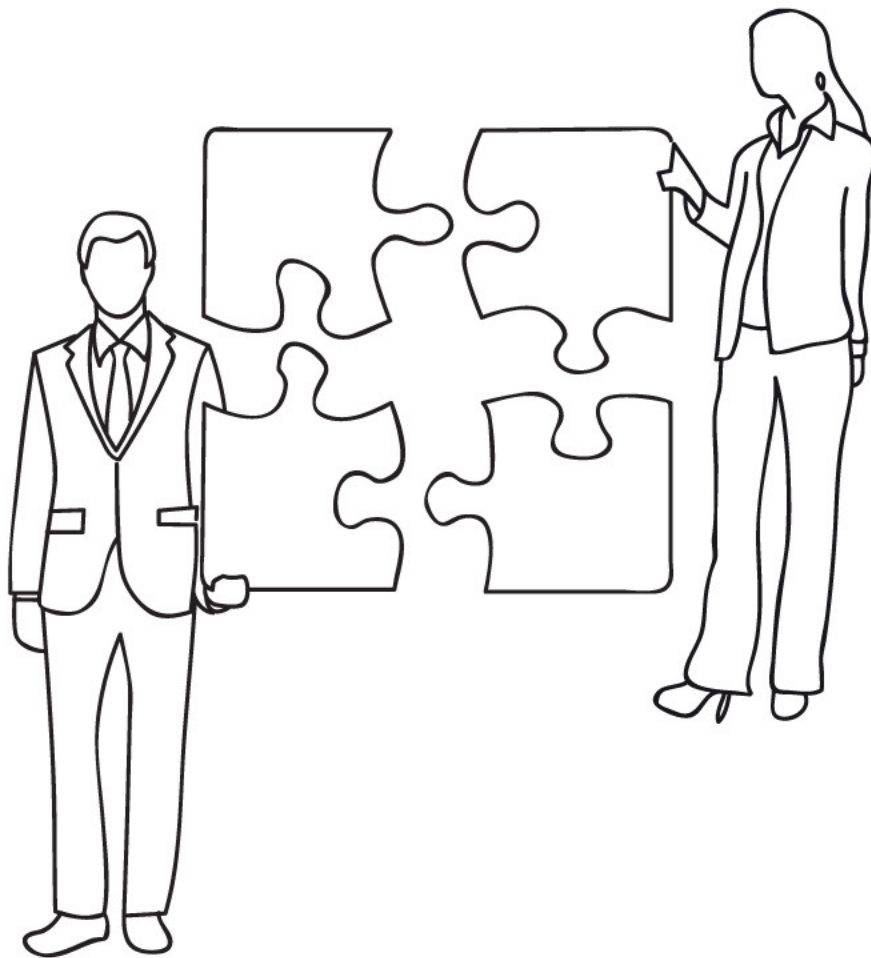


Plan

plan ms hse 013 eni Ghana - "Marine Traffic Management Plan"



TITLE:

MARINE TRAFFIC MANAGEMENT PLAN
Construction and Development Drilling Phase

NOTE:

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REVISION SHEET

Rev.	Date	N. pages	Change Description	Prep.	Ver.	Appr.
00	19-10-2016	34	Final Issue	M Cobb	C Ortuño	D Strippoli



1. PURPOSE	5
2. APPLICABILITY	7
3. REFERENCES	8
4. ACRONYMS	9
5. REQUIREMENT	10
6. MANAGEMENT PLAN	12
7. ROLES AND RESPONSIBILITIES	27
8. REPORTING	29
9. APPENDICES	30

1. Purpose

eni Ghana has developed this Marine Traffic Management Plan (MTMP) as part of its Environmental, Social and Health Management Plan (ESHMP).

This plan aims to ensure the management and control of all Project-related vessel movements within the offshore Area of Influence which may pose a risk to the safe passage of local fishing boats and commercial vessels along the coast.

The specific objectives of the Marine Traffic Management Plan are as follows.

- Define vessel speed restrictions and exclusion areas.
- Provide for 24-hour monitoring of vessel movements.
- Provide the basis for a marine safety awareness campaign, targeting fishing communities, to reduce the risks of marine traffic accidents for all types of fishing vessels.
- Consultation with local fishing communities on the MTMP and fishermen will be provided with up-to-date information on marine logistics.
- Marine safety awareness campaign, targeting fishing communities, to reduce the risks of marine traffic accidents for all types of fishing vessels.
- Procedure for a constructive outreach to the Navy through consultation, as well as training on human rights (in line with the Security Management Plan).
- Community engagement and grievance mechanism to ensure that any concerns on Project Marine Traffic can be raised and managed promptly using a transparent process.
- Minimise marine accidents through high levels of vessel maintenance, operator awareness, training and awareness raising amongst vulnerable water users.
- Marine contractors will submit suitable HSE plans which will include a marine safety risk assessment. This includes qualifications of marine vessel captains and crew, training conducted and compliance auditing.

eni Ghana remains the ultimate responsible party for compliance with ESHIA commitments, and will establish means for monitoring/supervision of contractor's performance.

The Marine Traffic Management Plan should be read in conjunction with other Company plans, detailed here below.



- plan ms hse 009 eni Ghana - "Environmental, Social and Health Management Plan - Construction and Development Drilling Phase";
- Stakeholder Engagement Plan (with Grievance Mechanism), Annex F to the Environmental, Social and Health Management Plan - Construction and Development Drilling Phase;
- plan ms hse 014 eni Ghana - "Marine Mammals and Sea Turtles protection Policy and Plan";
- prog ms hse 007 eni ghana "Fisheries Management, Participatory Monitoring Programme and Compensation Framework Strategy";
- Security Management Plan, Annex X to the Environmental, Social and Health Management Plan - Construction and Development Drilling Phase;
- eni Upstream & Technical Services Technical Specification & Acceptability Criteria for Platform Supply Vessel (PSV).

Communications undertaken with the community within the AoI and relevant for this plan will be managed through the Stakeholder Engagement Plan and its associated Action Plans.



2. Applicability

This Plan describes the requirements for eni Ghana with regard to Marine Traffic applicable during the construction and development drilling phase of the Offshore Cape Three Points (OCTP) Project. This phase of the Project will require the use of a drilling rig, pipeline laying barges, support vessels and tugs.

Health	Safety	Environment
	X	X



3. References

3.1 Internal References

- eni Upstream & Technical Services Technical Specification & Acceptability Criteria for PSV (LOGIS/SELT-ST-2179-0-2014, Rev 0).
- Ghana OCTP Block Phase 1 Environmental, Social and Health Impact Assessment, ESL, June 2015. Doc. 000415_DV_CD.HSE.0208.000_00, Rev 04.
- Ghana OCTP Block Phase 2 Environmental, Social and Health Impact Assessment, ERM, Doc. 000415_DV_EX.HSE.0304.000_01, Rev 05.
- Hydrocol Energy – Layered Security Zones, Nov 2015.

3.2 External References

- World Bank Group Environmental, Health, and Safety Guidelines Offshore Oil and Gas Development, 2015.
- WBG Performance Standard 4 ¹: Community Health, Safety and Security and Guidance Note 4. International Finance Corporation/World Bank Group, January 1, 2012.
- WBG Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts and Guidance Note 1. International Finance Corporation/World Bank Group, January 1, 2012.

¹ IFC, WB and MIGA PSs

4. Acronyms

ATBA	Area To Be Avoided.
COLREG	Convention on the International Regulations for the Prevention of Collisions at Sea (COLREG), 1972.
CPA	Closest Point of Approach
EIA	Environmental Impact Assessment.
EIS	Environmental Impact Statement.
ESHMP	Environment, Social and Health Management Plan.
FLO	Fisheries Liaison Officer
FPSO	Floating Production Storage and Offtake Vessel.
GMA	Ghana Maritime Authority.
GPHA	Ghana Ports and Harbour Authority.
HSE IMS	Health, Safety and Environment Integrated Management System.
IMO	International Maritime Organization.
MTMP	Marine Traffic Management Plan
SOLAS	International Convention of the Safety of Life at Sea, 1974.
PSV	Platform Supply Vessel
UNCLOS	The United Nations Convention on the Law of the Sea, 1982.
VTMIS	Vessel Traffic Management Information System.
WP	Waypoint

5. Requirement

5.1 Legal

Various laws, policies, systems, standards and international good practice codes are applicable to the implementation of this Plan. Such requirements are outlined in Section 7 of the ESHMP. Further detail is provided in Chapter 3 of the EIS document.

Ghana laws and regulations, and International Conventions of particular relevance for managing and implementing this Plan include, but are not limited to the following.

Legislation	Applicability to Project
Ghana Maritime Zones Delimitation Law 1986.	Implements UNCLOS 1982.
Ghana Maritime Authority Act 2002; and Amendment Act 2011.	Established the Ghana Maritime Authority (GMA) as responsible for the regulation and coordination of activities in the maritime industry and for the implementation of the provisions of enactments on shipping.
Ghana Shipping Act 2003; and Amendment Act 2011.	Regulates trade in Ghanaian waters. The amendment was intended to inject local content into the oil and gas development by encouraging Ghanaians to participate in the shipping activities relating to offshore business.
Ghana Shipping (Protection of Offshore Operations and Assets) Regulation. LI 2010. 25th January 2012.	Stipulates conditions for offshore installation safety zones including the protection of such zones and entry conditions; the establishment of exclusion zones and protection mechanisms; and pipeline protection areas and cable protection areas.
Convention on the International Regulations for the Prevention of Collisions at Sea (COLREG) 1972.	Determined navigation rules to be followed by ships and other vessels at sea to prevent collisions; allowed for the creation of Traffic Separation Schemes and Areas to Be Avoided (ATBA).
United Nations Convention on the Law of the Sea (UNCLOS) 1982.	Article 60 provides the power to establish safety zones around offshore installations, extending to a distance not exceeding 500 m from each point of the outer edge of the installation. Ghana is a party to UNCLOS which is implemented in Ghana by the Maritime Zones Delimitation Law.



5.2 International Good Practice Standards

World Bank Group Environmental, Health, and Safety Guidelines Offshore Oil and Gas Development, 2015.	Requirements for navigational aids (including radar and lights on facility structures and, where appropriate, on support vessels); 500 m facility safety zone; Requirement for facility to monitor and communicate with vessels approaching it. Notification of all permanent offshore facilities, safety zones and routine shipping routes to be used by project-related vessels to GMA. Permanent facility locations should be marked on nautical charts. Notification of GMA of schedule and location of activities that will significantly increase vessel movements, such as during facility installation. Establishment of a subsea pipeline corridor safety zone (typically 1,000 m wide) to define anchoring exclusion zones and provide protection for fishing gear.
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6. Management Plan

eni is committed to maintaining the safety and security of its people, its assets and its operations within its own EHS standards and to Ghanaian law and international requirements such as the World Bank/IFC guidelines. eni will work closely with stakeholders such as the Ghana Maritime Authority (GMA), Ghana Ports and Harbour Authority (GPHA), Ghana Navy, and fisheries groups in the implementation of this plan.

6.1 Management and Monitoring

Management and Monitoring measures are defined on the basis of the ESHIA outcomes, combined with applicable legal requirements and other relevant industry good practice (such as those as detailed Section 1.2.6 of the World Bank Group's EHS guidelines Offshore Oil and Gas Development, 2015).

eni Ghana and its contractors are required to implement and comply with the management and monitoring requirements described in the following sections and in *Table 6.2* as appropriate to their scope of work in order to avoid, minimize and control impacts and risks with regard to marine traffic impacts.

6.2 Offshore Infrastructure Restrictions and Advisory Vessel Routes

Offshore Infrastructure Restrictions

eni Ghana is working with the GMA to define and map advisory security zones and safety exclusion zones associated with eni offshore installations. Once defined and approved by GMA and IMO, the safety exclusion zones will be registered as ATBA by the GMA and will be marked on nautical charts, thus becoming legally enforceable once facilities are installed. Details of the co-ordinates of the proposed restricted areas are included in Appendix A of this plan.

During construction activities, the following **safety exclusion zones** will be defined as ATBA (see *Figure 6.2*). regulatory, once facilities are installed):

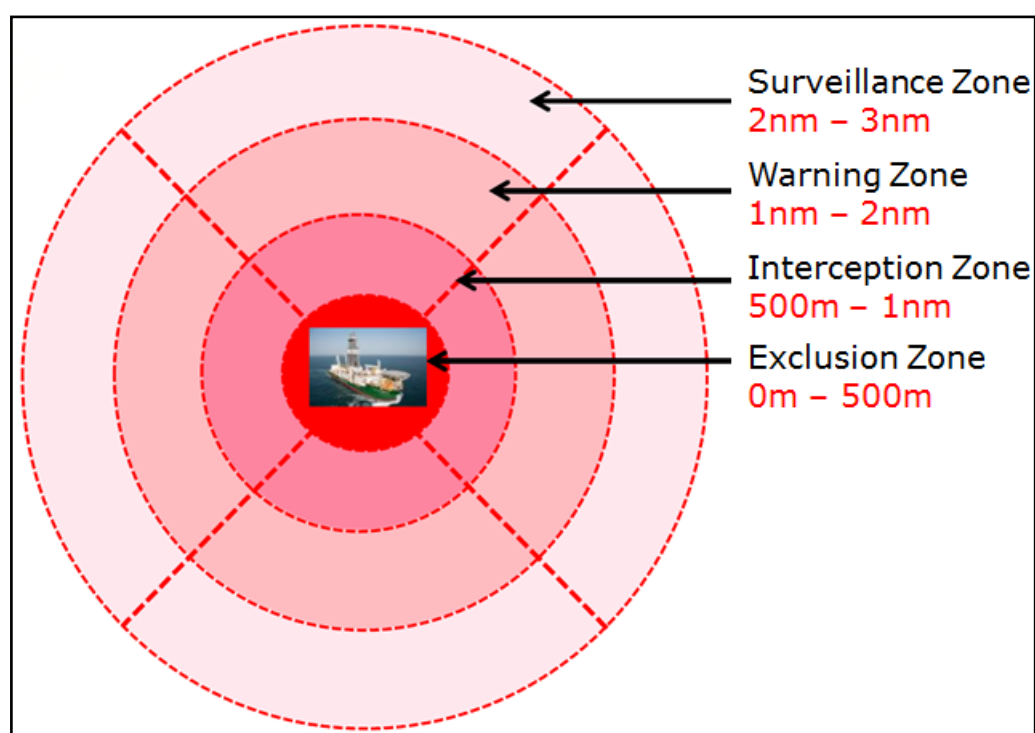
- A drill ship Safety Exclusion Zone will extend from the drill ship to a distance of 500 meters.
- A pipeline Safety Exclusion Zone will extend along the subsea pipeline corridor (500 m to each side of the pipeline) to define anchoring exclusion zones and provide protection for fishing gear.

In addition, eni Ghana will establish the following **advisory 'layered security zone'** principle, centred on the drill ship and pipelay vessels. See *Figure 6.1* to visualize the principle, and *Figure 6.2* to show its application to the project.



- The Advisory Surveillance Zone is an area extending from the edge of the Warning Zone at 2 NM out to a distance of 3NM from the drill ship.
- The Advisory Warning Zone extends from the edge of the Interception Zone at 1 NM out to a distance of 2 NM from the drill ship.
- The Advisory Interception Zone extends from the edge of the drill ship Exclusion Zone out to a distance of 1 NM from the drill ship.

Figure 6.1 Advisory "Layered Security Zone" Principle



Source: Hydrocol Energy, Nov 2015

Advisory Vessel Transit Route

The OCTP Field is in international waters and third-party vessels have the right of free passage in the Field, which includes the advisory zones mentioned above but do not have the right to free passage in the 500 m drill ship and pipeline Safety Exclusion Zones. Section 6.3 of this plan discusses the proposed marine traffic management measures within these zones.

An advisory vessel transit route from OCTP to the Port of Takoradi (taking into account existing shipping lanes and other oil and gas operators offshore activities provided by the GMA) has been defined by eni Ghana. See Table 6.1 for coordinates of this route, and *Figure 6.2* for its illustration..

Table 6.1 Waypoints of Preferred Project Vessel Transit route to OCTP Field

WP	Position or Latitude / Longitude		Co	Remarks
01	04°53.17'N	001°44.35'W		Inside Takoradi Harbour
02	04°53.11'N	001°44.13'W	105	Inside Takoradi Harbour
03	04°53.21'N	001°44.08'W	027	Inside Takoradi Harbour
04	04°53.90'N	001°44.00'W	007	Outside Breakwater
05	04°53.90'N	001°43.60'W	090	
06	04°52.00'N	001°42.60'W	152	
07	04°45.00'N	001°45.00'W	199	
08	04°35.00'N	002°00.00'W	236	Anchor point
09	04°27.50'N	002°31.00'W	256	

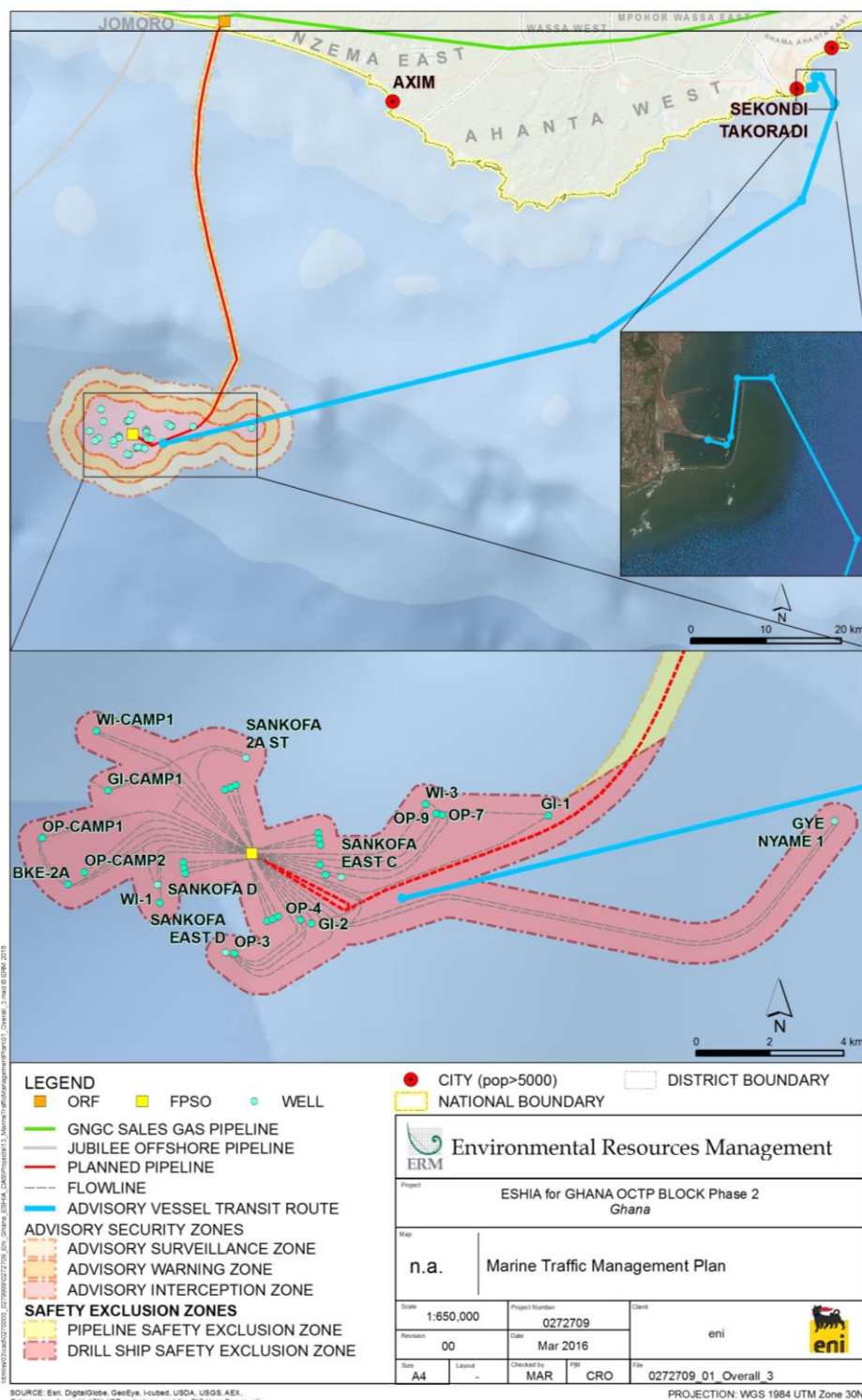
Source: eni Ghana, 2015

Summary

Figure 6.2 provides an illustration of the offshore infrastructure restrictions (safety exclusion zones and advisory security zones), as well as the advisory or preferred vessel transit route.



Figure 6.2 Offshore Infrastructure Restrictions and Advisory Vessel Transit Route [NOTE TO BE INSERTED AS FULL PAGE IN FINAL PDF]



In addition, eni have requested their vessels support fleet to prioritize the "economic speed" (varies from vessel to vessel) as much as possible.

6.3 Marine Traffic Monitoring and Control

Marine traffic monitoring and patrol arrangements to be implemented during the construction phase of the OCTP include:

- Community engagement activities to inform them about construction activities and security/safety principles. These included distribution of Radar reflectors amongst local offshore fishermen.
- Engagement of 6 FLO who speak all most common Ghanaian dialects. They are fully trained in approaching the canoes/vessels.
- The use of contracted patrol vessels *SVS Cochrane* and *Armada Tugas*, equipped with lights for night surveys. Patrolling is performed 24h per day, 7 days per week.
- A hook-up to the GMA VTMS (Vessel Traffic Management Information System) for access to real-time data on the presence of vessels in the vicinity of the exclusion zones.
- A memorandum of understanding (MoU) covering the involvement of Ghanaian Navy patrols (ongoing activity at the moment of issuing the document).
- A record of intrusions count on a daily basis at two point of times to be included in daily reports.

Vessels entering the OCTP Field for the purposes of carrying out eni operations within the field must seek permission from the security patrol vessel Master by VHF. Vessels departing the OCTP Field must notify the security patrol vessel Master by VHF. See Section 7 for Roles and Responsibilities identified for this plan.

The following actions will be taken by the contracted patrol vessels with regards to non-project-related vessels entering the different levels of offshore restricted zones. The focus will be on detecting, identifying, classifying and engaging a threat as far away as possible from any of the non-project-related vessels in the area of operations to minimize potential disruption to the operation and the risk of injury to an individual or damage to a project-related vessel. Procedures for prevention of entry and removal of vessels from the Safety Exclusion Zones will be based on persuasion and implement the Voluntary Principles on Security and Human Rights. More detail on these procedures are available in Annex X – Security Management Plan.



- *Advisory Surveillance Zone:* Once a target enters the Surveillance Zone the following actions are to be carried out.
 - Acquire target visually and on radar if possible. Supply vessels and patrol vessels are equipped with lights for night surveys. Local offshore fishermen have been equipped with Radar reflectors (very few are in use, as most fishermen have sold them).
 - Acquire AIS (Automatic Identification System) information – if available.
 - Ascertain – position, course, speed, CPA (closest point of approach) to drill ship, name of vessel (if possible), call sign (If applicable).
 - Vessels in the surveillance are to be monitored and multiple vessel in this zone should also be tagged, Target vessel 1, Target vessel 2, Target vessel 3 etc. Vessels in this zone are not deemed to be a threat but they will be monitored and observed to ensure this remains the case.
- *Advisory Warning Zone:* Target vessels that enter the warning zone are to be classified in two categories:
 - *Compliant Target:* Communications have been established and a warning issued to the vessel not to encroach within 1nm of the drill ship (Interception Zone). If an identified and compliant vessel enters the Warning Zone, that vessel is to be monitored until it leaves the zone. Particular attention will be paid to the vessels behaviour, ensuring that the target vessel makes no sudden or erratic movement toward the drill ship or to encroach into the Interception zone.
 - *Incompliant Target:* If communications have not been established and an unidentified target vessel enters the Warning Zone then this vessel is to be treated as a potential threat. Patrol vessels should move toward the target vessel in a non-aggressive way (from port or starboard but not head on) and warn the vessel not to encroach any closer toward the drill ship than 1nm or they will be escorted away from the area prior agreement from eni representative. Canoes will be warned verbally through speakers, while vessels will be warned using VHF radio.
- *Advisory Interception Zone:* Any vessel considered a potential threat (incompliant target) which enters this zone will have entered an area where they are deemed to be a threat to the operation and should be dealt with by way of the nearest patrol vessel intercepting the target vessel and preventing them from encroaching any further toward the drill ship or the exclusion zone. The patrol vessel is to escort the target vessel outside of



the interception zone, i.e. to a distance of 1nm away from the drill ship into the warning zone. Target vessels once escorted away are to be kept under observation.

- *Safety Exclusion Zone (legally enforceable):* Any vessel wishing to enter this zone must seek and receive permission from the drill ships Bridge prior to doing so. Patrol vessels will move toward the target vessel in a non-aggressive way (from port or starboard but not head on) and warn the vessel verbally not to encroach any closer or they will be escorted away from the area.

Canoes active around the facilities occur mainly during the day; night-time activities are reduced since fishing canoes tend to exit the area surrounding the rig, not visible to them. None of canoes are expected to enter the exclusion zone during night time, however patrol vessels are equipped with lights and canoes have been equipped with radar reflectors. Moreover, a record of intrusions number at two points of time (e.g. 9AM and 9PM) will be kept and included in daily reports.

The GMA operate a VTMISS for the purposes of establishing a 24 hour electronic surveillance and monitoring of Ghana's coastline including the Exclusive Economic Zone (EEZ) to ensure the protection of maritime resources, including offshore installations and gas pipelines. eni will have access to this system providing real-time data on the movement of vessels around the exclusion zones that can be used to inform/alert patrol vessels on the presence of other vessels not part of the project.

The same safety procedures that are in place for eni personnel rescue will be available for fishermen in case of need. This includes salvage tugs and rescue boats, as described in the HSE Plan.

6.4 Public/Stakeholder Marine Safety Engagement

An extensive marine safety awareness campaign, targeting potentially affected fishing communities, to reduce the risks of marine traffic accidents for all types of fishing vessels has been implemented prior to construction As detailed in ESHMP Document, Annex W – Fisheries Management Plan and Participatory Monitoring Programme, eni Ghana shall organize sensitization programs for Fishermen affected by project activities twice each year in order to educate them about the operations offshore. See the Fisheries Management Plan for further details.

A community engagement and grievance mechanism (see ESHMP Document, Annex F – Stakeholder Engagement Plan (with Grievance Mechanism) for additional details) will be



implemented to ensure that any concerns on Project marine traffic can be raised and managed promptly using a transparent process.



Table 6.2 Management and Monitoring

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/ Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	A Marine Traffic Management Plan (<i>this document</i>) will be developed for the Project to ensure appropriate protocol is followed during offshore vessel movements. This Plan will consider vessel movements associated with other oil and gas projects in the area, and artisanal, local and commercial shipping traffic in the local offshore environment.	Management	ESHIA Phase 1 Annex G Sections G.7.3.1 and G.8.1.2 FIA Section 6.5.3	Contractor	Audit to verify existence and implementation of the MTMP during construction and development drilling. Assessment of implementation and effectiveness of the MTMP.	Audit: Annual Assessment: Quarterly	eni Logistics Manager Local content and sustainability manager eni HSEQ manager	Audit record of availability of MTMP Record assessments of

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/ Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	Project vessels involved in dredging and other construction-related activities must comply with international safety standards with regards to offshore navigation equipment (such as radar) and suitable aids to minimize interference with other vessels and to maintain high visibility.	Avoidance	ESHIA Phase 1 Annex G Sections G.7.3.1 and G.8.1.2 FIA Section 6.5.3 ESHIA Phase 2 Annex G Section G.7.5.3	Contractor	Assessment of implementation - Pre-mobilization vessel acceptance check.	Pre-mobilization: once per project vessel	Logistics Manager	Assessment records
Increase in marine traffic and disruption of offshore navigation	A vessel transit route will be agreed with the Ghana Maritime Authority and communicated to fishermen and other marine users through the CLO/FLO. Project vessels will keep within the agreed routes.	Management	ESHIA Phase 2 Annex G Sections G.7.2.3 FIA Section 6.5.3	Contractor	Record of transit route within MTMP. Record of communications of vessel transit to to fishermen and other marine users Assessment of Vessel Tracking records	Audit: Annual Assessment: Quarterly	eni Logistics Manager Local content and sustainability Operations Manager	Audit record of availability of MTMP Assessment records

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	The Security Zones will be monitored with the assistance of the agencies of the Government of Ghana, for the safety of the facility and other users of the area (e.g. fishermen) when close to Project infrastructure or vessels.	Monitoring	ESHIA Phase 2 Annex G Section G.7.2.3 FIA Section 6.5.3	Contractor [HOLD – Any involvement of Ghanaian Navy to be included once MoU agreed]	Audit to verify existence and implementation of the marine traffic monitoring provisions within the MTMP. Assessment of implementation and effectiveness of the marine traffic monitoring effectiveness Unauthorized vessel incursions into Exclusion Zones (500m Safety Zones).	Audit: Annual Assessment: Quarterly. Continuous monitoring	eni Logistics Manager eni Operations Manager eni Security Patrol Vessel Master	Audit records Assessment records Number of unauthorized Exclusion Zones (500m Safety Zones) incursions

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	Inform local fishermen from the coastal communities of the Western region of the offshore activities, locations, vessel movements routes and timing.	Avoidance	ESHIA Phase 1 Annex G Sections G.7.3.3, G.7.3.4 and G.8.1.2	Contractor	Audit of communication records.	Audit: Annual	Local Content and Sustainability Manager	Audit records
Increase in marine traffic and disruption of offshore navigation	Inform other users of the sea about the timing and location of offshore activities through the issuing of Notices to Mariners.	Avoidance	ESHIA Phase 1 Annex G Sections G.7.3.1 and G.8.1.2 FIA Section 6.5.3	Contractor	Audit to verify existence and implementation of the marine traffic monitoring provisions within the MTMP. Assessment of implementation and effectiveness of the marine traffic monitoring effectiveness	Audit: Annual Assessment: Quarterly.	Local Content and Sustainability Manager	Audit records Assessment records

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/ Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	Safety Exclusion areas and ATBA (including the gas export pipeline) will be marked on nautical charts as cautionary advice to all sea-users.	Avoidance	ESHIA Phase 1 Annex G Sections G.7.3.3, G.7.3.4 and G.8.1.2	Contractor	Audit to verify the inclusion of s Safety Exclusion Zone and security zones on nautical charts.	Audit: Once (re-assessment not required once implementation is confirmed).	eni Logistics Manager / Operations Manager / Development Manager	Audit records
Increase in marine traffic and disruption of offshore navigation <i>(Note: Measure also applies to management of Risk of Attack on Project Vessels)</i>	Intercept and redirect any vessels potentially entering designated exclusion zones.	Avoidance	ESHIA Phase 1 Annex G Sections G.7.3.1 and G.8.1.2 FIA Section 6.5.3 ESHIA Phase 2 Annex G Section G.7.8.2 (Risk of Attack)	Contractor [HOLD – Any involvement of Ghanaian Navy to be included once MoU agreed]	Assessment of implementation and effectiveness of the marine traffic monitoring effectiveness	Assessment: Quarterly.	eni Logistics Manager	Number of unauthorized of Exclusion Zone (500m Safety Zone) incursions

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/ Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	Ensure potential conflicts between project-related vessels and other users of the sea are addressed in emergency response planning.	Avoidance	ESHIA Phase 1 Annex G Sections G.7.3.1 and G.8.1.2 FIA Section 6.5.3	Contractor	Audit to ensure these requirements have been addressed in emergency response planning.	Audit: Once (<i>re-assessment not required once implementation is confirmed</i>).	Local Content and Sustainability Manager	Audit records Records of Grievance Mechanism
Increase in marine traffic and disruption of offshore navigation	Minimise marine accidents though high levels of vessel maintenance, driver awareness, training and awareness raising amongst vulnerable water users.	Avoidance	ESHIA Phase 2 Annex G Section G.12.4.19	Contractor	Audit to ensure frequent maintenance of vessels		eni Logistics Manager / Local Content and Sustainability Manager	Audit records

Impact Management					Impact Monitoring			
Potential ESH Impact	ESH Commitment	Type	Source	Responsible Party	Compliance Monitoring	Timing/Frequency	Responsible Party	Key Performance Indicator
Increase in marine traffic and disruption of offshore navigation	Marine contractors will submit suitable HSE plans including a marine safety risk assessment. This will include qualifications of marine vessel captains and crew, training conducted and compliance auditing provisions.	Management	ESHIA Phase 2 Annex G Section G.12.4.19	Contractor	Existence of suitable EPC Contractor HSE Plans	Audit: Annual	eni HSEQ Manager	Audit records

7. Roles and Responsibilities

Responsible parties for implementation and monitoring of activities indicated in this plan are indicated in *Table 6.2* and in the documents referenced therein.

eni Ghana shall ensure sufficient resources are allocated on an ongoing basis to achieve effective implementation of Company's responsibilities in this Plan.

Contractors shall ensure sufficient resources are allocated on an ongoing basis to achieve effective implementation of this Plan.

The Contractor's Plans shall describe the resources allocated to the execution of each task and requirement contained therein, and shall describe how roles and responsibilities are communicated to relevant personnel.

7.1 Training Awareness and Competency

eni shall ensure that personnel responsible for the execution of tasks and requirements in the Marine Traffic Management Plan are competent on the basis of education, training and experience. The Contractor Plan shall describe the training and awareness requirements necessary for its effective implementation.

Section 14 of the ESHMP provides details on the training, awareness and competency procedures for the project. Minimum environmental, social and health training requirements per role within the Project are presented in Section 14.3 of the ESHMP. Additional training requirements for this specific management plan are presented in *Table 7.1* below.

Project training activity associated with the implementation of the Marine Traffic Management Plan shall be appropriately documented by means of a training needs assessment, training matrix/plan and records of training undertaken.

Table 7.1 Specific training requirements

Position (from all companies involved)	Training Topic	Frequency
Logistics Manager	MTMP requirements and role-specific responsibilities.	Once
Regional Marine Advisor (eni)	MTMP requirements and role-specific responsibilities.	Once
Vessel Master	MTMP requirements and role-specific responsibilities.	Twice

7.2 Performance Indicators

Performance indicators are used to measure and track performance against the effectiveness of mitigation and control measures described in this Plan. General performance indicators may also be relevant, such as training and awareness numbers.

Performance indicators must be measurable against a specified target. The performance indicators outlined in *Table 6.2* apply to this Plan. Details regarding how they will be measured, target/benchmark and frequency of control are described in *Table 7.2*.

However Contractors may, subject to agreement with Company, modify or add to these indicators to enhance the Contractor’s plan, based on lessons from the performance indicators.

Table 7.2 Performance Indicators

Performance Indicator	Measurement	Target/Benchmark	Frequency of Monitoring
Number of unauthorised incursions into Safety Exclusion Zones	Event records	0	Continuous
Number of unauthorised incursions into Advisory Security Zones	Event records	0	Continuous
Marine traffic accidents or incidents	Incident Event records	0	Continuous
Records of awareness campaigns	Date of training sessions and number of attendees.	100% of nearshore affected fishermen engaged.	Continuous
Records of Grievance Mechanism	Record of complaints from fishermen	70% of offshore affected fishermen engaged.	Continuous

8. Reporting

Any accident or incident involving project vessels (or within 500m of an eni installation for non-project related vessels) should be reported by the Vessel Master in accordance with the eni Ghana Incident and investigation reporting procedure and other supporting HSE IMS documents.

All instances of unauthorized vessels incursions into to the Safety Zones (500 m exclusion zones) shall be reported to the competent authorities. Intrusions of vessels in the advisory security layers will be internally reported by the Contractor to eni Ghana. Fishing boats involved in the both type of intrusions will also be reported accordingly.

Project Contractors must comply with the Incident Notification and Reporting arrangements detailed within Section 11.3 of the ESHMP – Construction and Development Drilling Phase.

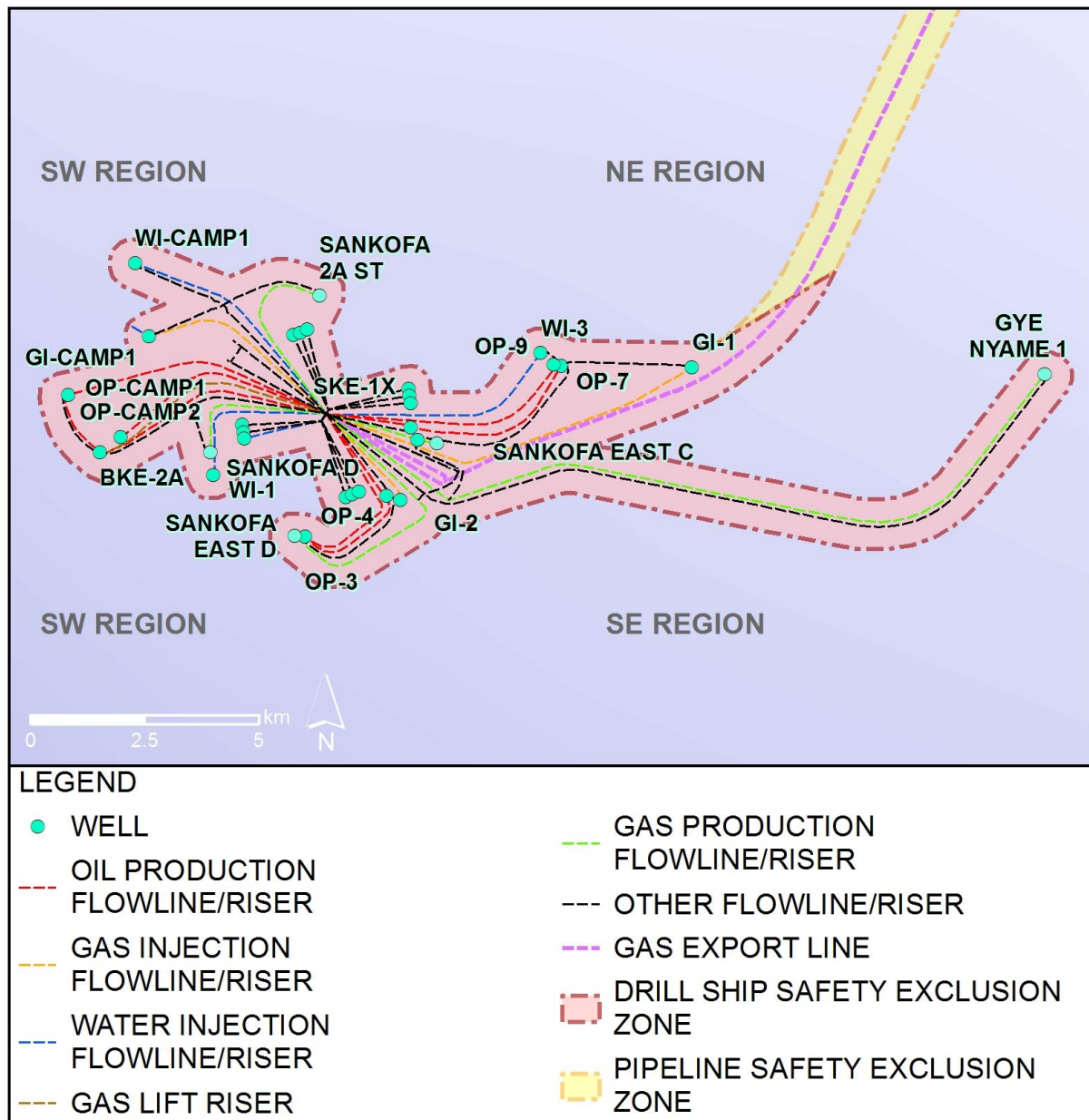
Project vessels will maintain a Vessel Daily Report (VDR) providing an overview of the activities in the 24hrs leading up to 23.59, including the following details.

- Vessel name.
- Number of person on board (POB).
- Weather conditions (past 24hrs and forecast).
- Position information, ETA if steaming, distance steamed (passage) over the last 24 hours.
- Activity log.
- Fuel status.
- Safety information (accidents, incidents, drills held etc.).

9. Appendices

Appendix A. Proposed OCTP Exclusion Zones

Proposed OCTP Safety Exclusion Zones



<u>TAG</u>	<u>LOCATION</u>	<u>COORDINATES (m)</u>		<u>RADIUS OF CURVATURE(m)</u>
		<u>EAST</u>	<u>NORTH</u>	
1	GI-1 well	557916.2826	495440.0328	
	Center of curvature	557561.1529	495058.1447	521.494
		557574.9334	495579.4563	
2	OP-7 well	555009.6416	495641.7339	
		554420.4458	495856.9509	
	Center of curvature	554248.8958	495387.3015	500.000
3	WI-3 well	553842.9634	495679.2243	
		553130.2613	494688.1787	
	Center of curvature	552724.329	494980.1016	500.000
		552717.2276	494480.152	
		552470.0456	494483.663	
		551955.7858	494491.0552	
		551853.1912	494492.5243	
		551843.2906	494613.702	
	Center of curvature	551344.9512	494572.9863	500.000
		551209.6597	495054.3346	
		549937.5521	494696.7864	
		549627.1063	495878.8807	
4	Sk-2Ast well	549885.8598	496436.7559	
	Center of curvature	549432.2747	496647.1376	500.000
		549618.7225	497111.0743	
		549143.5669	497302.0308	
	Center of curvature	548570.0162	495916.0151	1500.000
		547963.4982	497287.9247	
		547411.4215	497046.0866	



<u>TAG</u>	<u>LOCATION</u>	<u>COORDINATES (m)</u>		<u>RADIUS OF CURVATURE(m)</u>
		<u>EAST</u>	<u>NORTH</u>	
	Center of curvature	546249.5073	494832.4957	2500.006
		547160.6068	497160.5693	
5	WI-CAMP1 well	545490.9296	497814.0021	
	Center of curvature	545297.4128	497319.5203	531.000
		545084.4686	496833.0886	
		545996.1258	496433.9944	
		545444.2315	496213.9276	
	Center of curvature	545629.4255	495749.489	500.000
6	GI-CAMP1 well	545145.0872	495625.3262	
		545225.4563	495311.8199	
7	OP-CAMP1 well	543610.1605	494899.7329	
	Center of curvature	543733.7595	494415.2504	500.000
		543241.1158	494329.7977	
		543277.811	494118.2456	
	Center of curvature	545242.1096	494458.9679	1993.630
		544027.9978	492877.6732	
8	SkE-2A well	544332.1965	492644.1106	
	Center of curvature	544674.452	493089.8742	562.000
		544946.7081	492598.2232	
		545704.8921	493018.0743	
	Center of curvature	543133.4056	497879.9111	5500.000
		546288.076	493374.5748	
		546293.8706	493378.6322	
9	WI-1 well	546475.9638	492585.353	
	Center of curvature	547023.7182	492711.0872	562.000



<u>TAG</u>	<u>LOCATION</u>	<u>COORDINATES (m)</u>		<u>RADIUS OF CURVATURE(m)</u>
		<u>EAST</u>	<u>NORTH</u>	
		547585.6158	492721.813	
		547582.2551	492897.8754	
		549110.2117	493262.0722	
		549475.761	492033.4169	
	Center of curvature	549955	492176	500.000
		549757.9732	491716.4563	
		549578.5437	491578.9878	
		549505.0412	491629.3149	
		549379.9698	491714.9511	
	Center of curvature	549097.4908	491302.3913	500.000
		549139.7559	491800.6017	
10	OP-3 well	548851.107	491825.0889	
	Center of curvature	548808.8419	491326.8785	500.000
11	SkE-D well	548496.3013	490936.5986	
		549158.6056	490406.2177	
	Center of curvature	549786.279	491184.6944	1000.000
		550300.3495	490326.9465	
		551886.7737	491277.7314	
	Center of curvature	551526.9244	491878.1549	700.000
12	GI-2 well	552144.3704	491548.3665	
	Center of curvature	552253.9681	492893.9104	1350.000
		552657.8949	491605.7555	
		552955.0109	491698.9221	
		554776.1613	492269.9802	
	Center of curvature	554925.7638	491792.8858	500.000



<u>TAG</u>	<u>LOCATION</u>	<u>COORDINATES (m)</u>		<u>RADIUS OF CURVATURE(m)</u>
		<u>EAST</u>	<u>NORTH</u>	
		555023.5147	492283.2375	
		560997.4715	491092.3378	
	Center of curvature	561603.5271	494132.5181	3100.000
		564062.0997	492244.2859	
13	GN-1 well	565841.6045	494556.6266	
	Center of curvature	565445.3572	494861.566	500.000
		565604.3375	495335.618	
		565498.2963	495371.1805	
	Center of curvature	565339.3161	494897.1285	500.000
		564942.4765	495201.2968	
		563181.1642	492903.3634	
	Center of curvature	561603.4614	494132.5312	2000.000
		561212.4578	492171.1245	
14	GE at KP59	555436.9772	493322.4583	
		557152.023	493948.4347	
	Center of curvature	554923.389	500054.431	6500.000
15	GE at KP53	560744.3407	497161.937	

