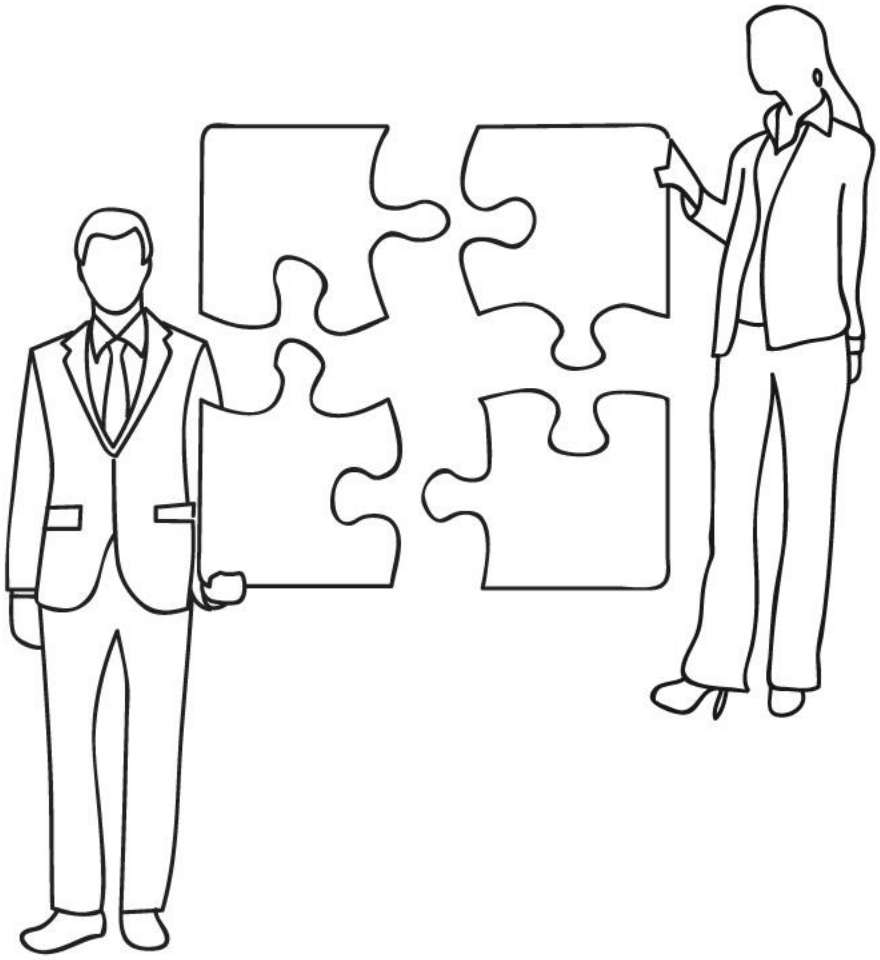
Report

2021 Annual Environmental Report – OCTP Phase 1



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1 OBJECTIVE

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

- Regulation 25 of the Environmental Assessment Regulations 1999 (LI 1652)
- Environmental Protection Agency (EPA) Certificate for production of hydrocarbons, installation, completions and commissioning activities of the Phase-1 Offshore Cape Three Point (OCTP) Block with validity of 15th November, 2018 to 14th May, 2020 (Permit no. CE0021780503) expired and a new permit was issued with validity of 15th May,2020 to 14th May,2023. (Permit no. CE0021780626)
- Environmental Protection Agency (EPA) Certificate for the operation of the gas onshore receiving facility (ORF) at Sanzule with validity of 18th December 2019 – 18th December 2022 (Permit No. CE0021780607).
- Environmental Protection Agency (EPA) Permit to undertake acid stimulation and scale inhibitor treatment on six (6) OCTP Wells (SNKE-1X, OP-3, OP-4, OP-5, OP-6, GI-4,) with validity of 12th March,2021 to 11th September 2021 (Permit no CE0021780711) expired and a new permit to undertake Acid Simulation and Scale Inhibitor Treatment on Two (2) OCTP Wells (SNKE-1X and OP-5) with a validity period of 29th October, 2021 to 28th April, 2022 (Permit no CE0021780743) was issued.
- Environmental Protection Agency (EPA) Approval to undertake Inspection Maintenance and Repair (IMR) on OCTP subsea installations with Reference number CE:2178/7/46.
- Environmental Protection Agency (EPA) Permit to undertake drilling of one (1) production well (G1-3 ST) with validity of 15th June 2021 to 14th September, 2021 (Permit no. CE0021780716) was issued. However, this drilling campaign was postponed. A postponement notification letter dated 23rd August, 2021 with Reference no. GV/MD/2021/08/1112 was sent to Environmental Protection Agency (EPA).

This annual report presents environmental activities on the Offshore Cape Three Points (OCTP) Block conducted by Eni Ghana Exploration and Production Limited from January to December 2021.

2 SCOPE

The present Annual Environmental Report provides the description of Eni Ghana's Environmental Activities conducted in 2021.

REFERENCES

1	Environmental and Social Impact Assessment Doc. 000415_DV_CD.HSE.0208.000_00
2	EPA - Environnemental Permit. CE0021780626, CE0021780711, CE0021780716 and CE0021780743
3	Environmental Protection Agency (EPA) Approval to undertake Inspection Maintenance and Repair (IMR) on OCTP subsea installations. Reference number CE:2178/7/46.
4	EPA Guidelines on Environmental Assessment and Management for Offshore Oil & Gas Development in Ghana (2011).
5	Regulation 25 of the Environmental Assessment Regulations 1999 (LI 1652)

3 ACRONYMS

AER	Annual Environmental Reports
bbl.	Barrel
CAR	Corrective Action Requested
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
FLET	Flowline End Termination
FPSO	Floating Production Storage Offloading
GNPC	Ghana National Petroleum Corporation
HSE	Health, Safety and Environment
HSEQ	Health, Safety Environment and Quality
HQ	Headquarters
IMS	Integrated Management System
ISO	International Standard Organization
JV	Joint Venture
MOU	Memorandum of Understanding
NAG	Non-Associated Gas
OCTP	Offshore Cape Three Points
OSRL	Oil Spill Response Limited
OSCP	Oil Spill Contingency Plan

POD	Plan of Development
PSVs	Platform Supply Vessels
PTW	Permit to Work
SJA	Safe Job Analysis
STMA	Sekondi-Takoradi Municipal Assembly
TBTs	Tool Box Talks
Vs.	Versus
WBG	World Bank Group
WTN	Waste Transfer Note

4 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.

5 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 (PI), Vitol Upstream Ghana Limited ("Vitol") holding 35.556% (PI), and Ghana National Petroleum Corporation (GNPC) holding 20% (PI) with 15% carried and 5% paid.

Figure 1 indicates the block area of the OCTP block.

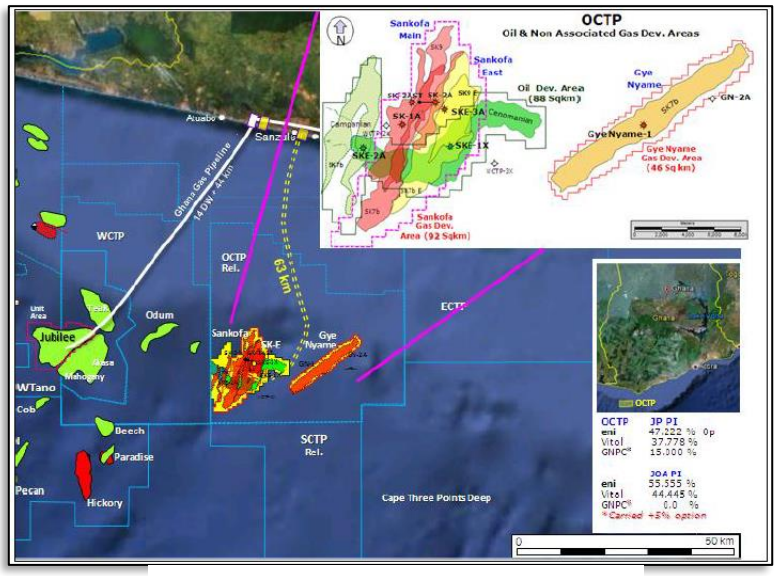

Figure 1: OCTP Block Area

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 OCTP project considers the development of both oil and non-associated gas in 2 Phases:

- Phase 1: Oil Development Project. This phase consists of 15 subsea wells (10 oil producers, 2 water injectors and 3 associated gas injectors), subsea facilities, and a new conversion, double-hull floating production, storage and offloading (FPSO) unit that is 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, a 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 very 1st Environmental Permit for the Phase 1 Development released on July 9th, 2015. Subsequent Permits for oil production were issued & renewed in May 2020.

The Phase 2 Gas 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 very 1st Environmental Permit for the Phase 2 Development was issued on July 24th 2015. Subsequent Permit for gas production was issued in December 18, 2019.

This AER provides the description of the Eni Ghana's environmental activities in 2021 for Phase 1 of the OCTP project.

Eni Ghana's activities in 2021 were covered by the following Environmental permits granted by the EPA. The Permits are:

Permits valid in 2021

- Environmental Protection Agency (EPA) Permit for production of hydrocarbons, installation, completions and commissioning activities of the Phase-1 Offshore Cape Three Point (OCTP) Block with validity of 15th November, 2018 to 14th May, 2020 (Permit no. CE0021780503) expired and a new Permit for the continuous production of hydrocarbons and associated operations in the OCTP Block (Phase 1) with validity of 15th May, 2020 to 14th May, 2023.

- Environmental Protection Agency (EPA) Permit to undertake acid stimulation and scale inhibitor treatment on six (6) OCTP Wells (SNKE-1X, OP-3, OP-4, OP-5, OP-6, GI-4,) with validity of 12th March 2021 to 11th September, 2021 (Permit no CE0021780711) expired and a new permit to undertake Acid Simulation and Scale Inhibitor Treatment on Two (2) OCTP Wells (SNKE-1X and OP-5) with a validity period of 29th October, 2021 to 28th April, 2022 (Permit no CE0021780743) was issued.
- Environmental Protection Agency (EPA) Permit to undertake drilling of one (1) production well (G1-3 ST) with validity of 15th June 2021 to 14th September 2021 (Permit no. CE0021780716) was issued. However, this drilling campaign has been postponed. A postponement notification letter dated 23rd August 2021 with Reference no. GV/MD/2021/08/1112 was sent to Environmental Protection Agency (EPA).
- Environmental Protection Agency (EPA) Approval to undertake Inspection Maintenance and Repair (IMR) on OCTP subsea installations with Reference number CE:2178/7/46.

8 OPERATIONAL SUMMARY AND EVENT

8.1 DRILLING & WELL COMPLETIONS

Drilling of the Exploration Well (Eban-1X) for CTP Block 4 started on 30th April 2021 and ended 12th July, 2021. Activities were covered under EPA Permit for Offshore drilling of one Exploratory Well (Eban 1-X), (Permit no: CE0021780709).

Two (2) Light Well Intervention (LWI) campaigns were conducted on six (6) OCTP Wells (SNKE-1X, OP-3, OP-4, OP-5, OP-6, GI-4) and two (2) OCTP Wells (SNKE-1X and OP-5) from 25th March- 21st April 2021 under Permit no CE0021780711 and from 29th October- 28th April, 2022 (Permit no CE0021780743) respectively. Terminal Reports were successfully submitted after each campaign.

8.1.1 Drilling equipment

The drilling Equipment used was the SAIPEM 10000 drilling ship. The Drilling Ship is a Samsung Heavy Industries P12000 Dynamically-Positioned drillship that was designed for operations in 12,000 feet of water with the current water depth being 2,057 feet. Drilling depth for the rig is 40,000 feet. A picture and a summary of the specifications of the drillship are provided in Figure 2 and table 1 below.

SAIPEM 1000 DRILLING EQUIPMENT			
The Drilling Ship is a Samsung Heavy Industries P12000 Dynamically-Positioned drillship that was designed for operations in 12,000 feet of water with the current water depth being 2,057 feet. Drilling depth for the rig is 40,000 feet.			
Rig Type	Drillship	 **Figure 2: Drilling Rig - SAIPEM 10000**	
Design	Samsung Heavy Industries P12000		
Builder	Samsung Heavy Industries, Korea		
Year Built	2000		
Classification	ABS ✠A1, Drilling Unit, (E), ✠AMS, ✠CDS, ✠ACCU, ✠DPS-3, OMBO, DLAFPSO		
Flag	Bahamas		
Accommodation	200 Persons		
Helideck	Up to Chinook Size/ Diameter of 27.2		
Moonpool	25.6 x 12.48 m		
Station Keeping	DP Class 3		
Max Drill Depth	30,000 ft / 9,144 m		
Max Water Depth	10,000 ft / 3,048 m		
TECHNICAL DIMENSIONS			
Length	~748 ft	~228 m	
Breadth	137.8 ft	42 m	
Depth	62.3 ft	19 m	
Operating Draft	39.4 ft	12 m	
Ocean Transit Draft	26.9 ft	8.2 m	
CAPACITIES			
Liquid Mud	12,300 bbl.	69059.34 ft	1,956 m^3

Drill Water	18,157 bbl.	101944 ft^3	2,887 m^3
Potable Water	6,704 bbl.	37640 ft^3	1,066 m^3
Fuel Oil	43,550 bbl.	244,515 ft^3	6,924 m^3
Bulk Mud	2,850 bbl.	16,000 ft^3	453 m^3
Bulk Cement	3,295 bbl.	18,500 ft^3	524 m^3

Table 1: Vessel specification for Saipem 1000 Drilling Equipment

The vessel used for the Light Well Intervention campaign was the OCV Normand Frontier Light Well Intervention vessel.

A picture and a summary of the specifications of the vessel used for the LWI is provided in table 2 below.

Normand Frontier			
The Subsea Construction Vessel is a Dynamically Positioned (DP2) vessel built in 2014 that was designed for operations in deep water. On board are #2 ROVs capable of operating in 13,000 feet of water.			
Vessel Type	OCV		
Design	STX OSCV 03		
Builder	TULCEA /AUKRA		
Year Built	2014		
Classification	1A1 ICE-C SPS SF COMF-V(3)C(3) HELDK-SH CRANE E0 DYNPOS-AUTR NAUT-AW CLEAN DESIGN Recyclable DK(+) BIS TMON		
Flag	NIS		
Accommodation	100 Persons		
Helideck	20.9 m (BSL d-5 1)		
Moonpool	7.2 m x 7.2 m		
Station Keeping	DP2 Class DNV DYNPOS AUTR (OPERATION+), Kongsberg Reference System. 2x DPS 132, 1x DPS 232, 2x HiRaP 501&502(Dual HiRap)		
Max Water Depth	4050 m (Based on max ROV operating depth)		
Operating Conditions	N/A		
Storm Conditions	N/A		
TECHNICAL DIMENSIONS			
Length	~396.5 ft	120.85 m	
Breadth	~96.40 ft	29.40 m	
Depth	~29.5 ft	9 m	
Max Design Draft	~21.6 ft	6.6 m	
CAPACITIES			
Base Oil	1,496.97bbl.	8,404.89 ft^3	238 m^3
Brine	1,886.94bbl.	10,594.4 ft^3	300 m^3
Fresh Water	5,365.21bbl.	30,123.4ft^3	853 m^3

Table 2: Vessel specification for Normand Frontier

8.2 INSPECTION MAINTENANCE AND REPAIRS (IMR) ACTIVITIES

The scope of the activities was to perform Inspection Maintenance and Repairs (IMR) campaign on the OCTP Subsea installations. The main activities conducted were;

- Detailed inspection of OP-7 XT
- Low Insulation Resistance (IR) Investigation
- Inspection of several subsea items and other opportunity activities

The campaign lasted for a period of 18 days starting with mobilization on 10th December and ending on 28th December 2021.

Activities were covered under EPA Approval to undertake Inspection Maintenance and Repair (IMR) on OCTP subsea installations with Reference number CE:2178/7/46.

The vessel used for the IMR activities was the same as the vessel used for the LWI. Specification of the vessel are shown in table 2 above.

8.3 OIL PRODUCTION OPERATIONS

Oil Production activities continued in 2021.

8.3.1 Hydrocarbon Production Volumes

As at end of December 2021, about 15,740,458.66 barrels of oil and 121,552.03 MMscf of gas was produced which consist of 51,659.12 associated gas produced and 69,893.4 non-associated gas production. 4066.0 MMscf representing 3.345% of the gas produced was used as fuel gas whereas about 908.2 MMscf AG was flared, because of operational activities and upsets representing 0.75% of total gas produced. 50,479.71 MMscf representing 41.52% was re-injected. 29.5 MMscf representing 0.024% was vented and 63017.4 MMscf NAG representing 51.84% was exported. The graph below illustrates the different uses for the associated gas produced in 2021.

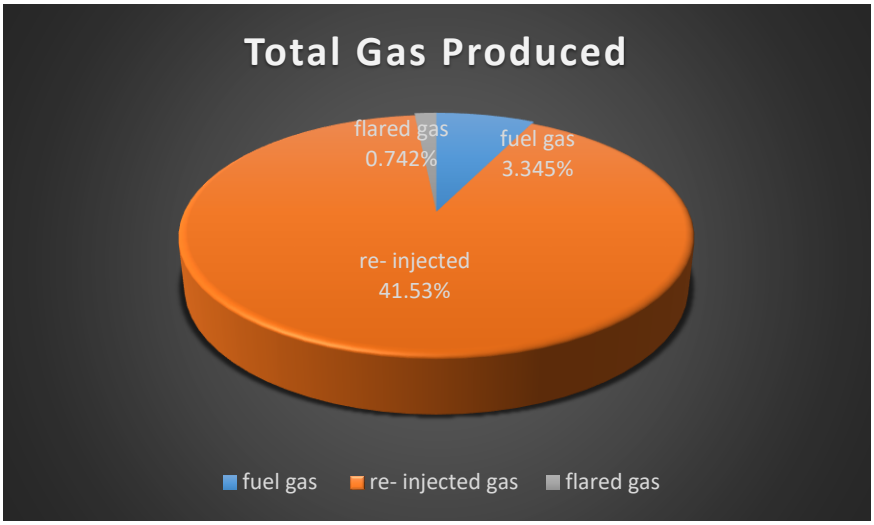

Figure 3: Total Gas Produced

8.3.2 Produced Water

No produced water was received from the reservoir.

8.3.3 Gas Flaring

About 908.2 MMscf of gas was flared in 2021 as a result of operational activities and Process upsets.

8.3.4 Floating, Production, Storage, Offloading (FPSO) Equipment

The FPSO is a new conversion double hull/double balcony unit installed above the main oil and non-associated gas reservoirs inside the OCTP area. It is about 63 km from shoreline (Sanzule), and it is controlled and operated by Eni Ghana.

The FPSO treats all crude oil and associated gas (which is re-injected for reservoir pressure support) produced from the OCTP. Crude oil is separated from associated gas and water, stabilized and stored into storage tanks in the FPSO unit before being metered and offloaded. Oil producers, gas and water injection wells are connected directly to the FPSO unit through flexible risers and flowlines. Treated oil is delivered to tankers and associated gas is

re-injected in the reservoir.

A picture of the FPSO is shown in Figure 4 below.

Figure 4: FPSO JAK

8.4 ONSHORE SUPPORT BASE FACILITIES

In 2021, the following facilities were used by Eni Ghana as onshore support facilities for offshore operations in Ghana:

- Eni Ghana Logistics Base in Takoradi;
- Berthing space in the Takoradi Commercial Port;
- Takoradi Air Force Base passenger terminal and heliconia helicopter base;

8.4.1 Takoradi Logistics Base

The Takoradi logistics base facility provided support in line with operational requirements. The logistics base provides pipe yard storage, covered warehousing and office accommodation. Below are some of the activities that continuously occur at the Logistics Base.

- Bundling of casings and pipes;
- Offloading and loading of casings and pipes;
- Loading and Transferring of lifting equipment (mini containers, baskets and other containers) to the Port;
- Waste collection by Zoil; and
- Storage of Oil Spill Response Equipment.

The base consists of a yard and a building used as offices, security post, changing/crew facility drivers lounge and PPE storage unit. It covers an area of 20,000 m^2 with 4,000 m^2 of warehousing facility, 15,000 m^2 used as pipe yard and 1,000 m^2 used as offices and other amenities (canteen and changing rooms). 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 5.

Figure 5: Logistics Base

8.4.2 Takoradi Commercial Port

Takoradi port facilities were used in 2021 for:

- Loading of equipment from trailer at quayside unto supply vessel;
- 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;
- Transfer of waste produced offshore to waste contractor;
- Loading of supplies for the FPSO and support vessels;
- Waste collection by Zoil; and
- Bunkering operations.

8.4.3 Takoradi Air Force Base

The Takoradi Air Force Base was used to facilitate efficient transportation of personnel to support offshore and onshore operations.

8.4.4 Main Project activities for 2021

There were no project related activities for 2021.

9 ENVIRONMENTAL MANAGEMENT

9.1 ENVIRONMENTAL MANAGEMENT STRUCTURE

Eni Ghana is committed to follow and comply with all applicable legal and regulatory requirements on its operations. Above that, Eni Ghana considers environmental protection as an engine of a continuous improvement process that guarantees achievements over time.

For this reason, Eni Ghana has developed a set of guidelines that clearly include Company's principles on managing Environmental matters. The HSE Department is in charge of Environmental Management. In order to manage environmental related risks, the Company implements a series of practices from the identification of risks and assessment of impacts to developing appropriate standards, implementation of environmental management plans, procedures, work instructions and control of effectiveness of these through continual monitoring and periodic auditing and inspections of procedures and operational sites to ensure compliance, communicate responsibilities and monitoring.

The environmental management system is implemented through the Company's HSE Integrated Management System (IMS). Eni Ghana's HSE IMS is applicable to all Company's activities and within this framework, all Environmental Impact Assessment (EIA) studies, Environmental Management Plans and programs (including specific procedures and plans) and other formal documentation are implemented in order to assure that all requirements contained in these documents are adequately managed. Since December 2010, Eni Ghana has been certified in accordance with the Environmental Management System-EMS (ISO 14001) standard. ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system and helps organizations improve their environmental performance. This permits Eni Ghana to implement proactive environmental objectives and manage activities through the best practice tools. The EMS regularly confirms compliance by an independent authorized certification body which verifies

and endorses full alignment with the requirements of international standards for Environmental Management.

Further, in 2021, top management provided leadership and direction to ensure the company was operating in an environmentally responsible manner.

A number of management plans were developed for specific environmental issues and other plans continued to be implemented in 2021. Among these plans include the following:

- Avian Biodiversity Action Plan
- Oil Spill Contingency Plan;
- Flora Conservation Plan
- Fugitive Emission Monitoring
- Environmental Management Plan;
- Waste Management Plan;
- Environmental Monitoring Program;
- Marine Mammal and Sea Turtle Policy Protection Program;
- Offshore Hazardous Material Management Plan;
- No Net Loss Implementation Plan
- Blowout Emergency Response Plan (BOERP).
- Air and GHG Emission Management Procedure

Among others, these plans generally deal with the under-listed environmental issues:

- Emissions to air and ambient air quality.
- Liquid Discharges (bilge water, wastewater, sewage effluent etc.);
- Chemicals Management.
- Waste Management;
- Oil and chemical spills (spill prevention and response); and
- Biodiversity Conservation and Sustainabilty

9.2 ENVIRONMENTAL MONITORING

Eni Ghana's operations have environmental aspects that have to be adequately monitored to ensure local environmental quality and ecological conditions are preserved. Monitoring programs were 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 compliance. In order to efficiently carry out this essential environmental function, a contractor is in place to support with environmental and biodiversity management activities. Monitoring is done in order to ensure compliance with regulatory requirements, comply with WBG (World Bank Group) requirements as well as evaluate the effectiveness of operational controls and other measures intended to mitigate potential impacts.

In 2021, monitoring activities included:

- Water consumption;
- Chemical usage;
- Waste management;
- Sewage discharges

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
Rig	Seawater	Sea	Cooling systems	9210720 m^3	Sea	9210720 m^3
Rig	Freshwater	Town	Drilling	3923 m^3	N/A	N/A
FPSO	Seawater	Sea	Cooling systems	48099010.44 m^3	Sea	44452038.49m^3
FPSO	Seawater	Sea	Injection	858652.88 m^3	Offshore Reservoir	858654.88 m^3
FPSO	Seawater	Sea	Process Use	4596472.73 m3	Sea	8139253.95 m3

Table 3: Water Usage 2021

9.2.2 Offshore Chemical Usage

Table 4 summarizes the offshore chemical usage for drilling and production operations in 2021.

9.2.2.1 Rig Chemical Usage

Chemical Product Name	Function Group	HOCNOF	Total Quantity Used/unit (kg)
Rig			
ADAPTA LE	Filtration Control	Not Classified	1211.3
BARACARB 25	Weighting Agent	Green	1800
BARACARB 50	Weighting Agent	Green	1650
BARACARB 5	Weighting Agent	Green	450
BARAZAN D	Primary Viscosifier	Green	2800
BARITE	Weighting Agent	Green	585000
BENTONITE	Primary Viscosifier	Green	124000
CALCIUM CHLORIDE	Salt	Green	13000
CAUSTIC SODA	Alkalinity Control	RED	700
CITRIC ACID - 25 kg BAG	pH Control	Green	375
DURATONE E	Filtration Control	Yellow	4766.8
EZ MUL NT	Primary Emulsifier / Wetting Agent	Yellow	11834.4
GELTONE II	Primary Viscosifier	RED	2224
GUAR GUM	Viscosifier	Green	3100
LIME	Alkalinity Control	Green	10725
PAC-L	Filtration Control	Green	4375
RHEMOD L	Primary Viscosifier	RED	1330
SODA ASH	Hardness Control	Green	350
SODIUM BICARBONATE	Alkalinity Control	RED	375
STARCIDE	Biocide	Not Classified	975

Table 4: Chemical Usage for drilling Activities 2021

9.2.2.2 FPSO Chemical Usage

FPSO CHEMICAL USAGE			
Chemical Product Name	Function Group	OSPAR Classification	YTD
Methanol	Oil/gas treatment	Green	2855066
TEG	Gas treatment	Yellow	35000
versalis e®-embr H03G01	Demulsifier	Black	129206
versalis e®-cori H03D01	Corrosion inhibitors (gas stream)	Black	115741
versalis e®-pour H03R03	PPD (subsea), Pour point depressant	Yellow	542240
versalis e®-oxsc W03N01	Oxygen Scavenger	Green	49163
versalis e®-scin W03S01 WI	Scale inhibitor (water)	Red	27943
versalis e®-anfo H03A01	Defoamer, Anti-foaming agent	Yellow	41579
versalis e-bioc W03C03	Membrane Biocide	Red	31675
versalis e®-scin W03S01 TOP	Scale inhibitor (oil)	Red	10053
VERSALIS E-®BIOC W03C01	Biocide 1 (Sea water)	Red	7856
versalis e®-bioc W03C02	Biocide 2 (Sea water)	Red	7360
versalis e-padi H03P01	Wax (subsea), dispersing agent	Yellow	142358
versalis e®-cori W03D02	Corrosion inhibitors (Liq stream)	Not classified	66938
MEG	NAG System treatment	Not classified	2700338
Descaling Liquid	Liquid acid descaler	Not classified	475
H.P. Wash	HP washing cleaner	Not classified	0
RO Biosulphite	De-chlorinating agent	Not applicable	625
Sodium Hipochloride	Potable water chlorination	Not classified	825
Coldwash HD	General purpose cleaner	Yellow	0
Oxygen Scavenger Plus	Boiler water oxygen scavenger	Not classified	125
Vaptreat	Fresh water generator treatment	Red	275
Gamazyme BTC	Biological Toilet Cleaner	Not classified	0
CleanBlade GTC 1000	GTG water wash detergent	Not applicable	0
Autotreat	Multifunctional boiler water treatment	Not classified	375
Cleanrig (C)HP	General purpose cleaner	Yellow	60
Condensate Control	Feed water corrosion control	Not classified	100
Disclean	Purifier maintenance disc cleaner	Not classified	100
Electrosolv-E	G.P. cleaner & degreaser for elect.	Not classified	0
Enviroclean	General purpose cleaner	Not classified	1025
12	Sewage Plant Activator / Cleaner	Not classified	38
Gamazyme DPC	Sewage drain pipe cleaner	Not classified	207
Sodium Metabiosulphite Solution	De-chlorinating agent	Not classified	0
Metal Brite H.D.	Rust stain remover	Yellow	0
Rocor NB	Corrosion inhibitor	Not classified	150
Handcleaner	Handcleaner	Not applicable	45
versalis e®-embr W03G01	Polyelectrolyte	Black	7981
versalis e®-bioc W03C01	Biocide for Cargo & Slop tanks	Red	2600
versalis e®-bioc 2000	Biocide for Cargo & Slop tanks	Red	3000
Carbon Remover	Heavy duty degreaser	Not classified	75

Table 5: Chemical Usage for FPSO JAK Activities 2021

9.2.2.3 Light Well intervention Chemical Usage

Light Well Intervention		
Chemical Product Name	**Function Group**	**Total Amount Used**
POTASSIUM CHLORIDE (23.5%)	Salt	98 m3
MEG	Hydrate Inhibitor	52 m3

HAI-OS	Corrosion Inhibitor	395 gals
HII-124B	Corrosion Inhibitor Intensifier	41 lbs
SARALINE 185V	Base oil	322 m3
HII-124F	Corrosion Inhibitor Intensifier	395 gals
FERCHECK	Iron Control	268 lbs
LOSURF 300M	Surfactant	591 gals
SCALECHEK LP-55	Scale Inhibitor	1621 gals
CLA-STA FS	Clay Stabilizer	769 gals
SODA ASH	Sodium Carbonate	495 gals
HCL 33% raw acid	Hydrochloric acid	10255 gals
ALCHEK	Complex control	116 gals
PEN-88M	Surfactant	5 gals
FE-1A	Iron control	70 gal
ABF	Acid	495 gals
NH4CL	Ammonium chloride salt	1760 lbs.

Table 6: Chemical Usage for LWI Activities 2021

9.2.2.4 IMR Chemical Usage

CHEMICALS USED DURING IMR CAMPAIGN		
Chemical Product Name	Function Group	Total Amount Used
GLY FLO	Sealant	36 litres
FLO SEAL	Sealant	24 litres
FLO SEAL SS+	Sealant	11 litres

Table 7: Chemical Usage for IMR Activities 2021

9.2.3 Reservoir Flows

Blowout Emergency Response Plan (BOERP) was in place to be activated in the event of a blow-out. 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 2021 was managed as stated in the Eni Ghana Waste Management Plan. MARPOL regulations on offshore waste management were complied with as stipulated in the permit conditions. Waste generated is segregated into six (6) waste categories i.e. (food, oily waste, plastic, metal, paper and hazardous). At the logistics base however, segregation is done to include wood waste and spill kits. Segregation is carried out at source.

As per MARPOL requirements, food waste is discharged after maceration to achieve a size of <25 mm. The Waste Management Contractor, Zoil Services Limited, authorized by EPA provided waste management services for both Rig and FPSO. Table 5 below shows the types and volumes of waste generated. There is currently a recycling system (with facilities for recycling plastic waste generated) in place adopted by Eni Ghana's waste management contractor to minimise environmental impacts caused by disposing of plastics to landfills.

Shredded plastics are transported to a plastics recycling company in Accra for remolding into waste bins. Hazardous waste comprising oily water and drill cuttings were sent to shore to be managed via high temperature thermal desorption unit by Zoil Services Limited.

Waste management hierarchy used at all sites is depicted in Figure 6. To ensure effectiveness of the waste management hierarchy, appropriate identification and segregation of waste streams were practiced. To facilitate this, colour-coded containers as described in Figure 7 below was at all operational sites. However, colour codes for containers are adjusted from

one site to site depending on availability of particular types of colors.

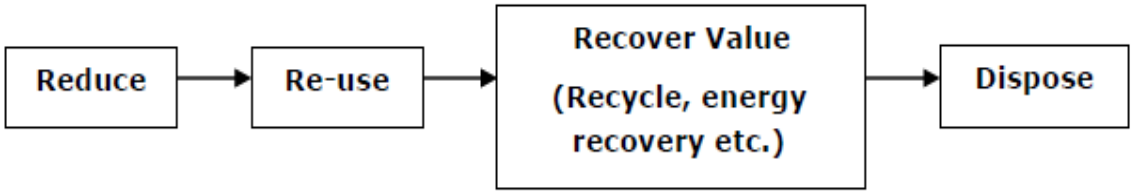

Figure 6: Waste Management Hierarchy

Colour	Collection Location
	PLASTIC WASTE
	HAZARDOUS WASTE
	OILY WASTE
	FOOD WASTE
	PAPER WASTE
	METAL WASTE

Figure 7: Colour Coding for Waste Management

9.2.4.1 Waste Quantities Generated and Discharged

Wastes generated from operational activities were diverse in their characteristics, large in their amounts and some 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 all contractors are stored temporarily in suitable bins and skips placed at vantage points. The crew then fills out the manifest with the different types and volumes of waste. The Company HSE supervisor on board prepares Waste Transfer Note (WTN) from the waste manifest and 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 the waste management contractor receives the waste, ensures further 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 were produced from the site are maintained by an HSE personnel in the office. The Waste Register includes, as a minimum, the following information:

- Source of waste (e.g. rig, 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));
- WTN numbers;
- Dates of transfer;
- Mode of transport.

Macerated or ground food waste with particle size no greater than 25 mm is discharged at sea as defined by "MARPOL" (Marine Pollution) international standards.

Civil sewage discharged from W.Cs, washbasins and showers are treated in a purification system before being discharged to sea. Discharge is compliant with "MARPOL" international standards. All discharges into sea and to a reception facility are recorded in a Garbage record book.

In Table 6 below, total quantities of waste generated in 2021 and the treatment/disposal options is presented. Main treatment options used were:

- Recycling;
- Disposal to Landfill;

- Treatment.

Rig Waste Type	Quantity (KG)	Contractor In Charge of Disposal	Method of Recycling, Reuse or Disposal
Scrap Metals	50.05 kg	Zoil Service Limited	Recycling
Plastic drums	0.30 kg	Zoil Service Limited	Recycling
Metal drums	1.61 kg	Zoil Service Limited	Recycling
Waste Oil	0.0 m3	Zoil Service Limited	Treatment
Oily Sludge	92.1 m3	Zoil Service Limited	Treatment
Neutralized Acids	0 m3	Zoil Service Limited	Treatment
Hazardous Chemical packaging	11.61 kg	Zoil Service Limited	Incineration
Rig Mixed Waste	18.0 kg	Zoil Service Limited	Treatment
Sackstore Waste	0.00 Kg	Zoil Service Limited	Treatment
Chemical Waste	0.00 kg	Zoil Service Limited	Treatment
Edible Oil & Fat	0.7 m3	Zoil Service Limited	Treatment
Hazardous Batteries	0.08 kg	Zoil Service Limited	Treatment
Wood and Pallet	17.36 kg	Zoil Service Limited	Recycling
Paper	0.4 kg	Zoil Service Limited	Recycle
OBM Cuttings	163.99 kg	Zoil Service Limited	Treatment
Hazardous Oily rags and Filters	4.60 kg	Zoil Service Limited	Incineration
IBC	0.73 kg	Zoil Service Limited	Treatment
Hazardous waste (mainly oily rags)	21.17 kg	Zoil Service Limited	Incineration
Oily Containing Drilling Muds & Waste	133.0 kg	Zoil Service Limited	Treatment
Concrete	0.00 kg	Zoil Service Limited	Treatment
Oil Polluted Concrete/Soil (Cement)	5.00 kg	Zoil Service Limited	Treatment
FPSO Waste Type	**Quantity (tons)**	**Contractor In Charge of Disposal**	**Method of Recycling, Reuse or Disposal**
Oily Rags	3.7	Zoil Service Limited	Treatment
Oily Sediment	0	Zoil Service Limited	Treatment
General Waste	11.1	Zoil Service Limited	Disposal to Landfill
Plastic	17	Zoil Service Limited	Recycling
Metal Scraps	11.5	Zoil Service Limited	Recycling
Paper/Cardboard	16.3	Zoil Service Limited	Recycling
Macerated Food Waste	18.48	Zoil Service Limited	Treated and discharged overboard
Food Waste	1.60	Zoil Service Limited	Disposal to Landfill
Fluorescent Lamps	0.313	Zoil Service Limited	Treatment
Lithium Batteries	0.165	Zoil Service Limited	Treatment
Medical Waste	0.02	Zoil Service Limited	Treatment

Electronic Waste	0.3	Zoil Service Limited	Treatment
Cooking Oil	0.01	Zoil Service Limited	Treatment

Table 8: Waste Generated

9.2.5 Emissions to Air and Ambient Air Quality

During the reporting year, Eni Ghana monitored emissions emitted on the FPSO and other supporting vessels. Emissions generated were calculated using SHERPA, an excel based tool developed by the Eni Upstream for accounting air emissions. The SHERPA tool collects, manages and consolidates air emissions allowing accounting for GHG emissions, in addition to other air pollutants (SOx, NOx, CO, nmVOCs) on the basis of activity data (e.g. diesel consumptions, fuel gas consumption, flaring volumes, etc.).

Table 7 below indicates emissions generated by the FPSO and supporting vessels in 2021.

Site	Emission Source	Parameter					
		NOx (t)	SO2 (t)	CO2 (t)	CO (t)	nmVOCs (t)	CH4 (t)
FPSO	Flare Stack	26.25	0	66,812.51	146.54	128.86	293.27
FPSO (Gas Fuel)	Turbines & Boilers	623.07	0	320,180.80	292.49	3.57	19.15
FPSO (Diesel Fuel)	Turbines & Boilers	3.10	1.91	776.04	0.22	0.07	0.00
FPSO PSVs	Turbines	348.99	40.68	16,563.12	265.03	17.33	0.60

Table 9: Air Emissions

9.3 ENVIRONMENTAL HEALTH AND SAFETY INITIATIVES

In 2021, new initiatives and additional managerial efforts were implemented to affect environmental aspects. These initiatives included:

- Plastic waste recycling initiative
- Waste segregation initiative at the Accra Head office

Whiles the old initiatives remained ongoing

- Implementation of Process Safety Management System PSMS
- HSE Personal commitment
- Conventional lights replacement with LED

- Pact for Safety
- HSE contractor Management tool
- Process safety Fundamentals
- HSE Behavioural Safety Program
- Safety Competence
- E-work Permit
- HSE app and reporting

9.4 INSPECTIONS AND AUDITS

In line with ESHIA Phase 2, Eni Ghana provided periodic audits and inspections. HSE inspections were conducted on a regular basis at all operational site. These included both physical condition inspections. Procedural audits were also carried out virtually & physical in accordance with the audit plan for the year. Eni Ghana assigned HSE supervisors at the FPSO, Logistics Base and other operational sites to ensure that Eni's expectations, compliance activities, and HSE procedures were adhered to. Tasks performed by HSE supervisors at the FPSO and Logistics Base included the following:

- Risk assessment process including Project Risk Register, Permit to Work (PTW), Task risk analysis (TRA), Tool Box Talks (TBTs), and Pre Job Meetings;
- Task risk analysis (TRA) done on activities such as lifting, chemical mixing, work at height, and working in confined spaces;
- Waste Management (Waste Segregation, Waste Inventories, issuing of WTN, monitoring and implementation of legal requirement for compliance;
- HSE daily and biweekly meetings with contractors;
- Chemical Management (Handling, Storage, MSDS, Transportation, etc.);
- DROPS (hunting for potential dropped objects); and
- Monitoring of Operational Health and Safety standards.
- Ensuring good housekeeping.
- Compliance Audit for Waste management Contractor.

All inspections and Audits were carried out under strict covid 19 protocols and others (Audits) done online.

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

9.4.1 EPA Visit-FPSO JAK

No inspections were carried out by EPA in 2021 for the FPSO JAK due to Covid 19 restrictions.

9.4.2 Internal Audit

The following internal audits were conducted in 2021:

Level 2 HSE Technical Audit (Takoradi Logistics Base)	March 2021
Level 2 HSE Technical Audit (ORF)	March 2021
Level 2 Process Safety Audit Report (ORF)	March 2021
HSE Contractors Compliance Audit (Zoil Limited)	April 2021
HSE Contractors Compliance Audit (Saipem 10K)	May 2021
HSE Legal Audit Regulatory Conformity Verification	December 2021

9.4.3 External Audits

- In May 2021 WBG Env. & Soc. Audit (Virtual Site Monitoring)
- In December 2021, RINA conducted a Recertification Audit for ISO 14001 & 45001 standards

10 ENVIRONMENTAL INCIDENTS

One (1) environmental incident was recorded and logged into the INDACO incidents reporting tool. A summary of the environmental incident recorded for 2021 is presented below:

1) Incident Type:	**Oil Sheen detection nearby FPSO JAK**
Date:	24 July, 2021
Location:	FPSO JAK
Description of Event:	Spill detected nearby our FPSO (OP-7) well with an estimated quantity based on Boom agreement between 1m3 to 7,4m3, corresponding to 6,4bbl i.e., 47,5bbl.
Corrective Action Report:	Involvement of GE (supplier of the subsea system) in the investigation, to identify the failure and relevant responsibilities To Carry out an ROV inspection on OP-7 XT in the upcoming useful opportunity

11 EMERGENCY PREPAREDNESS

In 2021, Eni Ghana continued to implement the Best Available Practice in the midst of the Covid 19 Pandemic inscribed in the updated Emergency Response Plan after series of drills conducted. This was to.

- Minimize in case of an emergency, as far as reasonably practicable, negative consequences to human life, environment, Eni Ghana assets and business, 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 pre-alarms and emergencies through all available and dedicated resources.

The Eni Ghana Emergency Response Plan (ERP) details all stages and phases of the emergencies and procedure to respond accordingly.

2021 emergency exercises conducted includes.

1. On 4th May 2021, Eni Ghana conducted a "Level 2" Tabletop Emergency Exercise, (Scenario; Fire and Medivac drill) to test the internal and external communication and mobilization process, to verify the effectiveness of the measures in place to prepare for and respond to emergencies, and to identify strength and weakness points to be properly managed in case of real emergencies on board the Drillship Saipem 10000. In general, the exercise successfully tested both internal & external notification and mobilization process, the readiness to support emergencies during the unusual period of covid-19 pandemic through Microsoft Teams, virtual communications between various parties, the definition of the emergency response strategy to simulate organization and response with Head Quarters, communications with local government authorities and with contractors, the mobilization of external resources, etc.

2. On 18th November 2021, a "Level 2" Tabletop Emergency Exercise on the FPSO JAK (Scenario; Oil Spill) to test the activation and mobilization of the HOERT, to test the easy accessibility of emergency response documentation (including notification and updates (to HQ and local authorities)), to test knowledge and awareness of eni ghana ERP and OSCP, to test the dissemination and transmittal of information and to assess the effectiveness of the existing OSCP. The exercise was very successful with objective achieved. Findings and suggestions for improvement during the debriefing session were taken into consideration.

12 SAFETY EXCLUSION ZONE

Consistent with industry practice and acquired Environmental Permits, a 500m radius safety Exclusion Zone (EZ) was established around the FPSO and Rig during operational activities.

However, the safety exclusion zone was not kept clear of fishermen. There were several instances where fishing boats using fishing lines were spotted at both starboard and port side. LC & S (Local Content & Sustainability) department continued with collating and monitoring data of fishing canoes involved in incursions of the mandatory 500-meter exclusion zone to FPSO John Agyekum Kufuor (JAK) and other offshore oil and gas installations.

The presence of Ghana Navy vessel within the 500m zone of the FPSO since November 2021 has led to zero (0) incursion rate

13 CONCLUSION

In 2021, Eni Ghana worked to:

- Decrease the negative impact and/or reasonably minimize environmental impacts from operations offshore,
- Comply with Company standards, EPA permit conditions and WBG requirements,
- Maximize safety for its personnel**.**

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 RENA unit permitted minimal oil on water contents to be achieved.

Planning for oil spills, putting in place OSRL secondee to help with readiness of the company in the event of oil spill. A wide range of environmental monitoring activities was conducted throughout 2021 whiles respecting all the Covid 19 protocols.

14 PLANNED ENVIRONMENTAL ACTIVITIES FOR 2022

Activities to be undertaken in 2022, which will aim at ensuring the Company compliance with environmental regulations and maintaining a good environmental performance within Company´s operations. These will include following:

- Offshore Environmental Monitoring Campaign;
- Rollout of the No Net Loss Implementation Plan (NNLIP)
- Maintain active engagement with Ghana EPA in relation to Environmental matters;
- Waste management
- Fugitive Monitoring Campaign on FPSO JAK
- Continue with Biodiversity (Marine mammals and Sea Turtle) Monitoring as well as monitoring of other environmental aspects.
- Continue improvement of waste segregation at the Eni HQ office in Accra and all operative sites.
- Improvement on water management and Optimization
- Continue implementing and maintaining environmental best practices and World Bank Group requirements of the activities planned