



## REVISION CHANGE NOTICES

<b>Rev</b>	<b>Location of Change</b>	<b>Brief Description of Change</b>
A1	Initial issue for comment	
B1	Issue for review	
C1	Issue for use	



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## ABBREVIATIONS AND DEFINITIONS

Abbreviation	Definition
AOC	Anasuria Operating Company
AIMS	AOC Integrated Management System
ALARP	As Low As Reasonably Practicable
ANSS	Augean North Sea Services
BEIS	Department for Business, Energy and Industrial Strategy
BOP	Blow-Out Preventer
CEFAS	Centre for Environment, Fisheries and Aquaculture
EEMS	The Environmental and Emissions Monitoring System
EMS	Environmental Management System
FPSO	Floating Production and Storage vessel
HSE	Health, Safety and Environment
HSEQ	Health, Safety, Environment and Quality
IP	Institute of Petroleum
ISO	International Organization for Standardization
km	Kilometre
OBM	Oil-Based Mud
OIM	Offshore Installation Manager
OPEP	Oil Pollution Emergency Plan
OPPC	Oil Pollution Prevention and Control
OSPAR	OSPAR Convention (also known as the Convention for the Protection of the Marine Environment of the North-East Atlantic)
PON	Permitted Discharge Notifications
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WTE	Waste to Energy

## 1.0 INTRODUCTION

This Statement addresses the regulatory requirement established under the OSPAR recommendation 003/5 to publish an annual Environmental Statement that describes the Anasuria Operating Company's (AOC) Environmental Management System (EMS) and Environmental Policy. This document provides a summary of AOC's Environmental Performance for its contracted drilling activities at its United Kingdom Continental Shelf (UKCS) fields during 2018.

Please note that the Anasuria FPSO, which serves all four operated fields, is subject to a separate annual Environmental Statement, therefore its environmental performance is not considered in this document.

### 1.1 ANASURIA OPERATING COMPANY OVERVIEW

Anasuria Operating Company Limited (AOC) is the joint operating company held equally by Ping Petroleum UK Limited (wholly owned by Ping Petroleum) and Anasuria Hibiscus UK Limited (wholly owned by Hibiscus Petroleum Berhad) and fulfils the Operator role for the Anasuria Cluster.

Ping Petroleum Limited has operating offices in Malaysia and the UK. It is a private, independent upstream company, focused on shallow water offshore production and development opportunities in South East Asia and the North Sea.

Hibiscus Petroleum Berhad is an independent oil and gas exploration and appraisal (E&P) company and is listed on the Main Market of the Bursa Malaysia Securities Berhad. Hibiscus Petroleum is focused on the exploration, development and production of oil and gas fields in UK North Sea, Australia and Malaysia.

### 1.2 ANASURIA CLUSTER OPERATIONS

The Anasuria Cluster is located approximately 175 km east of Aberdeen in the Central North Sea at 94 m depth and comprises the following fields:

- Cook (38.6% holding);
- Teal (100%);
- Teal South (100%); and
- Guillemot A (100%).

The Anasuria Cluster is illustrated in Figure 1 below. Note that the Guillemot A Field is circled.

### 1.3 2018 DRILLING ACTIVITIES

Seadrill's West Phoenix semi-submersible drilling rig was contracted for the period from June 4th to September 4th, 2018. The work involved drilling of the GUA-P2 sidetrack (P2-ST) well in the Guillemot A Field.

Drilling activities were undertaken in accordance with the requirements of OPPC Permit number OTP/645/0/1 and Chemical Permit number CP/1589/4.

Figure 1: Schematic Representation of the Anasuria Cluster

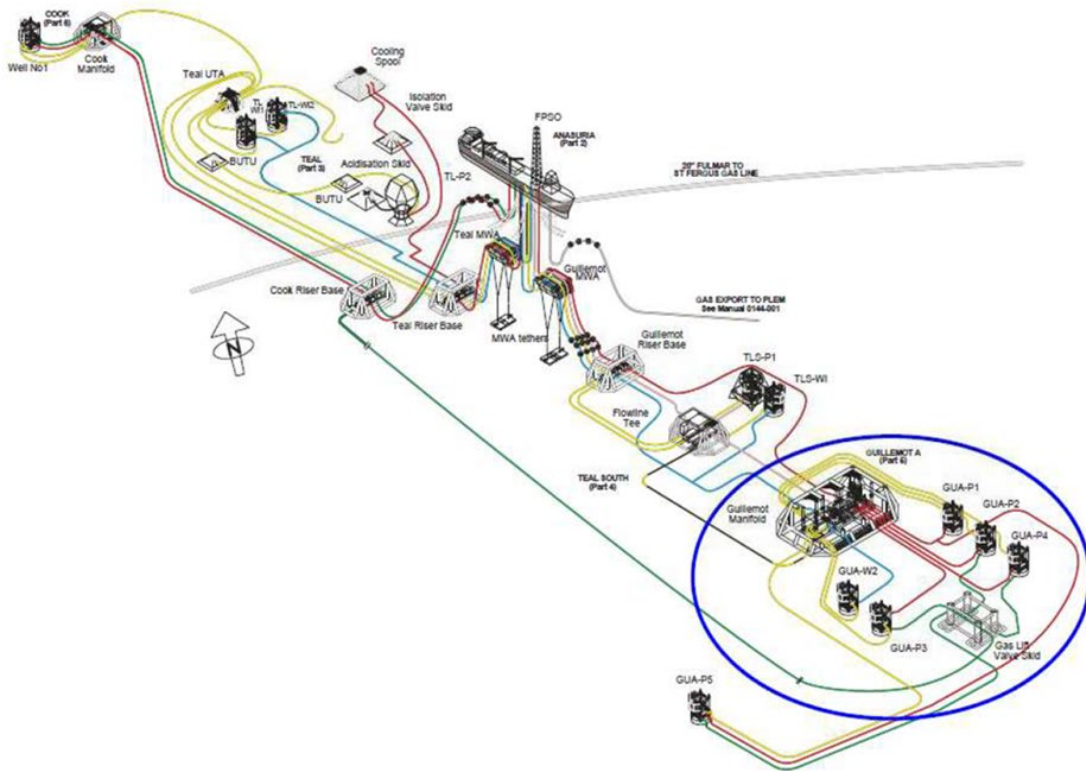


Figure 2: Seadrill's West Phoenix semi-submersible drilling rig



## 2.0 ENVIRONMENTAL MANAGEMENT SYSTEM

AOC implements an EMS that meets the requirements of the OSPAR Recommendation 2003/5 and has been verified as aligned with the clauses of the ISO 14001:2015 standard. The EMS is part of the on-line AOC Integrated Management System (AIMS) and is described in the EMS Manual (Document No. AOC-COR-HSE-168-004). Further information on AOC's EMS including ISO 14001 verification are presented in the AOC's FPSO Annual Environmental Statement.

AOC has articulated a Health, Safety and Environmental (HSE) Policy, which is endorsed by senior management and underpins the EMS. HSE is AOC's highest priority and is fundamental to ensuring the safety of its installations, personnel and the environment. The HSE Policy provides a framework for setting environmental objectives and sets out the key EMS commitments including environmental protection, pollution prevention and fully meeting its compliance obligations.

The scope of the EMS includes all exploration/ appraisal, development and production operation activities carried out by AOC in those UKCS blocks for which it is the Licensed Operator. The scope covers third party activities, such as the contracted drilling rig, activities conducted under those licences on AOC's behalf or over which they have influence, and for which the contractors ultimately have responsibility for environmental performance.

Selected documents to demonstrate the extent and suitability of the EMS include:

- Environmental Responsibilities Matrix
- Environmental Aspects and Impacts Procedure (and Aspects and Impacts Register)
- Compliance Management Procedure (and Weston Compliance Online System)
- AOC Incident Tracker
- Emergency Manager Handbook
- Crisis Manager Handbook
- Incident Investigation and Reporting Procedure
- Audit and Non-conformance Procedure
- Management Review Procedure
- Contract Classification Tool
- HSE Contractor Management Activities



## 2.1 OBJECTIVES AND TARGETS

AOC's annual Health, Safety, Environment and Quality (HSEQ) Plan drives continuous performance improvement throughout AOC and its supply chain, whilst providing assurance that both legal and contractual requirements are met. AOC establishes annual objectives and targets following review of the project and operation specific environmental aspects. These targets are based several considerations including *inter alia*:

- AOC business needs;
- AOC and Duty Holder / 3rd party contractor HSEQ performance;
- Key stakeholder priorities (i.e. BEIS and the Health and Safety Executive); and
- Legislative drivers.

## 2.2 CONTRACTOR ASSURANCE

AOC is ultimately accountable and responsible for the environmental management of all its operations and activities associated with their assets. Where execution and management of associated activities is delegated to third parties, the responsibility for environmental management is delegated to these parties through contractual agreement.

All contractors and suppliers are subject to a structured risk based evaluation in accordance with the Contract Classification Tool prior to contractual arrangements being established. The contracting process is driven by the nature and size of the scope of work, the level of risks involved, and the capability and culture of the potential contractor. Supporting HSE contractor management activities are detailed in the HSE Contractor Management Activities document and a specific interface document and an HSE plan may be required to ensure risks and impacts to the environment are reduce to As Low As Reasonably Practicable (ALARP).

Following appointment, the performance of the contractor is regularly monitored and assured to demonstrate an ongoing compliance with AOC and their own HSE policies and procedures. The AOC monitoring process includes audits and regular business and management review meetings. Contract close-out provides a joint evaluation of HSE performance and lessons learned during contract execution.

## 2.3 INCIDENT PREVENTION AND RESPONSE MANAGEMENT

Identification of the potential for environmental emergency events including accidental releases is part of the process to identify and assess risks and impacts associated with environmental aspects.

Prevention of environmental incidents is managed via compliance with AOC operational control procedures and the effective implementation of HSE work systems by all concerned. Where contractors are used, the responsibility for effective operational management, and thus emergency prevention, falls to the contractor as defined in the contract interface documentation - in this case, that function was undertaken by Seadrill's Offshore Installation Manager (OIM).

Incident management and mitigation is defined in the contracted vessel's mandatory Oil Pollution and Emergency Plan (OPEP), which is vetted by the AOC HSE Manager, and a specific Communication Interface Plan covering the interventions of drilling and support vessels.

These documents detail the various incident categorization, notification, intervention, management and reporting actions. Regular exercises are undertaken to test incident and emergency responses and identify potential improvements which are logged in the AOC Action Tracker.

### 3.0 ENVIRONMENTAL PERFORMANCE

The environmental statistics presented in this section cover the period from June 4<sup>th</sup> to September 4<sup>th</sup>, 2018, when the West Phoenix semi-submersible rig drilled the sidetrack well in the Guillemot A Field on the UKCS.

#### 3.1 ATMOSPHERIC EMISSIONS

AOC and its contractors continually seek opportunities to reduce emissions and improve energy efficiency wherever possible on their installations and vessels.

Power for drilling operations on the West Phoenix is supplied by a diesel-fired generation process. During its operations, the rig combusted a total of 2,511.10 tonnes of diesel. Applying the EEMS/IP<sup>1</sup> Conversion Factor of 3.17 for diesel use on a working semi-submersible vessel resulted in a total of 7,960.19 tonnes of CO<sub>2</sub> equivalent emissions for the period from June 4<sup>th</sup> to September 4<sup>th</sup>, 2018 (Table 1). As this was a one-off scope of work, there is no comparable data for previous years.

There were no emissions from gas flaring on the rig and there were no well test activities to produce other emissions during the drilling campaign.

Table 1. Atmospheric emissions – AOC West Phoenix Rig 2018

	CO <sub>2</sub>	CO	NO <sub>x</sub>	N <sub>2</sub> O	SO <sub>2</sub>	CH <sub>4</sub>	VOC
Emissions (Tonnes)	7,960	39	211	1	3	0	5

#### 3.2 DISCHARGES TO SEA

AOC, its contractors and chemical suppliers work together to identify and use environmentally acceptable substances wherever practicable.

Excluding routine vessel emissions (e.g. bilge/ ballast water, deck drainage, etc.) which are subject to MARPOL limits, potential discharges from offshore drilling operations typically include a range of chemicals such as drilling fluids and various additives, as well as oil residues, drill cuttings and cement. All chemicals used in offshore operations must be approved by the Centre for Environment, Fisheries and Aquaculture (CEFAS) and their discharge to sea is controlled under the Offshore Chemicals Regulations 2002, as amended in 2011.

As all hydrocarbons produced during drilling were sent directly to the AOC FPSO, there was no discharge of produced water and no associated oil-in-water content. Similarly, no Well Clean-up Fluids were discharged and there were also no Dispersed Oil in Fluids to account for.

Appendix A – *Records of Chemical Use and Discharge* shows that a total of 3458.50 tonnes of chemicals and other substances were used during the drilling campaign, of which 918.03 tonnes were discharged to sea in accordance with applicable regulations and good industry practice.

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<sup>1</sup> The Environmental and Emissions Monitoring System (EEMS) Atmospheric Emissions Calculations, UKOG (2008) and the Guidelines for the Calculation of Estimates of Energy Use and Gaseous Emissions in the Decommissioning of Offshore Structures, Institute of Petroleum (IP) (2000).

Discharges of note included 84 tonnes of sodium chloride brine, 25 tonnes of ethylene glycol, 19 tonnes of hydrogen chloride, 7 tonnes of detergent and 5 tonnes of cement.

### 3.2.1 Drilling Fluids

A total of 1,558.17 tonnes (3,417.49 m<sup>3</sup>) of organic-phase drilling fluids were used, of which 476.415 tonnes were returned to shore, 784.18 tonnes were retained onboard the rig and 297.572 tonnes (including downhole losses) were left in the well. An estimated 0.005 tonnes were possibly discharged accidentally or lost in other unforeseeable circumstances during operations.

### 3.2.2 Drill Cuttings

A total of 814.943 tonnes of drill cuttings were produced during the drilling of the sidetrack well. All were shipped to shore for appropriate disposal at an approved waste management facility, with approximately 0.005 tonnes unaccounted for (i.e. possibly discharged accidentally or lost in other unforeseeable circumstances). Consequently, there was zero discharge of cuttings and therefore there were no oil in water discharges associated with cuttings.

## 3.3 SPILL EVENTS

There were two minor spill incidents during the deployment of the West Phoenix semi-submersible drilling rig to the Guillemot A Field in 2018. Both were subject to Permitted Discharge Notifications (PON) submitted by the OIM in accordance with official guidance.

### 3.3.1 Oil-Based Mud Spill From Cuttings Skip on 12th July

A skip containing mud cuttings was being transferred from the rig to the supply vessel for backload to shore. Whilst maneuvering the skip, it struck another skip on the vessel's deck and a discharge was noted from a drain plug. The vessel master requested the crane operator to recover the skip back onto the rig, during which time some Versaclean oil-based mud (OBM) cuttings (maximum approximately 60% oil by weight) were lost to sea. An estimated total of 80 liters was spilt, with approximately 75 liters being contained and cleaned up by the supply vessel crew; however, circa. 5 liters was released to sea as the skip was transferred back to the rig where it was secured in a banded area and the leak was stopped. Corrective actions included checks on all other bungs and plugs on the cuttings skips and updating the Pre-use Checklist to include checks of drain bungs and plugs.

### 3.3.2 Seal Assembly Failure Leak involving NaCl Brine to Sea on 20th August

Whilst function/ pressure testing the upper packer, it was observed that its sealing assembly had failed at the slip joint. A leak of brine was observed coming from the upper packer unit. On determination of the leak's source, the lower packer was then energized, and the leak stopped. Approximately 228 kilograms of brine were released to the sea during this event. The Seadrill Subsea Engineer investigated the cause and repairs to leak sensors on the slip joint were carried out when the blow-out preventer (BOP) was recovered.

## 3.4 WASTE MANAGEMENT

AOC worked closely with Seadrill and its waste management contractors, Augean North Sea Services Limited (ANSS) and Taylors Industrial Services Limited, to identify the most appropriate reuse, recycling and disposal options for as much offshore waste as possible.

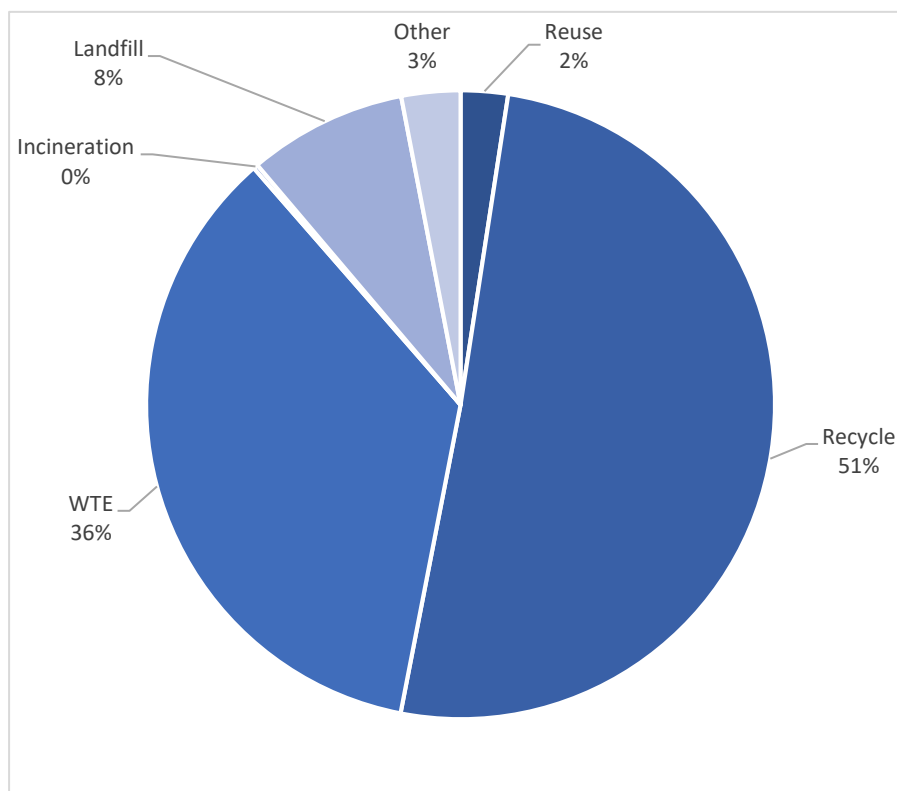
AOC is obligated by the 'Duty of Care' to ensure the correct identification segregation, handling, transport, treatment and eventual disposal of all wastes generated during offshore activities in accordance with applicable legislative requirements. Hazardous waste and special waste that might be harmful to the environment or human health is regulated by specific legislation, which sets rigorous handling and disposal standards.

The Augean North Sea Service Waste Report for the period of drilling shows that, excluding drilling-related wastes (i.e. muds and cuttings which are reported in sub-section 3.2 above), the West Phoenix rig's operational wastes with some small contributions of largely general wastes from the attending support vessels (Skanda Foula, Standard Princess and Brage Trader) amounted to a total of 123.105 tonnes of mixed wastes for the drilling campaign.

Appendix B presents the summary EEMS Waste Report for the 2018 Guillemot A Drilling Campaign, showing that 2.990 tonnes of waste were reused, 62.320 tonnes were recycled, 43.710 tonnes were diverted to 'Waste to Energy' (WTE) facilities, 0.290 tonnes were incinerated, 10.049 tonnes went to landfill, and 3.730 tonnes were sent for treatment. No waste was discharged.

Figure 3 contains a percentage breakdown of recycling/ disposal routes for the waste.

Figure 3: Waste Returns - AOC West Phoenix Rig 2018



## APPENDIX A - RECORDS OF CHEMICAL USE AND DISCHARGE

DTI ID	Manufacturer	Chemical Name	Function Group	Chemical Label	HQ/CNS Ranking	Used (Kg)	Discharged (Kg)
25352	Halliburton Energy Services	Ammonium Fluoride Solution	WELLSTIMUL	-	-	1,107.00	1,107.00
26542	Halliburton Energy Services	BridgeMaker II LCM	LOSTCIRC	-	-	538.78	6.35
5613	M-I Drilling Fluids UK Limited	CALCIUM CHLORIDE (ALL GRADES)	WBDFADD	PLO	-	6,000.00	0
2804	CARBO Ceramics, Inc.	CARBOLITE®	PROPPANT	-	-	10,835.00	4,535.00
2340	M-I Drilling Fluids UK Limited	Caustic Soda	WBDFADD	-	-	612.5	0
4245	Halliburton Energy Services	CFR-8L	CEMENT	-	-	870	20
1075	M-I Drilling Fluids UK Limited	Citric Acid	WBDFADD	PLO	-	300	0
5530	Halliburton Energy Services	Class G Cement + 35% SSA-1	CEMENT	PLO	-	181,000.00	5,000.00
2187	Halliburton Energy Services	CLAYFIX MATERIAL	WELLSTIMUL	PLO	-	4,318.00	2,268.00
27396	FIS Chemicals Limited	CLEENOL HD-EF	DETERGENT	-	-	8,756.80	7,176.00
26173	Baker Hughes Limited	CRONOX 288ES	CORRINHIB	-	-	707	707
26462	Halliburton Energy Services	DCA-17006	CORRINHIB	SUB	-	130	130
26316	Halliburton Energy Services	DCA-18002	WELLSTIMUL	PLO	-	1,653.00	1,653.00
25908	Halliburton Energy Services	DCA-22001	CEMENT	SUB	-	120	120
26029	Halliburton Energy Services	DCA-25010	GEL	SUB	-	204	204
2378	M-I Drilling Fluids UK Limited	DUO-VIS	VISCOS	-	-	625	100
1710	Drilling Specialties Company LLC	Dynared™ Seepage Control Fiber	LOSTCIRC	PLO	-	3,027.73	0
23932	MacDermid Offshore Solutions	Erifon HD603HP (No Dye)	OTHER	-	-	3,765.30	2,218.70
27628	MacDermid Offshore Solutions	ERIFON STACK GLYCOL	OTHER	-	-	50.6	47.27
25079	Nalco Champion (Nalco Ltd)	Ethylene Glycol, MEG	PIPEHYDTEST	PLO	-	25,308.00	25,308.00
2125	Halliburton Energy Services	FE-1	WELLSTIMUL	PLO	-	79	79

DTI ID	Manufacturer	Chemical Name	Function Group	Chemical Label	HQ/CNS Ranking	Used (Kg)	Discharged (Kg)
2268	Impact Fluid Solutions Ltd	FLC 2000	FLUIDLOSS	PLO	-	1,224.70	0
26881	Impact Fluid Solutions Ltd	FLC SUPREME® 500	LOSTCIRC	PLO	-	1,224.70	0
4960	M-I Drilling Fluids UK Limited	G-SEAL PLUS	LOSTCIRC	PLO	-	6,200.00	0
5291	Halliburton Energy Services	HALAD-300L NS	FLUIDLOSS	-	-	7,410.00	280
2129	Halliburton Energy Services	HCl	WELLSTIMUL	-	-	18,858.00	18,858.00
2241	Halliburton Energy Services	HR-4L	CEMENT	PLO	-	580	70
4602	Jet-Lube (UK) Limited	JET-LUBE® NCS-30™ ECF	PIPEDOPE	-	-	145	0
25011	Kelco Oil Field Group	Kwik-Seal NS fine-regular	FLUIDLOSS	PLO	-	3,955.33	0
1132	M-I Drilling Fluids UK Limited	LIME	ACIDCONTROL	PLO	-	1,000.00	0
2404	M-I Drilling Fluids UK Limited	M-I GEL	VISCOS	PLO	-	5,000.00	0
25795	M-I Drilling Fluids UK Limited	M-I WATE (All Grades)	WGHTCHEM	PLO	-	1,280,853.00	0
2223	Halliburton Energy Services	MUSOL SOLVENT	CEMENT	-	-	1,740.00	132.01
2146	Halliburton Energy Services	NF-6	DEFOAMER	-	-	630	130
22973	Troy Chemical Company BV	Nuosept®78	BIOCIDE	-	-	875	175
2451	M-I Drilling Fluids UK Limited	SAFE-CARB (ALL GRADES)	WGHTCHEM	PLO	-	12,150.00	0
24291	M-I Drilling Fluids UK Limited	SAFE-COR EN	CORRINIHIHIB	-	-	1,100.00	1,100.00
24592	M-I Drilling Fluids UK Limited	SAFE-SCAV HSN	HSCAVENGER	-	-	600	0
2434	M-I Drilling Fluids UK Limited	SAFE-SCAV NA	O2SCAVENGER	PLO	-	350	0
27301	M-I Drilling Fluids UK Limited	SAFE-SURF* EU	DETERGENT	-	-	9,900.00	990
27156	Shell Chemicals Europe	Saraline 185V	OPFBASESYNTH	-	-	881,422.07	0
27489	Halliburton Energy Services	SEM-1205	CEMENT	-	-	3,040.00	260
2249	Halliburton Energy Services	SILICALITE LIQUID	CEMENT	PLO	-	3,970.00	210
1137	M-I Drilling Fluids UK Limited	Sodium Chloride Brine	WBDFADD	PLO	-	953,348.67	844,413.00
5318	M-I Drilling Fluids UK Limited	TRUVIS	WELLSTIMUL	-	-	2,000.00	0

DTI ID	Manufacturer	Chemical Name	Function Group	Chemical Label	HQ/CNS Ranking	Used (Kg)	Discharged (Kg)
2220	Halliburton Energy Services	TUNED SPACER E+	CEMENT	PLO	-	4,150.00	666
5400	M-I Drilling Fluids UK Limited	VERSACLEAN CBE	EMULSIFIER	SUB	-	5,640.00	0
22999	M-I Drilling Fluids UK Limited	VERSATROL M	FLUIDLOSS	SUB	-	750	0
2253	Halliburton Energy Services	VICON NF BREAKER	WELLSTIMUL	-	-	68	68
4532	Halliburton Energy Services	WellLife 734	CEMENT	PLO	-	310	0



**APPENDIX B - EEMS WASTE REPORT FOR GUILLEMOT A DRILLING**

Waste Category	Reuse	Recycling	WTE	Incineration	Landfill	Treatment	TOTAL
<b>Group I - Special Wastes</b>							
Hazardous Chemicals	-	-	-	-	-	-	Nil
Hazardous Paints	-	-	-	0.290	-	-	0.290
Drums/ Containers	2.990	0.264	-	-	-	-	3.254
Oils	-	18.220	-	-	-	-	18.220
Misc. Special Waste	-	0.180	7.050	-	-	0.260	7.490
Haz Sludges / Liquids	-	1.260	20.220	-	-	3.470	24.95
Haz Tank Washings	-	-	-	-	-	-	Nil
<b>Group II – General Wastes</b>							
Non-hazardous chemicals	-	-	-	-	-	-	Nil
Non-hazardous paints	-	-	-	-	-	-	Nil
Drums / containers	-	-	-	-	-	-	Nil
Scrap metals	-	23.275	-	-	-	-	23.295
Recyclables:							
Wood	-	7.040	-	-	-	-	7.040
Plastics	-	0.720	-	-	-	-	0.720
Glass	-	0.490	-	-	-	-	0.490
Aluminium cans	-	0.000	-	-	-	-	Nil
Paper	-	0.000	-	-	-	-	Nil
Card/cardboard	-	4.480	-	-	-	-	4.480
Air filters	-	0.000	-	-	-	-	Nil
Cooking oil	-	0.000	-	-	-	-	Nil
Confidential paper	-	0.000	-	-	-	-	Nil
Miscellaneous	-	3.050	1.100	0.000	2.300	-	6.450
General Waste	-	3.321	15.340	0.000	7.749	-	26.410
Non-hazardous Sludges/ Liquids	-	-	-	-	-	-	Nil
Non-hazardous Tank Washings	-	-	-	-	-	-	Nil
<b>Group III – Other Wastes</b>							
Asbestos	-	-	-	-	-	-	Nil
Radioactive materials (excluding NORM)	-	-	-	-	-	-	Nil
Clinical	-	-	-	-	-	-	Nil
Explosives	-	-	-	-	-	-	Nil
<b>TOTALS</b>	<b>2.990</b>	<b>62.320</b>	<b>43.710</b>	<b>0.290</b>	<b>10.049</b>	<b>3.730</b>	<b>123.089</b>

