Annual Environmental Report (AER)

2023

Company Name: ARRAN CHEMICAL COMPANY

Licence Number: PO110-03

Address: MONKSLAND INDUSTRIAL ESTATE, ATHLONE, CO. ROSCOMMON, N37 DN24.

Class of Activity[1]: 5.6

[1] See Appendix I

Purpose of this Report

One of the functions of the Environmental Protection Agency (EPA) is to licence and regulate the activities[2] 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 documents[3] 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

Abatement Equipment	Technology used to reduce pollution
AER	Annual Environmental Report.
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, Cyril Furey, Environmental 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.

There has been significant environmental improvements in Arran Chemical Company (Arran) in 2023, with the benefits of the new abatement systems significantly reducing any environmental emissions. Meanwhile production levels have increased and additional local employees were hired to meet this demand bringing staff headcount to 125.
The experience gained from abatement operations has resulted in a specific upgrade to the regenerative thermal oxidiser and this has allowed significant improvements to emission quality, reliability and improved operational performance.
The intensive groundwater remediation program continued throughout 2023 with improvements in groundwater quality continuing.
Waste minimisation and identification of new more efficient waste treatment facilities has improved the sustainability of the Arran operations, with more recovery of waste. Energy & raw material consumption and efficiency continues as a key environmental improvement especially as part of new process & production development.
Environmental performance remains a key priority for Arran Chemical Company going into 2024.

Contact Us

If you have any questions or would like further information on any aspect of this report, please contact us directly.

See below details:

info@arranchemical.ie

2) How we Manage our Facility

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
EMP 2019.4 Fugitive emission and odour reduction	December 2024 Ongoing project	A tank farm review project to determine the requirements of the tank farm, including reducing fugitive odours from tanks. This ongoing project is being scoped and designed to identify the requirements and is continuing as part of the 5-year plan for the site. One tank was removed, and a replacement was procured for installation in late 2023.
EMP 2021.4 Raw material & energy usage reduction	Completed in 2022.	R&D work on a newer process identified potential reduction of solvent consumption by circa 100m^3 for a 4.5MT campaign, potentially reducing solvent usage by half. The potential volumetric efficiency will be optimised for every reaction stage, minimising the number of batches and the environmental impact. This was completed throughout the 2022 campaigns, shortening the process runs, energy consumption and solvent usage.

EMP 2021.5 Fugitive emission and odour reduction	September 2023 Ongoing project	The two new centrifuges commissioned in 2021 have closed system operations which involve purging sequences to direct solvent vapours to the A1 Vent header and the RTO, with refinement made with centrifuge suppliers in 2022. Work on the vacuum system in 2022 resulted in the design & manufacture of three new vacuum boxes for installation in early 2023.
EMP 2021.6 Fugitive emission and odour reduction	Completed March 2023	A project to install a new drum heating storage facility using recovered exhaust heat from the PSA & compressed air rooms was completed in March 2023. This maximised recovery of exhaust energy from the compressor room and provide any warm room storage area at approximately 30-35^{o}C to maintain material in a liquid phase for process consumption.
EMP 2022.1 Raw material & energy usage reduction	Ongoing project until Dec 2024	The process using carbon adsorption units currently requires three carbon units per batch. Further development and refinement during 2023 reduced the humidity of the pre carbon emission and increased the carbon capacity. This included reduction of the fan speed to reduce the overall emission volume. This reduced energy usage and improve carbon adsorption efficiency. Examination of potential for regeneration of the spent carbon is ongoing.
EMP 2022.2 Upgrade of abatement systems	Completed in Dec 2022	This project improved condensation on the Vent headers system, to reduce peak loading to the abatement systems. The installation of a test condenser to determine the long-term requirements was undertaken on the A1 & A2 vent header throughout 2022. The data from this was considered as part of design for modifications of the vent header in 2023.
EMP 2022.3 Containment systems	Completed September 2022	Upgrades to the front yard loading & unloading area was improved with new drainage channels and an upgraded containment sump.
EMP 2023.1 Abatement improvement project	Completion December 2023	In conjunction with the RTO supplier, an upgrade to preheat the incoming vent header emission entering the RTO chamber, and reduce the potential for condensation pre-treatment. Additional

		temperature sensors were installed in the ceramic blocks to monitor RTO performance and provide an early warning for excessive heating of the ceramics. These issues caused problems with RTO in 2022 and are part of the longer-term resolution. The work was completed during summer shutdown.
EMP 2023.2 Raw material reduction	Completion April 2023	Solvent reduction in three processes was tested on the plant following successful development work in the laboratory. The lab indicted that 40% reduction in solvent input did not reduce process yields. This was tested in 2023 batches at production scale and reduced the solvent consumption by 200 litres per batch in 2023.
EMP 2023.3 Fugitive emission and odour reduction.	Completion March 2024	A project to design a modification to the vent header route flow, and to "buffer" flow rate changes in the header was completed in 2023. The issue was causing bypass events and the tests were to be conducted to test some theories. The "buffer tank" installation delayed the onset of and reduced bypass events by three minutes on average in 2023.
EMP 2023.4 Upgrade of RTO abatement system.	Completion September 2023	A project was completed to upgrade the RTO to fit internal temperature sensors into the ceramic block section of the chamber. This provided better feedback on pre-ignition of solvent in the chamber leading to overheating of the ceramic. The sensors indicated when to make operation adjustments earlier and to improve operations.
EMP 2024.1 Energy & Resource Efficiency	New Project. Completion April 2024	Conduct independent energy audit to determine status of energy consumption. Evaluate the status of current energy metrics and potentially identify opportunities for improvement.
EMP 2024.2 Energy & Resource Efficiency	New Project. Completion March 2025	Determine feasibility for Certification to ISO50001 Energy Management.
EMP 2024.3 Use of Cleaner Technology, Cleaner Production	New Project. Completion December 2024	Reduction of duration of the safety bypass events using modifications to abatement control systems and the operational process of resetting the system.

EMP 2024.4 Prevention and minimisation of waste.	New Project. Completion December 2024	Modification of recycling bins to improve segregation of non-hazardous material more efficient & easier for staff.

Add rows as necessary

Comment

The upgrade to the regenerative thermal oxidiser in 2023 has significantly improved performance & reliability. Arran has during 2023 greatly improved its environmental performance and compliance, but continues to advance this improvement with more objectives. These have extended & widened the existing projects and started some new longer-term objectives. Meanwhile, process development continues to refine our manufacturing processes further by improving efficiencies, reducing waste, raw material inputs & energy consumption to improve the sustainability of the manufacturing activities.

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 2 Energy Used

Energy Used (GJ)	Quantity	% Increase / decrease on previous year
Electricity	16,419	+0.1%
Heavy Fuel Oil	0	0
Light Fuel Oil	972	+21%
Natural Gas	6634	-15%
Coal / Solid Fuel	0	0
Peat	0	0

Renewable Biomass	0	0
Renewable Energy Generated On-site	0	0
Total Energy Used	24,025	-4%

Comment

The main source of energy at Arran in 2023 was electrical power at 16,419GJ. The use of electrical power gives Arran the potential to maximise availability of renewable energy sources at 77%, especially at night time which is outside of peak hours as a 24hour / 6 day operation. The usage of light fuel oil as an energy source increased in 2023 by 21% possibly due to increased power outages. Investment in newer technology in terms of utility equipment on site in recent years is continuing to improve efficiency of producing our healthcare products. Overall given the business growth in 2023 a 4% decrease in energy reflects this efficiency.

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

Table 3 Energy Generated

Energy Generated (GJ)	**Quantity**	**% Increase/ decrease on previous year**
Renewable Energy	0	0
Total Energy Generated	0	0

Comment

Energy generation technology is not installed in Arran.

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 4 Water Used

Source of Water Used	Quantity (m^3/year)	% Increase/ decrease on previous year
Groundwater	7,846	-5%
Surface Water	0	0%
Public Supply	31,845	+14%
Recycled Water	0	0%
Rainwater	0	0%
Total Water Used	39,691	+9.6%

Comment

Arran's water usage has increased by 14% over the last year. In 2023 groundwater remediation continued with an estimated 7,846m3 of groundwater abstracted and used on site as cooling water before discharging to effluent. Arran continues to monitor water usage and upgrade its water distribution network. The increase reflects increased water usage in processes.

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 us[4] directly. You can also contact the EPA[5] 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 5 Summary of All Environmental Complaints Received in

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

[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

Arran received no environmental complaints in 2023. This reflects the significant upgrading of the air abatement system & fugitive emission reduction projects. Arran will continue to seek to reduce the potential for fugitive or odour emissions from the site.

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 6 Number of Environmental Incidents

Incident Category	Minor	Limited	Serious	Very Serious	Catastrophic
Abatement Equipment Offline	1	0	0	0	0
Breach of Ambient ELV	0	0	0	0	0
Breach of Emission Limit	2	0	0	0	0
Explosion	0	0	0	0	0
Fire	0	0	0	0	0
Monitoring Equipment Failure	2	0	0	0	0

Incident Category	Minor	Limited	Serious	Very Serious	Catastrophic
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
Other	5	0	0	0	0

Comment

There were two incidents reported to the Agency for breaches of emission limits in 2023. The exceedances arose from issues & challenges arising with process interactions with the new abatement technology. Arran upgraded the abatement equipment significantly based on the experience from 2022/2023. These modifications have improved performance & reliability greatly since. During 2023 there were two malfunctions of monitoring equipment reported and one incident when abatement equipment was off-line. There were five classified as other due to safety bypass events that required notification. All incidents were fully examined and the Agency updated accordingly. Changes to instrumentation have addressed these issues.

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 EPA[6].

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. carparks, 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;**

Storm water from the Arran facility is collected into the effluent system from paved areas where movements of chemical materials occur. Rooftop water is segregated away directly from the roof downpipes to surface water outlets. The HGV unloading & loading area has a collection sump from where storm water is tested before discharge to the storm drain. All surface water passes through the oil interceptor before leaving the site. Weekly samples are taken during rainfall events to monitor storm water (SW1) quality. The Agency also randomly sample the surface water.

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

The nearest surface water body is the Cross River-030. This is located 450m south of the Arran facility. The river is part of the Upper Shannon Catchment.

Table 7 Summary of Storm Water Monitoring

Parameter measured	No. of Samples	% Compliant[7]	Comment
COD	30	100%	
pH	30	100%	
Conductivity	30	100%	
Appearance	30	100%	

Add rows as necessary

Comment

The site has extended the paved areas and provides additional protection for groundwater, albeit increasing the storm water in the effluent system during wet weather. The sumps and interceptor provide primary settlement of sediments and oil removal protection to improve discharge quality.

[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.

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**;

Wastewater from Arran activities is collected, analysed and discharged as effluent to the municipal sewer for treatment in the local Monksland Wastewater Treatment plant. After primary and secondary treatment the Municipal wastewater treatment plant treated effluent is discharged to the Cross river.

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

None

Table 8 Summary of Waste Water Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
Volume	Continuous	100%	
Temperature	348	100%	
pH	Continuous	100%	
COD	348	100%	
BOD	12	100%	
Suspended Solids	12	100%	
Phenols	4	100%	
Total Phosphorus	4	100%	
Total Heavy metals	4	100%	
Detergents	4	100%	
Chlorides	12	100%	
Sulphates	12	100%	
Total Dissolved Solids	12	100%	

Add rows as necessary

Comment

The daily effluent discharge is monitored for compliance before and during the discharge to sewer. The sanitary discharges from washrooms, toilets and canteens are discharged through a separate dedicated foul sewer to the local treatment plant. The Agency, Uisce Eireann & Roscommon County Council sample the sewer discharges randomly.

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.**

Arran has two licenced air emission points named Vent A2-2 & Vent A2-3. These emissions are monitored continuously by Flame Ionisation Detectors and Flowmeters on both vents providing instantaneous results on abatement system operation. A1-1 is the gas boiler emission point.

Table 9 Summary of Air Emissions Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
Total Volatile Organic Carbon (TVOC) TA Luft Class I & II Organics.	11 x Arran Contractor monitoring events	100%	Vent A2-2
Sum of individual VOC's. (H340, H350, H360D or H360F)	2 x Arran Contractor monitoring events	100%	Vent A2-2
Sum of individual VOC's. (H341 and H351)	2 x Arran Contractor monitoring events	100%	Vent A2-2
Hydrogen Chloride (as HCl)	1 x Arran Contractor monitoring event	100%	Vent A2-2
Total Volatile Organic Carbon (TVOC)	4 x Arran Contractor monitoring events	100%	Vent A2-3
Sum of individual VOC's. (H340, H350, H360D or H360F)	2 x Arran Contractor monitoring events	100%	Vent A2-3
Sum of individual VOC's. (H341 and H351)	2 x Arran Contractor monitoring events	100%	Vent A2-3
Polychlorinated dibenzo dioxins and furans (PCDD/F)	2 x Arran Contractor monitoring events	100%	Vent A2-3
Nitrous Oxides (as NO_2)	1 x Arran Contractor monitoring event	100%	Vent A2-3
Hydrogen Chloride (as HCl)	1 x Arran Contractor monitoring event	100%	Vent A2-3

Add rows as necessary

Comment

Arran commissioned the regenerative thermal oxidiser, new carbon beds and scrubbers at the facility. During 2023 and upgrade of the abatement systems was undertaken to improve emission quality and abatement performance. These emissions are monitored by continuous monitors and by external accredited contractors with specialist training and certification. Full compliance was achieved during all monitoring events. The Agency randomly sample the air emissions.

Table 10 Summary of Odour Assessments Carried Out

Assessment Conducted By	No. of Odour Assessments	% Compliant[8]	Comment
Licence Holder	50	100%	

Add rows where necessary

Comment

Arran completes routine odour assessments in the areas surrounding the site to monitor for potential odours from operations. The assessments are fully recorded and performed in accordance with Agency guidance. Significant improvements in containment and the investment in the new abatement system has ensured odour compliance.

[8] A compliant odour assessment is based on EPA Odour Impact Assessment Guidance available at http://www.epa.ie/pubs/advice/air/emissions/ag5-odourassessment.html

Fugitive Solvent Emissions

Are you are 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) Regulations[9]. 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 11 Summary of Fugitive Solvent Emissions

Quantity of Solvents Used (Kg)	% Fugitive Solvent Emissions	Compliant
69	4.6%	Yes

Comment

Arran assessed fugitive emissions to identify the volume of losses on an annual basis, using a consultant to quantify the fugitive losses. This is reviewed as part of the continuous improvement plans and investments in the site infrastructure. Projects were developed to address these issues and are listed as part of the Environmental Goals in Section 2 Table 1 of this report. These and other projects will continue into 2024 to further reduce fugitive losses.

[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 12 List of Groundwater Pollutants Identified

Pollutants
Ethylbenzene, Toluene, Methyl *tert*-Butyl Ether, Tetrahydrofuran, Xylenes, Dichloropropane.

Add rows as necessary

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

After a 2018 leak was identified from elevated levels of contaminants during routine groundwater monitoring, an intensive remediation plan commenced. This continued through 2019, 2020, 2021, 2022 and 2023 with the removal of the contaminants from the groundwater & soil. Monitoring results indicate that the level of contamination has decreased and that the area of contamination is contained locally at the site, with several monitoring wells indicating contaminants are at limits of detection. Remediation works will continue in 2024 even after extensive investment on containment on site.

Comment

Arran continues to engage specialist groundwater consultants to monitor, assess and advise on the remediation program at the site. Over 38,000m^3 of groundwater was abstracted since 2019 to 2023, during the remediation process. Assessments of the remediation actions indicate that significant progress has been achieved with many contaminants levels below levels of detection both on & off the site. The remaining contaminants are still reducing in 2023 and trends are encouraging. Arran has committed to continuing this project into the future. The Agency have monitored the groundwater annually.

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:**

28 March 2023

2. **Was the noise monitoring carried out at:**
   i. **the boundary of our facility,**
   ii. **noise sensitive locations off-site, or**
   iii. **both?**

At the noise sensitive locations off-site.

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?

Comment

Historical noise monitoring surveys have concluded that noise levels are dominated by local activities outside the Arran facility, mainly road traffic on the R362 & M6.
The faint hum of fans from the direction of Alkermes / Arran is audible but is not tonal and immersed as background sound.

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 13 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 13 Waste Generated

Type	Quantity (Tonnes)	% Increase/ decrease on previous year	% Recovery
Hazardous	4642	+31%	16%
Non-Hazardous	79	-18%	57%
Inert	0	0%	
Total Tonnes	4721	+50%	

Comment

The total waste produced including hazardous and non-hazardous, recycled and disposed by Arran during 2023 shows an increase of 50% when compared to the previous year. The production product type in any given year will impact these figures. Arran continues to improve & develop processes by reducing raw material consumption, reducing waste streams, making waste streams more manageable through segregation, balancing, reusing and recovering solvents. Arran often maximises solvent reuse internally which significantly increases process efficiency and reduces carbon footprint.

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 14 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 14 Waste Accepted

Type	Quantity (Tonnes)	% Increase/ decrease on previous year	% Recovery
Hazardous	0		
Non-Hazardous	0		
Inert	0		
Total Tonnes	0		

Comment

Arran does not accept waste onto the site.

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 facility[10] 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 [ ]

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

2023

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

2021

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 [ ]

[10] See Appendix II

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 http://www.epa.ie/pubs/advice/aerprtr/aerguid/

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.

http://www.epa.ie/pubs/advice/licensee/fp/epaapproachtoenvironmentalliabilitiesandfinancialprovision.html