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW8 | Potassium | US EPA 6010B | Annual | 3.1 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW1 | Sodium | US EPA 6010B | Annual | 48 | mg/l | 150 | | no |
| 18/10/2018 | YMW2 | Sodium | US EPA 6010B | Annual | 10 | mg/l | 150 | | no |
| 18/10/2018 | YMW5 | Sodium | US EPA 6010B | Annual | 120 | mg/l | 150 | | no |
| 18/10/2018 | YMW6 | Sodium | US EPA 6010B | Annual | 36 | mg/l | 150 | | no |
| 18/10/2018 | YMW8 | Sodium | US EPA 6010B | Annual | 120 | mg/l | 150 | | yes |
| 18/10/2018 | YMW1 | Aluminium | ICP-MS | Annual | 240 | ug/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW2 | Aluminium | ICP-MS | Annual | 580 | ug/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW5 | Aluminium | ICP-MS | Annual | 600 | ug/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW6 | Aluminium | ICP-MS | Annual | <10 | ug/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW8 | Aluminium | ICP-MS | Annual | 480 | ug/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW1 | Manganese | ICP-MS | Annual | 0.0085 | mg/l | N/A | IGV 0.05 mg/l | no |
| 18/10/2018 | YMW2 | Manganese | ICP-MS | Annual | 0.16 | ug/l | N/A | IGV 0.05 mg/l | no |
| 18/10/2018 | YMW5 | Manganese | ICP-MS | Annual | 0.14 | ug/l | N/A | IGV 0.05 mg/l | no |
| 18/10/2018 | YMW6 | Manganese | ICP-MS | Annual | 0.65 | ug/l | N/A | IGV 0.05 mg/l | no |
| 18/10/2018 | YMW8 | Manganese | ICP-MS | Annual | 1.2 | ug/l | N/A | IGV 0.05 mg/l | no |
| 18/10/2018 | YMW1 | PAH6 | US EPA 8100 | Annual | 0.0268 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW2 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW5 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW6 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW8 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW1 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW2 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW5 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW6 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW8 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW1 | Iron | ICP-MS | Annual | 0.26 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW2 | Iron | ICP-MS | Annual | 0.3 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW5 | Iron | ICP-MS | Annual | 0.2 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW6 | Iron | ICP-MS | Annual | 0.53 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW8 | Iron | ICP-MS | Annual | 0.38 | mg/l | N/A | IGV 0.20 mg/l | |

Table 2: Downgradient Groundwater monitoring results

| 18/10/2018 | 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 5 years of monitoring data |
|------------|---------------------------|----------------------|--------------------|----------------------|-----------------------|-----------------------|-------|--------|----------|---|
| 18/10/2018 | YMW3 | Conductivity | Conductivity meter | Annual | 857 | | µS/cm | 1875 | | no |
| 18/10/2018 | YMW4 | Conductivity | Conductivity meter | Annual | 741 | | µS/cm | 1875 | | no |

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|--------------------------------------|------|----------------------------|--|---------|--------------|------|----------|---------|------------------------|
| 18/10/2018 | YMW7 | Conductivity | Conductivity meter | Annual | 672 | | µS/cm | 1875 | no |
| 18/10/2018 | YMW9 | Conductivity | Conductivity meter | Annual | 326 | | µS/cm | 1875 | no |
| 18/10/2018 | YMW3 | pH | pH meter | Annual | 7.42 | | pH units | N/A | IGV 6.5-9.5 |
| 18/10/2018 | YMW4 | pH | pH meter | Annual | 7.51 | | pH units | N/A | IGV 6.5-9.5 |
| 18/10/2018 | YMW7 | pH | pH meter | Annual | 7.49 | | pH units | N/A | IGV 6.5-9.5 |
| 18/10/2018 | YMW9 | pH | pH meter | Annual | 7.66 | | pH units | N/A | IGV 6.5-9.5 |
| 18/10/2018 | YMW3 | Alkalinity-total | Method 2320B, AWWA /APHA | Annual | 325 | | mg/l | N/A | IGV No abnormal change |
| 18/10/2018 | YMW4 | Alkalinity-total | Method 2320B, AWWA/APHA | Annual | 310 | | mg/l | N/A | IGV No abnormal change |
| 18/10/2018 | YMW7 | Alkalinity-total | Method 2320B, AWWA/APHA | Annual | 334 | | mg/l | N/A | IGV No abnormal change |
| 18/10/2018 | YMW9 | Alkalinity-total | Method 2320B, AWWA/APHA | Annual | 270 | | mg/l | N/A | IGV No abnormal change |
| 18/10/2018 | YMW3 | Ammoniacal nitrogen | BS 2690:Part 7:1968 / BS 6068: Part2.11:1984 | Annual | 0.54 | | mg/l | 0.175 | yes |
| 18/10/2018 | YMW4 | Ammoniacal nitrogen | as above | Annual | 0.66 | | mg/l | 0.175 | no |
| 18/10/2018 | YMW7 | Ammoniacal nitrogen | as above | Annual | 0.36 | | mg/l | 0.175 | no |
| 18/10/2018 | YMW9 | Ammoniacal nitrogen | as above | Annual | 0.35 | | mg/l | 0.175 | no |
| 18/10/2018 | YMW3 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 51 | | mg/l | 187.5 | no |
| 18/10/2018 | YMW4 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 30 | | mg/l | 187.5 | no |
| 18/10/2018 | YMW7 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 33 | | mg/l | 187.5 | no |
| 18/10/2018 | YMW9 | Chlorides | EPA Methods 325.1 & 325.2 | Annual | 4.2 | | mg/l | 187.5 | no |
| 18/10/2018 | YMW3 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | <0.5 | | mg/l | 37.5 | IGV 25 |
| 18/10/2018 | YMW4 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | <0.5 | | mg/l | 37.5 | IGV 25 |
| 18/10/2018 | YMW7 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | <0.5 | | mg/l | 37.5 | IGV 25 |
| 18/10/2018 | YMW9 | Nitrate as NO ₃ | EPA method 325.1 & 325.2 | Annual | 3 | | mg/l | 37.5 | IGV 25 |
| 18/10/2018 | YMW3 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | | mg/l | 0.375 | IGV 0.10 |
| 18/10/2018 | YMW4 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | | mg/l | 0.375 | IGV 0.10 |
| 18/10/2018 | YMW7 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | | mg/l | 0.375 | IGV 0.10 |
| 18/10/2018 | YMW9 | Nitrite as NO ₂ | EPA method 325.1 & 325.2 | Annual | <0.02 | | mg/l | 0.375 | IGV 0.10 |
| 18/10/2018 | YMW3 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | | ug/l | Various | no |
| 18/10/2018 | YMW4 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | | ug/l | Various | no |

| Groundwater/Soil monitoring template | | | | Lic No: | P0007-03 | Year | 2018 | | |
|--------------------------------------|------|--------------------------------------|----------------------------------|---------|--------------|------|---------|--------------|-----|
| 18/10/2018 | YMW7 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW9 | SVOC | EPA 8270D | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW3 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW4 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW7 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW9 | Phosphate (ortho) as PO ₄ | EPA method 325.1 & 325.2 | Annual | <0.153 | mg/l | 35 | | no |
| 18/10/2018 | YMW3 | Sulphate | EPA method 325.1 & 325.2 | Annual | 130 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW4 | Sulphate | EPA method 325.1 & 325.2 | Annual | 110 | mg/l | 187.5 | | yes |
| 18/10/2018 | YMW7 | Sulphate | EPA method 325.1 & 325.2 | Annual | 40 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW9 | Sulphate | EPA method 325.1 & 325.2 | Annual | 62 | mg/l | 187.5 | | no |
| 18/10/2018 | YMW3 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW4 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW7 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | <2 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW9 | TPH /Oils & Greases | GC-FID Texas Method 1006/TPH CWG | Annual | 281 | ug/l | 7.5 | | no |
| 18/10/2018 | YMW3 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW4 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW7 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW9 | VOCs | US EPA 8260b& 624 | Annual | <0.1 to <5.0 | ug/l | Various | | no |
| 18/10/2018 | YMW3 | Calcium | US EPA 6010B | Annual | 130 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW4 | Calcium | US EPA 6010B | Annual | 140 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW7 | Calcium | US EPA 6010B | Annual | 90 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW9 | Calcium | US EPA 6010B | Annual | 97 | mg/l | N/A | IGV 200 mg/l | no |
| 18/10/2018 | YMW3 | Potassium | US EPA 6010B | Annual | 2.7 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW4 | Potassium | US EPA 6010B | Annual | 2.8 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW7 | Potassium | US EPA 6010B | Annual | 2.8 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW9 | Potassium | US EPA 6010B | Annual | 2.9 | mg/l | N/A | IGV 5 mg/l | no |
| 18/10/2018 | YMW3 | Sodium | US EPA 6010B | Annual | 35 | mg/l | 150 | | no |
| 18/10/2018 | YMW4 | Sodium | US EPA 6010B | Annual | 27 | mg/l | 150 | | no |
| 18/10/2018 | YMW7 | Sodium | US EPA 6010B | Annual | 42 | mg/l | 150 | | no |
| 18/10/2018 | YMW9 | Sodium | US EPA 6010B | Annual | 5 | mg/l | 150 | | no |
| 18/10/2018 | YMW3 | Aluminium | ICP-MS | Annual | 530 | ug/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW4 | Aluminium | ICP-MS | Annual | 670 | mg/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW7 | Aluminium | ICP-MS | Annual | 230 | mg/l | N/A | IGV 200 ug/l | no |

| Groundwater/Soil monitoring template | | | | | | Lic No: | P0007-03 | Year | 2018 |
|--|------|------------------|-------------|--------|--|---------|--|---------------|------|
| 18/10/2018 | YMW9 | Aluminium | ICP-MS | Annual | 190 | mg/l | N/A | IGV 200 ug/l | no |
| 18/10/2018 | YMW3 | Manganese | ICP-MS | Annual | 1.2 | mg/l | N/A | IGV 0.05 mg/l | no |
| 18/10/2018 | YMW4 | Manganese | ICP-MS | Annual | 1.1 | mg/l | N/A | N/A | no |
| 18/10/2018 | YMW7 | Manganese | ICP-MS | Annual | 0.09 | mg/l | N/A | N/A | no |
| 18/10/2018 | YMW9 | Manganese | ICP-MS | Annual | 0.035 | mg/l | N/A | N/A | no |
| 18/10/2018 | YMW3 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW4 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW7 | PAH6 | US EPA 8100 | Annual | <0.0175 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW9 | PAH6 | US EPA 8100 | Annual | 0.217 | ug/l | 0.075 | | no |
| 18/10/2018 | YMW3 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW4 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW7 | Benzo (a) pyrene | US EPA 8100 | Annual | <0.002 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW9 | Benzo (a) pyrene | US EPA 8100 | Annual | 0.0424 | ug/l | 0.0075 | | |
| 18/10/2018 | YMW3 | Iron | ICP-MS | Annual | 0.36 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW4 | Iron | ICP-MS | Annual | 0.89 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW7 | Iron | ICP-MS | Annual | 0.19 | mg/l | N/A | IGV 0.20 mg/l | |
| 18/10/2018 | YMW9 | Iron | ICP-MS | Annual | 0.56 | mg/l | N/A | IGV 0.20 mg/l | |
| *please note exceedance of generic assessment criteria (GAC) such as a Groundwater Threshold Value (GTV) or an Interim Guideline Value (IGV) or an upward trend in results for a substance indicates that further interpretation of monitoring results is required. In addition to completing the above table, please complete the Groundwater Monitoring Guideline Template Report at the link provided and submit separately through ALDER as a licensee return or as otherwise instructed by the EPA. | | | | | | | Groundwater monitoring template | | |
| More information on the use of soil and groundwater standards/ generic assessment criteria (GAC) and risk assessment tools is available in the EPA published guidance (see the link in G31) | | | | | Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites (EPA 2013) | | | | |
| **Depending on location of the site and proximity to other sensitive receptors alternative Receptor based Water Quality standards should be used in addition to the GTV e.g. if the site is close to surface water compare to Surface Water Environmental Quality Standards (SWEQS). If the site is close to a drinking water supply compare results to the Drinking Water Standards (DWS) | | | | | | | Groundwater Drinking water Surface regulations (private supply) water EQS GTV's standards Drinking water (public supply) standards | | |

Table 3: Soil results

| Date of sampling | Sample location reference | Parameter/ Substance | Methodology | Monitoring frequency | Maximum Concentration | Average Concentration | unit |
|------------------|---------------------------|----------------------|-------------|----------------------|-----------------------|-----------------------|--------|
| | | | | | | | |
| | | | | | | | SELECT |

Where additional detail is required please enter it here in 200 words or less

| Environmental Liabilities template | | Lic No: | P0007-03 | Year | 2018 |
|--|--|---------|----------|------|------|
| Click here to access EPA guidance on Environmental Liabilities and Financial provision | | | | | |

| | | Commentary |
|----|---|---|
| 1 | ELRA initial agreement status | Submitted and not agreed by EPA; ELRA submitted to the EPA in September 2017 (Licensee Return LR030886). Costings in line with new EPA Guidelines |
| 2 | ELRA review status | Review required and completed Reviewed in 2018. No change in risks. Costings to be revised in 2019. |
| 3 | Amount of Financial Provision cover required as determined by the latest ELRA | Specify See report (Licensee Return LR030886) |
| 4 | Financial Provision for ELRA status | Submitted and not agreed by EPA; |
| 5 | Financial Provision for ELRA - amount of cover | Specify See report (Licensee Return LR030886) |
| 6 | Financial Provision for ELRA - type | Environmental Impairment Liability insurance Pollution Legal Liability Insurance in place |
| 7 | Financial provision for ELRA expiry date | Annual - due end March. |
| 8 | Closure plan initial agreement status | Closure plan submitted and not agreed by EPA Closure plan (CRAMP) submitted to the EPA in September 2017 (Licensee Return LR030887). Costings in line with new EPA Guidelines |
| 9 | Closure plan review status | Review required and completed Completed 2017. Consultants recommend 3 yearly review. Costings to be revised in FY 2019. |
| 10 | Financial Provision for Closure status | Submitted and not agreed by EPA; |
| 11 | Financial Provision for Closure - amount of cover | Specify See report (Licensee Return LR030887) |
| 12 | Financial Provision for Closure - type | Other please specify pending report approval |
| 13 | Financial provision for Closure expiry date | Enter expiry date None |

| Environmental Management Programme/Continuous Improvement Programme template | | | Lic No: P0007-03 | Year 2018 |
|--|---|-----|---|-----------|
| Highlighted cells contain dropdown menu click to view | | | Additional Information | |
| 1 | Do you maintain an Environmental Management System (EMS) for the site. If yes, please detail in additional information | Yes | Environmental Management System meets requirements of ISO 14001 and is audited against the standard. The site successfully transitioned to the revised standard ISO14001:2015 in 2018. | |
| 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 | Full EMP report with details on environmental Objectives & Plans is available on-site. Summary presented below. Routine Licence requirements such as 3 yearly bund and drain testing are captured separately. | |
| 4 | Do you maintain an environmental documentation/communication system to inform the public on environmental performance of the facility, as required by the licence | Yes | | |

| Environmental Management Programme (EMP) report | | | | | |
|---|--|----------------------|--|---------------------|--------------------------------|
| Objective Category | Target | Status (% completed) | How target was progressed | Responsibility | Intermediate outcomes |
| Energy Efficiency/Utility conservation | EM3. 2017/2018 - Replace HVAC centrifugal pumps with high efficiency plug fans (more energy efficient than existing fans). | 20 | Ongoing. Subsequent review in 2017 proposed full unit replacement, with more efficient fans which is a substantial project. Scoping took place in FY18 for P2 AHUs (x3) as planned. URS now in place for Design for tender, which will be completed in FY19 with replacement in FY20. Scoping for P3 units will take place under a separate new objective EM22. | Individual - Energy | Installation of infrastructure |
| Energy Efficiency/Utility conservation | EM4. 2017 - Replace pumps on cooling tower water system - includes Installation of VSD | 100 | Completed. Installed March - April 2019 | Individual - Energy | Installation of infrastructure |
| Energy Efficiency/Utility conservation | EM5. 2017-2019 - Update Building Management System to allow for better energy M&T (Energy audit recommendation) | 100 | Completed. Data trending available from March 2019 | Individual - Energy | Installation of infrastructure |
| Energy Efficiency/Utility conservation | EM9. 2017 - Replace calorifiers (hot water systems) in Admin and Warehouse if feasible | 0 | Previously closed - reopened. Was related to the district heating system project (EM8), which was being progressed based on insufficient ROI. However noted in 2018 ROI may be now be viable based on issue of 2030 GHG targets (specific for fossil fuel use). It will be dependent on outcome of solar panel study for these buildings. Feasibility study to be commenced in FY19. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM10. 2019-2020 - Review optimisation of the WWTP aerators - energy savings possible based on WWTP operation review. | 10 | In progress. Preliminary review with external consultants indicates that due to low organic loading since 2017 use of only 1 lagoon may be viable. Further review and impact assessment to take place in FY19, with change to be implemented in FY20 if feasible. | Individual - EHS | |
| Energy Efficiency/Utility conservation | EM15. 2018 - Install VSD pumps on IW water distribution system | 60 | In progress. 1 pump installed. Pending installation on second pump in May 2019 | Individual - Energy | Installation of infrastructure |
| Energy Efficiency/Utility conservation | EM16. 2019 - Investigate renewables for electricity generation on-site (such as solar / photovoltaic panels e.g. Warehouse roof) | 0 | In progress - study being commissioned in FY19. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM17. 2018. Continue replacement of fluorescent lighting with LED. Phase 4 - Admin & Annex | 0 | Project on-hold. ROI currently insufficient due to high install costs for low number of remaining lights. Can be re-assessed in future. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM18. 2018-2019: Feasibility study to Reduce P2/P3 plant air change rates. | 0 | Closed. Project reviewed and deemed not feasible for P2 based on ATEX requirements. Will review feasibility for P3 within P3 AHU project. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM19. 2018-2019. Feasibility study to optimise Chillers unit control strategy. | 0 | Project on hold. FY19 focus on reviewing current operation of system and re-focus on energy savings aspects in FY20. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM20. 2018-2019: Feasibility study on Chillers ethylene glycol distribution pumps - review suitability, efficiency, operational control. | 20 | Ongoing. Scope being developed. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM21. New in 2018. Assess reducing HVAC air changes in some P2 rooms. | 100 | Completed. Adjusted in April 2018 in 2 rooms from 27/hr. to 22/hr. Expected annual savings of 40800KWh mix of both thermal and electrical savings. | Individual - Energy | |
| Energy Efficiency/Utility conservation | EM22. New in 2019. FY2020. Investigate feasibility of replacing P3 AHU units with more energy efficiency units (split from EM3). Carry out conceptual study. | 0 | | Individual - Energy | Installation of infrastructure |

| Environmental Management Programme/Continuous Improvement Programme template | | Lic No: P0007-03 | | Year 2018 | |
|--|--|------------------|--|---------------------------------------|--|
| Energy Efficiency/Utility conservation | EM 23. New in 2019. FY2019. Review replacement of site Water boilers with more efficient electrical/plate heat exchanges units in line with 2013 Scope 1 GHG target. (MTC & P3) | 0 | | Individual - Energy | Installation of infrastructure |
| Energy Efficiency/Utility conservation | EM24. New in 2019. FY2019. Review Temperature control in P2 dryer suite | 0 | | Individual - Energy | |
| Waste reduction/Raw material usage efficiency | WM5. 2017-2019. Assess options of treating MB waste water in the on-site WWTP | 30 | Closed. Not progressing. Studies carried out with DCU and APC. Deemed no longer viable while progressing overall WWTP options given low organic loading through plant. | Individual - Energy | Improved Environmental Management Practices |
| Waste reduction/Raw material usage efficiency | WM13. 2018. Switch to compostable disposable cups and reduce overall usage of disposal cups by 50% (based on 2017 levels) | 100 | Compostable cups and lids and extra glassware introduced in Q1 2018. Other measures introduced in 2018 including extra communications, improved signage, extra glasses. | Individual - EHS | Reduced emissions |
| Waste reduction/Raw material usage efficiency | WM14. 2018. Raise site awareness of Waste Plastics in the Environment. | 100 | Communications presentation on Earth Day in April 2018. | Individual - EHS | |
| Additional improvements - ecology/ biodiversity | EB10. 2018. Improve biodiversity. Seed berm with native grassland mix to provide food source for nearby bees hives. | 100 | Completed. | Individual - EHS | |
| Additional improvements - ecology/ biodiversity | EB11. Arrange with bee-keeper to give talk with interested staff on bee-keeping & biodiversity benefits | 100 | Completed. 2 sessions held on-site with 30 in attendance. Great feedback. | Individual - EHS | |
| Groundwater protection | LL5. 2017 – Perform pressure re-testing on storm water system | 100 | Completed as schedule. Tracked going forward as BAU. | Individual - EHS | |
| Groundwater protection | LL6. 2017-2018 – Continue repair on storm water drain system (phase 2) | 95 | 95% of scheduled high priority lines completed. | Individual - Engineering | |
| Groundwater protection | LL9. 2016 – Perform pressure testing on process drain system | 100 | 95% completed in 2016. Access to some areas required civil works, completed in 2017. Lines tested. All except 2 passed. Repairs tracked (LL10) and completed (Feb 18). | Individual | Increased compliance with licence conditions |
| Additional improvements | LL11. FY2019. Installation of TOC meter into pH adjusting tank for improved monitoring of loading to WWTP. | 10 | Funding approved. Design and tender completed. | Individual - Environmental Operations | |
| Additional improvements | LL16. 2018-2019. Assess BAT Conclusions 2016/902 for site compliance by 2020. Develop action plan. | 30 | Ongoing engagement with consultants. Waste water ELVs not applicable to site. No air emission ELVs - pending BAT-C. Awaiting clarity on how BAT requirements will be licensed for all Licencees. | Individual - EHS | Improved Environmental Management Practices |
| Additional improvements | LL17. 2018-2019. Confirm characteristics of scrubber inputs as per BAT-C. Engage external monitoring specialists, or develop on-site capabilities (e.g. validate the Voyager unit, develop SOP). | 50 | Ongoing sampling programme commenced in P2 on inlet and outlet. P3 sampling to follow. | Individual - EHS | Improved Environmental Management Practices |
| Additional improvements | LL19. New. FY2019. Decommission incinerator - develop decommissioning and residuals management plan. | 10 | Initial interaction with EPA April 2019. | Individual - EHS | |
| Additional improvements | LL20. New. FY2019. EHS to support site in Mirabegron 12/7 project. | 20 | Initial interaction with EPA April 2019 on additional batches and new shift pattern. | Individual - EHS | |
| Additional improvements | LL21. New 2019-2020. Fgas Regulation compliance for Chillers - gas phase down requirements - develop plan. | | | Individual - Engineering | |
| Waste reduction/Raw material usage efficiency | RM1. 2017 - Installation of N ₂ flowmeters in P2 and P3 plants and trend usage on BMS to review for leak detection and sustain low usage | 80 | Partially completed, flowmeters installed. Trending available for P3 via BMS. P2 connection to BMS dependent on BMS upgrade (see EM5), which was completed Q1 2019. Currently gathering data. | Individual - Engineering | Installation of infrastructure |
| Waste reduction/Raw material usage efficiency | RM3. 2018. Establish N ₂ baselines in P2 during no activity. | 100 | Completed during summer shutdown. | Individual - Engineering | |
| Waste reduction/Raw material usage efficiency | RM4. 2018-2019. Improve ongoing visibility of N ₂ usage site wide - establish procedure to monitor usage from flow trends | 10 | Ongoing. Dependent on BMS upgrade (see EM5), which was completed Q1 2019. Currently gathering data. | Individual - Engineering | |
| Additional improvements - EMS / Communications | EMS2: 2018. Transition to ISO 14001:2015 | 100 | Completed. Successful audit July 2018. | Individual - EHS | |
| Corporate Objective- GHG (CO ₂) emissions reduction | CSR2: 2020. GHG emissions targets for Dublin site - 45% reduction from 2005 levels by 2020. | 100 | On target to achieve | Individual - EHS | |
| Corporate Objective- GHG (CO ₂) emissions reduction | CSR3: 2030. New GHG emissions targets for Dublin site - 10% reduction from 2015 levels by 2030. | 0 | More focus on Scope 1 fossil fuel reduction. Plans being developed through Energy Road Map review. | Individual - EHS | |
| Corporate Objective- GHG (CO ₂) emissions reduction | CSR4: New. FY19. Install an Electric car charging facility | 20 | Benefit: Reduction in indirect emissions from fueled vehicles depending on uptake. Scoping and costing completed. | Individual - Engineering | |

Noise monitoring summary report

Lic No: P0007-03 Year

2018

1 Was noise monitoring a licence requirement for the AER period?

Yes

If yes please fill in table N1 noise summary below

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](#)

Yes

3 Does your site have a noise reduction plan

No

4 When was the noise reduction plan last updated?

n/a

5 Have there been changes relevant to site noise emissions (e.g. plant or operational changes) since the last noise survey?

No

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 site compliant with noise limits (day/evening/night)? |
|--------------------|---------------------------|--------------------------|---|------------------|------------------|------------------|-------------------|---------------------------------|---|---|--|
| 22-23 Oct 2018 | 15 minutes | N/A | NSL1 | 26 | | | | No | na | This is a predicted result as there is a lot of road traffic to the south and west of the facility. Decrease from 2017 result of 31 LAeq. Dominant noise is road traffic assessing the industrial park. There is also noise with aircraft, as the facility is in the flight path for final approach into landing at dublin airport. | Yes |
| 22-23 Oct 2018 | 15 minutes | N/A | NSL2 | 34 | | | | No | na | As above. Dominant noise is road traffic from M3 and R156. Slight decrease from 2017 result of 37 Laeq. Not attributed to site. | Yes |
| 22-23 Oct 2018 | 15 minutes | N/A | NSL3 | 32 | | | | No | na | As above. Dominant noise is road traffic from M3. Slight decrease from 2017 result of 34 Laeq. Not attributed to site. | Yes |
| 22-Oct-18 | 1 minute at each location | Locations B01 to B07 | N/A | <54 | | | | | na | Distant road traffic and plant noise dominant. Background noise levels in range 48-51 dB L _{A90} . | na |
| 22-Oct-18 | 1 minute at each location | Locations B08 to B12 | N/A | <56 | | | | | na | Distant road traffic and plant noise dominant. Background noise levels in range 48-55 dB L _{A90} . | na |
| 22-Oct-18 | 1 minute at each location | Locations B13 to B19 | N/A | <61 | | | | | na | Distant road traffic and plant noise dominant. Background noise levels in range 52-60 dB L _{A90} . | na |
| 22-Oct-18 | 1 minute at each location | Locations B20 to B24 | N/A | <59 | | | | | na | Distant road traffic and plant noise dominant. Background noise levels in range 54-59 dB L _{A90} . | na |

*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)

| Resource Usage/Energy efficiency summary | Lic No: | P0007-03 | Year | 2018 |
|--|---------|----------|------|------|
|--|---------|----------|------|------|

1 When did the site carry out the most recent energy efficiency audit? Please list the recommendations in table 3 below

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

| | |
|--------|---|
| May-16 | Regular small audits also carried out throughout year. The dedicated Energy Group meet fortnightly and implement energy saving projects on an ongoing basis via the EMP based on site energy roadmap. Repeat Efficiency audit due 2019. |
| Yes | |
| SELECT | Gas usage |

| 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) | 15,247 | 14,406 | -1.34 | -4.2 |
| Total Energy Generated (MWHrs) | | | | |
| Total Renewable Energy Generated (MWHrs) | | | | |
| Electricity Consumption (MWHrs) | 5,855 | 4,993 | | |
| Fossil Fuels Consumption: | | | | |
| Heavy Fuel Oil (m3) | | | | |
| Light Fuel Oil (m3) | | | | |
| Natural gas (m3) | 878,123 | 875,411 | | |
| 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 m ³ /yr. | Water extracted Current year m ³ /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 m ³ /yr | Unaccounted for Water: |
| Groundwater | | | | | | | |
| Surface water | 255 | 505 | | | | | |
| Public supply | 56,175 | 54,420 | | | | | Note: Fingal Co. Co. water meter was offline in Q4 2018. Usage is estimated based on 2017 average. |
| Recycled water | | | | | | | |
| Total | 56,430 | 54,925 | -1.34 | | 37,551 | | 17,374 m ³ , which is water to foul sewer or released as steam that is not metered. |

* 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

| | | | | | | |
|--|--|--|---------|----------|------|------|
| Resource Usage/Energy efficiency summary | | | Lic No: | P0007-03 | Year | 2018 |
|--|--|--|---------|----------|------|------|

| Table R3 Waste Stream Summary | | | | | |
|-------------------------------|--------|----------|--------------|----------|-------|
| | Total | Landfill | Incineration | Recycled | Other |
| Hazardous (Tonnes) | 784.3 | 0 | 69.68 | 714.62 | 0 |
| Non-Hazardous (Tonnes) | 146.87 | 0 | 0 | 133.53 | 13.34 |

| 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 |
| May-16 | all tracked via EMP | | energy audit | | | Energy Engineer | | See EMP for more detail |
| | | | | | | | | |
| | | | | | | | | |

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 | | | | | |

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| | | | | |
|--|---------|----------|------|------|
| Complaints and Incidents summary template | Lic No: | P0007-03 | Year | 2018 |
|--|---------|----------|------|------|

| | | |
|--|--|------------------------|
| Complaints | | Additional information |
| Have you received any environmental complaints in the current reporting year? If yes please complete summary details of complaints received on site in table 1 below | | <div>No</div> |

| Table 1 Complaints summary | | | | | | | |
|---|----------|-----------------------------|---|-----------------------------|-------------------|-----------------|---------------------|
| Date | Category | Other type (please specify) | Brief description of complaint (Free txt <20 words) | Corrective action< 20 words | Resolution status | Resolution date | Further information |
| | SELECT | | | | SELECT | | |
| | SELECT | | | | SELECT | | |
| Total complaints open at start of reporting year | | 0 | | | | | |
| Total new complaints received during reporting year | | 0 | | | | | |
| Total complaints closed during reporting year | | 0 | | | | | |
| Balance of complaints end of reporting year | | 0 | | | | | |

| | | |
|--|--|------------------------|
| Incidents | | Additional information |
| Have any incidents occurred on site in the current reporting year? Please list all incidents for current reporting year in Table 2 below | | <div>Yes</div> |

| | |
|--|-------------------------------------|
| *For information on how to report and what constitutes an incident | What is an incident |
|--|-------------------------------------|

| Table 2 Incidents summary | | | | | | | | | | | | | | |
|---|----------------------|---|---|----------|---------------------------|-----------------------------|--|---------------|------------|--|---|-------------------|-----------------|----------------------------|
| Date of occurrence | Incident nature | Location of occurrence | Incident category* please refer to guidance | Receptor | Grade of incident | Other cause(please specify) | Activity in progress at time of incident | Communication | Occurrence | Corrective action<20 words | Preventative action <20 words | Resolution status | Resolution date | Likelihood of reoccurrence |
| 07/11/2018 | Uncontrolled release | Other location (Chiller MA0420 - Fgas loss notified in INCI015519 & in online EPR | 1. Minor | Air | Plant or equipment issues | | Normal activities | EPA | New | Fgas loss points repaired/replaced - transducer, oil bung separator, oil pump & compressor shaft seals | Improvements to maintenance programme as per EIR-18-001 internal investigation. | Complete | 11/01/2019 | Low |
| | | | | | | | | | | | | | | SELECT |
| Total number of incidents current year | | 1 | | | | | | | | | | | | |
| Total number of incidents previous year | | 0 | | | | | | | | | | | | |
| % reduction/ increase | | 100 | | | | | | | | | | | | |

| | | | | |
|---|---------|----------------------|---|------|
| WASTE SUMMARY | Lic No: | P0007-03 | Year | 2018 |
| SECTION A-PRTR ON SITE WASTE TREATMENT AND WASTE TRANSFERS TAB- TO BE COMPLETED BY ALL IPPC AND WASTE FACILITIES | | PRTR facility logon. | PRTR template has been replaced by new EPA online EPR reporting tool. Waste data for 2018 has also been migrated to the adjacent new Waste Management Record sheet. | |

SECTION B- WASTE ACCEPTED ONTO SITE-TO BE COMPLETED BY ALL IPPC AND WASTE FACILITIES

Were any wastes accepted onto your site for recovery or disposal or treatment prior to recovery or disposal within the boundaries of your facility ?; (waste generated within your boundaries is to be captured through PRTR reporting)

1 If yes please enter details in table 1 below

2 Did your site have any rejected consignments of waste in the current reporting year? If yes please give a brief explanation in the additional information

3 Was waste accepted onto your site that was generated outside the Republic of Ireland? If yes please state the quantity in tonnes in additional information

Additional Information

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

Table 1 Details of waste accepted onto your site for recovery, disposal or treatment (do not include wastes generated at your site, as these will have been reported in your PRTR workbook)

| Licensed annual tonnage limit for your site (total tonnes/annum) | EWG code | Source of waste accepted | Description of waste accepted Please enter an accurate and detailed description - which applies to relevant EWG code | Quantity of waste accepted in current reporting year (tonnes) | Quantity of waste accepted in previous reporting year (tonnes) | Reduction/ Increase over previous year +/- % | Reason for reduction/ increase from previous reporting year | Packaging Content (%)- only applies if the waste has a packaging component | Disposal/Recovery or treatment operation carried out at your site and the description of this operation | Quantity of waste remaining on site at the end of reporting year (tonnes) | Comments - |
|--|--|--------------------------|---|---|--|--|---|--|---|---|------------|
| | European Waste Catalogue EWG codes | | European Waste Catalogue EWG codes | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

SECTION C-TO BE COMPLETED BY ALL WASTE FACILITIES (waste transfer stations, Composters, Material recovery facilities etc) EXCEPT LANDFILL SITES

4 Is all waste processing infrastructure as required by your licence and approved by the Agency in place? If no please list waste processing infrastructure required on site

5 Is all waste storage infrastructure as required by your licence and approved by the Agency in place? If no please list waste storage infrastructure required on site

6 Does your facility have relevant nuisance controls in place?

7 Do you have an odour management system in place for your facility? If no why?

8 Do you maintain a sludge register on site?

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

SECTION D-TO BE COMPLETED BY LANDFILL SITES ONLY
Table 2 Waste type and tonnage-landfill only

| Waste types permitted for disposal | Authorised/licenced annual intake for disposal (tpa) | Actual intake for disposal in reporting year (tpa) | Remaining licensed capacity at end of reporting year (m3) | Comments |
|------------------------------------|--|--|---|----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Table 3 General information-Landfill only

| Area ID | Date landfilling commenced | Date landfilling ceased | Currently landfilling | Private or Public Operated | Inert or non-hazardous | Predicted date to cease landfilling | Licence permits asbestos | Is there a separate cell for asbestos? | Accepted asbestos in reporting year | Total disposal area occupied by waste | Lined disposal area occupied by waste | Unlined area | Comments on liner type |
|---------|----------------------------|-------------------------|-----------------------|----------------------------|------------------------|-------------------------------------|--------------------------|--|-------------------------------------|---------------------------------------|---------------------------------------|--------------|------------------------|
| | | | | | | | | | | SELECT UNIT | SELECT UNIT | SELECT UNIT | |
| Cell 8 | | | | | | | | | | | | | |

| | | | | | | |
|---------------|--|--|---------|----------|------|------|
| WASTE SUMMARY | | | Lic No: | P0007-03 | Year | 2018 |
|---------------|--|--|---------|----------|------|------|

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

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Waste Summary Continued

Please insert a copy of your Waste Management Record for waste transferred off site

| | | | Quantity (Tonnes per Year) | | | | Method Used | | Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer | Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer | Name and License / 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) |
|----------------------|------------------------|-----------|----------------------------------|--|---------------------------------|-------|----------------|-----------------------|--|--|---|--|
| Transfer Destination | European Waste Code | Hazardous | | Description of Waste | Waste Treatment Operation | M/C/E | Method Used | Location of Treatment | | | | |
| Within the Country | 16 06 01 | Yes | 0.467 | lead batteries | R4 | M | Weighted | Offsite in Ireland | KMK Metals Recycling Limited,W0113-04 | Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland | KMK Metals Recycling Limited,W0113-04,Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland | Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland |
| Within the Country | 16 06 04 | No | 0.025 | alkaline batteries (except 16 06 03) | R4 | M | Weighted | Offsite in Ireland | Rehab Recycle Tallagh,WFP-DP-10-0008-05 | Roslyn Park Sandymount,Dublin 15,,Ireland | | |
| Within the Country | 20 03 01 | No | 3.875 | mixed municipal waste | R3 | M | Weighted | Offsite in Ireland | Nurendale Limited,W0261-02 | Cappagh Road,Cappogue,Finglas Dublin 11,Ireland | | |
| Within the Country | 15 01 01 | No | 0.525 | paper and cardboard packaging | R3 | M | Weighted | Offsite in Ireland | IPODEC Ireland Limited W039-02 | Ballymount Cross,Tallaght,Dulbin 24,,Ireland | | |
| Within the Country | 15 01 01 | No | 13.65 | paper and cardboard packaging | R3 | M | Weighted | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 15 01 04 | No | 0.03 | metallic packaging | R4 | M | Weighted | Offsite in Ireland | Rehab Glassco Limited,W0279-02 | Unit 4,Oberstown Buisness Park,Curragh Road,Nass Co Kildare,Ireland | | |
| Within the Country | 15 01 10 | Yes | 0.654 | packaging containing residues of or contaminated by dangerous substances | R4 | M | Volume Calc | Offsite in Ireland | Rilta Environmental Ltd,W0192-03 | Block 402 Grant Drive,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Rilta Environmental Ltd,W0192-03,Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland |
| Within the Country | 20 01 02 | No | 2.076 | glass | R5 | M | Weighted | Offsite in Ireland | Rehab Glassco Limited,W0279-02 | Unit 4,Oberstown Buisness Park,Curragh Road,Nass Co Kildare,Ireland | | |
| Within the Country | 17 02 02 | No | 0.004 | glass | R5 | M | Weighted | Offsite in Ireland | Gannon Eco,WFP-WM-2014-05 | Split Hill Quarry,Hazelwood,Kilbeggan, Co. Westmeath,Ireland | | |
| Within the Country | 20 01 21 | Yes | 0.029 | fluorescent tubes and other mercury-containing waste | R4 | M | Weighted | Offsite in Ireland | Irish Lamps Recycling,WFP-KE-14-0072-01 | Woodcock Industrial Estate,Kilkenny Road,Athy,Co Kildare,Ireland | Irish Lamps Recycling Ltd,WFP-KE-14-0072-01,Woodstock Industrial Estate,Athy,Kildare,Co Kildare,Ireland | Woodstock Industrial Estate,Athy,Kildare,Co Kildare,Ireland |
| Within the Country | 20 01 25 | No | 0.47 | edible oil and fat | R9 | E | Volume Calc | Offsite in Ireland | Frylite ,WFP-FG-16-0004-01 | ABP Meat Processing Plant,St Anne's Cloghran,Ballymun,Co. Dublin Ireland | | |
| Within the Country | 13 01 13 | Yes | 0.85 | other hydraulic oils | R9 | M | Weighted | Offsite in Ireland | Enva Ireland Limited,W0184-02 | Clonminam Industrial Estate,Portlaoise,County Laois,R32XD95,Ireland | Enva Ireland Ltd,W0184-02,Clonminam Industrial Estate,Portlaoise,Co. Laois,R32XD95,Ireland | Clonminam Industrial Estate,Portlaoise,Co. Laois,R32XD95,Ireland |
| Within the Country | 20 01 01 | No | 22.2 | paper and cardboard | R3 | M | Weighted | Offsite in Ireland | Shred-it,WFP-DC-09-0011-02 | 5,Parkwest Industrial Estate,,Dublin 12,Ireland | | |
| Within the Country | 17 05 04 | No | 20.46 | soil and stones other than those mentioned in 17 05 03 | R5 | M | Weighted | Offsite in Ireland | Nurendale Limited,W0261-02 | Cappagh Road,Cappogue,Finglas Dublin 11,Ireland | | |
| Within the Country | 17 09 04 | No | 21.3 | mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 | R5 | M | Weighted | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 17 03 02 | No | 2.46 | bituminous mixtures containing other than those mentioned in 17 03 01 | R5 | M | Weighted | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange Ballycoolin,Dublin 11,Ireland | | |

| | | | | | | | | | | | | |
|--------------------|----------|-----|---------|---|-----|---|---------|--------------------|---------------------------------------|--|---|---|
| Within the Country | 20 01 40 | No | 9.4 | metals | R4 | M | Weighed | Offsite in Ireland | Haughey Metals Ltd,WL-LN 09 13 | Darkley Road,Aughnaguran,Keady,Co Armagh. BT60 3BX,United Kingdom | | |
| Within the Country | 19 09 02 | No | 13.34 | sludges from water clarification | D9 | M | Weighed | Offsite in Ireland | Rilta Environmental Ltd,W0192-03 | Block 402 Grant Drive,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | | |
| Within the Country | 20 03 01 | No | 0.1954 | mixed municipal waste | R3 | M | Weighed | Offsite in Ireland | Nurendale Limited,W0261-02 | Cappagh Road,Cappogue,Finglas ,Dublin 11,Ireland | | |
| Within the Country | 20 03 01 | No | 11.0346 | mixed municipal waste | R3 | M | Weighed | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange ,Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 20 03 07 | No | 4.3 | bulky waste | R3 | M | Weighed | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange ,Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 20 01 10 | No | 2.019 | clothes | R3 | M | Weighed | Offsite in Ireland | Shred-it,WFP-DC-09-0011-02 | 5,Parkwest Industrial Estate,,Dublin 12,Ireland | | |
| Within the Country | 20 01 38 | No | 0.54 | wood other than that mentioned in 20 01 37 | R3 | M | Weighed | Offsite in Ireland | Nurendale Limited,W0261-02 | Cappagh Road,Cappogue,Finglas ,Dublin 11,Ireland | | |
| Within the Country | 20 01 38 | No | 6.562 | wood other than that mentioned in 20 01 37 | R3 | M | Weighed | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange ,Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 16 02 13 | Yes | 0.024 | discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09 to 16 02 12 | R4 | M | Weighed | Offsite in Ireland | KMK Metals Recycling Limited,W0113-04 | Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland | KMK Metals Recycling Limited,W0113-04,Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland | Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland |
| Within the Country | 16 02 13 | Yes | 1.322 | discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09 to 16 02 12 | R4 | M | Weighed | Offsite in Ireland | Rehab Recycle,WFP-DC-11-0025-02 | The Rehab Building,Kylemore Road,Ballyfermot,Dublin 10,Ireland | Rehab Recycle,WFP-DS-10-0008-05,Unit 77,Broomhill road,Tallaght,Dublin 24,Ireland | Unit 77,Broomhill road,Tallaght,Dublin 24,Ireland |
| Within the Country | 16 02 11 | Yes | 0.087 | discarded equipment containing chlorofluorocarbons, HCFC, HFC | R4 | M | Weighed | Offsite in Ireland | KMK Metals Recycling Limited,W0113-04 | Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland | KMK Metals Recycling Limited,W0113-04,Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland | Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland |
| Within the Country | 20 01 08 | No | 5.759 | biodegradable kitchen and canteen waste | R3 | M | Weighed | Offsite in Ireland | Nurendale Limited,W0261-02 | Cappagh Road,Cappogue,Finglas ,Dublin 11,Ireland | | |
| Within the Country | 20 01 08 | No | 4.746 | biodegradable kitchen and canteen waste | R3 | M | Weighed | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange ,Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 20 01 08 | No | 0.765 | biodegradable kitchen and canteen waste | R3 | M | Weighed | Offsite in Ireland | Key Waste Management Limited,W0045-01 | Greenview Greenhills Road,Walkinstown,Dublin 12,,Ireland | | |
| Within the Country | 20 01 39 | No | 0.05 | plastics | R5 | M | Weighed | Offsite in Ireland | Greenstar Limited,W0183-01 | Millennium Buisness Park,Grange ,Ballycoolin,Dublin 11,Ireland | | |
| Within the Country | 20 01 39 | No | 0.74 | plastics | R5 | M | Weighed | Offsite in Ireland | Rehab Recycle,WFP-DC-11-0025-02 | The Rehab Building,Kylemore Road,Ballyfermot,Dublin 10,Ireland | | |
| To Other Countries | 06 02 04 | Yes | 0.099 | sodium and potassium hydroxide | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Key Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industriele Afvalverwerking,Polderdervietweg,Antwerpen 3,B-2030,Belgium | Industriele Afvalverwerking,Polderdervietweg,Antwerpen 3,B-2030,Belgium |

| | | | | | | | | | | | | |
|--------------------|----------|-----|--------|---|-----|---|---------|--------------------|----------------------------------|--|--|---|
| To Other Countries | 07 05 01 | Yes | 1.734 | aqueous washing liquids and mother liquors | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Key Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| To Other Countries | 07 05 04 | Yes | 2.679 | other organic solvents, washing liquids and mother liquors | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| To Other Countries | 07 05 13 | Yes | 7.94 | solid wastes containing dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| Within the Country | 07 05 13 | Yes | 9.786 | solid wastes containing dangerous substances | R1 | M | Weighed | Offsite in Ireland | Indaver Ireland,W0167-03 | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | Indaver Ireland,W0167-03,Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland |
| Within the Country | 08 03 18 | No | 0.06 | waste printing toner other than those mentioned in 08 03 17 | R1 | M | Weighed | Offsite in Ireland | Indaver Ireland,W0167-03 | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | | |
| To Other Countries | 08 01 11 | Yes | 0.277 | waste paint and varnish containing organic solvents or other dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | AVG,IB 2231 - 191/04,AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany | AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany |
| To Other Countries | 15 01 10 | Yes | 0.445 | packaging containing residues of or contaminated by dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| Within the Country | 15 01 10 | Yes | 10.349 | packaging containing residues of or contaminated by dangerous substances | R1 | M | Weighed | Offsite in Ireland | Indaver Ireland,W0167-03 | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | Indaver Ireland,W0167-03,Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland |
| Within the Country | 15 01 10 | Yes | 0.57 | packaging containing residues of or contaminated by dangerous substances | R4 | M | Weighed | Offsite in Ireland | Rilta Environmental Ltd,W0192-03 | Block 402 Grant Drive,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Rilta Environmental Ltd,W0192-03,Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland |
| Within the Country | 15 01 10 | Yes | 0.15 | packaging containing residues of or contaminated by dangerous substances | R3 | M | Weighed | Offsite in Ireland | Rilta Environmental Ltd,W0192-03 | Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Rilta Environmental Ltd,W0192-03,Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland |
| To Other Countries | 15 02 02 | Yes | 0.237 | absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | AVG,IB 2231 - 191/04,AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany | AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany |
| To Other Countries | 16 03 05 | Yes | 0.714 | organic wastes containing dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industriele Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| To Other Countries | 16 05 04 | Yes | 0.308 | gases in pressure containers (including halons) containing dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Chemogas,D/PMVC/12G10/18788,Milleucoordinator,Westvaartdijk85,1850 Grimbergen,...Belgium | Milleucoordinator,Westvaartdijk85,1850 Grimbergen,...Belgium |
| To Other Countries | 16 05 04 | Yes | 0.077 | gases in pressure containers (including halons) containing dangerous substances | D10 | M | Weighed | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | AVG,IB 2231 - 191/04,AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany | AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany |

| | | | | | | | | | | | | |
|--------------------|----------|-----|---------|--|-----|---|-------------|--------------------|----------------------------------|--|---|---|
| To Other Countries | 16 05 04 | Yes | 0.323 | gases in pressure containers (including halons) containing dangerous substances | D10 | M | Weighted | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| Within the Country | 16 02 13 | Yes | 0.07 | discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09 to 16 02 12 | R4 | E | Volume Calc | Offsite in Ireland | Rilta Environmental Ltd,W0192-03 | Block 402 Grant Drive,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Rilta Environmental Ltd,W0192-03,Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland | Block 402,Greenogue Buisness Park,Rathcoole,Co. Dublin,Ireland |
| To Other Countries | 16 11 05 | Yes | 0.035 | linings and refractories from non-metallurgical processes containing dangerous substances | D10 | M | Weighted | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| Within the Country | 20 03 01 | No | 0.284 | mixed municipal waste | R1 | M | Weighted | Offsite in Ireland | Indaver Ireland,W0167-03 | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | | |
| To Other Countries | 07 05 01 | Yes | 53.178 | aqueous washing liquids and mother liquors | D10 | M | Weighted | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| Within the Country | 07 05 01 | Yes | 383.907 | aqueous washing liquids and mother liquors | R1 | M | Weighted | Offsite in Ireland | Indaver Ireland,W0167-03 | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | Indaver Ireland,W0167-03,Carranstown,Duleek,Co. Meath,A92 EP23,Ireland | Carranstown,Duleek,Co. Meath,A92 EP23,Ireland |
| Within the Country | 07 05 04 | Yes | 306.359 | other organic solvents, washing liquids and mother liquors | R1 | M | Weighted | Offsite in Ireland | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Key Road,Dublin Port,Dublin 1,Ireland | Indaver Ireland Limited,W00036-02,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver Ireland Limited,W00036-02,Dublin Port,Dublin 1,Ireland |
| To Other Countries | 16 05 06 | Yes | 1.484 | laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals | D10 | M | Weighted | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | Indaver NV,MLAV1/9800000485,Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium | Industrie Afvalverwerking,Poldervietweg,Antwerpen 3,B-2030,Belgium |
| To Other Countries | 16 05 06 | Yes | 0.154 | laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals | D10 | M | Weighted | Abroad | Indaver Ireland,W0036-02 | Dublin Port Waste Facility,Tolka Quay Road,Dublin Port,Dublin 1,Ireland | AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany | AVG Abfall-Verwertungs-Gesellschaft mbH,Boristrasse 2,Hamburg,22113,Germany |

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