centrica storage

ROUGH OFFSHORE FACILITIES

ENVIRONMENTAL STATEMENT

2015

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FOREWORD

It has been another busy year for the Centrica Storage business. The Oil and Gas Authority approved our request for a 15 billion cubic feet increase in the Rough field capacity. Decreasing the lower reservoir limit will allow us to sell the cushion gas and the additional space created for extra storage capacity will potentially increase our revenue and profit.

To extend production from the York Hub the Centrica Executive Committed has invested in the York Onshore Compression Project at the CSL Easington Terminal. With compression, the wells could produce a further 11bcf, extending production for years to come. First gas is due to be delivered with compression in 2017.

In 2015 CSL rolled out the Culture of Care programme implementing Office Rules, House Rules, Life Saving Rules and Just Culture. The myHSES system to record events and observations was also launched with an increase in the number of reports submitted in comparison to the previous year, demonstrating that the Culture of Care is being embedded across all our sites.

What will the fully embedded Culture of Care look like? It will look like an environment where our values are alive and visible…we will "do what's right in every decision we make" and "we will be looking after each other as if we were family"…this is what good looks like, this is the journey we are on.

Environmental responsibility is hugely important to us, and CSL contributed towards Centrica again being identified as a leader for disclosure on climate change information in 2014 by CDP, an international NGO formerly known as the Carbon Disclosure Project.

Although the oil and gas industry is no stranger to peaks and troughs, our focus on environmental responsibility and safety can help us work more efficiently. We must all play our part in making sure our operation remains safe and sustainable.

Greg McKenna
CSL Managing Director

GROUP ENVIRONMENT POLICY

At Centrica we are committed to understanding, managing and reducing the environmental and ecological impacts of our activities through innovation, technology and cultural change.

We are committed to:

- **Assessing**, understanding and managing our environmental risks and impacts, placing special emphasis on minimising major accident risks
- **Enabling** and encouraging our employees to help us achieve our environmental goals
- **Proactively** seeking ways to reduce our carbon emissions
- **Reducing** waste and using resources efficiently
- **Developing** renewable and low-carbon energy sources, products and services
- **Encouraging** our customers to move towards a low-carbon future by helping them make informed decisions about the use of our products and services
- **Working** with our suppliers and business partners to pursue responsible environmental practices
- **Publishing** regular performance reports and openly discussing our environmental performance with internal and external stakeholders
- **Continually** improving and setting measurable objectives and targets to prevent pollution and reduce our environmental impacts
- **Complying** with environmental legislation, regulations and other applicable requirements.

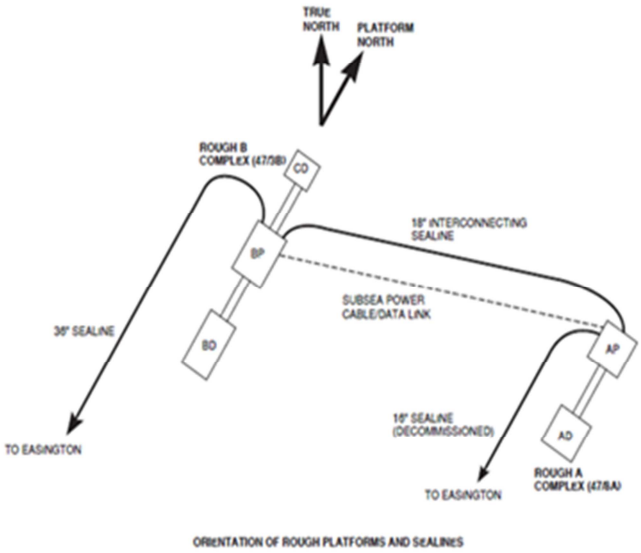
We will implement comprehensive environmental management systems that are routinely audited in all our businesses and attain certification to ISO14001 or equivalent in our exploration and production, power generation and servicing and installation operations. Our performance is reviewed regularly by the Centrica Executive Committee.

Iain Conn
Chief Executive
January 2015

OUR OPERATION

The Rough offshore gas storage field, located approximately 29 kilometres off the east coast of Yorkshire is the UK's largest facility for the storage of gas. The field is designed to meet peak winter demand by injecting gas supplied from Centrica Storage customers via the Easington onshore terminal into the Rough Field Reservoir approximately 300 meters below the seabed. This stored gas is then available to be produced back into the National Transmission System and is approximately 10% of the total gas supplied in the UK during the coldest winter day.

Rough Facilities Location Map



There are two platforms within the Rough Field, Rough 47/8 Alpha and 47/3 Bravo. The Alpha platform comprises two bridge-linked platforms, whilst the larger Bravo platform comprises three bridge-linked platforms. The platforms are approximately 2 kilometres apart and are designed to produce or inject gas via the reservoirs 30 wells.

During Injection, gas taken from the national transmission system is compressed at the Easington terminal and transferred to the offshore Bravo complex via a 36-inch subsea pipeline. On the Bravo two Rolls Royce Avon gas turbines drive two centrifugal compressors which force the gas under pressure down the wells into the storage reservoir.

During Production, the gas retrieved from the reservoir is essentially the same as that which was injected. However, the nature of the reservoir results in some contamination with water and indigenous hydrocarbons, necessitating treatment on the offshore platforms. Gas flows to the surface under reservoir pressure through the wells. Water and condensed hydrocarbons are removed by the offshore process prior to transmission via the 36-inch sea line to shore. The small quantities of produced water are discharged offshore and the condensed hydrocarbons are re-injected into the pipeline and carried ashore with the gas.

OUR ENVIRONMENTAL MANAGEMENT SYSTEM

CSL's environmental responsibilities are to understand, manage and reduce the environmental impact of our operations so as to protect the environment and its resources. The environmental management of operations in the oil and gas business are integrated within the health and safety as well as the business management activities. This integration ensures the maximum embedding of environmental responsibility into business practices.

Central to our management system is strong leadership, continuous enhancement and good performance baselines from which to measure and report improvements. We have been developing and embedding these principles across the business in our annual improvement plans. Delivery of these core principles is supported by processes integrated in our management system. Our environmental management activities have been certified to ISO14001[1] and we carry out regular internal audits to gauge progress alongside the external audits required for the ISO14001 certification.

This report summarises the performance and initiatives of CSL's operations in 2015 and the planned improvements in 2016 as required by OSPAR[2].

[1] ISO 14001 is an internationally recognised standard for environmental management systems

[2] OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry

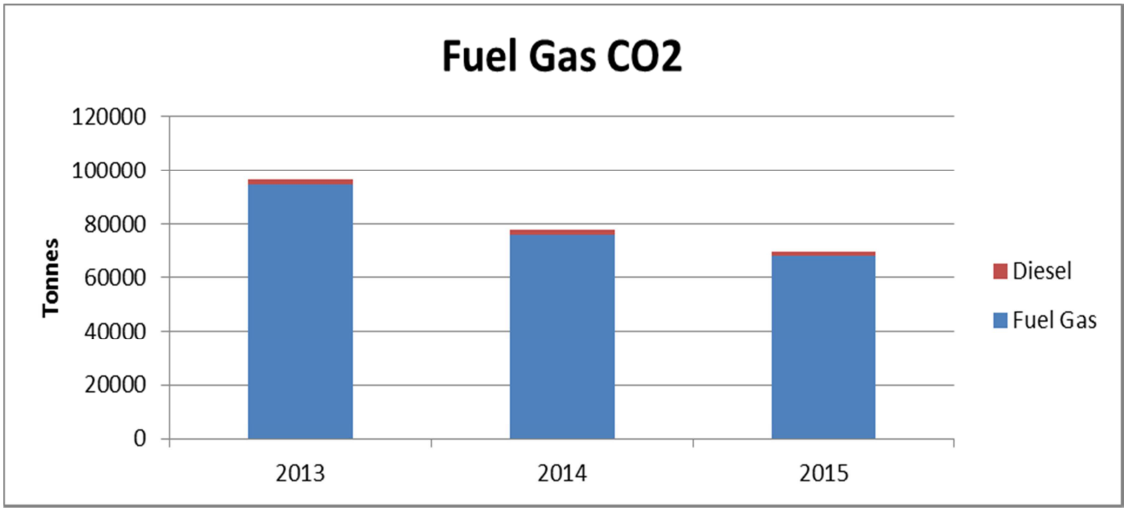
OUR PERFORMANCE

The environmental impacts of our operation are well regulated in the areas in which we operate. The environmental performance of our current activities is presented below in relation to Regulatory compliance.

ATMOSPHERIC EMISSIONS

There is no combustion equipment on the 47/8A platform therefore exempt from the EU Emissions Trading Scheme and Environmental Permit. The majority of CO_2 emissions originate from the gas-fired turbines for the injection process and power generation on the 47/3B platform. The majority of diesel is used for power generation during the planned annual shutdown, firewater pumps and cranes.

Carbon dioxide emitted from the 47/3B platform as part of the EU Emissions Trading Scheme



The injection process is the main source of fuel gas demand and performance is shown below.

YEAR	VERIFIED EMISSIONS TOTAL (tCO2)	F1 FUEL GAS tCO2	F2 DIESEL tCO2	ANNUAL INJECTION Mscm
2013	96419	94519	1900	3490
2014	78084	76159	1924	2394
2015	69845	67773	2071	2232

OIL DISCHARGED

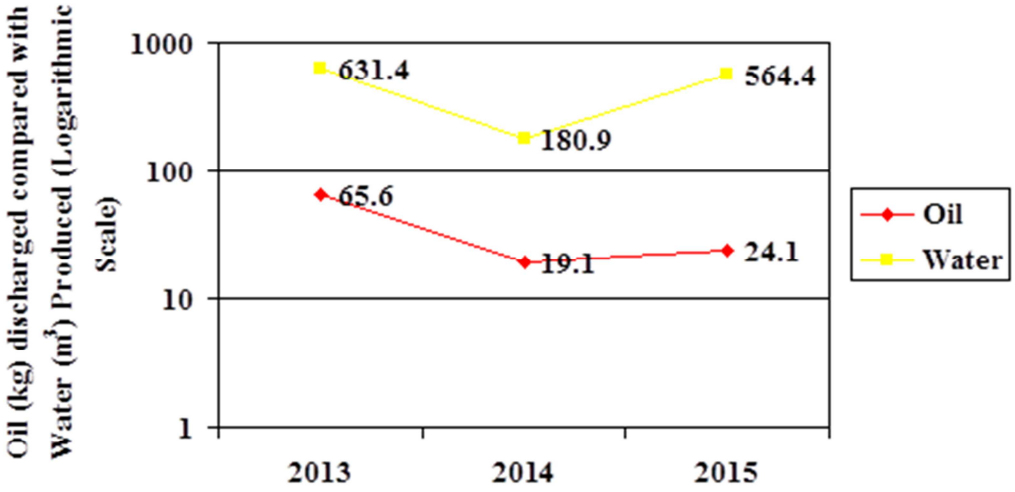
Oil discharged to sea from our operations is with the water that is extracted from the reservoir with the hydrocarbons and treated on the facilities prior to discharge to sea. These discharges of oil are controlled under OSPAR and national legislation to a monthly average concentration of 30 mg/l and a 2 tonnes annual tonnage permit limit on each platform.

2015 Discharge to sea

Platform	Produced water m3	Oil discharged kg
47/8A	296	12.4
47/3B	268	11.8

Due to the unique operation of the Rough field produced water is only observed for approximately 3 months of the year. The total oil discharged from both platforms in 2015 was 24.1 kgs.

Comparison of total oil discharged against water produced



In 2015 produced water was discharged January – March within the regulatory monthly oil concentration limit of 30mg/l with the exception of those reported in the OPPC non-conformances highlighted below.

OPPC NON CONFORMANCES

47/8A

A breach of the daily 100mg/l oil in water concentration limit
A breach of the monthly average oil in produced water 30mg/l limit

47/3B

There were 4 breaches of the daily 100mg/l oil in water concentration limit in March which were submitted as one ongoing OPPC non-conformance report.

These breaches occurred towards the end of the production season when we draw deeper into the reservoir. The composition of the liquid changes to a waxy material which the oily water separator cannot process. The polishing filters were regularly changed out to improve the quality of the effluent however the consent limits could not be achieved at the high initial concentrations.

A breach of the March monthly oil in water concentration limit as a result of the daily breaches.

CHEMICAL USE AND DISCHARGE

Chemicals are used for a variety of functions in the extraction of oil and gas such as corrosion and hydrate inhibition, turbine wash and deck cleaners. Chemical use and discharge is controlled by OSPAR. As part of the OSPAR recommendations we as Operators are encouraged to replace any chemicals which pose a particular potential for harm to the marine environment with less potentially harmful chemicals.

On an annual basis all Operators are required to notify the Regulator of progress made in reducing or phasing-out the discharges of offshore chemicals that are, or contain, substances that have been identified for priority action or identified as candidates for substitution.

KI-3145 (pipeline) is a combined hydrotest chemical designed to scavenge oxygen and mitigate corrosion due to bacterial activity and fluid top-ups are required to re-instate annuli fluid levels. The annulus is a closed system and therefore it is assumed that any fluid loss from the annulus top-ups will be through the production tubing into the production gas, hence, there should be no discharge to the marine environment.

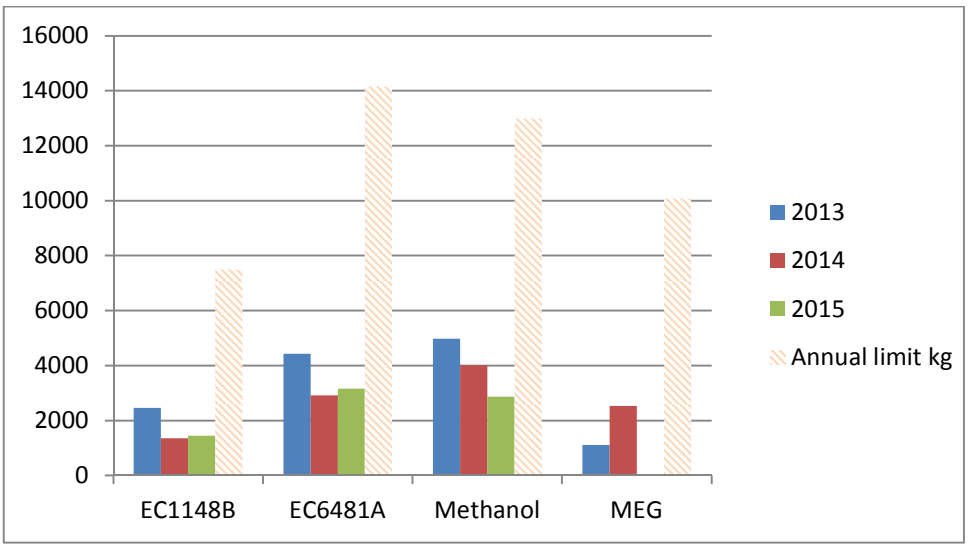
This chemical has a substitution warning and CSL has varied both Offshore platforms chemical permits to replace it for environmentally friendly alternatives.

Corrosion Inhibitors EC1148B and EC6637A and hydrate inhibitor EC6481A and methanol are chemicals used for the wet gas operation and are received at the Terminal for disposal and therefore not discharged to sea.

Production Chemical Usage in 2015

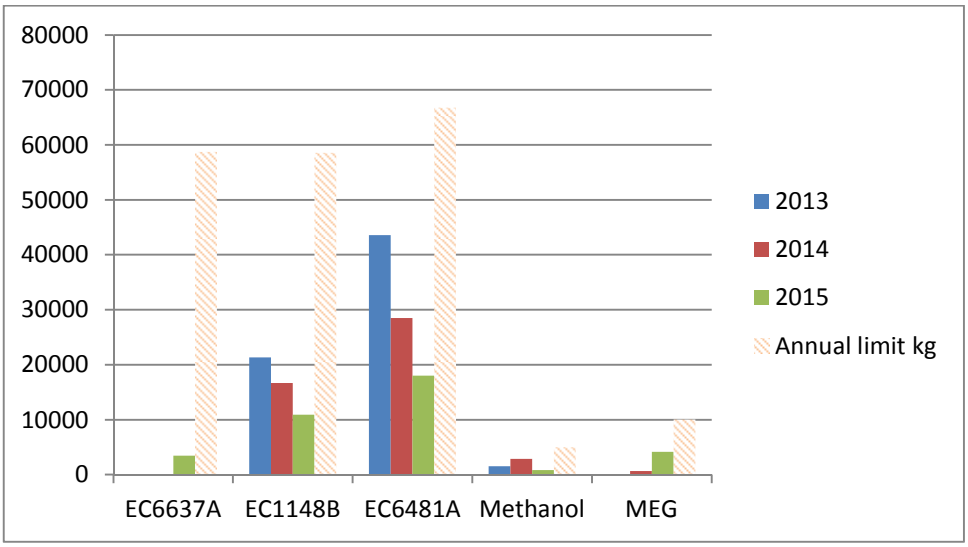
47/8A platform

Chemical	Function Group	HQ/OCNS Ranking	Used kg	Discharge kg	Annual limit kg
EC1148B	Corrosion Inhibitor	Gold	1447	0	7500
EC6481A	Gas Hydrate Inhibitor	Gold	3154	0	14165
Methanol	Gas Hydrate Inhibitor	E	2873	0	13000
KI-3145	Corrosion Inhibitor	Blue	0	0	29
MEG	Gas Hydrate Inhibitor	E	0	0	10092



47/3B platform

Chemical	Function Group	HQ/OCNS Ranking	Used kg	Discharge kg	Annual limit kg
EC6637A	Corrosion Inhibitor	Gold	3429	0	58750
EC1148B	Corrosion Inhibitor	Gold	10888	0	58600
EC6481A	Gas Hydrate Inhibitor	Gold	18011	0	66800
Methanol	Gas Hydrate Inhibitor	E	827	0	5000
KI-3145	Corrosion Inhibitor	Blue	0	0	403.7
MEG	Gas Hydrate Inhibitor	E	4156	0	10100



Note EC1148B and EC6637A Corrosion Inhibitors, EC6481A hydrate inhibitor and methanol are chemicals used for the wet gas operation and are received at the Terminal for disposal and therefore not discharged to sea

SPILLS TO SEA

Hydrocarbon spills

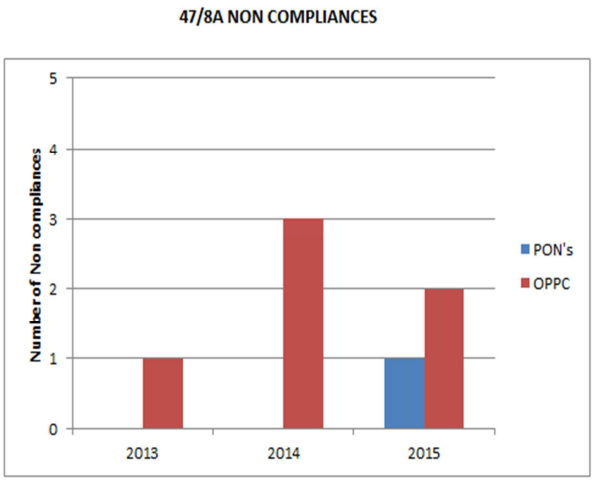
PON1's

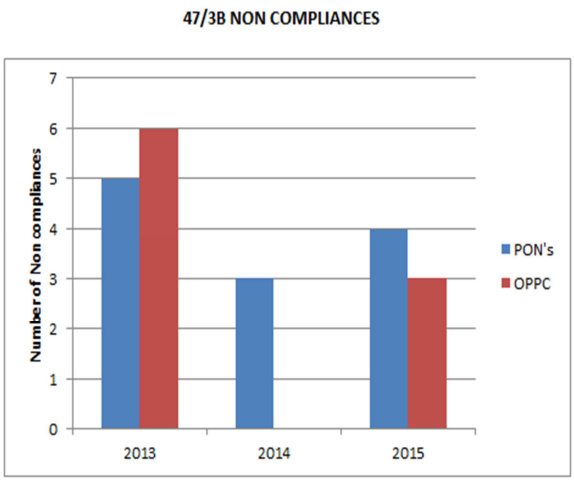
47/8A
A PON1 was raised for the 47/8A platform for a minor hydraulic oil leak to sea (0.001 kgs) from a blanked port on the main hydraulic hoist assembly on the AP crane during load testing.

47/3B
There were four sightings of a sheen off the CD jacket (1.4 kgs maximum oil discharged for the four sightings) which were reported as one ongoing PON1. This sheen has been observed over previous years though only during the production season. CSL has and continues to work to establish the source.

There were three oil spills to sea from the 47/3B (0.37 kgs) in 2015. The actions of either maintenance of equipment or changes to processes or procedures have been carried out to prevent a recurrence of these events. None of the environmental events had the potential to result in a major environmental incident and would be short term and localised at the point of discharge.

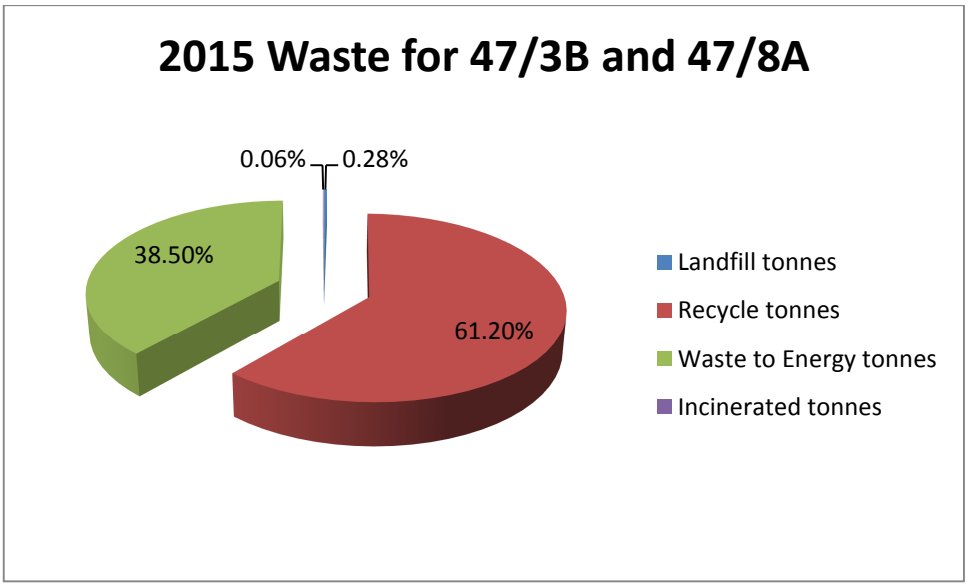
At CSL we have an event recording system which allows us to trend incident types and investigation results allows us to identify the root causes of events and address these within our improvement planning.



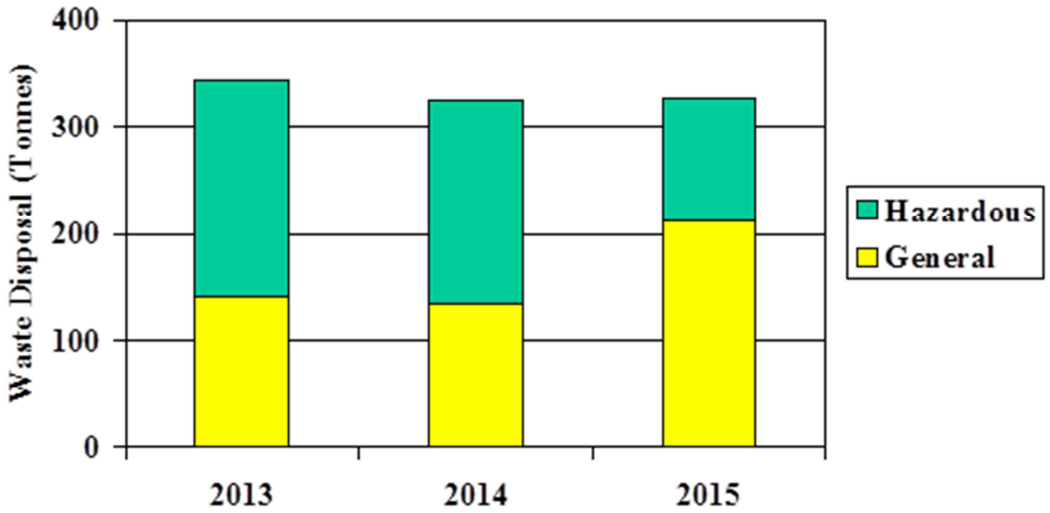


WASTE GENERATED FOR ONSHORE DISPOSAL

Waste produced from Offshore operations is transported Onshore. Reuse and recycling is maximised through waste segregation both on and offshore minimising the volume of waste sent to landfill.



Category	Reuse (t)	Recycling (t)	Waste to Energy (t)	Incinerate (t)	Landfil (t)	Other (t)	Total (t)
Group I - Special							
Chemical / Paints	0.000	0.567	18.641	0.030	0.610	0.000	19.848
Drums / Containers	0.000	3.718	0.000	0.140	0.000	0.000	3.858
Oils	0.000	0.000	4.828	0.000	0.000	0.000	4.828
Misc Special Waste	0.000	16.117	4.449	0.000	0.000	0.000	20.566
Sludges / Liquids / Tank Washing	0.000	0.000	64.715	0.000	0.000	0.000	64.715
Sub Total	0.000	20.402	92.633	0.170	0.610	0.000	113.815
Group II - General							
Chemical / Paints	0.000	0.000	0.000	0.000	0.250	0.000	0.250
Drums / Containers	0.000	0.030	0.000	0.000	0.000	0.000	0.030
Scrap Metal	0.000	119.218	0.000	0.000	0.000	0.000	119.218
Segregated Recyclables	0.000	26.622	1.395	0.000	0.000	0.000	28.017
General Waste	0.000	33.835	31.665	0.000	0.060	0.000	65.560
Sludges / Liquids / Tank Washing	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub Total	0.000	179.705	33.060	0.000	0.310	0.000	213.075
Group III - Other							
Asbestos	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Radioactive Materials (exc.NORM)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Clinical	0.000	0.000	0.000	0.015	0.000	0.000	0.015
Explosives	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub Total	0.000	0.000	0.000	0.015	0.000	0.000	0.015
Grand Total	0.000	200.107	125.693	0.185	0.920	0.000	326.905



2015 ENVIRONMENTAL IMPROVEMENT PLAN PERFORMANCE

In 2015, CSL delivered against the targets and initiatives to improve environmental performance, both as a result of our operations and in support of the wider communities. The table below shows the status of the Offshore initiatives that have taken place in 2015.

	Initiative	Status
Risk Management – Environmental Integrity	Review the Centrica strategy for the identification and management of Environmentally Critical Elements	Focus for this project in 2015 was on the management in relation to the potential for major environmental incidents from Major Accident Hazards in line with the Offshore Safety Directive requirements
Performance Reporting	Energy efficiency across the producing assets	An independent energy audit was carried out as part of the Energy Savings Opportunity Scheme (ESOS) Regulations and submitted to the Regulating body (Environment Agency). The two opportunities identified will be assessed for implementation.
Management System	Review the revised ISO14001:2015 Environmental Management Standard to ensure compliance	A gap analysis was carried out for the transition to the revised standard and a plan developed for roll out in 2016

2016 ENVIRONMENTAL IMPROVEMENT PROGRAMME

Our annual planning cycle includes the identification of areas for improvements from business plans, audits (internal and external) and long term strategies for business development including HSE. This planning process encourages continual improvement in environmental management and performance and embeds this in the health and safety and also business plans. The objectives can be facility or operation specific and will be included in these improvement plans. The 2016 objectives are detailed below and the status will be reported to the business on a quarterly basis.

	Initiative
Risk Management – Environmental Integrity	Develop a management process for Environmentally Critical Equipment across the operational assets
Carbon/Energy Management	Review the current performance metrics and trends including the development of a carbon intensity metric for the operational activities
Management System	Roll out the plan developed in 2015 for transition to the revised ISO14001:2015 standard
Awareness and Training	Delivery of environmental awareness activities across all the CSL assets aimed at improving understanding and engagement with environmental issues pertinent to the Business operations