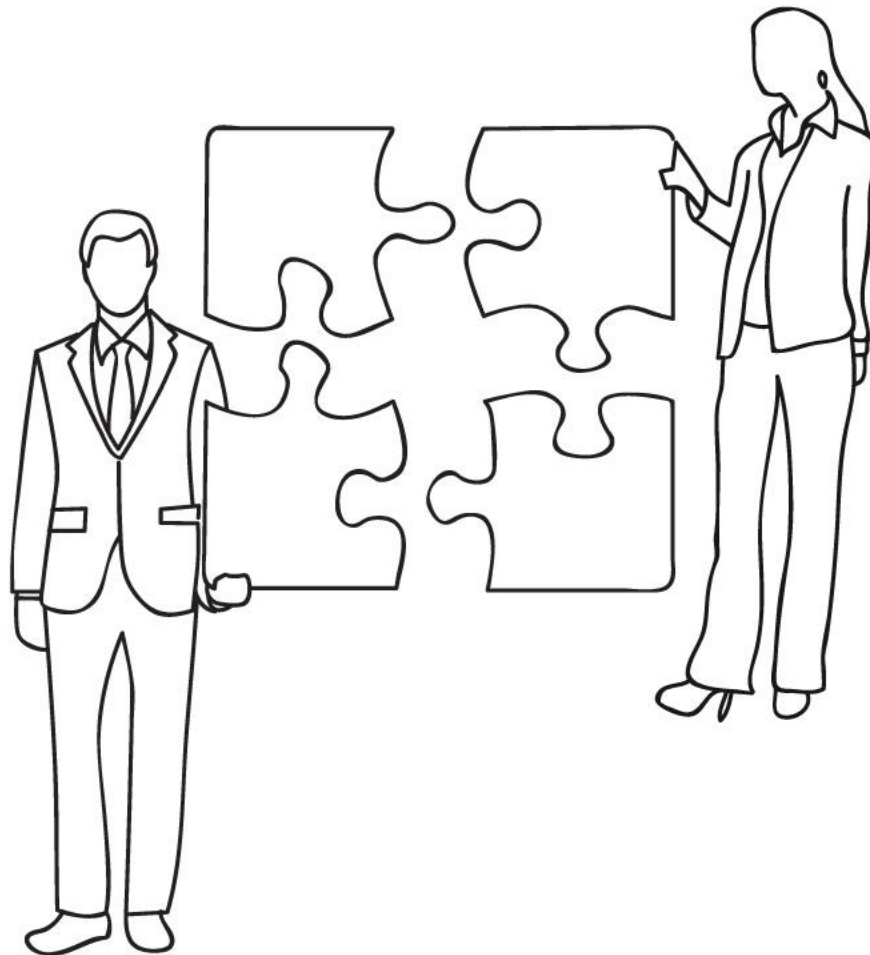





Report

2015 Annual Environmental Report



eni

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1 OBJECTIVE

This report is in accordance with the requirements of the following documents:

- Environmental Protection Agency (EPA) Environmental Permit to undertake the proposed installation and commissioning of infrastructure for Offshore Cape Three Points (OCTP) Block Phase-1 Field Development issued on July 9th, 2015 with permit no. CE00217801146;
- Environmental Protection Agency Environmental Permit to undertake drilling of 13 development wells (GI-1, SNK-D, OP CAMP-1, WI-3, OP-7, OP-5, WI-CAMP, OP CAMP-2, GI-CAMP, WI-I, OP-3, OP-4 & GI-2) issued on June 8th 2015, with permit no. CE00217801143 and;
- On the basis of Regulation 25 of the Environmental Assessment Regulations 1999 (LI 1652, eni Ghana issued the Annual Environmental Report (AER) which presents environmental activities on the Offshore Cape Three Points (OCTP) Block conducted by eni Ghana Exploration and Production Limited from July, 2015 to December, 2015.

2 SCOPE

The present Annual Environmental Report provides the description of eni Ghana's environmental activities. The report provides an overview of all environmental monitoring data collected for the activities in 2015.

3 INTERNAL REFERENCES

[Ref.A1]	"eni Ghana IMS"
[Ref.A2]	Well Summary Reports for GI-1, SNK-D, OP CAMP-1 and GI-2
[Ref.A3]	Environmental and Social Impact Assessment Doc 000415_DV_CD.HSE.0208.000_00

4 EXTERNAL REFERENCES

[Ref.B1]	EPA - Environmental Permits No. CE00217801143 and CE00217801146
[Ref.B2]	EPA Guidelines on Environmental Assessment and Management for Offshore Oil & Gas Development in Ghana (2011).



[Ref.B3]	MI Swaco Well Recap On Cuttings Dryer/Solids Control: GI-1, SNK-D, OP CAMP-1 and GI-2
[Ref.B4]	Solid Control Daily Report: GI-1, SNK-D, OP CAMP-1 and GI-2

5 ACRONYMS

AER	annual environmental reports
bbl.	Barrel
CAR	Corrective Action Requested
CHPS	Community-based Health and Planning Services
CLO	Community Liaison Officer
DCE	District Chief Executive
DFO	Drill Floor
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
FPSO	Floating Production Storage Offloading
GHG	Green House Gas
GJ	Giga Joule
GNPC	Ghana National Petroleum Corporation
HHV	Higher Heating Value
HSE	Health, Safety and Environment
HSEQ	Health, Safety Environment and Quality

HQ	Hazard Quotient
IMS	Integrated Management System
ISO	International Standard Organization
JV	Joint Venture
MCE	Municipal Chief Executive
NADF	Non Aqueous Drilling Fluid
NAG	Non Associated Gas
VOC	Volatile Organic Compound
OCNS	Offshore Chemical Notification Scheme
OCTP	Offshore Cape Three Points
OSRL	Oil Spill Response Limited
OSCP	Oil Spill Contingency Plan
POD	Plan of Development
PLONOR	Posing Little Or No Risk
PTW	Permit to Work
SJA	Safe Job Analysis
STMA	Sekondi-Takoradi Municipal Assembly
TBTs	Tool Box Talks
UKOOA	UK Offshore Operators Association
WBM	Water Base Mud

6 DEFINITIONS

Company	eni ghana employees & assets engaged in the oil & gas operations
Contractor	An outside Company awarded a contract by the Company to perform a defined portion of work or to provide services or facilities
Environmental aspects	Elements of an organization's activities or products or services that can interact with the environment
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects
ESHIA	Environmental, Social, Health Impact Assessment. Process for predicting and assessing the potential environmental social and health impacts of a proposed project, evaluating alternatives and designing appropriate mitigation, management and monitoring measures
Incident	Any accident or injury that disrupt the normal operations development. In this definition "near misses" are included.
Near Miss (NM)	An unplanned or uncontrolled event or chain of events that has not resulted in a recordable injury, illness or physical damage or environmental damage but had the potential to do so in other circumstances.



7 INTRODUCTION

The Offshore Cape Three Points (OCTP) development license is located approximately 60 km off the coast of the Western Region of the Republic of Ghana.

The license is for developing oil and gas and the joint venture (JV) is composed of eni Ghana Exploration and Production Limited (“Operator”) holding 44.444% participating interest, Vitol Upstream Ghana Limited (“Vitol”) holding 35.556% participating interest, and Ghana National Petroleum Corporation (GNPC) holding 20% participating interest (15% carried and 5% paid).

Figure 1 indicates the block area of the OCTP block.

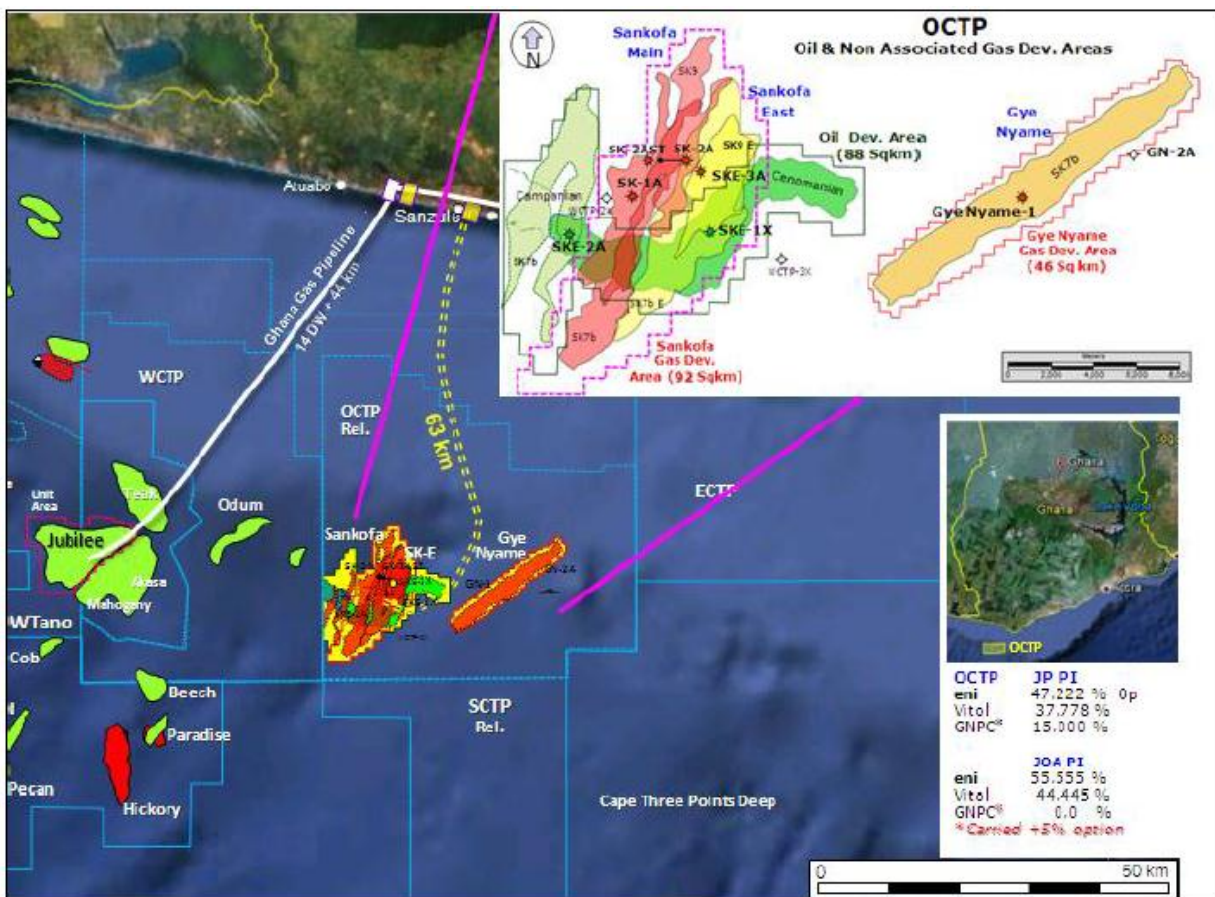


Figure 1: OCTP Block Area

The JV made three non-associated gas (NAG) discoveries: Sankofa Main Field in 2009, Gye Nyame Field in 2011, and Sankofa East Field in 2012. In addition, two oil discoveries were made: Sankofa East Field Cenomanian and Sankofa East Campanian, both in 2012 (“Oil



Discoveries"). The estimated volumes in place associated with the discoveries are some 480 MMbbls of oil and 1.5 Tcf of non-associated gas.

The POD approved by the Petroleum Ministry on 30th December 2014 and its amendment approved on 11th May 2015 considered the integrated development of both oil and non-associated gas in 2 Phases:

- Phase 1: Oil Development Project. This phase consists of 14 subsea wells (8 oil producers, 3 water injectors and 3 associated gas injectors), subsea facilities, and a new conversion, double-hull floating production, storage and offloading (FPSO) unit that will be located about 60 km offshore, south of Sanzule.
- Phase 2: Non Associated Gas (NAG) Development Project. This phase consists of five (5) subsea wells, subsea facilities, gas treating facilities located on the FPSO unit, 63 km subsea gas pipeline, an Onshore Receiving Facility (ORF), and other associated onshore components.

The Phase 1 Oil Development Project Environmental Impact Assessment (EIA) process was undertaken by ESL Consulting (ESL). The Submission of the Final EIS to the Ghana Environmental Protection Agency (Ghana EPA) was done in July, 2015 and the Environmental Permit for the Phase 1 Development released on July 9th, 2015.

The Phase 2 Oil Development Project Environmental Impact Assessment (EIA) process was undertaken by ERM. The Submission of the Final EIS to the Ghana Environmental Protection Agency (Ghana EPA) was done on July 8th 2015 and the Environmental Permit for the Phase 2 Development released on July 24th 2015.

The present Annual Environmental Report provides the description of the eni Ghana's environmental activities in 2015 for Phase 1 of the project.

8 OPERATIONAL SUMMARY AND EVENTS

8.1 DEVELOPMENT DRILLING AND LOWER COMPLETIONS

eni Ghana obtained Environmental Permits (CE00217801143 obtained on 8th June, 2015 with validity until 15th December, 2016 and CE00217801146 obtained on 9th July, 2015 with validity until 31st January, 2017) for the development drilling of thirteen (13) wells as part of the OCTP development project within the Tano Basin License Block and to cover for Phase 1 of the project. The request for Permit for the remaining wells was submitted to the EPA on 28th April 2016. The approval for the other (5) wells was obtained from the EPA on



27th May 2016. Following the issuance of these permits, the drilling program as detailed in the development Environmental Impact Assessment (EIA) report commenced on the 11th of July 2015. The drillship used is the Maersk Voyager.

Wells drilled in 2015 were GI-1, SNK-D, OP CAMP-1, GI-2 and OP-5. Figure 2 illustrates the OCTP Phase 1 schematic layout.

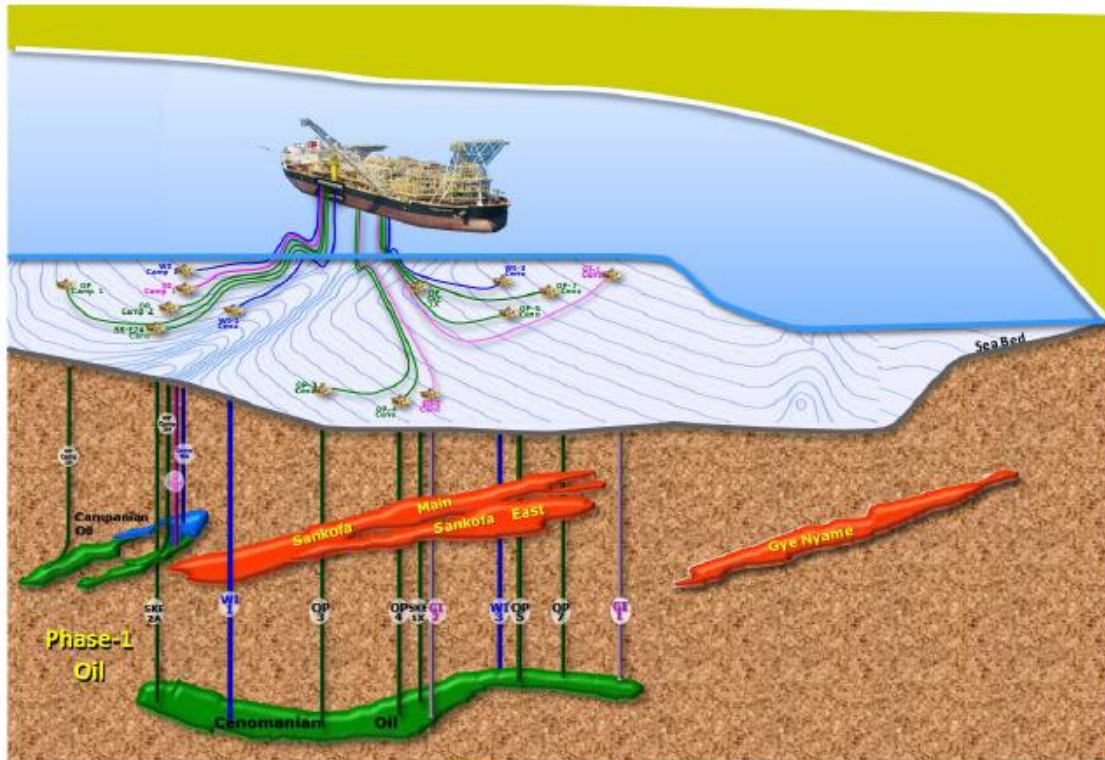


Figure 2: Schematic Layout-Phase 1

Drilling of wells were conducted without any environment related incidents. Terminal reports covering these operations have been submitted to the EPA.

Table 1 below indicates the status of the drilled wells in the OCTP block area in 2015.

Well Name	Well Classification	Well Head Location		Drilling Status	Well Status
		Easting X	Northing Y		
GI-1	Gas Injector	557,575 m	495,045 m	Drilled	Temporary Suspended
SNK-D	Gas Producer	546,990.00 m	493,150.00 m	Drilled	Temporary Suspended

OP CAMP-1	Oil Producer	543,866.72 m	494,419.99 m	Drilled	Plugged & Abandoned
GI-2	Gas Injector	551,162.691 m	492,100.430 m	Drilled	Temporary Abandoned
OP-5	Oil Producer	554,589.83 m	495,106.96 m	Drilled	Temporary Plugged & Abandoned

Table 1: Wells Drilled in 2015

8.2 DRILLING EQUIPMENT

One drilling ship, Maersk Voyager is used for the development drilling operation.

The drilling rig started its operations in July 2015 and will remain there until at least the 4th quarter of 2018. A picture of the drilling ship is seen in Figure 3 below. The Maersk Voyager is a double derrick dynamically positioned drilling ship. Its position and location is guaranteed by thrusters and GPS systems.



Figure 3: Maersk Voyager

Consistent with industry practice and Drilling Permit (Permit No: CE00217801143), a 500m radius safety exclusion zone was established around the rig while drilling within the OCTP Block. However, the exclusion zone was not kept clear of fishermen. There were repeated instances where Fisher nets, fishing lines and fishing boats drifted inside the 500 meter radius towards the drilling rig (at both starboard and port side). In one instance, a fishing net drifted towards the Voyager and came as close as 0.6 NM from bow of the ship. eni Ghana is continuously in coordination with the Ghana Navy is trying to keep these

Fisherman boats out of the safety exclusion zone. A summary of the specifications of the drilling ship are provided in Table 2.

Name	Owner	Rig Type	Maximum Rated Water Depth (m)	Maximum Drilling Depth (m)
Maersk Voyager	Maersk	Drilling Ship	3, 657	12, 190

Table 2: Specifications of Maersk Voyager

8.3 ONSHORE SUPPORT BASE FACILITIES

During 2015, the following facilities were used by eni Ghana as the onshore support facilities for offshore operations:

- eni Ghana Logistics Base in Takoradi;
- dedicated berthing space in the Takoradi Commercial Port;
- GOIL Terminal for bunkering operations in Sekondi Naval Base;
- Takoradi Air Force Base passenger terminal and Inaer helicopter base;
- Several onshore facilities abroad.

8.3.1 Takoradi Logistics Base

The onshore logistics base facility located in Takoradi provided support during 2015 in line with operational requirements. The logistics base provides pipe yard storage, covered warehousing, office accommodation as well as providing the offices for eni Foundation. The base consists of two yards and one building used as offices. It covers an area of 20,000 m² with 4,000 m² of warehousing facility, 15,000 m² used as pipe yard and 1,000 m² used as offices. Casings and other materials such as mud mats, float shoe, mini containers, baskets and slings are stored in the warehouse. An aerial view of the logistics base is seen in Figure 4.



Figure 4: Logistics Base

8.3.2 Takoradi Commercial Port

Takoradi port facilities were used in 2015 for:

- The importation of materials with some dock space to serve as a loading/offloading point for equipment and machinery
- Dispatching equipment and for temporary storage of materials and equipment
- Pre-deployment of equipment
- Transfer of waste produced on rig to waste contractor; and
- Loading of supplies for the rigs and support vessels.
- Cirrus Terminal for bunkering operations

8.3.3 Sekondi Naval Base

The GOIL Terminal in Sekondi Naval Base were used in 2015 for the supply vessels bunkering operations.

8.3.4 Takoradi Air Force Base

eni Ghana leases part of the Takoradi Air force base as its logistical support base. eni Ghana through its contractor, Inaer, upgraded infrastructure at the Takoradi Air Force base to facilitate efficient onshore storage and support facilities for ongoing offshore operations. The area has been concreted to improve access, drainage control and safety.

8.3.5 Onshore Activities Abroad

8.3.5.1 FPSO Fabrication

On 27th January, 2015, Yinson was awarded the contract to fabricate the FPSO to be used for the OCTP oil and gas production.

The FPSO is being fabricated in two phases; the Refurbishment of the vessel and the Integration Phase. The topside modules (17 in total) are being fabricated in different yards. Figure 5 below shows the several yards in several countries where the FPSO is being fabricated and the parts being fabricated. At the end when all the modules are fabricated, they will be shipped to Keppel yard in Singapore for the Integration Phase. As at the end of the reporting year, 2015, progress on the FPSO was about 55%. The FPSO is expected to sail away to Ghana in January/February, 2017.



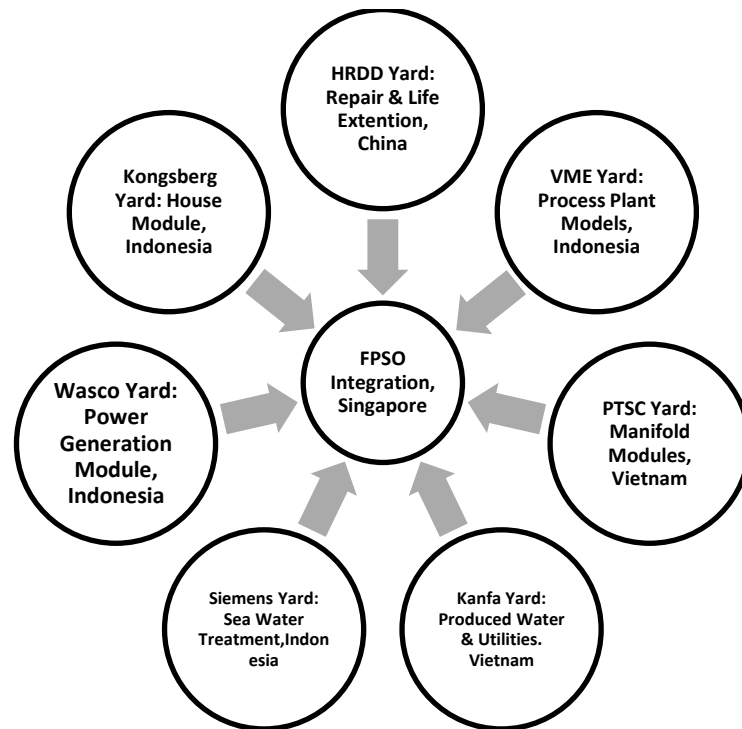


Figure 5: FPSO Fabrication

9 ENVIRONMENTAL MANAGEMENT

9.1 ENVIRONMENTAL MANAGEMENT STRUCTURE

In 2015, eni Ghana HSE Department was in charge of Environmental management. There were HSE supervisors and HSE field supervisors serving as the focal point for all environmental related matters on the Rig, Construction yards and Logistics Base respectively. Since December 2010, eni Ghana has been certified in accordance with the Environmental Management System (EMS) standard, ISO 14001, an international standard for formulating good environmental management system. This permitted eni Ghana to implement proactive environmental objectives.

Top Management provided leadership and direction to ensure the company was operating in an environmentally responsible manner. The HSE Integrated Management System (IMS) awareness was communicated effectively to the entire workforce and top management's commitment to achieving the objectives of the statement drove the implementation process. eni Ghana employs a number of management tools to manage environmental



impacts and risks associated with the Project. These include developing appropriate standards, procedures, plans and work instructions. Periodic auditing and inspections of procedures and operating sites are done for compliance, communicating responsibilities and monitoring.

9.2 ENVIRONMENTAL MONITORING

eni onshore and offshore operations have environmental aspects that have associated environmental impacts which have to be adequately monitored to ensure local environmental quality and ecological conditions are preserved. Monitoring programs are necessary to ensure discharges and emissions from operational activities meet regulatory limits for various environmental parameters and where there are exceedances, measures are put in place to achieve regulatory compliance limits. Permit requirements as well as company's policies and procedures require the monitoring, reporting and management of environmental parameters. In order to efficiently carry out this essential environmental monitoring function, eni Ghana put in place measures to monitor impacts to the environment. In 2015, routine monitoring concentrated on:

- monitoring offshore and onshore water consumption,
- offshore chemical usage,
- drill cuttings management, and
- waste management

This was done in order to ensure compliance with regulatory requirements as well as to evaluate the effectiveness of operational controls and other measures intended to mitigate potential impacts. Monitoring data was analyzed to identify trends in the quality of operational emissions and discharges and its associated impacts on the receiving environment.

9.2.1 Water Used and Discharged

Table 3 below illustrates quantities of water used and their disposal methods.

Location	Type of Withdrawal	Source	Use	Quantity Used	Type of Discharge	Quantity Discharged
Offshore	Seawater	Municipal Water Supply	Cooling systems	5,916,000 m ³	Sea	5,916,000 m ³
Onshore	Freshwater	Surface Water	Domestic use	144 m ³	Sewage/offsite water treatment	144 m ³



Table 3: Water Consumption

9.2.2 Offshore Chemical Usage

Drilling fluids used during drilling wells have many functions. These include bringing up drill cuttings, lubricating and cooling the drill bit, preventing the borehole from collapsing and keeping pressure in the well under control to prevent blowouts.

Two types of drilling fluids were utilized for drilling activities: Water Based Mud (WBM) and Non Aqueous Drilling Fluid (NADF). WBM made mostly of inert materials of extremely low toxicity was used for the jetting of the 36" conductor pipes and the 26" sections which were drilled riser-less with return to seabed using seawater and high viscosity Bentonite sweeps for hole cleaning. NADF was used for the mid and lower sections of the wellbore.

Drilling operations used chemicals with Gold, E, C and D ratings according to the Hazard Quotient(HQ)/Offshore Chemical Notification Scheme (OCNS) ranking. Majority of the chemicals used were rated E under the OCNS system and thus pose little or no risk (PLONOR) to the environment. Table 4 summarizes the offshore chemical usage for drilling operations in 2015. Chemicals used for drilling activities were regenerated after drilling of each well in preparation for the drilling of the next well. Thus reducing both cost and environmental impacts

Chemical Product Name	Function Group	HQ/OCNS Ranking	Total Amount Used/kg
CALCIUM CHLORIDE BRINE S.G. 1.36	Brine	E	169.63
CALCIUM CHLORIDE POWDER 94-97	Solid Salt	E	7900
CAUSTIC SODA	Additive	E	900
DUO-VIS	Viscosifiers	Gold	1700
ECOTROL RD	Fluid-Loss-Control	E	2325
ESCAID 120 BASE FLUID	Base Oil	C	155360
GUAR GUM 3500 CPS	Viscosifiers	E	4600
HRP	Additive	D	630
LIME	pH Control	E	7750
M-I BAR BULK	Weighting material	E	379000
M-I GEL BULK	Viscosifiers	E	85000
OBM VERSACLEAN	Drilling Fluid	B	739930
OBM Versaclean	Drilling Fluid	B	790960
POLYPAC R	Viscosifiers	E	1325
SAFE-CARB 20	Weighting Materials	E	1088.6
SAFE-CARB 40	Weighting Materials	E	3175



Chemical Product Name	Function Group	HQ/OCNS Ranking	Total Amount Used/kg
SODA ASH	Calcium Remover	E	2250
VERSACOAT HF	Wetting Agent	E	4473
VERSAWET	Additive	E	3794
VG-PLUS	Viscosifiers	E	5000

Table 4: Chemical Usage

9.2.3 Reservoir Flows

There were no blow outs during the reporting year. However, Blowout Emergency Response Plan (BOERP) was in place to be activated in situations of blowouts. The plan has the below objectives:

- To protect personnel at well site preventing further accident during the first stage of the emergency
- To prevent further environmental and/or facility damage while adequate equipment and personnel for the response are being mobilized.
- To reduce response time for the intervention by locating the critical equipment and planning for its mobilization, identifying in advance critical issues and properly address them into the Company organization.
- To reduce the overall event time by determining the proper response structure and prioritizing response activities

9.2.4 Waste Management

Waste generated during the reporting year was managed as stated in the eni Ghana Waste Management Plan. The Waste Management Contractor, Zoil Services Limited is authorized by EPA to provide waste management services. Table 8 below shows the type of waste and volume of waste generated. Waste management hierarchy used at all sites is depicted in Figure 6. There is currently a recycling system (with facilities for recycling plastics) in place adopted by eni Ghana's waste management contractor to minimise environmental impacts caused by disposing of plastics in landfills. Shredded plastics are transported to a plastics recycling company in Accra for remolding into waste bins.

To ensure effectiveness of the waste management hierarchy, appropriate identification and



segregation of waste streams is adhered to. To facilitate this, color coded containers as described in Figure 7 below, can be found at all operational sites.

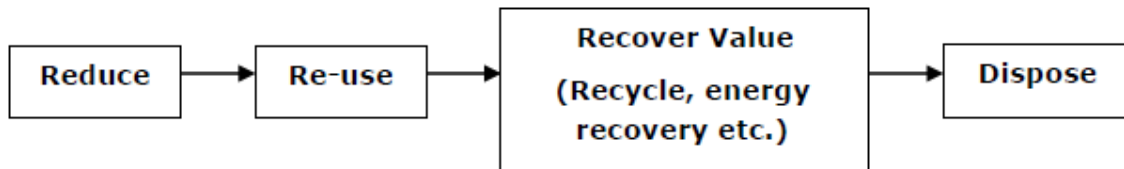


Figure 6: Waste Management Hierarchy

General Waste	Blue
Hazardous Waste	Red
Scrap Metal	Black
Wood	Green
Plastic Waste	Grey
Spill Kit	Yellow

Figure 7: Colour Coding for Waste Management

9.2.4.1 Waste Quantities Generated and Discharged

Wastes generated from operational activities were very diverse in their characteristics, large in their amounts and some of which were hazardous in nature. Thus, quantifying and characterizing the generated amounts in association with their types, sources, and their chemical and biological characteristics was critical to evaluating possible management practices.

On the rig, the wastes produced on the platform by each contractor are stored temporarily in suitable yard structures/containers. All contractors prepare Waste Transfer Notes (WTN) which are collected by Company HSE supervisor on board who then prepares WTN according to Waste Management Plan. The WTN prepared has the following details:

- Details of the waste in transit (classification, description, characteristics, quantity and mode of transport),
- Transport operator with business name and details of permits (the

condition of the vehicle and its preparation will be his responsibility);

- Identification of the vehicle and the person responsible for the waste (e.g. the driver, in the case of road transport);
- Addressee (business name, destination plant, location and details of permits) and intended route; The quantity of waste transported (a directly weighted quantity or, at least an estimation

The waste is shipped onshore where waste management contractors receive the waste, ensure waste segregation according to eni Ghana's waste management plan before transporting the waste for final disposal/treatment. A waste register (waste log) and copies of all WTNs that have been produced from the site are maintained. The Waste Register (waste log) include, as a minimum, the following information:

- Source of waste (e.g. rig, vessel, Logistics Base, etc.)
- Waste description (e.g.: oily rags)
- Classification of waste streams (i.e. hazardous or non-hazardous)
- Quantity (weight (kg) or volume (in liters or in m³)).
- Waste Transfer Note numbers
- Dates of transfer
- Mode of transport
- Transport operator
- Vehicle
- Details of permits.

Food waste is shredded and dumped at sea through a sieve with an aperture of 25 mm., as defined by "MARPOL (Marine Pollution) international standards.

Civil sewage discharged from W.Cs, washbasins, showers and cambouse are treated in a purification system before being dumped into the sea. Discharge is compliant with "MARPOL" international standards.

In Table 5 below, total quantities of waste generated and the treatment/disposal methods for 2015 is presented. Main treatment options used were:

- Recycling
- Disposal To Landfill



- Treatment

32.2 tonnes of waste material (comprising plastics and metals) was recycled over the reporting period. 55 tons non-hazardous, inert waste that cannot be avoided, reused or recycled was disposed of at the Sekondi-Takoradi Municipal Assembly (STMA) landfill. 426.4 m³ of waste comprising oily water, mud slopes, mud water and waste oil was sent for treatment by Zeal Environmental Technologies Limited through a contract with MI Swaco.

Waste Type	Quantity Generated	Unit	Treatment Option	Contractor In Charge of Disposal
General Waste	55,087	Kg	Disposal to Landfill	Zoil
Plastics	4,446	Kg	Recycling	Zoil
Wood	19,387	Kg	Disposal to Landfill	Zoil
Scrap Metal	27,743	Kg	Recycling	Zoil
Oily Rags and Waste	4,728	Kg	Incinerated	Zoil
Oily Water	146.4	m ³	Treatment	MI Swaco
Empty chemical bags	2,460	Pieces	Incinerated	Zoil
Plastic Drum	1,101	Pieces	Recycling	Zoil
Metal Drum	439	Pieces	Recycling	Zoil
Septic Waste	151,493	Litres	Treatment	Zoil
Chemical Waste	976,400	Kg	Treatment	Zoil
Metal and Plastic Thread Protectors	1,831	Pieces	Recycling	Zoil
Bulbs and Glasses	30	Kg	Temporary Storage	Zoil
Waste oil	128.5	m ³	Treatment	Zoil
Spent Cooking Oil	1000	Litres	Treatment	Zoil

Mud Slopes	146.6	m ³	Treatment	MI Swaco
Mud Water	4.9	m ³	Treatment	MI Swaco
Oily Sludge	28.1	tons	Treatment	MI Swaco
Neutralized Acid	7	tons	Treatment	MI Swaco

Table 5: Waste Management

9.2.4.2 Management of Drill Cuttings

Discharging cuttings contaminated with NADF into the sea attracts surcharges as per the EPA regulations if the oil concentration exceeds two per cent by weight – in other words, 20 grams of oil per kilogram of cuttings.

The mixture of drilling fluid and cuttings generated during the drilling process was brought back to the rig floor for treatment. MI Swaco's Solid Control System which includes two Verti G Dryers, two centrifuges and another centrifuge that works in-line with the Verti-G dryer were deployed on the drillship to reduce the oil based mud on the cuttings.

Drilling fluid and cuttings from the wellbore were routed to the shakers which consist of a series of vibrating screens for removal of coarse grained cuttings and sand. The movement of the vibrating screens is designed to transport the oversize solids (drill cuttings) to the discharge end of the shaker, where they are collected and transported to the Verti-G dryer for further separation. Drill cuttings are then sent to the Verti-G cuttings dryer unit for further processing. The oil content in the drilling cuttings at the end of the process is reduced from 15% -20% output from shale shakers to approximately 2.0%. The centrifuges are used to remove fine solids content in the mud (mainly barite and fine clay that passes from shale shakers and the screens of the Verti-G). The fluids resulting from the process is recovered and put back in the mud system for reuse while the solids are mixed with cuttings dry products from Verti-G and discharged to the sea.

Terminal reports covering well operations (drilling and lower completions) were completed and submitted to EPA as required by permit conditions. Table 6 below gives a summary of volume of cuttings discharged for sections drilled with NADF, and volumes of mud recovered and discharged for all wells drilled in 2015.



Cuttings Discharged (m³)	253.00	135.58	294.00	255.37	Total
	937.95				
Mud Recovered (m³)	63.12	381.00	126.02	61.79	Total
	631.93				
Mud Discharged (m³)	13.90	9.80	16.2	27.4	Total
	67.30				

Table 6: Drill Cuttings Summary

A total of 937.95 m³ of cuttings were discharged via a caisson from the drilling rig. The Verti-G recovered about 631.93 m³ of mud. Mud recovered was put back into the system for re-use. Thus, eni Ghana was able to successfully recover a considerable volume of fluid reducing both cost and environmental impacts. 67.30 m³ of mud was discharged below the sea level after treatment.

9.2.4.3 Oil On Cuttings

The environmental permit granted by the Ghana EPA allows cuttings with oil content values (%) with the $2 < OC < 10$ to be discharged in situ. Average oil on content (OOC) percentage for 2015 was 2.50%. OOC percentages for all wells drilled in 2015 are presented in Table 7 below.

Well	GI-1	SNK D	OP-CAMP 1	GI-2	2015 Average OOC (%)
Well OOC (%)	2.54	2.52	2.41	2.54	2.50

Table 7: Oil On Cuttings

9.3 INSPECTIONS AND AUDITS

In line with ESHIA Phase 1, eni Ghana provided periodic audits and inspections. HSE inspections were conducted on a regular basis at all operational sites. These included both physical condition inspections as well as procedural audits. eni Ghana assigned HSE supervisors at the rig and Logistics Base to ensure that eni's expectations, compliance activities, and HSE procedures were adhered to onsite. Tasks performed by HSE supervisors at rig and the Logistics included the following:

1. Area inspections were conducted on a daily and weekly basis on rig floor, chemical storage area, service companies units, mud processing and treatment units,



welding and cutting areas, emergency evacuation and mustering equipment, work and accommodation areas and high pressure equipments.

2. Risk assessment process including Project Risk Register, Permit to Work (PTW), Safe Job Analysis (SJA), Tool Box Talks (TBTs), and Pre Job Meetings
3. Safe Job Analysis (SJA) was done on activities such as drilling, casing, lifting, completion, chemical mixing, mud processing, work at height, and working in confined spaces.
4. Waste Management (Waste Segregation, Waste Inventories, issuing of Waste Transfer Notes, monitoring and implementation of legal requirement for compliance
5. HSE daily and bi weekly meetings with contractors
6. Chemical Management (Handling, Storage, MSDS, Transportation, etc.)
7. On-board solids control equipment for cuttings cleaning.
8. Housekeeping.
9. DROPS (hunting for potential dropped objects)
10. Monitoring of Operational Health and Safety standards.

Beyond routine inspection and monitoring activities conducted, audits were carried out by both internal and external auditors to ensure compliance with regulatory requirements as well as with internal HSE standards.

9.3.1 Internal Audit

Since December 2010, eni Ghana has been certified in accordance with the Environmental Management System (EMS) standard, ISO 14001, an international standard for formulating good environmental management system. From 18th November, 2015 to 11th December, 2015, a legal and compliance audit was conducted at Takoradi Logistics Base, Takoradi Port, Offshore Drilling Ship (Maersk Voyager) and in the Accra office to check compliance of the applicable legal & other compliance requirements that are found in the legal register and in various documents.

9.3.2 External Audits

- HSE Technical Audit: from the 22nd – 24th June 2015, an HSE technical



audit was conducted at Accra HQ and Takoradi Logistics Base to assess the level of compliance of HSE integrated Management processes and practices of eni Ghana exploration and production ltd with eni spa HSE Management System Guidelines

- Lifting and Assessment Audit was conducted in August 2015 to assess the suitability of lifting procedures, standards, best practice policy and/or regulations available to guide lifting activities

9.3.3 ISO 14001

Since December 2010, eni Ghana has been certified in accordance with the Environmental Management System (EMS) standard, ISO 14001, and in 2015, a major task was to ensure eni Ghana's EMS certification was maintained following the ISO 14001 surveillance audit in December 2015. To this effect, two audits were conducted at the following locations

- Part I - Accra HQ & Takoradi Logistics Base
- Part II - Offshore Operations, Maersk Voyager

The main activities lined up and implemented in order to achieve the milestone included:

- Takoradi Logistics Base Operations
- ISO 14001 EMS system maintenance
- Review and upgrade of the ISO 14001 Legal register

Certifications were re-confirmed for all premises.

10 ENVIRONMENTAL INCIDENTS

Environmental incidents which include unintended contained spills are logged on the INDACO incidents reporting tool. A summary of environmental incidents recorded for the year of reporting are presented below:

1. Incident Type:	Non Injurious Incident (contained spill)
Date:	21st July, 2015
Company:	Maersk Drilling
Location:	Maersk Voyager, OCTP



Description of Event: A valve had been left cracked open, allowing drilling fluid to fill the mini trip tank and over flow onto the below deck. The fluid was contained on-board and no discharge to the environment occurred.

CAR: Spill kits in the area affected were used as bunds to prevent the fluid spreading over the deck. <100 Litres (liquid) or 0,1 MT (dry bulk).

The valve which was left cracked opened was closed. Drill crew was informed on the importance of checking valve lineups when pumping drill fluids. The incident was discussed at the drilling departmental safety meetings for all drill crews.

2. Incident Type: Non Injurious incident (contained spill)

Date: 23rd August, 2015

Company: Maersk Drilling

Location: Maersk Voyager, OCTP

Nature of incident: Contained Spill

Description of Event: Contained spill in the Shakers. The level sensor in the shaker box was not working so the DFO lined up the shakers in manual mode and the valve was closed at the Header box. The shakers were switched off. The DFO told the driller to call him before he put any mud through the shakers so he could line it up. The driller forgot and emptied the Trip tank to the shakers with the Valve closed and the shakers off. The Gumbo box overflowed putting about 3 bbl. of NADF on the shaker floor. None of the liquid went overboard or reached the environment.

CAR: All affected area was cleaned and cleaning material disposed of correctly. The sensor has been repaired and checked

3. Incident Type: Non Injurious Incident (Contained Spill)

Date: 15th September, 2015

Company: Maersk Drilling

Location: Maersk Voyager, OCTP



Description of Event: At approximately 18:00 hrs on the 15th September, an unplanned, contained spillage occurred. Drilling fluid from the open header box in the flow line to the shakers over flowed and ran down the bulkheads to the decks below. The fluid was contained by the bunded areas, there was no marine pollution.

CAR: Valve to remain open at all times. All materials cleaned and disposed of properly.

All raised corrective actions have been closed formally.

11 EMERGENCY PREPAREDNESS

In 2015, eni Ghana put in place an Emergency Response Plan to:

- minimise negative consequences to human life, environment, eni ghana assets and business in case of an emergency situation, and eni reputation by an effective and efficient response;
- ensure the availability of adequate information on emergency situations through a good communication system and at all levels;
- ensure efficient management of the emergency through all available and dedicated resources

However, the ERP was never activated except for drills during 2015.

The ERP covers all stages and phases of the emergency response, from initiation until the emergency is over and the normalization phase has started.

The development drilling & production operations Oil Spill Contingency Plan (OSCP) was also in place to offer guidance on the necessary actions to prevent and/or minimise any accidental discharge of oil and to mitigate any negative effects. eni Ghana also utilized the services of Oil Spill Response Limited (OSRL) to carry out training exercises and inspections to further improve oil spill awareness and capability for both in house personnel and third party contractors. Below is a summary of activities conducted and oil spill response equipment provided during 2015:



- Harbor Package Training for 14 eni personnel
- Equipments Audit and vessel liaison
- Equipments for the Takoradi Logistics Base
- Equipment at the harbor
- Offshore training sessions for 14 crew - Posh Sincero
- Equipment for Posh Sincero

12 SUSTAINABILITY & COMMUNITY ENGAGEMENT ACTIVITIES

eni Ghana's social performance is made up of three component parts; community stakeholder engagement, social impact management and social investment. In 2015, eni Ghana was committed to operating and acting in accordance with laws, rules of fair competition, honesty, integrity, transparency and good faith, with due respect to the legitimate interests of its employees, shareholders, commercial and financial partners, industry associations, communities and legitimate institutions, governments and their agencies. A fundamental value exhibited in 2015 was respecting the local communities and people impacted by its business. Proper management of the social impacts of its operations was critical to the growth and sustainability of the business. Managing impacts consistently helped to ensure risks were mitigated and also ensured that projects run on time and on budget. Positive reputation was built to strengthen access to growth opportunities. Broadly, milestones achieved in 2015 are listed below in the sections.

12.1 HEALTH

1 Community-based Health and Planning Services (CHPS) compound was built in Sanzule in the reporting period to provide Family Planning, Clinical Care, Health Promotion/CWC sessions, Home visits, Outreach postnatal, Emergency delivery and School Health.

12.2 COMMUNITY ENGAGEMENTS

A series of grass-root interactions with key influencer groups, individuals and institutions in Accra and Takoradi were made providing the possibility for stakeholders to become acquainted with the project, to understand its potential impacts and proposed mitigation and management measures and finally for the affected community and interested public, to raise concerns and issues. eni Ghana's Community Liaison Officers (CLOs) met with the



community representatives at local level in areas potentially affected by the project. The purpose of these meeting were to provide project updates, answer questions about the planned operations and elicit feedback on local concerns and issues.

Three public hearings attended by the Western Regional House of Chiefs, Municipal Chief Executives (MCEs), District Chief Executives (DCEs), Assembly Members, the Media and the General Public were held to:

- introduce the Company and begin the foundations of a friendly, mutually understanding relationship between eni Ghana and all the fishing communities along the coast who could in one way or another affect or be affected by our activities.
- ensure that the fishing communities understand what the drilling operations are about, the benefits of the operations and the fishermen's limitations. The result would be that both the fishermen and Eni Ghana could occupy the waters for that frame of time with no or very minimal interruptions to drilling operations.
- form a good relationship with the communities, understand their background, needs and concerns and where possible or feasible, work together to improve them

13 CONCLUSION

In 2015, eni Ghana worked to:

- minimize environmental impacts from their operations both on offshore and onshore,
- maximize safety for its personnel and
- comply with EPA permit conditions.

This achievement is reflected by the fact that only minor environmental incidents were recorded despite high level of operational activity the company was engaged in. Thus the company's effort in achieving a high HSE performance on a continual basis has yielded some positive results. eni Ghana worked with a number of regulators and parastatal organisations to further improve capacity in relation to the oil industry. The efficiency of the Verti-G dryer, permitted fluids to be recovered, upgraded and reused, thus volumes of



chemicals that could have otherwise been discharged overboard was avoided.

Drilling and lower completion operations on the project will continue in 2016 to ensure the timely delivery of the project.

