



Neptune E&P UK Ltd

# Public Environmental Annual Statement 2017



Our culture: Neptune Energy's culture is centred around HSE, entrepreneurship, efficiency and value, attracting top E&P industry talent and creating an environment where our employees can flourish.

HSE is valued above all else and we are strongly committed to achieving best-in-class HSE standards, ensuring continued safe, reliable operations across all the whole organisation. The environment is a key consideration and Neptune Energy is committed to environmentally responsible operations, energy efficiency and transition to a low carbon future.

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## Country Director's address

Neptune Energy's goal is to conduct our business activities with no harm to people, no damage to the environment and no accident, today and in the future.



**Neptune E&P UK Ltd is committed to responsible and sustainable exploration and production operations in the UK North Sea and is part of the wider Neptune Energy company. Our main activities are focused on our flagship asset, Cygnus, which is located 150 kilometres off the coast of Lincolnshire. Cygnus is the largest gas basin discovery in the Southern North Sea for over 30 years and at plateau contributes 6% of UK gas production; enough gas to heat the equivalent of 1.5million homes.**

At Neptune Energy we ensure we are minimising our impact on the environment through pollution prevention, reduction of natural resource consumption and emissions, and the reduction and recycling of waste.

Neptune Energy complies with environmental regulations in force both internationally and in the individual regions in which it operates, and structures itself in such a way that it can anticipate changes in them. In some cases, it applies its own standards which are more stringent. The company is committed to ongoing improvements to achieve best practice on all environmental issues.

In 2017 the company witnessed a major milestone in the Cygnus development, as first gas from Bravo was exported 7km SE to Cygnus Alpha. Neptune E&P UK Ltd are pleased to announce that first gas from Cygnus Bravo was delivered safely and in a timely manner and signifies the completion of the Cygnus development works. In addition, a second major accomplishment in 2017 was the debottlenecking of the Cygnus facility to enable it produce at an even greater rate of 300 million cubic feet per day following successful modification to the platforms. This number is expected to increase further to 320 million cubic feet per day following planned modifications at the Bacton Gas Terminal later in 2018.

The data for 2017 is enclosed in this statement for your information. Neptune Energy will continue to be transparent with performance reporting and work together with our UK industry partners to take care of the environment and minimise our impact.

**Ian Conacher**  
*Country Director*  
Neptune E&P UK Ltd

# Introduction to Neptune E&P UK Ltd and the annual statement

Neptune E&P UK Ltd is an independent oil and gas exploration and production company with a regional focus on the North Sea.

## About Neptune E&P UK Ltd

Neptune Energy is an independent oil and gas exploration and production company with a regional focus on the North Sea, North Africa and South-East Asia. The company's aim is to build an E&P company with material scale, operating capability and options for ultimate value realisation.

Neptune E&P UK Ltd (part of the wider Neptune Energy) is the operator of the Cygnus development, one of the most significant gas fields in the Southern North Sea. Located 150 kilometres off the coast of Lincolnshire, Cygnus has gross 2P (proved and probable) reserves of approximately 18 billion cubic metres and supplies gas to the equivalent of 1.5 million UK homes.

The purpose of this annual statement is to provide the public and other stakeholders with an overview of Neptune E&P UK Ltd activities during 2017, how environmental issues are being managed and the environmental performance for 2017.

## The statement aims to:

- Present an overview of Neptune E&P UK Ltd assets and activities
- Put this into context of the operating environment
- Detail how Neptune E&P UK Ltd manages the issues associated with the operating environment
- Summarise environmental performance.

Cygnus supplies gas to the equivalent of 1.5 million UK homes.



# Overview of offshore operated activities in 2017

## UK North Sea

### Production

Our production operations are, like the rest of our business, driven by a commitment to quality - above all to health, safety and the environment - but also to performance, expertise and technology. In 2017, for the majority of the year we had two operated fields in production.

Juliet is a gas field located in block 47/14b of the Southern North Sea. We successfully drilled the Juliet exploration well at the end of 2008/early 2009. With our then licence partners First Oil Expro and Hansa Hydrocarbons we drilled two horizontal subsea production wells in 2013, and gas is now exported through a pipeline to the Pickerill A Platform, 22 kilometres to the east. From there, existing infrastructure is transporting the gas to the Theddlethorpe terminal.

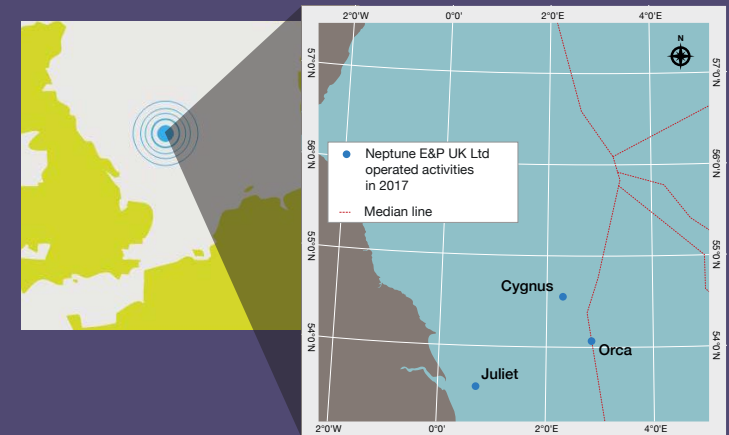
The Orca gas field consists of the D18a-A, a normally unmanned production platform located in Dutch waters, 500 metres from the UK sector and in approximately 45 metres water depth. Neptune E&P Nederland B.V. is the operator and duty holder and Neptune E&P UK Ltd is operator of the UK licences.

During December 2016, Cygnus Alpha began producing and in August 2017 Cygnus Bravo produced its first gas. Cygnus is a gas field located in blocks 44/11a and 44/12a of the Southern North Sea. At its peak, Cygnus contributes 6% to UK gas production.

During August 2017, the Cygnus Bravo platform produced its first gas. This is a major milestone for the Cygnus facility and Neptune Energy as a whole, and signified the completion of the Cygnus development. It did not come without its small environmental challenges (see the Oil in Water challenges page further in the document) but was achieved successfully and in a timely manner.

In addition to the successful and safe first gas delivery at Bravo, the Cygnus team carried out a debottlenecking scope of works on the Cygnus facilities which increased the maximum rate of production to 300 million cubic feet per day. Following planned works in Bacton Gas Terminal in 2018, the Cygnus facility will begin to produce at 320 million cubic feet per day.

The Compression Module brownfield modification/project was also started and aims to successfully commission the compressor turbines in early 2019. This will help to ensure the best rate of production from the Cygnus field.



Subsurface data analysis, combined with innovative geological thinking and leading-edge geophysics, allows us to develop the Cygnus field, the largest gas field discovery in the Southern North Sea for 30 years.

# Operating environment

Our operating environment is more than the physical environment we work in. It also includes political, regulatory and economic landscapes, as well as the interests of our stakeholders. All of these factors influence our management of environmental issues.

## Discovering gas and oil and delivering it to the UK's energy network has a range of drivers:

- Shareholders expecting returns on their investment
- Meeting the UK's energy needs and ensuring security of supply
- Regulators expecting compliance
- Environmental stakeholders expecting no pollution

Our business is founded on core ethical principles: respect for others, a culture of integrity, and a code of behaviour which emphasises fairness, honesty, and compliance with legislation and regulations. The North Sea is bordered by eight countries, 100 million people live around its coastline, and it is home to internationally important communities of plants and animals. It is our responsibility to ensure we minimise the impact of our activities on the environment.

## Environmental issues associated with our activities include:

- Climate change and air quality
- Water and sediment quality
- Waste disposal
- Spills
- Physical presence
- Disturbance
- Habitats and species conservation
- Decommissioning
- Liability Management



## Environmentally sensitive area

The Cygnus field lies within the boundaries of both the Dogger Bank Special Area of Conservation (SAC) and the Southern North Sea cSAC. The Dogger Bank is a unique, dynamic sandbank of the North Sea and its designation as a SAC means that any development within its boundaries has to ensure that project activities will not affect the structure or integrity of the bank.

The Dogger Bank is the UK's largest example of a sandbank listed in Annex I of the Habitats Directive ('Sandbanks which are slightly covered by sea water all the time').

### Interesting features for the site under the EU Habitats directive include:

- Sandbanks which are slightly covered by sea water all the time
- Harbour porpoise (*Phocoena phocoena*) (non-qualifying)
- Grey seal (*Halichoerus grypus*) (non-qualifying)
- Common seal (*Phoca vitulina*) (non-qualifying)

During January 2017, the Southern North Sea site was submitted to the European Commission and became a cSAC primarily due to the significant numbers of harbour porpoise (*Phocoena phocoena*) residing in the area (approximately 17.5% of the North Sea Management Unit population. It is the largest cSAC in UK and European waters at the time of writing and covers a 36,951km<sup>2</sup> area.

Anthropogenic disturbance including fishing and oil and gas activities have the potential to impact the protected features within the Dogger Bank SAC and any significant underwater noise (e.g. large-scale piling and explosives use) has the potential to significantly impact the harbour porpoise within the Southern North Sea cSAC. The impacts that the Cygnus development would have are similar to those of previous oil and gas developments in the area and have been assessed in the Cygnus environmental statement and recent applications and deemed to be minor.

**Note:** Non-qualifying species are species that are protected under UK legislation but not protected under the Habitats Directive.

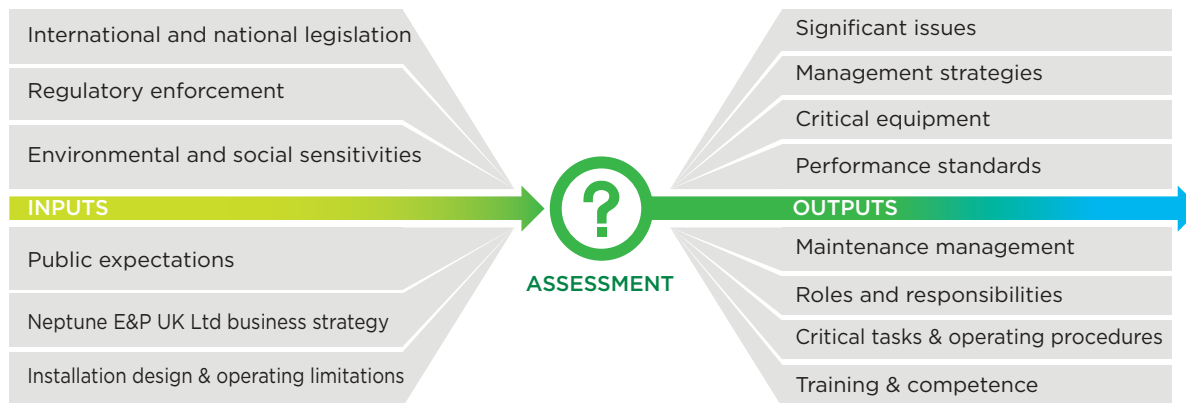
# Management of issues

As noted in the previous section, our exploration and production activities have an effect on the environment. We assess and minimise impact on the environment both offshore and on land through an Integrated Management System (IMS) certified against ISO14001 and underpinned by the same commitment to quality that we bring to all areas of our performance.

Neptune E&P UK Ltd has developed an effective approach for the management of environmental issues. The company is developing Environmental Cases (E-cases) for our offshore operations and onshore assets.

The E-cases are central to the Environmental Management System (EMS) and are designed to bridge the gap between operational objectives and stakeholder expectations. They provide an audit trail between high level objectives and individual tasks and responsibilities as depicted in the figure below.

## Embedding environmental risk management into our operations



We believe that all incidents are preventable



### OUR BELIEFS

**HEALTH, SAFETY & ENVIRONMENT**  
Excellence in HSE is demanded and integral to everything we do.

**INDIVIDUAL ACCOUNTABILITY**  
Take responsibility for actions and results, personally commit to the success of Neptune Energy.

**INTEGRITY**  
Commitment to ethical operations and respect to all individuals across all organisations.

**TEAMWORK**  
Only together can we grow, only in partnership can we succeed.

Please visit [connect](#) and [www.neptuneenergy.com](http://www.neptuneenergy.com) for more information on our beliefs, vision and strategy.

# Management of issues continued

Due to the specific way we have gone about this, these E-cases offer a structured approach to better alignment in the management of environmental issues.

They also offer a path towards unlocking the benefits of goal setting regulation and away from prescriptive regulation.

Our side-by-side assessments provide an interpretation of different environmental expectations in society. It looks to science for an objective assessment of impacts while being conscious of its limitations. On the more subjective side it looks at the expectations of stakeholders while considering their motivation and influence. Finally, it reviews legislation and company standards.

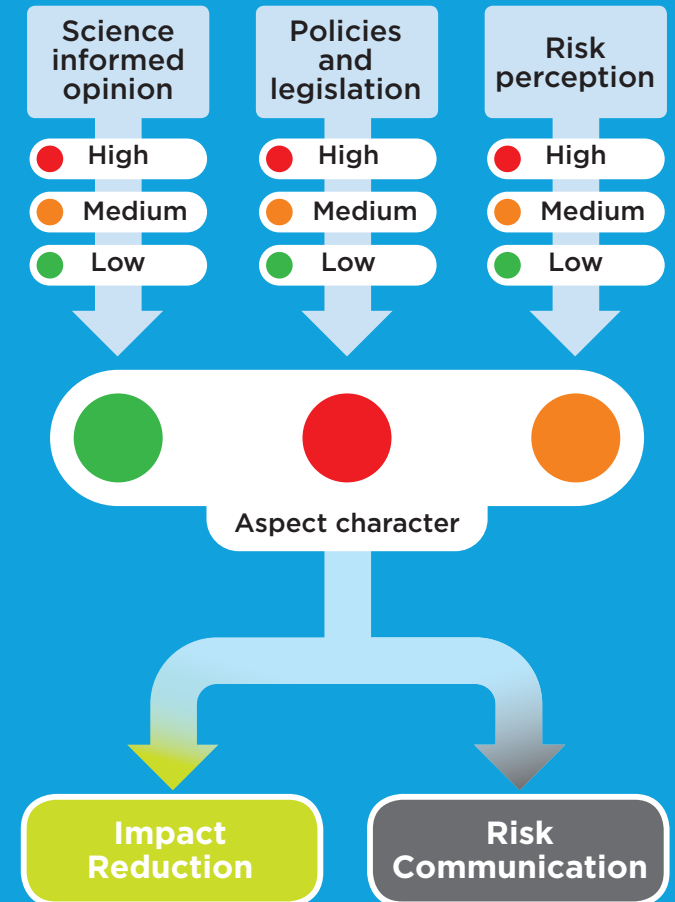
The aspect characters (Science informed opinion, Policies and Legislation, Risk perception- as seen in the flow diagram to the right) reveal differences of opinion and a starting point for dialogue.

We distinguish two main response strategies: impact reduction and risk communication.

- **Impact** reduction is reducing the physical environmental impact by, for instance reducing the use of resources, by reducing emissions or discharges or by reducing noise emissions.
- **Risk** communication is increasing the acceptance of the risk by better explaining the acceptability of the risk, by challenging the motives of stakeholders or by sharing control with stakeholders.

The approach creates buy-in, and the formulation of realistic management strategies instead of promises that can't be kept. The number of solutions leading to a constructive outcome increases, and a different management system arises. One that is built from the bottom up and can respond to real time changes. Issues become clearer and their management more focused. Confidence in meeting regulatory requirements and expectations increases. Time and resources are freed up. It changes the approach from a "tell me what to do" regime to a "this is how we do it" regime.

## Environmental aspect characterisation and resultant management strategies





# 2017 Environmental headlines

Cygnus project development

## Cygnus

The Cygnus field is the largest discovery in the Southern North Sea in 30 years and the sixth largest field by remaining gas reserves. It is a natural gas field comprising both Leman and Carboniferous reservoirs.

Neptune E&P UK Ltd is Operator (38.75%) with partner Spirit Energy (61.25%).

### Quick facts:

- Discovered 1988
- Project sanctioned in August 2012
- First Gas (Alpha) December 2016
- First Gas (Bravo) August 2017
- Licence(s) P1055 and P1731
- 7 (of 10) initial production wells drilled
- Currently producing 300 mmscf/d
- Ownership
  - Neptune E&P UK Ltd (operator) - 38.75%
  - Spirit Energy - 61.25%



**300 million**  
**ft<sup>3</sup> per day**

Maximum gas output



**18 billion m<sup>3</sup>**

Gross reserves



**38.75%**

Neptune E&P UK Ltd share,  
with partner Spirit Energy (61.25%).

# 2017 Environmental headlines continued

## Cygnus project development

Neptune E&P UK Ltd is the operator of the Cygnus field, one of the largest undeveloped gas fields in the Southern North Sea prior to Cygnus first gas. The Cygnus project, sanctioned in August 2012, contributes 6% of the overall UK gas production at its peak - supplying gas to the equivalent of 1.5 million homes in Britain.

The Cygnus offshore installation campaign began with the installation of Cygnus Alpha in 2014 and was completed in the summer of 2015 after the safe and successful installation of all four jackets and topsides. The detailed design of the Cygnus field incorporated the principles of Best Available Techniques (BAT) and Best Environmental Practice (BEP) which were implemented during installation and commissioning and will influence day to day operations. Commissioning of the Cygnus Alpha platforms was eventually completed and began producing in December 2016

The central Alpha complex consists of three bridge linked platforms: a wellhead drilling centre; a processing and utilities unit; and a living quarters with the central control room.

The Cygnus Bravo location is positioned approximately 7km North West of Alpha and is a normally unmanned satellite wellhead platform. The Cygnus Bravo platform is essential to supplement the gas flow from Alpha and maintain production at maximum levels.

The final phases of Cygnus Bravo installation and commissioning were completed in August 2017 where first gas was subsequently flowed. This was a major milestone in the Cygnus development and signified the completion of installation and commissioning phases. The gas produced at Cygnus Bravo flows approximately 7km southeast, to Cygnus Alpha where further separation and processing takes place. It eventually comingles with gas produced from Alpha and travels via a 55km long export line to the Esmond Transportation System and then onto Bacton Gas Terminal.

A separate scope of works, the debottlenecking scope was also carried out in 2017. During a planned shutdown in September 2017, modifications were carried out to enable Cygnus to produce at an increased maximum rate. The previous maximum rate of production was increased from 280 million standard cubic feet per day to 300 million standard cubic feet per day. As with the Cygnus Bravo first gas delivery, the modifications were delivered successfully, safely and in a timely manner. It is expected that when further modifications at Bacton Gas Terminal are carried out, Cygnus will be able to produce at 320 million standard cubic feet per day.





Cygnus has been designed and built using the principles of Best Available Techniques (BAT) and Best Environmental Practice (BEP).

# Environmental objectives

## 2017 Objectives

### Cygnus Project Development

- 1. Zero oil and chemical spills (PON1 reportable events) or lost objects (PON2 reportable events).**  
**Indicator:** Number of PON1 or PON2 notifications submitted to BEIS.  
**Performance:** Fourteen (14) off PON1 in 2017. All PON1's were less than 2 tonnes in size. No PON2.

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- 2. Managing waste effectively.**  
**Indicator:** Number of non-conformances for waste incorrectly consigned from offshore.  
**Performance:** Two off Waste Non-conformance Reports received from waste contractor.

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- 3. Carry out and complete Environmental Assurance Review of Cygnus Alpha**  
**Indicator:** 100% completeness of Cygnus Alpha Assurance  
**Performance.** No non-conformities from internal and external environmental compliance perspective.
  - Audit of Cygnus Alpha was conducted 17th to 23rd January by the Environmental Advisor on Cygnus Alpha. No non-conformities.
  - Audit of Cygnus Bravo was conducted 12th and 13th July by the Environmental Advisor on Cygnus Alpha. No non-conformities.

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- 4. Raise awareness of Neptune E&P UK Ltd environmental responsibilities (waste, emissions and discharges, water, energy) with core crew of Cygnus development.**  
**Indicator:** Issue all environmental briefing packs to 100% of the Cygnus core crew.  
**Performance:** Briefing packs were issued to Cygnus Core crew during the first six months of the year. In 2018, it is planned to adopt a new software based e-learning approach to ensure 100% attendance, once the briefing packs are re-issued.

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- 5. Maintain compliance with ISO 14001 and manage transition to new ISO 14001: 2015 standard.**  
**Indicator:** Re-review gap analysis and fully implement transition plan to the new standard. Successful periodic audits by certified authority.  
**Performance:** Review completed in July 2017 and report issued in October 2017. Transition to the new standard approved in March 2018 (DNV GL).

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- 6. Develop Methane Emissions Management Plan for Cygnus as part of the Climate and Clean Air Coalition (CCAC).**  
**Indicator:** Delivery of Methane Emissions Management Plan and submission of annual report to CCAC.  
**Performance:** Physical monitoring conducted, the results of which will be used as the basis for the Management Plan. The Management Plan and submission of the annual report have been deferred to 2018.

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- 7. Continue the improvement of environmental data retrieval and reporting along with improving integration into corporate performance dashboard.**  
**Indicator:** Implement full automation of environmental data entry from Cygnus offshore into the environmental database (NEMS software) and therefore automatic data entry into the performance dashboards.  
**Performance:** Automated input has been implemented from PI and Production Reporting database. Opralog automatic input for oil in water sampling has been completed.

# Environmental objectives continued

## 2018 Objectives

### Environmental Management Key Focus Areas for 2018

- 1. Comply with ISO 14001 Environmental Management System Standard.**
  - Implement actions from the gap analysis between the previous and new (2015) ISO 14001 standard.
  - Manage the transition to the new ISO 14001 standard.
  - Manage the extension of the scope of the current certificate to include Cygnus Production Operations.

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- 2. Maintain HSE Regulatory Compliance**
  - Establish COMPASS Lite as a principal regulatory compliance assurance tool
  - Agree and implement solution regarding the ongoing Oil in Produced Water non-compliances.
  - Ensure environmental drilling and decommissioning permits are prepared and maintained.

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- 3. Environmental Performance Reporting**
  - Development and implementation of One Company environmental dashboard for performance monitoring against established environmental performance indicators, agreed with Neptune E&P UK Ltd.

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- 4. Waste Management**
  - Identify and implement improvements to waste management and segregation in the Aberdeen Office.



# Environmental performance

This section outlines Neptune E&P UK Ltd environmental performance for 2017, see appendix B for historical environmental data.

## Atmospheric emissions

Atmospheric emissions in the North Sea are controlled by international, European and UK regulations. Atmospheric releases include; Carbon dioxide (CO<sub>2</sub>) (the most commonly emitted greenhouse gas (GHG) during operations), Carbon monoxide (CO), Methane (CH<sub>4</sub>), the Oxides of Nitrogen (NOX) and Sulphur (SOX). Low quantities of Nitrogen dioxide (NO<sub>2</sub>) may also be released.

During 2017, the following essential activity conducted by Neptune E&P UK Ltd, during drilling and production operations resulted in the release of atmospheric emissions:

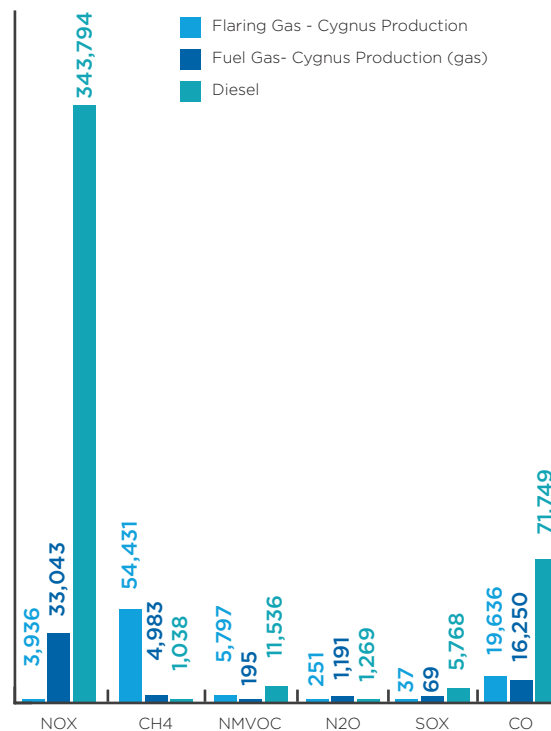
- The combustion of diesel fuel in generators to provide power
- The combustion of fuel gas in generators to provide power
- Flaring of hydrocarbons during production operations

A comparison of 2015-2017 diesel data is available in the Overall Diesel Use graph.

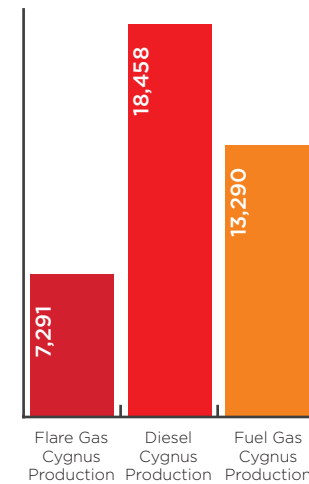
Overall fuel usage for Cygnus during 2017 has been summarised in the respective graph. Additionally, the CO<sub>2</sub> emissions emitted during Neptune E&P UK Ltd operations within the North Sea during 2017 are illustrated in the CO<sub>2</sub> atmospheric emissions graph. All other atmospheric emissions emitted during these operations in 2017 are illustrated in the Non CO<sub>2</sub> graph.

All atmospheric emissions are calculated in an effort to identify the greatest sources of emissions and to aid in their reduction where possible.

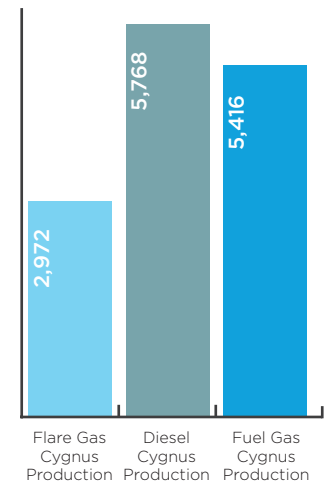
Non-CO<sub>2</sub> Emissions Summary (kg)



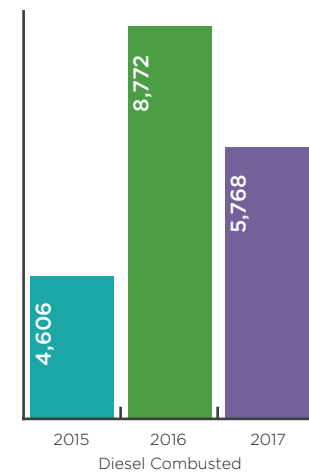
CO<sub>2</sub> Emissions from Fuel Gas and Flare Gas Use 2017 (tonnes)



Fuel and Flare Gas Use 2017 (tonnes)



Overall Diesel Use (tonnes) 2015 > 2017



Note: All emissions figures presented do not include combustion data relating to logistics.

# Environmental performance continued

## Chemical Consumption

### Use and discharge associated with drilling and project operations.

The use of chemicals in the offshore industry is an essential part of any drilling activity and the subsequent processes involved in the production of hydrocarbons from an installation, including drilling mud chemicals, corrosion inhibitors, scale inhibitors, biocides, demulsifiers, antifoams and detergents.

Because of the hazards associated with the use of chemicals offshore to the marine environment, any activity within the North Sea is controlled and regulated using the OSPAR requirements.

These requirements, implemented in the UK through the Offshore Chemicals Regulations 2002, require operators such as Neptune E&P UK Ltd to obtain a chemical permit from the Department of Business, Energy and Industrial Strategy (BEIS) in the application and discharge of any chemical used offshore.

As stated in these regulations, Neptune E&P UK Ltd may only use chemicals which have been registered by the Centre for Environment, Fisheries & Aquaculture Science (Cefas) and continues to work to manage the risks posed to the environment from chemical use.

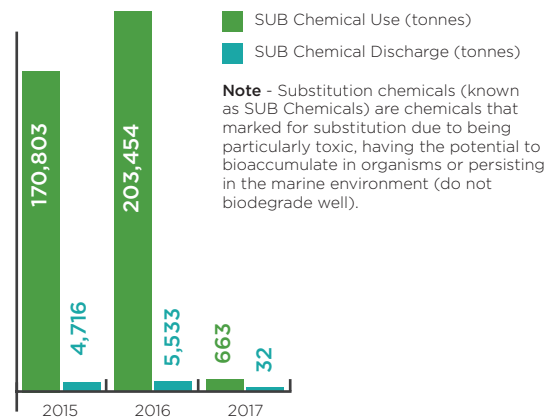
This has been achieved by actively aiming to use chemicals which are considered to pose little or no risk to the environment (PLONOR) where technically possible and limiting the amount of discharge to the marine environment.

- The graph outlines the quantities of chemical consumption used in North Sea operations in 2017

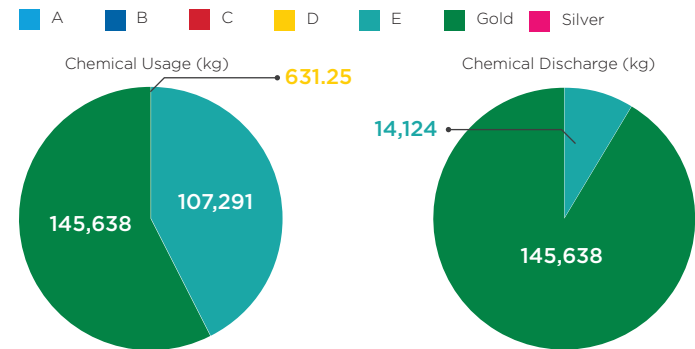
and is ranked using the Cefas ranking A (the most toxic OCNS category) to E (the least toxic OCNS category) and HQ colour banding (Gold, Silver, White, Blue, Orange and Purple) approach. Rank E and HQ Gold represent the least risk in their respective categories

- The total chemical used and discharged during 2017 includes the chemicals utilised during drilling and project operations
- All operations were carried out in compliance with their respective chemical permits (whether subsea, platform or drilling related)
- Any chemicals which have been identified for substitution by the OSPAR Commission are required to be phased out by 2016. Neptune E&P UK Ltd are working in conjunction with these requirements to identify the best possible replacements.

### SUB Chemical usage & discharge during drilling & project operations (kg) 2015 | 2016 | 2017 SUB Use

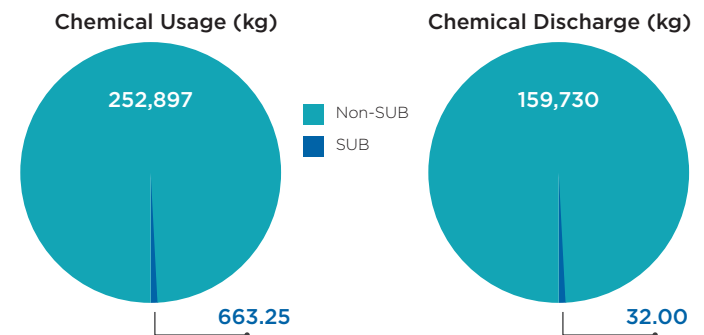


### Total chemical usage & discharge during drilling & project operations (tonnes)



Note - no OCNS category A,B or C products were used/discharged during 2017.

### Chemical usage & discharge during drilling & project operations (tonnes) - SUB vs Non-SUB



# Environmental performance continued

## Operational waste management

Many aspects of offshore activities in the oil and gas industry generate operational waste and can provide a significant environmental challenge to operators in its safe disposal. As per statutory regulations, any produced waste must be categorised and should be managed accordingly using a waste management system.

This system ensures all waste is monitored and any hazardous operational waste produced is stored on the installation and shipped ashore for safe disposal. The graphs show the operational waste produced in tonnes during drilling operations in 2015, 2016 and 2017.

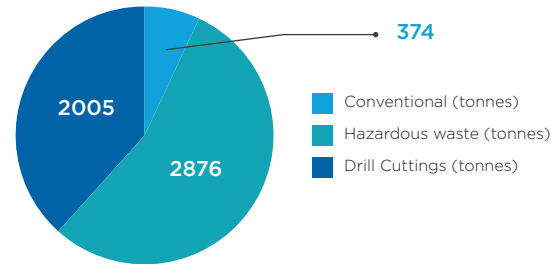
These have been segregated into three streams:

**Conventional waste** - composed typically of accommodation waste, kitchen waste, paper, wood, redundant packaging and other non-hazardous waste

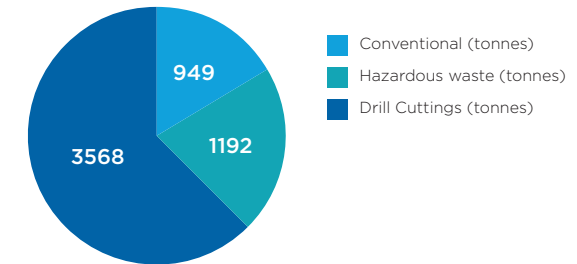
**Hazardous waste** - oil contaminated waste, sludges/liquids/tank washes, oily rags, paint, batteries, fluorescent tubes, used chemicals and electrical equipment

**Drill cuttings** - Due to no drilling activity during 2017, drill cuttings amounts are 0 tonnes.

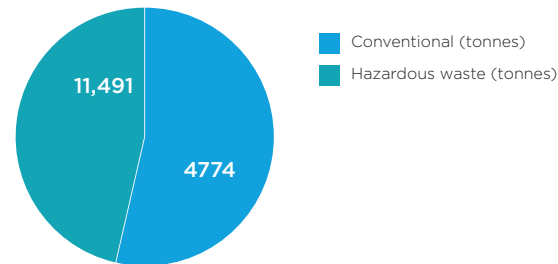
Waste produced in 2015 from drilling operations (tonnes)



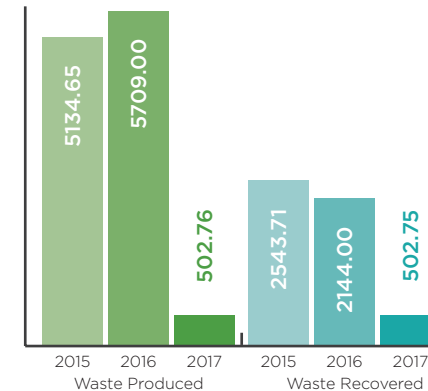
Waste produced in 2016 from drilling operations (tonnes)



Waste produced in 2017 from drilling operations (tonnes)



Waste produced and recovered in (tonnes)





# Environmental challenges

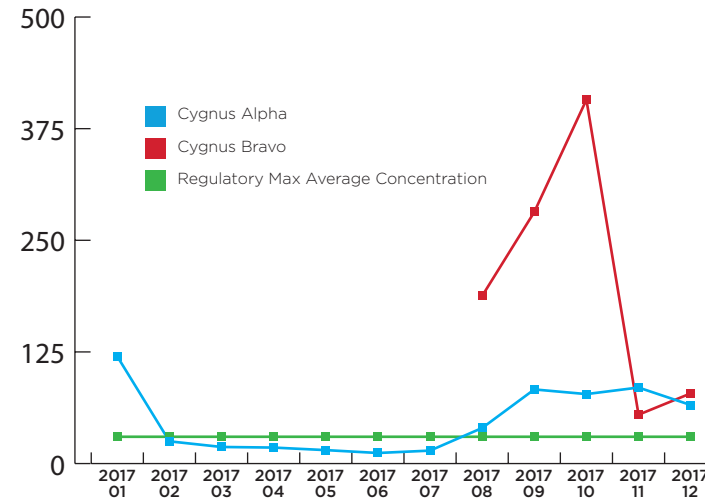
## Oil in Water

Upon startup of the Cygnus Bravo facility, it immediately became apparent that the the oil in produced water levels at both Cygnus Alpha and Bravo were outwith the regulator stipulated limits of 30mg/l. The regulator was notified and the operations team here at Neptune E&P UK Ltd immediately began investigating.

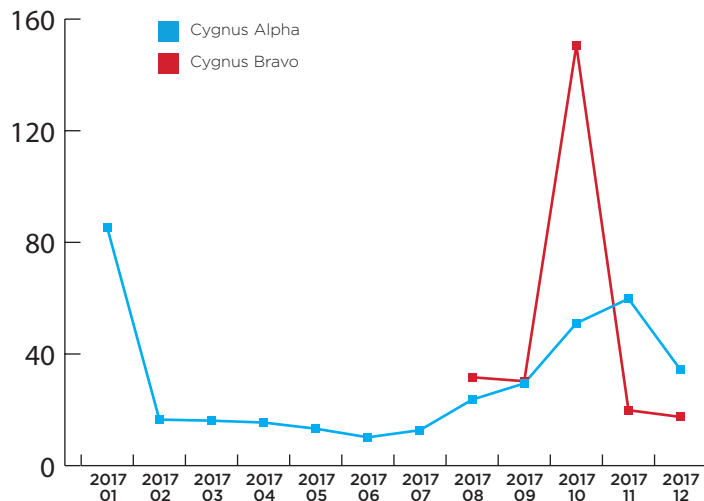
Almost immediately in the investigation, the data suggested that when the Cygnus Alpha train was online without Cygnus Bravo, the oil in water concentration was within regulatory imposed limits. However, once Bravo began producing, not only was the Cygnus Bravo produced water stream out of specification (above the 30mg/l limit) but it was impacting Cygnus Alpha's concentration also. As a result, a thorough review of the separation facilities and inhibition systems was carried out over the remainder of the year and carried on in 2018.

The graph displays the oil in water concentrations throughout the year and demonstrates the relationship between the Cygnus Alpha and Cygnus Bravo oil in water concentrations.

Oil In Water Average Monthly Concentrations (mg/l)



Amount of Hydrocarbon Discharged in Produced Water (kg)



Despite the apparently high oil in water concentrations, the overall discharge of produced water and oil in water was actually very small. The graph to the left displays the actual mass of oil discharged to the environment in kg. Overall, the amount of oil discharged from Cygnus Alpha and Bravo combined during 2017 was 0.58 tonnes. This is equal to less than 0.03% of the 2000 tonnes of oil in produced water discharged across the North Sea in 2017.

Whilst the overall discharge is low, Neptune E&P UK Ltd recognises that we will continue to be non-compliant with the legislative requirements if we cannot reduce our oil in water levels. Neptune E&P UK Ltd are fully committed to ensuring compliance with the local legislative and regulatory expectation and as such, multiple options of improving our oil in water concentration were reviewed- these included physical modifications/ additions to the platform and this investigation continued into 2018. All investigation findings were passed onto the regulator and regular updates were provided.

Upon reviewing the options available to us, Neptune E&P UK Ltd are confident that this issue can be addressed in 2018 and have already committed to an installation of new filtration system which will assist in removing any residual oil droplets prior to the discharge of the produced water. This is due to be completed in 2018.

Neptune E&P UK Ltd

# Appendices

- 17 Appendix A: Neptune E&P UK Ltd HSE Policy
- 18 Appendix B: Environmental data



# Appendix A: Neptune E&P UK Ltd HSE policy

Our Goal is to conduct our business activities with no harm to people, no damage to the environment and no accidents, today and in the future.

Together, we will:

- **Take care of our people** (including contractors and stakeholders) in all work related activities through risk identification, assessment and management.
- **Integrate HSE** in decision making and in the management and execution of all activities.
- Ensure that **safety takes precedence over production**, cost and schedule.
- **Achieve the highest level of HSE** performance by demonstrating professional conduct and compliance to all applicable laws and regulations.
- **Facilitate a no blame culture** that encourages our people to share experiences and insights in order **to learn from incidents and near incidents**.
- **Intervene when unsafe situations occur**.
- **Prevent major accidents** by suitable and effective implementation of our Global Operational Integrity Management Standard (GOIMS) and our HSE Management System.
- **Minimize our impact** on the environment through pollution prevention, reduction of natural resource consumption and emissions, and the reduction and recycling of waste.
- **Communicate openly** with our stakeholders and ensure an understanding of our HSE Policy, our standards and performance.
- **Continuously improve our HSE performances** by monitoring the suitability and effectiveness of our management standards and systems, and learning from industry best practice.

We believe that incidents are preventable in all our activities and we require the relentless collaborative effort of professional and responsible individuals to drive this ambition.



## HEALTH, SAFETY AND ENVIRONMENT POLICY

Our Goal is to conduct our business activities with no harm to people, no damage to the environment and no accidents, today and in the future.

Neptune Energy requires the active commitment to, and accountability for, HSE from all our people, employees and contractors alike.

We believe that incidents are preventable in all our activities and we require the relentless collaborative effort of professional and responsible individuals to drive this ambition.

All personnel working on behalf of Neptune Energy shall comply with this policy and be proactive in the pursuit of our zero accident goal.

Together, we will:

1. **Take care of our people** (including contractors and stakeholders) in all work related activities through risk identification, assessment and management.
2. **Integrate HSE** in decision making and in the management and execution of all activities.
3. Ensure that **safety takes precedence over production**, cost and schedule.
4. **Achieve the highest level of HSE** performance by demonstrating professional conduct and compliance to all applicable laws and regulations.
5. **Facilitate a no blame culture** that encourages our people to share experiences and insights in order to learn from incidents and near incidents.
6. **Intervene when unsafe situations occur**.
7. **Prevent major accidents** by suitable and effective implementation of Global Operating Integrity Management Standard (GOIMS) and HSE management systems.
8. **Minimise our impact** on the environment through pollution prevention, reduction of natural resource consumption and emissions, and the reduction and recycling of waste.
9. **Communicate openly** with our stakeholders and ensure an understanding of our HSE Policy, our standards and performance.
10. **Continuously improve our HSE performances** by monitoring the suitability and effectiveness of our management standards and systems, and learning from industry best practice.

James L. House,  
Chief Executive Officer  
Neptune Energy

**NEPTUNE**  
ENERGY

Appendix B:  
Environmental  
performance  
indicators  
2011 - 2017

| Indicators                      | Unit    | 2017              | 2016             | 2015             | 2014               | 2013             | 2012            | 2011        |
|---------------------------------|---------|-------------------|------------------|------------------|--------------------|------------------|-----------------|-------------|
| <b>Operated Gas Production</b>  |         |                   |                  |                  |                    |                  |                 |             |
| Producing Assets No.            | No.     | 3                 | 3                | 2                | 2                  | 2                | 1               | 1           |
| Production Quantities           | MWh     | 9,184,938.88      | 1,513,638.59     | 1,999,209        | 4,997,980          | 9,875            | 0               | 0           |
| <b>Energy Consumption*</b>      |         |                   |                  |                  |                    |                  |                 |             |
| Diesel                          | MWh     | 6176.14           | 124,698.86       | 64,935           | 72,893             | 59,475           | 29,415          | 19,074      |
| Natural gas                     | MWh     | 65,583.33         | 1,876.57         | 0                | 202                | 21,246           | 12,634          | 0           |
| <b>Offshore Activities</b>      |         |                   |                  |                  |                    |                  |                 |             |
| Drilling operations             | No.     | 0                 | 5                | 5                | 9                  | 4                | 1               | 2           |
| Workovers                       | No.     | 0                 | 0                | 0                | 0                  | 0                | 0               | 0           |
| Well Decommissioning            | No.     | 0                 | 0                | 0                | 0                  | 0                | 4               | 0           |
| Environmental Incidents         |         |                   |                  |                  |                    |                  |                 |             |
| Chemical releases               | No.     | 10                | 1                | 0                | 4                  | 1                | 1               | 1           |
| Hydrocarbon release             | No.     | 3                 | 6                | 2                | 1                  | 1                | 0               | 0           |
| Hydrocarbon release ≥ 2 tonnes  | No.     | 0                 | 0                | 0                | 0                  | 0                | 0               | 0           |
| <b>Atmospheric emissions*</b>   |         |                   |                  |                  |                    |                  |                 |             |
| Global warming potential        | TCO2 EQ | 25,925.40         | 41,108.45        | 36,458.20        | 17,906.95          | 35,390.2         | 8,169.1         | 7,503.9     |
| Acidification Potential         | TCO2 EQ | 71.19             | 274.32           | 239.30           | 228.41             | 227.5            | 95.74           | 101.3       |
| CO2                             | T       | 23,874.81         | 39,040.23        | 34,372.62        | 17,005.48          | 28,616.5         | 8162.7          | 7,497       |
| CH4                             | T       | 73.00             | 58.45            | 63.10            | 24.46              | 300.7            | 6               | 6.3         |
| NOX                             | T       | 98.41             | 380.77           | 332.20           | 318.69             | 309              | 130.5           | 137.9       |
| N2O                             | T       | 1.67              | 2.71             | 1.70             | 1.25               | 1.5              | 0.49            | 0.5         |
| SO2                             | T       | 1.14              | 5.88             | 5.54             | 5.33               | 10.2             | 4.4             | 4.7         |
| CO                              | T       | 47.06             | 107.64           | 122.03           | 98.66              | 77.7             | 17.7            | 18.8        |
| VOC                             | T       | 8.05              | 17.53            | 73.04            | 29.83              | 48.2             | 3.6             | 5.6         |
| <b>Waste Produced</b>           |         |                   |                  |                  |                    |                  |                 |             |
| Conventional waste              | T       | 270.74            | 949              | 374              | 1,653              | 248              | 129             | 177         |
| Hazardous waste                 | T       | 232.02            | 1,192            | 2,876            | 1,345              | 5,352            | 2,717           | 1,005       |
| Drill cuttings                  | T       | 0                 | 3,568            | 2,005            | 3,518              | 4,417            | 1,525           | 2,316       |
| <b>Chemical use (discharge)</b> |         |                   |                  |                  |                    |                  |                 |             |
| Gold total                      | T       | 145.638 (145.638) | 203.34 (5.99)    | 231.3 (24.1)     | 246 (246.55)       | 205.6 (30)       | 111.6 (7.8)     | 49.4 (7.8)  |
| Gold SUB                        | T       | 32 (32)           | 133.56 (5.28)    | 102.2 (4.72)     | 80.7 (8.86)        | 70.7 (3.5)       | 33.1 (0)        | 16.2 (0/5)  |
| E total                         | T       | 107.291 (14.124)  | 6,648.03 (14.13) | 10,473.8 (595.8) | 13,966.8 (1443.55) | 8,939.3 (1324.9) | 4,635.8 (368.3) | 4,046 (341) |
| E SUB                           | T       | 0 (0)             | 0.42 (0)         | 3.8 (0)          | 1.45 (1.45)        | 1.5 (0.2)        | 0.9(0)          | 3.4 (0)     |
| D total                         | T       | 631.25 (0)        | 2745 (0)         | 8.4 (0.005)      | 15.69 (0.26)       | 3.6 (0.8)        | 1.01 (0.1)      | 1.05 (0.05) |
| D SUB                           | T       | 0 (0)             | 19.24 (0)        | 7.6 (0)          | 0                  | 2.6 (0)          | 0.8 (0)         | 1 (0)       |
| C total                         | T       | 0 (0)             | 48.6 (0)         | 54.3 (0)         | 65.78 (0)          | 586.8 (0)        | 311 (0)         | 620 (0)     |
| C SUB                           | T       | 0 (0)             | 48.55 (0)        | 47.35 (0)        | 0                  | 35.8 (0)         | 7.3 (0)         | 2.4 (0)     |
| B total                         | T       | 0 (0)             | 0.04 (0)         | 8 (0)            | 17.69 (0)          | 4.4 (0)          | 2.6 (0)         | 12.2 (0)    |
| B SUB                           | T       | 0 (0)             | 0.04 (0)         | 8 (0)            | 0                  | 4.1 (0)          | 2.4 (0)         | 12.2 (0)    |
| A total                         | T       | 0 (0)             | 0 (0)            | 2 (0)            | 4.32 (0)           | 6.5 (0)          | 0.6 (0)         | 10.2 (0)    |
| A SUB                           | T       | 0 (0)             | 0 (0)            | 2 (0)            | 0                  | 6.5 (0)          | 0.6 (0)         | 10.2 (0)    |
| <b>Oil in produced water</b>    |         |                   |                  |                  |                    |                  |                 |             |
| Oil discharged (OPPC Permit)    | Grams   | 345,824.17        | 810              | 412              | 40                 | 0                | 380.1           | 0           |
| Produced fluid discharge        | M3      | 242,254.29        | 87,291           | 45.3             | 1.6                | 0                | 32.9            | 0           |

\*Note: Figures reported do not include contributions from logistics operations

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## Our values:

Neptune Energy has a set of fundamental values that guide the company and dictates how we operate as an organisation. These values are not unique, nor the only drivers for our success, but they are the platform upon which we build.

**HSE** - Excellence in HSE is demanded and integral to everything we do.

**Integrity** - Commitment to ethical operations and respect to all individuals across all organisations.

**Individual Accountability** - Take responsibility of actions and results, personally commit to the success of Neptune.

**Teamwork** - Only together can we grow, only in partnership can we succeed.

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