Annual Environmental Report (AER)

2023

Company Name: Vermilion Exploration & Production Ireland Limited

Licence Number: P0738-03

Address: Unit 4, Údarás na Gaeltachta, Belmullet, Mayo, F26 R2E9, Ireland

Class of Activity[1]: The operation of mineral oil and gas refineries (Class 9.3.1) and the combustion of fuels in installations with a total rated thermal input of 50 MW or more (Class 2.1)

[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.
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	Wastewater from toilet, washroom and canteen facilities.

Storm Water	Rainwater 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, Vincent Lang, Laboratory Team Lead and Environmental Advisor, 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.

The activities at the Bellanaboy Bridge Gas Terminal (BBGT) undertaken in 2023 entailed the continuation of operations in accordance with the IE licence P0738-03. 2023 marked the eight full year of gas production from the Corrib field with production and export to the Gas Networks Ireland national grid. The main engineering works completed in 2023 were associated with the turnaround in July and August as well as construction of the refrigeration plant. A number of licence returns were made to the EPA to meet specific licence conditions.

During the reporting period there were 9 incidents reported: 2 related to minor spills, 3 related to an ELV exceedance, 2 related to malfunction of monitoring equipment and 2 related to a parameter not being tested. During the reporting period there were no complaints recorded. There was no non-compliance recorded in 2023.

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:

Vermilion Exploration and Production Ireland Limited,
4 Údáras na Gaeltachta
Belmullet,
Co. Mayo
F26 R2E9
Ph: (097) 67676 / 1800 201525
www.vermilionenergy.ie
contactus@vermilionenergy.com

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
Maintain ISO 14001 Certification. Recertification was awarded in April 2023 with no non-compliances noted. An audit for 2024 was scheduled (and completed) in Q1 2024	April 2023	Completed
Complete an energy efficiency audit. Install EV car charging points in Belmullet office and at the terminal. 7 in total. Explore opportunities for solar power generation at the terminal facility.	01/06/2023 01/03/2023 31/12/2023	Rescheduled Completed Ongoing
Reduce flaring and venting where possible**.** Venting and flaring discussed on an ongoing basis. There is no non-essential venting and flaring being performed.	November 2023	Completed

(Identify Waste Management Improvements). Review opportunities for waste reduction and waste recycling at the terminal. a) Quarterly toolbox talks to be completed on various waste topics which will include new refrigeration project personnel. Toolbox talks were delivered by Walsh Waste (S Rooney) regarding proper segregation of waste. b) Additional due diligence audits to be completed on waste facilities in 2023 were completed 0n two waste facilities, ENVA in January 2023 and McGrath's in November 2023 Review BBGT waste activities to ensure waste management at BBGT is achieving optimum waste recovery. Activities were reviewed in April. There is less waste being produced due to not having to treat produced water. Other improvements include: • Performance of monthly site walks with Walsh Waste EHS • Introduction of new bunded container in the TCF for storing waste batteries, hoses etc. • Introduction of new signage for IBCs, UN drums, Pallets in TCF	June 2023 Dec 2023 All year Dec 2023	Completed Completed Completed Completed
Review and quantify diffuse VOC emissions. Identify opportunities for the reduction of diffuse VOC emissions. Continue biannual OGI survey.	Sept 2023	Completed
Review options for potential long-term use for produced water. A report has been commissioned and received from a consultant regarding the options for potential long-term use for produced water. The report is currently being reviewed.	December 2023	Completed
Groundwater protection by identification, trending and interpretation of groundwater analysis over the last 5 years (Note: Date changed to be completed in Q2 2023 due to time delay with data manipulation).	December 2023	Completed
(Materials Handlings/Storage/Bunding)**.** Bund testing in accordance with onsite Integrity testing schedule. Integrity testing schedule completed for 2022 with some additional testing required in 2023.	Q1 2023	Completed

Repeated occurrences of environmental equipment failures / incidents. Continue to identify repeated occurrences on an annual basis and ensure root causes are identified to prevent reoccurrence. The only equipment that gave more than 2 incidents were the noise monitors and the root cause was suspected to be the cold weather. Spare parts were ordered.	Dec 2023	Completed
(Biodiversity Action Plan 2021-2026**)** Develop environmental video on biodiversity (not completed due to other PGR commitments). Organise a tree planting day for all staff**.** Tree planting day held on 23rd March 2022. 100 trees planted (birch and oak). Organise tree planting in the Western Fields. Organise walk and learn sessions with staff and external to promote the BAP in September. Implement bird and bat boxes enhancement measures including replacement box works. Walkover of box locations took place in February. Except for the swift boxes, all of the other bird nest boxes and bat boxes were erected by the end of Q2 2023. Organise a children's artwork competition to develop a biodiversity calendar. Artwork competition rolled out in Q4. Publish and distribute the Biodiversit**y** Calendar for 2024.	 Dec 2023 April 2023 Sept 2023 April 2023 Dec 2023	 Not completed in 2023 Completed Organised and scheduled for September but cancelled due to inclement weather. Completed Completed
FIT counts completed at the terminal with all members of laboratory staff and data recorded on the FIT count App.	August 2023	Completed
Mowing regime to be reviewed and aligned to the commitments made as part of the AIPP.	Oct 2023	Completed
Land Management Plan - New forestry contractor contract to be awarded**.**	Oct 2023	Completed
(GHG Emissions) Monitoring of facilities greenhouse gas intensity. Vermilion corporate were to complete a carbon budgeting process for each of the Vermilion business units during 2023, however after discussing	Dec 2023	Completed

with the partners, it was decided not to proceed with carbon offsets.		
Continue to undertake internal audits to demonstrate compliance with the IE licence as per audit schedule for 2023. Complete at least 5 assurance audits in relation to Environmental Management throughout 2023.	Dec 2023	Completed

Add rows as necessary.

Comment

Not applicable.

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 EPAs 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	35341.02	+0.6
Heavy Fuel Oil	0	0
Light Fuel Oil	438.95	+31
Natural Gas	716367.15	-3.72
Coal / Solid Fuel	0	
Peat	0	
Renewable Biomass	0	
Renewable Energy Generated On-site	0	
Total Energy Used	752147.1	-3.47

Comment

Energy consumption is consistent with that of 2022. Reduction in natural gas consumption is due to the extended outage period due to the extended turnaround (TAR) plant shutdown and maintenance work 2023.

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	0	
Total Energy Generated	31678.322	-4.58

Comment

Reduced energy generation in 2023 was due to the extended turnaround (TAR) plant shutdown and maintenance work in 2023.

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 (m^3/year)	% Increase/ decrease on previous year
Groundwater		
Surface Water		
Public Supply	9675.07	9675.07 * 100/ 7769.95 = 1.25%
Recycled Water		
Rainwater		
Total Water Used	9675.07	

Comment

Since there are no surface or groundwater abstraction programmes in place, no surface or groundwater abstractions took place over this period. Municipal supply accounts for the total water use over the period. The total mains water use for the period is shown above. There is no recycling or collection of rainwater onsite. The increase in water used is due to increased plant maintenance, utilities for 100 construction workers for 6 months and construction work. The extended turnaround (TAR) plant shutdown and maintenance work in 2023 also required a significant increase in the use of water in 2023.

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 6 Summary of All Environmental Complaints Received in

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

Comment

[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

There were no complaints received in 2023.

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					
Breach of Ambient ELV					
Breach of Emission Limit	3				
Explosion					
Fire					
Monitoring Equipment Failure	2				
Odour					
Spillage	2				
Breach of trigger Level					
Uncontrolled Release					
Other	2				

Comment

During the reporting period there were 8 incidents reported: The incidents are tabulated below. All recorded Incidents in 2023 were classified as minor, based on potential impact on the environment.

Incident No.	Incident Nature
INCI024577	Spillage (Condensate / methanol from closed drains drum)
INCI024938	Malfunction of online noise monitoring system
INCI025877	Leak of condensate/water mixture from hose connected to the road tanker (fitting not connected correctly).
INCI025777	There has been an exceedance of aluminium at SW2 on July 1st. The concentration obtained was 0.294 mg/l. The emission limit value is 0.2 mg/l. 0.2 x 1.2 = 0.24 mg/l.
INCI025920	It was spotted in August that manganese for SW2 is missing for only Q1 2023
INCI026083	ELV breach at SW2 on 2nd September 2023 for parameter molybdate reactive phosphorus
INCI026587	SW1 17th October 2023, sample had an ELV for total petroleum hydrocarbons
INCI026707	Noise monitors did not record data
INCI026806	A sample SW2 was misplaced

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
- Wastewater
- 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 rainwater 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;**

Settlement Ponds, Drains, Emergency Holding Tank (EHT) and Online Analysers - SW2

Storm water is uncontaminated runoff from the BBGT's non-process areas and roofs but excludes bunded areas. Storm water is collected in the perimeter surface water drains (marked with blue triangles as per condition 3.12.1 IE Licence and is routed via an Emergency Holding Tank (EHT) to the settlement ponds (SW2) through the Main Carrier Drain (MCD). Groundwater comingles with the storm water from the facility at manhole (MH) 27, immediately downstream of the EHT. Storm water discharges to a road drainage ditch on the R314. This drainage ditch leads to the Carrowmore Lake catchment.

The perimeter groundwater drains consist of 2 branches (north / west branch, and the south / east branch) that drain towards the southwest corner of the BBGT, where they converge in MH26 of the groundwater drainage system. Groundwater leaves MH26, comingles with storm water from EHT at MH 27 and passes underground via the MCD to the settlement ponds. The emission point reference for the discharge from the settlement ponds is SW2.

Should there be any contamination detected in the groundwater at Manhole 26, the manual discharge valve will be closed, and the water can be pumped to the open drain's sump for processing through the surface water treatment plant and discharged to SW1. In the event of contamination detected in the storm water system at EHT, the MOV will automatically shut in either system can be independently isolated from discharging into the settlement ponds. Retained water from either system can be

pumped back to the Open Drain Sump for subsequent onsite treatment where required.

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

SW2 - Carrowmore Lake catchment

Table 8 Summary of Storm Water Monitoring

Parameter measured	No. of Samples	% Compliant[7]	Comment
pH	364	100%	Notification No: INCI026806 The sample from June 2nd was misplaced.
Suspended Solids	364	100%	Notification No: INCI026806 The sample from June 2nd was misplaced.
Hydrocarbons (PAH, BTEX, TPH)	52	100%	
Molybdate Reactive Phosphorus	52	98.08%	Notification No: INCI026083. ELV breach 2nd Sept. The result was 1.56 mg/l and the ELV is 1.0 mg/l.
Total Aluminium	362	100%	
Conductivity	52	100%	
Manganese	3	100%	Notification No: INCI025920 It is a requirement of this license to quantify manganese in the water discharged at SW2 at a frequency of once per quarter. This testing was not performed in Q1 2023.
COD	52	100%	
Total Organic Carbon	Continuous	100%	
Total Carbon	Continuous	100%	

Add rows as necessary.

Comment

Sampling and analysis[1] was carried out in compliance with Schedule C.2.3 of IE licence P0738-03 with no ELV exceedances.

[1] There were three non-compliances recorded in 2023.

[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.

Wastewater

Explanation

There are two types of wastewaters that can be produced:

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

Our EPA licence requires us to manage our wastewater 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 wastewater produced from our activities, where it is released and the results of monitoring this year.

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

Treated Produced Water SW3

Water which will be produced from the Corrib Field is referred to as produced water. This water is produced with the gas from first production, and it arrives in the gas stream.

In 2023 the produced water was tankered offsite to authorised wastewater licenced facilities.

Treated Drainage Water (from areas at risk of contamination) SW1.

Rainwater falling on process areas, including bunded areas on site, will be collected in the potentially contaminated drainage system.

Surface water from these areas will be routed to the open drain system and collected in the open drain sump. The water will be treated in the water treatment plant and will be discharged via the permitted outfall located ca. 12.7 km offshore from the landfall location.

The surface water treatment system is a multi-stage treatment system, which includes:

• An Oil Skimmer;

• A Corrugated Plate Interceptor;

• A Multimedia Filter;

• An Ultrafiltration unit; and

• Sludge Treatment.

Sanitary/Wastewater

Sanitary/Wastewater on site includes water-dissolved material and sewage. Wastewater flows into a watertight primary/septic tank. The solids settle and the liquid effluent flows by gravity to a pump/sump chamber through an outlet filter. This water is then transferred to the Oxymem system to treat the water to assist with meeting the discharge criteria. The liquid effluent is pumped intermittently to a Puraflo module where it is dispersed evenly onto the surface of the peat fibre and percolates through the media. Condition 3.20 of the IE Licence requires VEPIL to provide and maintain a wastewater treatment system for the treatment of sanitary waste.

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

Treated Produced Water (SW3) – Was tankered off-site to a licenced facility.

Treated drainage water (SW1) – Discharged via the permitted outfall located ca. 12.7 km offshore from the landfall location.

Sanitary/Wastewater – Discharged to onsite percolation area

Table 9 Summary of Wastewater Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
SW1			
pH/Cond	26	100%	Also monitored continuously
Suspended Solids	47	100%	
COD	47	100%	
Hydrocarbons (PAH, BTEX, TPH)	25	100%	
Sanitary Wastewater			
pH	2	100%	
BOD	2	100%	
Suspended Solids	2	100%	
NH_3-N	2	100%	
Nitrate-N	2	100%	
COD	2	100%	
Phosphorus as PO4-P	2	100%	
Total Phosphorus as P	2	100%	
Calcium Hardness	2	100%	

Add rows as necessary.

Comment

Treated Produced Water (SW3)

No treated produced water was discharged offshore during 2023. All produced water was treated at off-site at licenced wastewater treatment facilities during the 2023 reporting period.

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.

There are two sources of air emissions at the BBGT:

1. Gas Turbines emissions (A2-1 and A2-2)
2. Power Generator emission stacks (A2-4, A2-5 and A2-6)

Note: A2-6 Generator was monitored during Q1 but was neither operation nor monitored for the rest of 2023.

Table 10 Summary of Air Emissions Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
Emission Point A2-1 & A2-2			Continuous Monitoring of Gas Compressors
Nitrogen oxides (NO_x/NO_2)	730 Daily	100%	
Carbon Monoxide (CO)	730 Daily	100%	
Nitrogen oxides (NO_x/NO_2)	8760 Hourly	100%	

Carbon Monoxide (CO)	8760 Hourly	100%	
Volumetric flow	8760		
Emissions Point A2-5, A2-6			Quarterly Monitoring of Power Generators. Results based on quarterly samples.
Nitrogen oxides (NO_x/NO_2)	11	100%	
Carbon Monoxide (CO)	11	100%	
Ammonia (NH_3)	11	100%	
Volumetric flow	11	100%	

Comment

All sampling and analysis were carried out in compliance with Schedule C.1.1 of IE licence P0738-03 with no ELV exceedances.

Table 11 Summary of Odour Assessments Carried Out

Assessment Conducted By	No. of Odour Assessments	% Compliant[8]	Comment
Licence Holder	0	N/A	
EPA	0	N/A	

Add rows where necessary.

Comment

Only official assessments are recorded in Table 10 above. Periodic odour assessments are carried out onsite during any scheduled shutdowns with records maintained onsite.

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

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) 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 12 Summary of Fugitive Solvent Emissions

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

Comment

100-word limit

[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.

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

Not applicable

Comment

There are six groundwater monitoring wells at the BBGT. All sampling and analysis were carried out in compliance with Schedule C.6.1 of IE licence P0738-03. Ammonia is above the GTVs in all wells bar AGW105 which is similar to previous years of sampling. Historically elevated ammonia levels have always existed onsite through natural sources.

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:**

March 21st, 2023
July 21st 2023

2. **Where was the noise monitoring carried out?**
   - i. **the boundary of our facility.**
   - ii. **noise sensitive locations off-site; or**
   - iii. **both.**

Both

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?

150-word limit

Comment

In conclusion to the measurement and assessment of environmental noise as a result of the operation of Bellanaboy Bridge Gas terminal, it was observed during both biannual assessments that the specific noise level from the facility at each noise sensitive location

remains below the day, evening and nighttime noise limits as outlined in IE Licence P0738-03.

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	319.442	113.186% Increase	74.03% Recovered
Non-Hazardous	19,667.46	11.43% Increase	99.69% Recovered
Inert	0	0	0
Total Tonnes	**19,986.902**		

Comment

The increase in hazardous waste was due to the washing the internal area of part of the gas plant known as the heating medium system. Washings from the heating medium system during the plant turn around (TAR) generated liquid waste. There were 5 tanker loads of these washings transported to Enva in Dublin and this constituted 146.72 tonne of waste.

The increase in non-hazardous waste was from the soil and stone removed for construction of the new refrigeration part of the plant. In June, there was also some stones removed from the storm water settlement ponds.

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

Not applicable as there was no waste accepted onsite 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 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?

2015 (Annual reviews carried out)

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

2021 (Submitted)

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 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.

MANAGEMENT OF WEEDS AT THE GAS PLANT

Some areas of the gas plant have been subject to weed growth affecting the operations and Vermilion E&P Ireland Limited initially considered the use of glyphosate as control measure. Glyphosate is a regulated active substance under Regulation EC No 1107/2009 and approved for use in the Republic of Ireland until 15/12/20331. It is a non-selective, systemic organophosphate herbicide effective in controlling most weed species including perennials and grasses. However, this substance has been classified as “probably carcinogenic to humans” by the International Agency for Research on Cancer (IARC) in 2015 and the European Chemical Agency (ECHA)'s Committee for Risk Assessment (RAC) agreed that the current harmonised classification of glyphosate includes hazards such as causing serious eye damage and being toxic to aquatic life. Finally, the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER) - Scientific Opinion on "Draft Environmental Quality Standards for Priority Substances under the Water Framework Directive" – Glyphosate2 does “not endorse the suggested Environmental Quality Standard (EQS) of 0.125 µg.L-1 but instead supports an EQS of 0.1 µg.L-1, based on the human health quality standard for drinking water of 0.1 µg.L-1 for pesticides in drinking water. SCHEER suggests restricting this EQS to surface waters. In order to avoid using glyphosate, Vermilion E&P Ireland Limited have hired contractors to hand pick much of the weeds in 2021 and 2022. This is an onerous task. These concerns were discussed during a meeting held on 29th November 2023 between JBA and Vermilion E&P Ireland Limited staff. It was agreed JBA would provide a proposal to undertake a study to be completed by end of March 2024 and which would include a review and an assessment of alternative solutions for the management of vegetation at the establishment. The proposed works consist of a review of best practices, a site visit by a qualified JBA ecologist from our Limerick office and a report on potential options available for vegetation management which avoids or limits the use of glyphosate.

INCREASED LABORATORY CAPABILITY

In order to help monitor metals of environmental interest, VEPIL invested in a high resolution inductively coupled plasma optical emission spectrometer with microwave digestion.

REVIEW OF VALUE OF TREATED PRODUCED WATER AS A PRODUCT FOR OTHER INDUSTRIES.

In February 2023, Jennings O'Donovan & Partners Limited (JOD) were engaged by Vermilion Exploration & Production Ireland Limited, to provide consultancy services to facilitate Vermilion in development of a long-term management strategy for produced water. The circular-economy approach seeks to recover and reuse the resources used in the economy as much as possible, to reduce pressure on fresh sources, protect the environment and improve long-term sustainability. The conclusion was that without desalination most potential reuses are not available, but the into 2024, Vermilion Exploration & Production Ireland Limited continue to explore uses for the produced water other than disposal.