



Annual Environmental Report (AER) 2023

Company Name: Arthurstown Landfill

Licence Number: W0004-4

Address: Kill, Co Kildare

Class of Activity¹: Class 11

¹ See Appendix I

Purpose of this Report

One of the functions of the Environmental Protection Agency (EPA) is to licence and regulate the activities² of large scale industrial (e.g. chemical, food processors, power plants) and waste facilities. Submitting an Annual Environmental Report (AER) is a requirement of all EPA licences.

An AER is a public document. To this end, this format has been developed for industrial and waste licence holders (other than the intensive agriculture sector) to use as a template. This is to assist any member of the public to interpret and understand the environmental performance of the licensed facility.

The AER is a **summary** of environmental information for a given year. It includes:

- Details of the licence holder's environmental goals achieved, goals to maintain compliance and/or improve their environmental performance;
- Answers to questions regarding their facility's activities;
- Tables of results from monitoring emissions such as air, water, noise, and odour; and
- Details of waste generated, accepted and treated.

An AER does **not** provide detailed technical data. Such information is available in three ways:

- 1) Contacting the licence holder directly. The Contact Us section of this template enables the licence holder to provide details of where a member of the public can obtain further information on topics reported in this document.

² See Appendix I

- 2) Some documents³ are available on the EPA website via the licence details page for each individual licence. This can be found by browsing either the <http://www.epa.ie/licensing/> or <http://www.epa.ie/enforcement/> pages of the EPA website.
- 3) All formal enforcement correspondence exchanged between the EPA and a licence holder during the regulatory process is available for public viewing by appointment at any EPA Office.

If you have a question or query about an AER or an individual EPA licensed facility see the EPA's website or contact the relevant EPA office. See <http://www.epa.ie/about/contactus/> for contact details.

³ This includes EPA site inspection and compliance monitoring reports, licence holders' self-monitoring reports, AERs and special reports

Contents

Glossary	5
Declaration	8
1) Introduction	9
Contact Us	10
2) How we Manage our Facility	11
Environmental Management System	11
Beyond Compliance	13
3) Energy & Water	14
Energy	14
Water	16
4) Environmental Complaints	17
5) Environmental Incidents	19
6) Our Environmental Emissions	22
Storm Water	23
Waste Water	27
Air	30
Fugitive Solvent Emissions	33
Groundwater	34
Noise	36
7) Waste	38
Waste Generated	38
Waste Accepted	39
8) Financial Provision	40

Glossary

Abatement Equipment	Technology used to reduce pollution
AER	Annual Environmental Report.
Beyond Compliance	Beyond compliance is concept to help deliver greater organisational performance and long-term value for the environment, society and the economy.
CRAMP	Closure, Restoration and Aftercare Management Plan.
ELRA	Environmental Liability Risk Assessment.
Emission Limit Value	Limits set for specified emissions, typically outlined in Schedule B of an EPA licence.
EMS	Environmental Management System.
Environmental Goal	An objective or target set by a licensee as part of an environmental management system (EMS).
Environmental Pollutant	Substance or material that due to its quantity and/or nature has a negative impact on the environment.
Facility	Any site or premises that holds an EPA industrial or waste licence.
FP	Financial Provision.
GJ	Giga joules, an international unit of energy measurement.

Groundwater	All water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
Incident	As defined by an EPA industrial or waste licence.
Inert Waste	Is waste that will not undergo physical, chemical or biological change thereby, is unlikely to cause environmental pollution or harm human health.
List of Wastes (LoW)	A list of wastes drawn up by the European Commission and published as Commission Decision 2014/955/EU.
Noise Sensitive Location	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other installation or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
Non-Renewable Resource	A resource of economic value that cannot be replaced at the same rate it is being consumed e.g. coal, peat, oil and natural gas.
Oil Separator	Separator system for light liquids (e.g. oil and petrol).
PRTR	Pollutant Release and Transfer Register.
Renewable Resource	Wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.
Sanitary Waste	Waste water from toilet, washroom and canteen facilities.

Storm Water	Rain water run-off from roof and non-process areas.
Surface Water	Lakes, rivers, streams, estuaries and coastal waters.
Trigger Level	A value set for a specific parameter, the achievement or exceedance of which requires certain actions to be taken by the licence holder.
Volatile Organic Compounds	Gases produced from solids or liquids that evaporate readily in ambient conditions.
Waste	Any substance or object which the holder discards or intends or is required to discard.

Disclaimer

These are **not** legal definitions. Legal definitions can be found in the corresponding legislation.

Declaration

I, Ben Frost, Facility Manager, confirm that by ticking the box below, all information in this report is truthful and accurate to the best of my knowledge and belief.

In addition, I confirm that all monitoring and performance reporting required by our EPA licence and summarised herein is available for inspection by the EPA.

Tick here

1) Introduction

See below a brief description of our facility and a summary of our environmental performance this year.

This AER covers the operational period of the landfill from 1st January to 31st December 2023. This is the 13th AER to cover the period of closure for the facility.

Environmental activities in 2023 focused on:

- quarterly licence compliance monitoring,
- progressing a long-term groundwater level monitoring programme to assess seasonal groundwater level with the objective of reducing pumping regime at the site.
- servicing 2 no. aerators and mixers in AER 2 leachate treatment plant.
- operation and maintenance of the aftercare phase of the facility in accordance with the conditions of the licence including operation of storm water system, leachate management system, groundwater control and landfill gas management system.

Contact Us

If you have any questions or would like further information on any aspect of our licensed activity, please contact us directly.

See below details:

South Dubin County Council
Arthurstown Landfill,
Kill,
Co. Kildare
arthurstownlandfill@sdublincoco.ie

2) How we Manage our Facility

Environmental Management System

Explanation

To ensure our facility's activities do not cause environmental pollution we are required to have detailed documentation systems in place to help us manage and track our environmental performance. These systems are referred to as Environmental Management Systems (EMS). We review our EMS every year and set up-to-date **environmental goals** to continually improve our environmental performance.

The information below sets out the environmental goals for our facility to help us prevent environmental pollution and reduce our impact on the environment. Target dates for completing each goal and progress towards achieving the goal are outlined in Table 1.

Table 1 Environmental Goals

Environmental Goal	Target Date	Progress
Start decrease the pumping regime allowing groundwater levels Sump 1 and Sump 2 to return to natural levels. SEW approval granted by the EPA on 10 th March 2021.	Q4 2023	Groundwater level loggers installed in downgradient wells in February 2022. Have completed monitoring and starting to decrease pumping by 600mm per month on agreement with EPA.
Setup SCADA to start reduction of level of ground water pumping from Sump 1 and 2.	2022-2024	SCADA setup in February 2022 for recording of groundwater levels.

Carry out landfill gas balancing for entire landfill gas field and replace and maintain a number of well heads, valves, knock out pots and manifold valves in the landfill gas management system.	Q2 2022	Landfill Gas Balance in Q2. More work is required on replacing gas wells and adjusting knock out pots
Update the met monitoring system software for weekly and monthly data.	2022	Ongoing
Update SCADA system.	2022	Q2 2024
Maintenance internal roads, boundary road and cap roads.	Ongoing	Ongoing
Maintain existing shockproof fencing and security fencing.	Ongoing	Ongoing
General maintenance grass cutting, cleaning oil interceptors etc.	Ongoing	Ongoing
Start review of Licence W0004-04 in relation to leachate discharge emission limits and monitoring.	Q2 2023 with EPA	Completed
Remediation and upgrade work to Caustic Bund	Q2 2024	Out for tender
Installation of small-Scale solar farm to offset energy costs	Q3 2024	Ongoing
Installation of new gate access control Systems	Q2 2024	Ongoing
Clean out surface water retention pond and pond integrity Test	Q2/3 2024	Planning stage
Licence review of noise monitoring conditions	Q3 2024	Planning stage

Beyond Compliance

Explanation

We are legally required to comply with our environmental licence. However, the EPA realise that some sites go further than just complying with their environmental licence requirements. Some projects carried out at facilities can have long term positive impacts on the environment and local communities.

The EPA's beyond compliance initiative is encouraging us to identify and report on these environmental and sustainability projects. For example, the project could involve renewable energy, biodiversity, water conservation or exemplar community engagement.

Did any project completed on your site in the reporting year go beyond your licence requirements?

Yes

No

If yes, provide details of one case study in Appendix III that demonstrates how the project went beyond compliance of your licence.

3) Energy & Water

Energy

Explanation

Fossil fuels such as coal, gas and oil are non-renewable resources. As a result, our EPA licence requires that we measure our energy use and set targets to improve the energy efficiency of our activities and reduce our overall use, where possible. Where we have the means and technology on-site to generate energy, this is also captured in this report.

The information below summarises the energy used this year compared to the previous year and includes renewable and non-renewable energy types.

Table 3 Energy Used

Energy Used	Quantity (GJ)	% Increase/ decrease on previous year
Electricity		
Heavy Fuel Oil		
Light Fuel Oil		
Natural Gas		
Coal / Solid Fuel		
Peat		
Renewable Biomass		
Renewable Energy Generated On-site		
Total Energy Used	898.92	16.2% increase

Comment

773.36 Gigajoules of energy used in 2022

The information below summarises the energy we generated on our site this year with specific focus on renewable energy generation.

Table 4 Energy Generated

Energy Generated	Quantity (GJ)	% Increase/ decrease on previous year
Renewable Energy	56,782.8	0% increase
Total Energy Generated	56,782.8	0% increase

Comment

Total energy produced in 2022 was 56,782.8 gigajoules.

Water

Explanation

Water is a natural resource and we are required by our EPA licence to identify ways to reduce our use where possible. Water used in industry can be extracted from groundwater, rivers and lakes (surface water), taken from public water supplies (Irish Water), recycled from the facility's processes or harvested from rainwater.

The information below summarises and compares the quantity of water used this year compared to the previous year.

Table 5 Water Used

Source of Water Used	Quantity (m³/year)	% Increase/ decrease on previous year
Groundwater	--	
Surface Water	--	
Public Supply	2,500	0% change
Recycled Water	--	
Rainwater	--	
Total Water Used	2,500	0% change

Comment

2,500 m3 of public supply water used in 2022.

4) Environmental Complaints

Explanation

Our EPA licence requires that activities do not cause environmental nuisance such as odour, dust or noise. Our licence also requires that we have procedures in place to record, investigate and respond to environmental complaints if or when they arise.

We have an environmental complaints procedure in place where you can contact us⁴ directly. You can also contact the EPA⁵ if you wish to make an environmental complaint, confidentially or not.

See the information below for a summary of **all** the environmental complaints relating to our activities made directly to us and to the EPA this year.

Table 6 Summary of All Environmental Complaints Received in 2023

Type of Complaint	Number of Complaints	Number Closed
Odour / Smells	0	n/a
Noise	0	n/a
Dust	0	n/a
Water Quality	0	n/a
Air Quality	0	n/a
Waste	0	n/a
Litter	0	n/a
Vermin/Flies/Birds	0	n/a
Soil Contamination	0	n/a
Vibration	0	n/a
Other	0	n/a

⁴ See Section 1, Introduction – Contact Us

⁵ If you wish to contact the EPA to make an environmental complaint about an EPA licenced facility, please go to <https://lema.epa.ie/complaints>

Comment

There were no complaints made in 2023 nor were any complaints recorded in 2022.

5) Environmental Incidents

Explanation

It is our responsibility as an EPA licensed facility to ensure we have systems in place to prevent incidents that have the potential to cause environmental pollution. If an incident occurs, we are required to report it to the EPA, investigate the cause and fix the problem.

The EPA classify environmental incidents into 5 categories based on the potential impact on the environment:

- Minor
- Limited
- Serious
- Very Serious
- Catastrophic

See Table 6 for the number of the environmental incidents we reported to the EPA this year.

Table 7 Number of Environmental Incidents

Incident Category	Minor	Limited	Serious	Very Serious	Catastrophic
Abatement Equipment Offline	0	0	0	0	0
Breach of Ambient ELV	0	0	0	0	0
Breach of Emission Limit	1	0	0	0	0
Explosion	0	0	0	0	0
Fire	0	0	0	0	0
Monitoring Equipment Failure	0	0	0	0	0
Odour	0	0	0	0	0
Spillage	0	0	0	0	0
Breach of trigger Level	0	0	0	0	0
Uncontrolled Release	0	0	0	0	0

Incident Category	Minor	Limited	Serious	Very Serious	Catastrophic
Other	1	0	0	0	0

Comment

Other: In both rounds of noise monitoring, N5 had elevated noise levels during the nighttime monitoring and this was from the gas utilisation unit but as this is a boundary location no limits are attributed to the location. In the second round of noise monitoring, N6 had elevated noise not attributed to the landfill but as this is a boundary location no limits are attributed to the location.

6) Our Environmental Emissions

Explanation

We are required to ensure the emissions from our activities do not cause environmental pollution.

We are required to monitor any of the following emissions that we make:

- Storm water
- Waste water
- Air
- Groundwater
- Noise

We regularly test any such emissions for specific pollutants and materials to ensure they do not contain levels of pollution that exceed emission limit values (ELVs) or cause environmental pollution. If monitoring of an emission indicates an ELV is exceeded, we are required to report this to the EPA⁶.

The next sub-sections of this report summarise our compliance with any ELVs set in our EPA licence. Some emissions monitored do not have specific ELVs, but we still carry out monitoring and report all incidents that may give rise to environmental pollution.

⁶ See section 5, Incidents

Storm Water

Explanation

Storm water is rain water run-off from roof and non-process areas of a facility, e.g. car parks, and generally shall not contain any pollution. Storm water is usually released into a local water body after a basic form of treatment. Our EPA licence requires that we manage storm water to ensure no polluting substances or materials are released into the environment.

The information below summarises how the storm water from our facility is treated, where it is released and the results of monitoring this year.

1. Storm water from our facility is managed prior to release by;

Stormwater run-off from the landfill cap, site roads and hardstanding areas enters a dedicated stormwater drainage system which flows via a Class 1 oil interceptor to a constructed stormwater lagoon before discharge to the Hartwell River. The discharge is limited to a maximum flow of 1000 l/s.

2. Storm water from our facility is released into the following water bodies:

- Hartwell River (Rathmore Stream IE_EA_09R020300) flowing into the Liffey IE_EA_09L011700

Table 8 Summary of Storm Water Monitoring

Parameter measured	No. of Samples	% Compliant⁷	Comment
Flow	--	100	Continuously monitored at SW2
pH	63		No ELV or trigger level applicable. EQS limits applicable at SW2.
Ammonia as N	63		No ELV or trigger level applicable. EQS limits applicable at SW2.
Suspended Solids	63		No ELV or trigger level applicable. EQS limits applicable at SW2.
Conductivity	63		No ELV or trigger level applicable. EQS limits applicable at SW2.
BOD	20		No ELV or trigger level applicable. EQS limits applicable at SW2.
COD	20		No ELV or trigger level applicable. EQS limits applicable at SW2.
Chloride	20		No ELV or trigger level applicable. EQS limits applicable at SW2.
Orthophosphate as P	5		No ELV or trigger level applicable
Zinc	5		No ELV or trigger level applicable

⁷ % compliant = [(number of samples compliant) / (number of samples taken)] x 100. Compliance could refer to emission limit values or trigger levels. The EPA commonly use trigger levels on stormwater discharges.

Sodium	5		No ELV or trigger level applicable
Potassium	5		No ELV or trigger level applicable
Nickel	5		No ELV or trigger level applicable
Manganese	5		No ELV or trigger level applicable
Magnesium	5		No ELV or trigger level applicable
Lead	5		No ELV or trigger level applicable
Iron	5		No ELV or trigger level applicable
Copper	5		No ELV or trigger level applicable
Total Chromium	5		No ELV or trigger level applicable
Calcium	5		No ELV or trigger level applicable
Cadmium	5		No ELV or trigger level applicable
Boron	5		No ELV or trigger level applicable
Mercury	5		No ELV or trigger level applicable
Sulphate	5		No ELV or trigger level applicable
Total Alkalinity	5		No ELV or trigger level applicable
Phosphorus Total	5		No ELV or trigger level applicable
Total Oxidised Nitrogen	5		No ELV or trigger level applicable

Comment

All stormwater monitoring was completed in accordance with licence conditions throughout 2023. Surface water samples were assessed against the European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009) (as amended) Ecological Quality Standards (EQS).

The concentration of ammonia at the retention pond outfall (SW2) exceeded the good status EQS mean threshold (0.065 mg/L) on eleven occasions during week 3 (0.089 mg/L), week 16 (0.14 mg/l), week 17 (0.59mg/l), week 22 (0.1 mg/L), week 32 (0.08 mg/l), week 36 (0.15 mg/l), and week 39 (0.08 mg/l), week 42 (0.62 mg/L), week 43 (0.069 mg/l), week 46 (0.19mg/l) and week 36 (0.17 mg/l) throughout 2023. Suspended Solids exceeded the EQS in week 50 (35 mg/l).

Other EQS limit breaches were reported throughout 2023 for ammonia at retention pond inlet (SW5) during Q1 2023 and SW3 during Q4 2023.

Despite the above EQS exceedances, quarterly monitoring data indicates that the facility is not impacting the downstream water quality of the Hartwell River and Kill River.

Results are presented and discussed in more detail in the quarterly monitoring reports submitted to the EPA previously.

Waste Water

Explanation

There are two types of waste water that can be produced:

- Process waste water produced from the activities and;
- Sanitary waste water from toilets, washrooms and canteens.

Our EPA licence requires us to manage our waste water on or off-site and ensure that it does not cause environmental pollution when discharged into the environment.

The information below summarises how we treat the waste water produced from our activities, where it is released and the results of monitoring this year.

1. Waste water produced by our activities is treated as follows before discharge to a receiving waterbody;

Leachate is generated on site from cells 1 through 15 (LC1-LC15) and is treated in an on-site leachate treatment plant, a sequencing batch reactor (SBR). Leachate is pumped from the lined cells to leachate storage tank (LST) prior to treatment in leachate aeration tank 2 (LT2). From LT2, the treated leachate discharges to the leachate balancing tank (LBAL) where it is stored prior to discharge to rising main from Arthurstown Landfill to Kill Village where it discharges to sewer and flows to Osberstown WWTP.

Sanitary wastewater from the facility is discharged to sewer and conveyed to Osberstown WWTP for treatment.

2. Treated waste water from our facility is released into the following water bodies:

Osberstown WWTP (D0002-01) discharges under licence to the Upper River Liffey (IE_EA_09L011300).

Table 8 Summary of Waste Water Monitoring in 2023

Parameter measured	No. of Samples	% Compliant	Comment
Flow	--	100	Continuously Monitored
Total Organic Carbon	8	100	ELV - Schedule C.6 of the licence
COD	8	75	ELV - Schedule C.6 of the licence
BOD	9	100	ELV - Schedule C.6 of the licence
Suspended Solids	9	100	ELV - Schedule C.6 of the licence
Ammonia (as N)	12	67	ELV - Schedule C.6 of the licence
Orthophosphate (as P)	3	100	ELV - Schedule C.6 of the licence
Nitrate	3	100	ELV - Schedule C.6 of the licence
Chloride	3	100	ELV - Schedule C.6 of the licence
Sulphate	3		No ELV or trigger level applicable
Cyanide	3		No ELV or trigger level applicable
Metals			No ELV or trigger level applicable
Aluminium	1		
Barium	1		
Beryllium	1		
Boron	1		
Cadmium	1		
Chromium	1		
Cobalt	1		

Copper	1		
Fluoride	1		
Iron	1		
Lead	1		
Manganese	1		
Magnesium	1		
Mercury	1		
Nickel	1		
Silver	1		
Tin	1		
Zinc	1		

Comment

Changes to the Emission Limit Values (ELVs) were made in 2023 via Technical Amendment, therefore the results are no longer in breach:

Previous Emission Limit Values

ammonia (mg/l) 5;

BOD (mg/l) 200;

COD (mg/l) 750;

SS (mg/l) 250;

TOC (mg/l) 300;

Cl (mg/l) 2250;

N (mg/l) 1000;

P (mg/l) 20;

Flow (m³/day) 200

New Emission Limit Values

ammonia (mg/l) 20;

BOD (mg/l) 400;

COD (mg/l) 2000;

SS (mg/l) 250;

TOC (mg/l) 600;

Cl (mg/l) 2250;

N (mg/l) 2000;

P (mg/l) 40;
Flow (m³/day) 200

Air

Explanation

Generally, three types of air emissions are monitored from industry in Ireland: gases, dust (particulates) and odour. Our EPA licence requires us to ensure that any air emissions from our activities do not cause air pollution or create an odour nuisance.

The information below details the number of air emission points we monitor, the results from testing the air emissions and any odour assessments carried out by us and the EPA this year.

1. We monitor air emissions from the following number of emission points at our facility.

Four stack emission locations – F1 (flare), AR06, AR07 and AR08 (landfill gas engines)

Table 10 Summary of Air Emissions Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
CO	4	100	ELV – Schedule C.5 of the licence
NO _x	4	100	ELV – Schedule C.5 of the licence
TVOC	4	100	ELV – Schedule C.5 of the licence

HCL	4	100	ELV – Schedule C.5 of the licence
HF	4	100	ELV – Schedule C.5 of the licence
SO ₂	4	100	No ELV or trigger level applicable
Oxygen	4	100	No ELV or trigger level applicable
CO ₂	4	100	No ELV or trigger level applicable

Add rows as necessary.

Comment

In 2023, there were 4 no. operational engines on site. The 4 engines do not run continuously, generally 3 of the 4 engines run full time with 1 engine undergoing maintenance. Therefore, stack emissions testing was carried out on the one flare and 3 no. engines that were operational on the day of sampling.

Table 11 Summary of Odour Assessments Carried Out

Assessment Conducted By	No. of Odour Assessments	% Compliant⁸	Comment
Licence Holder	4	75	
EPA			

Add rows where necessary.

Comment

Four odour assessments were carried out on site. They took place on:

Q1 – 14th March 2023

Q2 – 23rd May 2023

Q3 – 1st August 2023

Q4 – 7th December 2023

Throughout 2023, there were no surface emissions zones greater than or equal to 50 ppm averaged over the capped area. There were no surface emissions zones greater than or equal to 100 ppm instantaneous reading on open surfaces within the landfill footprint.

There were five surface emissions zones greater than or equal to 500 ppm instantaneous reading on features within the landfill footprint noted during the Q2 assessment. The emissions points identified during the survey were remediated immediately following the close out meeting by then Facility Manager John Smith.

⁸ A compliant odour assessment is based on EPA Odour Impact Assessment Guidance available at [Air Enforcement | Environmental Protection Agency \(epa.ie\)](https://www.epa.ie/enforcement/)

Fugitive Solvent Emissions

Are you required to monitor fugitive solvent air emissions from your facility?

Yes

No

Explanation

The use of solvents is regulated under Irish and European Union (EU) Regulations⁹. Solvents are chemicals that, by their nature, are volatile (evaporate readily under ambient conditions). Solvents can be found in many inks, glues and cleaning agents. Due to the volatility of solvents some emissions may be released into the atmosphere during our activities before being captured in our air treatment system. This type of emission is called a **fugitive solvent emission**.

The information below summarises the quantity of solvents used this year, the percentage of fugitive solvent emissions (% of total quantity used) and whether the percentage complied with the targets set in the EU Regulations.

Table 12 Summary of Fugitive Solvent Emissions

Quantity of Solvents Used (Kg)	% Fugitive Solvent Emissions	Compliant

Comment

N/A

⁹ See Annex VII of the Industrial Emissions Directive

<https://ec.europa.eu/environment/industry/stationary/ied/legislation.htm>

Groundwater

Explanation

Groundwater is an important and sensitive resource in Ireland. Our EPA licence requires that we monitor groundwater to ensure our activities do not cause groundwater pollution.

Understanding how groundwater flows through soil and rock layers and eventually into surface and coastal waters is a complex science. Sometimes groundwater pollution that occurred in the past can take years and even decades to disappear. Therefore, it is important that experts help us monitor and interpret results from groundwater monitoring and testing.

The information below is a basic summary of the condition of the groundwater this year.

1. Do you have a groundwater monitoring programme in place?

Yes

No

2. Have the groundwater monitoring results over the last 5 years indicated the presence of groundwater pollution?

Yes

No

Table 13 List of Groundwater Pollutants Identified

Pollutants

Add rows as necessary

Exceedances are summarised below.

2023 exceedances:

Upgradient monitoring wells:

- MW-8 – There were exceedances of ammoniacal nitrogen as N (in each quarter with the exception of Q2 (Q1 – 21.5mg/l, Q3 – 2.57mg/l, Q4 – 4.07mg/l);

The ammoniacal nitrogen level of 21.5mg/l at MW-8 in Q1 is significantly above the GTV and is the highest observed at this location in 2023 and is within the higher range of results when reviewed against historical results. All other non-metal parameters were below their respective IGV and GTV thresholds.

Cross- and down-gradient monitoring wells:

- MW-3 - ammoniacal nitrogen as N in Q4 (0.96mg/l);
- MW-9 - ammoniacal nitrogen as N in Q3 (0.139mg/l);

All other non-metal parameters were below their respective IGV and GTV thresholds.

3. Give details of the investigations and subsequent actions taken, where applicable, to manage the groundwater pollution.

The exceedances are most likely related to offsite sources; however, the site will be routinely monitored to ensure the landfill is not impacting the groundwater beneath the facility.

Noise

Explanation

Our EPA licence requires that we monitor noise emissions from our facility. Noise monitoring can be conducted at the boundary of our facility and/or at locations beyond the boundary referred to as “noise sensitive locations”. Noise monitoring requires the use of special noise monitoring equipment. Our EPA licence requires that noise produced by our facility shall not exceed the noise limit values and/or give rise to nuisance.

The information below gives a summary of when and where we conducted noise monitoring this year and if results complied with our EPA licence limits.

1. We conducted noise monitoring on the following dates this year:

Daytime and night-time monitoring was conducted on the following dates:

- 25th January 2023 (Q1)
- 5th December 2023 (Q4)

2. Where was the noise monitoring carried out?

- the boundary of our facility;
- noise sensitive locations off-site; or
- both.

Seven internal boundary points were monitored at the facility.

3. Were measured noise levels compliant with your EPA licence limits?

Yes

No

If No, we took the following actions to address the noise level exceedances?

A licence review will be conducted in 2024 to evaluate the location of a monitoring point in-between the Gas Utilisation Plant and the Adjacent Timber Manufacturing Plant.

Comment

In both rounds of noise monitoring, N5 had elevated noise levels during the nighttime monitoring. In the second round of noise monitoring, N6 had elevated noise not attributed to the landfill but the adjacent Timber Manufacturing Plant. Neither elevated level has an impact on a Sensitive receptor.

7) Waste

Waste Generated

Explanation

Our EPA licence requires us to manage the waste we generate in a manner that does not cause environmental pollution.

We manage, store and record hazardous, non-hazardous and inert waste we generate in accordance with our licence. We ensure that this waste is subsequently treated or disposed of in accordance with the relevant waste Regulations.

The information in Table 14 is a summary of waste we generated this year and the percentage increase or decrease on the previous year. The percentage recovery is the amount of total waste generated that was reused, recycled, or recovered.

Table 14 Waste Generated

Type	Quantity (Tonnes)	% Increase/ decrease on previous year	% Recovery
Hazardous			
Non-Hazardous	11,142	2.2% increase	
Inert			
Total Tonnes	11,142	2.2% increase	

Comment

The total quantity of leachate discharged to sewer in 2022 was 10,898 m³ (10,898 tonnes).

Waste Accepted

Did you accept waste onto your facility for storage, treatment, recovery or disposal this year?

Yes

No

Explanation

Our EPA licence requires us to manage the waste we accept in a manner that does not cause environmental pollution.

We manage, store and record all incoming and outgoing hazardous, non-hazardous and inert waste. The waste we accept may be treated, recovered, disposed or stored at our facility depending on our licence requirements.

The information in Table 15 provides a summary of waste we accepted this year and the percentage increase or decrease on the previous year. The percentage recovery is the amount of total waste accepted that was reused, recycled or recovered.

Table 15 Waste Accepted

Type	Quantity (Tonnes)	% Increase/ decrease on previous year	% Recovery
Hazardous			
Non-Hazardous			
Inert			
Total Tonnes			

Comment

No waste accepted in 2023.

8) Financial Provision

Explanation

Our EPA licence requires us to assess the risk our activities pose to the environment if we cease our activities or if an incident occurred. If we are identified as a high risk facility¹⁰ by the EPA, we are required to put provision in place such as a financial bond or insurance to cover the cost of restoring our site to a satisfactory condition. This financial provision can then be used to cover the cost of managing the restoration or clean up should such an event occur.

1. Are you required to have an agreed financial provision in place?

Yes

No

The financial provision to cover the environmental liability at the Arthurstown landfill is based on a plausible worst-case scenario as identified in the ELRA and is covered by an Environmental Impairment Liability Insurance Policy.

2. What year was your Closure, Restoration and Aftercare Management Plan (CRAMP) last agreed by the Agency?

2019

3. What year was your Environmental Liability Assessment Report (ELRA) agreed by the Agency?

Updated ELRA submitted for approval in 2023.

¹⁰ See Appendix II

4. Has there been any significant changes on your site since the last agreements?

Yes

No

If yes, have you submitted details to the EPA?

Yes

No

N/A

Appendix I

Class of Activity

Industrial and waste facilities are classed into different sectors depending on the nature of their activity and its potential impact on the environment. The EPA Act 1992 as amended, outlines these as follows:

Class 1	Minerals and other materials
Class 2	Energy
Class 3	Metals
Class 4	Mineral fibres and glass
Class 5	Chemicals
Class 6	Intensive Agriculture ¹¹
Class 7	Food and drink
Class 8	Wood, paper, textiles and leather
Class 9	Fossil fuels
Class 10	Cement, lime and magnesium oxide
Class 11	Waste
Class 12	Surface Coatings
Class 13	Other Activities

¹¹ This reporting template is not applicable to the **intensive agriculture sector**. Their annual environmental reporting structure is different and can be found at [Compliance & Enforcement: Licensees: Reporting Publications | Environmental Protection Agency \(epa.ie\)](#)

Appendix II

High Environmental Risk Categories

If an industrial or waste licence falls into one of these categories it is deemed, by the EPA, as a high environmental risk. As a result, the licence holder is required to have financial provision in place. See section 8, Financial Provision.

1. Landfills
2. Non-Hazardous Waste Transfer Station
3. Incineration and Co-Incineration Waste Facilities
4. Category A – Extractive Waste Facilities
5. Upper and Lower Tier Seveso Facilities
6. Hazardous Waste Transfer Stations
7. High Risk Contaminated Land
8. Exceptional Circumstances

NOTE:

This list is subject to change.

See the link below for further information.

[Compliance & Enforcement: Financial Provisions Publications | Environmental Protection Agency \(epa.ie\)](#)

Appendix III

Beyond Compliance

The case study below shows how we went beyond the requirements of our licence in the reporting year.

