

## 1. INTRODUCTION

The proposed Chad Export Project (Project) will develop landlocked oil fields in southern Chad and transport the crude oil 1,070 kilometers (650 miles) to the coast of Cameroon for export to world markets. Over the 25 to 30 year life of the Project, it will produce as much as one billion barrels of oil. The term “Project” in this plan refers to both Chad and Cameroon portions of the Chad Export Project.

This General Oil Spill Response Plan (GOSRP) has been developed to describe measures and actions that would be implemented prior to and following an oil spill incident. The GOSRP covers the response to spills in Chad or Cameroon and other locations with significant actual or potential consequences to Project personnel, property, or the public at large.

The plan includes an outline of the organization that would be established to manage the oil spill response. This organization will be established by the Operator of the Project’s oil field development (EEPCI – Esso Exploration and Production Chad Inc.), the owner of the Chad transportation system (TOTCO – Tchad Oil Transportation Company SA), and the owner of the Cameroon transportation system (COTCO – Cameroon Oil Transportation Company SA).<sup>1</sup>

The emphasis throughout this Plan is on practical actions to be taken to enhance the effectiveness of the response and mitigation of damages. No business objective is so important that it will be pursued at the sacrifice of safety of personnel and its operations. Prevention of accidents and injuries is a primary emphasis. It is the Operator’s, TOTCO’s, and COTCO’s policy to operate in a manner designed to first prevent incidents, and if an incident were to occur to implement measures and actions to prevent escalation of the incident.

### 1.1 *Plan Purpose and Scope*

#### 1.1.1 Purpose and Scope

This General Oil Spill Response Plan (GOSRP) details the overall coordination of a response to an oil spill associated with construction and operation of the Project. The plan covers operations in the drilling and production area near Doba in southern Chad, the 1070-km (650-mi) transportation pipeline, pump stations, pressure reduction station, and marine terminal near Kribi in Cameroon.

This plan will serve as a general framework and reference document for Area-specific Oil Spill Response Plans (ASOSRPs) required for the Project. In particular, the GOSRP provides Project-wide information, guidelines, and recommended practices for spill response. This information will be used to guide the development of ASOSRPs for each defined project area and response sub-organization to be located in Chad and Cameroon. The ASOSRPs will contain response procedures, strategies, tactics, and spill scenarios specific to each area whereas this GOSRP provides a Project-wide umbrella plan for overall response. The ASOSRPs would be used for spills within the

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<sup>1</sup> EEPCI will supervise the engineering, construction, and commissioning of the oil field development facilities. TOTCO has entered into a Project Management Contract with the Project Management Company to supervise the engineering, construction, and commissioning of the TOTCO Transportation System. The Project Management Company will be EEPCI, as long as EEPCI is the designated Operator for the Project’s oil field development. Thus, many aspects of the overall Project management will be performed by EEPCI, either in its capacity as the Consortium’s designated Operator for the oil field development or in its capacity of the Project Management Company for TOTCO. For simplicity, the text hereafter will refer to the “EEPCI/TOTCO” organization when referring to situations where EEPCI is acting on behalf of both EEPCI and TOTCO.

corresponding Maintenance Area whereas the GOSRP, and possibly other ASOSRPs, may be invoked for larger spills. The Incident Commander described in the GOSRP would be considered the same Incident Commander as described in the ASOSRP.

It is intended for this Plan to act as a guide to EEPIC, TOTCO and COTCO operating policies and procedures. **The procedures contained in this Plan are provided as a guideline for assessing the response operations; however, variations based on sound management, engineering, or environmental judgment and operational experience are anticipated and may be authorized by the appropriate Incident Commander(s).** The EEPIC, acting on behalf of EEPIC and TOTCO, or COTCO Incident Commander (in-country General Manager) is deemed to be in complete control of response activities during an oil spill response and will interface with appropriate agencies, governmental authorities, and community representatives, as required.

### 1.1.2 Plan Framework

Response to an oil spill will be based upon a set of tiered response actions (See Section 1.3.2 below). This GOSRP sets forth the necessary information, guidelines, and recommended practices for the tiered response organizations to ensure effective and timely management of an accidental oil spill. It includes organizational responsibilities, actions, reporting requirements, and planned resources available for spill response, and serves as the framework for Area-specific Oil Spill Response Plans (ASOSRP) for each project operation area.

The ASOSRPs (to be developed approximately 6 months before startup) will be designed around designated Areas of Operations as described in Table 1-1. In addition, appropriate oil spill response plans will be developed and incorporated into the construction contractor plans and procedures to handle an accidental spill (e.g., fuel spill) during the construction phase. The spill response procedures for the contractor plans will apply similar processes and techniques as outlined in this document.

**Table 1-1. Designated Areas of Operations** (see Fig. 1-2)

Designation	Description
Oil Field Development Area (OFDA)	The drilling and production area in Chad (Figure 1-1)
Maintenance Area #1 (MA-1)	Pump Station #1 (PS-1) and the segment of the pipeline transportation system (PTS) up to the border between Chad and Cameroon (Figure 1-2).
Maintenance Area #2 (MA-2)	Pump Station #2 (PS-2) and the adjoining segments of the PTS shown in Figure 1-2.
Maintenance Area #3 (MA-3)	Pump Station #3 (PS-3) and the adjoining segments of the PTS shown in Figure 1-2.
Maintenance Area #4 (MA-4)	Pressure Reducing Station (PRS) and the adjoining segment of the PTS shown in Figure 1-2.
Marine Terminal	Floating Storage and Offloading (FSO) facility and subsea pipeline.

Figure 1-1. Overview of the Oil Field Development Area

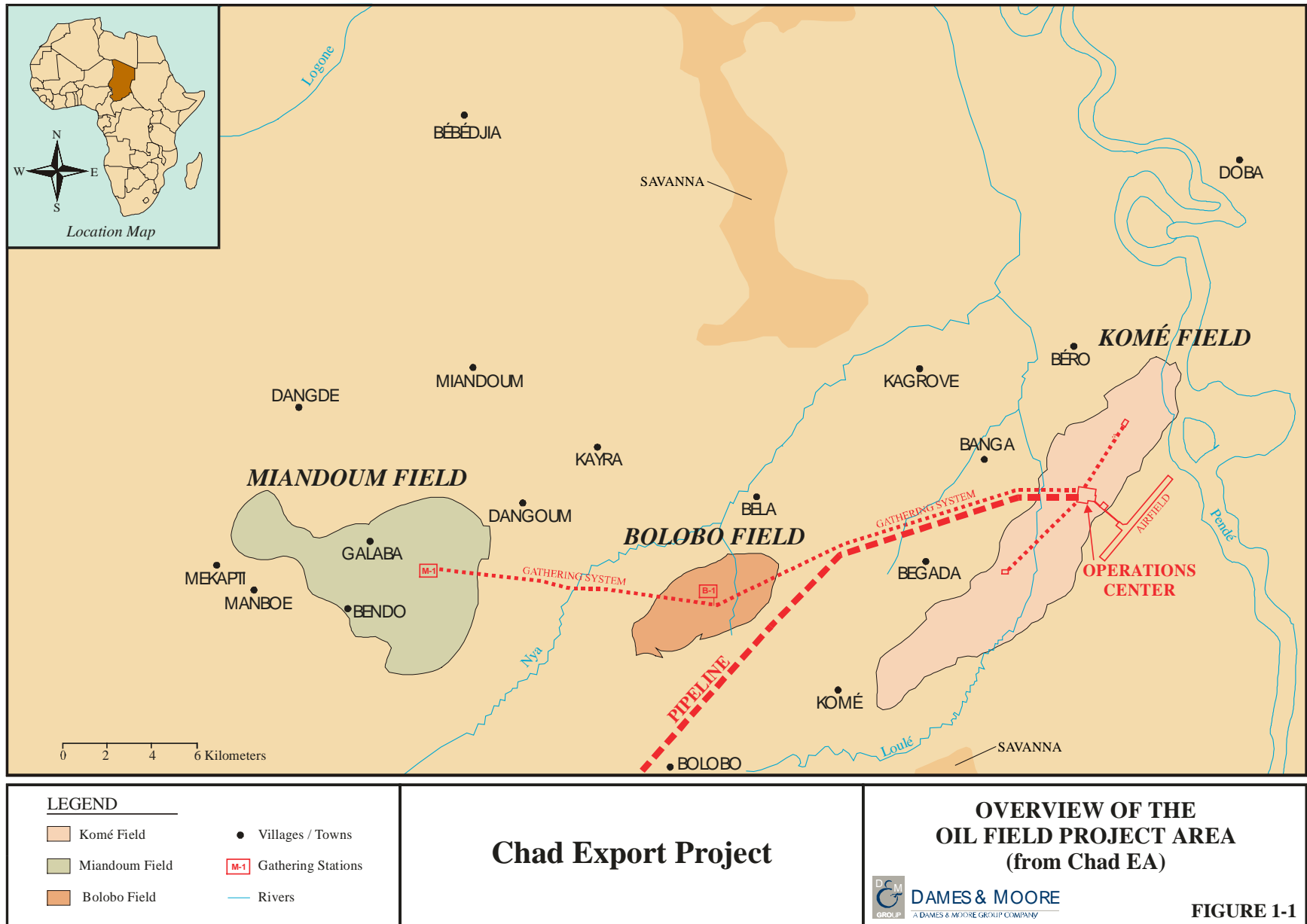
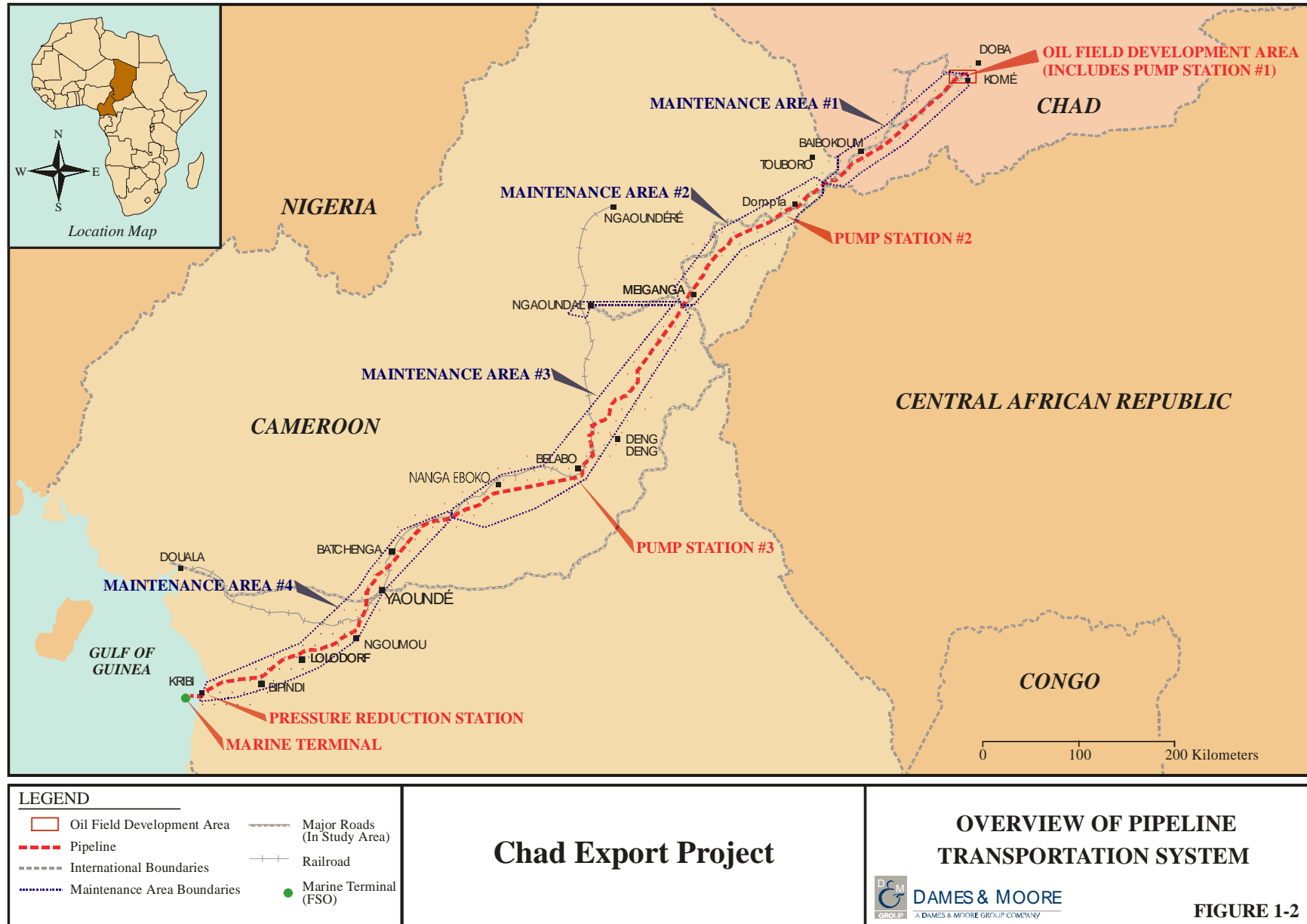


Figure 1-2. Overview of the Pipeline Transportation System and Maintenance Areas

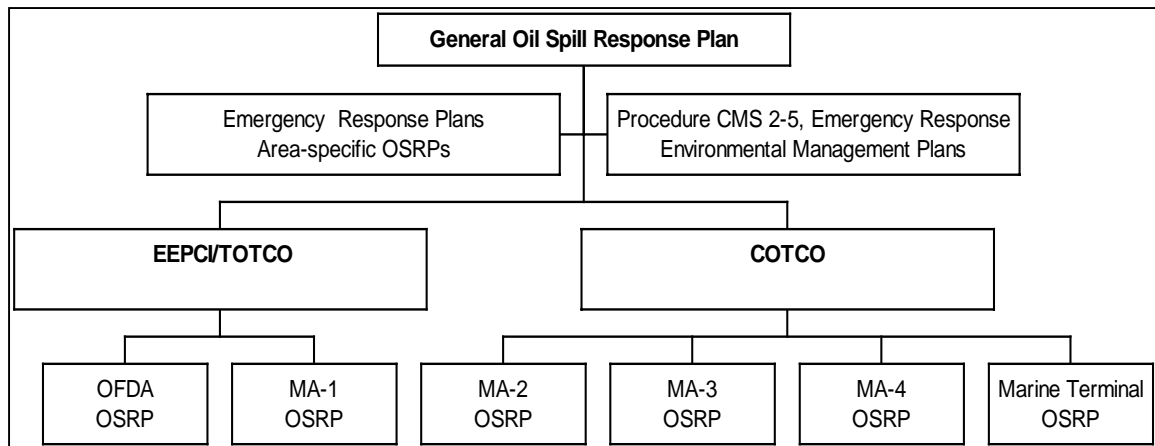


The recommended guidelines and practices set forth in this GOSRP are consistent with the Operator's, TOTCO's, and COTCO's operations philosophy and the spill response policies of Exxon. The plan meets relevant World Bank Guidelines, including *World Bank Environmental and Occupational Health and Safety Guidelines*, and *World Bank Environment, Health and Safety Guidelines for Onshore Oil and Gas Development*.

Additional in-country site-specific emergency response plans may be developed if the work scope or activities warrant their development. All major construction contractors of the Project are required to prepare emergency response plans for the Project's review and approval prior to any significant in-country work activities. Contractor notifications and subsequent response activities will be defined in these plans.

This GOSRP, together with the Chad Management System No. 2 (the Project's Operations Management System) — Safety System, Procedure 2-5 Emergency Response, ASOSRPs, and contractor plans, form the Project emergency response system (Figure 1-3). Collectively these written plans will define the organizations, responsibilities, and response actions for an incident.

**Figure 1-3. Emergency Response Plan Framework for the Project**



### 1.1.3 Plan Organization

This GOSRP is structured to provide immediate guidance to Emergency Response Actions (Section 2) as well as to provide general information on numerous facets of spill response activities. The overall plan organization is:

Emergency Response and Notifications	Section 2 Appendix C (Checklists) Appendix D (Forms)
Response Organization for Tiers 1-3 and Responsibilities	Section 3 and Appendix C (Checklists)

Oil Fate, Effects, Trajectories and Tracking	Sections 4 and 5 Appendix E (Oil Weathering Model)
Response Strategies for Specific Environments — Offshore, River and Land, and Example Scenarios	Sections 6, 7, and 8 Appendix B (Scenarios)
Shoreline Operations — Protection and Cleanup and Example Scenarios	Sections 9 and 10 Appendix B (Scenarios)
Spill Response Equipment — Tiers 1–3	Section 11
Waste Minimization, Management, and Disposal	Section 12
Spill Communications Capabilities and Logistical Support & Services	Sections 13 and 14
Wildlife Rescue and Care	Section 15
Health and Safety for Spill Response	Section 16
Environmental Sensitivity Information	Appendix A (Environmental Sensitivity)

## 1.2 Project Description

The Project consists of commercial development of crude oil reserves in southern Chad and a Pipeline Transportation System from Chad through Cameroon to offshore loading facilities near the coast. In Chad, the project consists of the following major components:

- **Production Wells** — Approximately 300 production wells would be drilled within the three-field area.
- **Gathering System** — Produced fluids from each well would be transported via a series of buried flow lines and trunklines to two gathering stations (Miandoum and Komé). Production from the smaller Bélabo Field will be pumped to the Komé gathering station for treating. At each gathering station, a significant portion of the produced water would be removed, treated, and pumped to various injection wells for disposal. Crude oil with limited entrained water (approximately 20%) would be sent from the gathering stations in each field via buried main trunk lines to the Central Treating Facility.
- **Central Treating Facility (CTF)** — The CTF would receive oil from the gathering stations and remove the remaining entrained water to a level of less than 1%. Produced water from the CTF would be pumped to the Komé gathering station for disposal.
- **Operations Center** — The CTF is part of a larger complex designated as the Operations Center (OC). The OC would provide power generation and distribution, Pump Station (PS) #1, a gathering station, operations and administration center, housing and support facilities, and an airfield.
- **Pipeline Transportation System** — Adjacent to the CTF would be PS-1 and the beginning of the pipeline. Oil would be transported to the international market via the pipeline transportation system. No additional pump stations would be required along the pipeline transportation system in Chad. Approximately 170 kilometers (km) of the 1,070-km long, 760-mm diameter buried pipeline transportation system would be located in Chad.

The pipeline would be buried throughout its length generally with a minimum of one meter of cover. Cover will be increased for road crossings and other sensitive areas and reduced to a minimum of 0.50 m (20 in) in rocky areas. The pipeline would have a design capacity of 250 thousand barrels of oil per day (KBOD). The crude oil would be heated at each of the two intermediate pump stations to improve flow characteristics.

The pipe will be protected with a corrosion protection coating and cathodic protection. Intermediate mainline block valves and check valves would be installed along the pipeline to facilitate system operation and maintenance and to reduce potential environmental impacts in the event of a leak.

In Cameroon, the Project would consist of:

- **Pipeline Oil Traffic Control Center (OTCC)** — A pipeline operations center with necessary automation and communications equipment located in Douala. The pipeline transportation system will have a leak detection system that will be automated and monitored 24 hours a day.
- **Pump Stations** — Two intermediate pump stations would be located along and adjacent to the pipeline approximately at kilometer posts 229 km, Dompta (PS- 2), and 584 km, Bélébo (PS-3). Each station would incorporate facilities including:
  - Pumping units
  - Power generation units
  - Crude Oil Topping Plant (Fuel for prime movers)
  - Crude oil heaters and waste heat recovery units for heating transit oil
  - Various waste handling facilities including oily water treating and disposal, incineration facilities, and a landfill
  - Living accommodations
  - An airfield.
- **Pressure Reducing Station** — A normally unmanned PRS (except for security) near Kribi that would include the following facilities:
  - Pressure regulating and pressure reducing systems
  - Surge tankage for emergency pressure relief
  - A landing area for helicopters.
- **Marine Terminal** — A subsea loading pipeline would extend from the PRS to offshore loading facilities, over a distance of approximately 11 km. The offshore loading facilities would include a moored Floating Storage and Offloading (FSO) vessel (~ 2MB oil storage capacity) converted from an existing crude oil tanker. Loading of ocean going tankers will take place from the FSO vessel at intermittent intervals for export of crude to world oil markets.

Other Project facilities include: a pipeline operations and administrative office in Douala, a satellite-based communications system, permanent storage construction operations yards at the Port of Douala, the railhead at Ngaoundal and at Ngoumou; and seven temporary construction yards at various locations between the Chad border and Kribi.

### 1.3 Overview of Oil Spill Management Approach

Key elements of the oil spill management approach include the following:

- The priority in operations is to prevent incidents that could result in loss of oil.
- Priorities in response to any event are protection of life and safety, protection of property, and reduction of environmental impact.
- The safety of operations and oil spill response personnel and the public takes precedence over all emergency response and cleanup efforts.
- In the unlikely event of an incident, this GOSRP will provide guidance for assessing the scope and managing any oil spill response, in conjunction with the ASOSRPs.
- The operating unit where the emergency is located will carry out tactical response to a spill.
- EEPIC support for the OFDA and TOTCO will operate from the Occurrence Notification Center (ONC) located at Komé Base, Chad. The ONC serves as the management control point for incident assessment, categorization, and communication with the Emergency Operations Center (EOC) in Houston.
- COTCO support will operate from the ONC and the Oil Traffic Control Center (OTCC) located in Douala, Cameroon. The ONC serves as the management control point for incident assessment, categorization, and communication with the Emergency Operations Center (EOC) in Houston.
- The ONC will function as the communications hub to provide direct technical, logistical and functional host country support for project facilities to meet the resources needs and requirements.
- Overall management of a Tier 2 or 3 spill will be coordinated by the EEPIC/TOTCO General Manager (Incident Commander) in Chad and the COTCO General Manager (Incident Commander) in Cameroon.
- Action will be prompt and appropriate resources will be devoted to ensure the most effective management of any oil spill. Communication will be timely and accurate in the event of an oil spill. All practical attempts, giving due regard for weather and sea state conditions and other logistical, safety, and operating constraints, will be utilized to reduce oil spill impacts.
- Support and follow-up actions will be managed by EEPIC/TOTCO and COTCO and may be supported by the Emergency Management Team (EMT) composed of Houston-based personnel.
- EEPIC/TOTCO in Chad and COTCO in Cameroon will coordinate their response operations with the appropriate local and/or national (Chad, Cameroon) agencies in accordance with the Project's crisis communications plan.
- An environmental monitoring and assessment field program will be implemented in the event of a major spill incident to identify and quantify any actual damage that might have occurred.
- This GOSRP and capabilities for the Project operations areas will be periodically reviewed and updated as appropriate.

### **1.3.1 Overall Response Strategy**

***The overall response philosophy of the Operator, TOTCO, and COTCO is the Protection of Life and Property and to Reduce Environmental Impact .***

EEPCI, TOTCO, or COTCO will act in a rapid and responsible manner, in accordance with this GOSRP, to activate the necessary resources to respond to an oil spill resulting from the Project operations. Prompt notification will be made to the EEPCI ONC or the COTCO ONC and appropriate regional offices of Chad and Cameroon agencies.

#### **Net Environmental Benefit Analysis**

EEPCI, TOTCO and COTCO, and any additional response organizations will work to perform a Net Environmental Benefit Analysis (NEBA) when determining the appropriate response strategies. The process known as NEBA considers the advantages and disadvantages of various oil spill response options with regard to their impact on the environment. The NEBA approach accepts that some cleanup responses have the potential to cause a negative impact on the environment; however, they may be justifiable because of overriding benefits and/or the avoidance of further impact. The optimal set of people and technologies will be determined with a view to limiting negative environmental impact and maximizing net environmental benefit.

The NEBA process evaluates the advantages and disadvantages of available response options (including natural recovery) and then selects the response option that has the greatest net environmental benefit. An effective NEBA requires identifying and prioritizing, according to environmental sensitivity, an area's ecological, socio-economic, and cultural resources. The next step involves evaluating the various response options and then comparing them not only to each other but also to the option of natural recovery. This determines the response methods that have the least impact on the environment (or net environmental benefit). In the third step, the response option or combination of options are selected that will prevent or reduce impacts to sensitive, valuable resources.

### **1.3.2 Tiered Response Approach**

A key element of the emergency planning basis is the use of a Tiered Response System (TRS) that has the flexibility to expand in an organized and consistent fashion to address individual, regional, country, or project-wide emergencies. A tiered approach has been adopted to facilitate the rapid and orderly expansion of emergency response by each project facility should this become necessary during a declared emergency. The tiers defined below are standard industry terms used to describe the extent of a spill event and subsequent response and conform to the International Petroleum Industry Environmental Conservation Association's (IPIECA's) description of a tiered response system. The environmental implications associated with an accidental hydrocarbon release will vary depending on spill size, type, setting and environmental conditions. Because of these variables, no single spill size is assigned to the TRS; instead, the TRS is based on potential severity of the incident once all factors are considered. A tiered approach enables spill response to be managed in the most efficient and effective manner. The definition of each tier is as follows (Figure 1-4):

**Tier 1** Tier 1 spills occur at or near a facility, result from routine operations, and have minor environmental impact or potential to escalate. Immediate on-site response capability is adequate to respond to Tier 1 spills. It is envisioned that Tier 1 response organizations will be established at each of the designated areas of operations and will operate under the guidance of an ASOSRP (see Table 1-1). Each ASOSRP will provide scenarios with detailed countermeasures tactics for possible hydrocarbon

spills within its specified region. A Tier 1 response encompasses the actions taken immediately upon detection of a release and equipment deployment within the first 24 hours<sup>2</sup>.

**Tier 2** Tier 2 spills occur at or in the vicinity of a facility, result from abnormal operations, and have potential for moderate to major impact. Tier 2 response will comprise cascading of Project resources to augment the existing Tier 1 resources on-scene. Out-of-country, regional response resources available from Mutual Aid entities or from cooperatives, such as Clean Nigeria Associates (CNA), may be engaged for Tier 2 responses. A Tier 2 response will invoke one or more ASOSRPs and the GOSRP. Resources associated with a Tier 2 response would be mobilized to regional staging areas within 24 hours of activation<sup>2</sup>.

**Tier 3** Tier 3 spills occur near or at a facility due to abnormal operations and have potentially significant environmental impact. Compatible major response equipment that can be rapidly brought to the scene from other locations and, if necessary, worldwide cooperative stockpiles will be required to respond to such spills. Candidate cooperatives include Oil Spill Response Ltd. (OSRL) and the Clean Caribbean Cooperative (CCC). A Tier 3 response will invoke one or more ASOSRPs and the GOSRP. Resources associated with a Tier 3 response would be mobilized to regional staging areas within 72 hours of activation<sup>2</sup>.

Regionally-specific conditions and environmental implications for Tier levels will be developed at the ASOSRP level. EEPIC, TOTCO, and COTCO have adopted this approach as the fundamental response structure for the Project to interface with contractors, subcontractors, host government agencies, embassy personnel, and non-government organizations that could become involved during emergencies of major magnitude.

The tiered approach for spill response is illustrated in Figure 1-4. The tiered approach is important for several reasons: it identifies immediate response teams, resources and responsibilities; it provides for a cascading of resources appropriate to the situation; and it enables allocation of financial and management requirements appropriate to the situation.

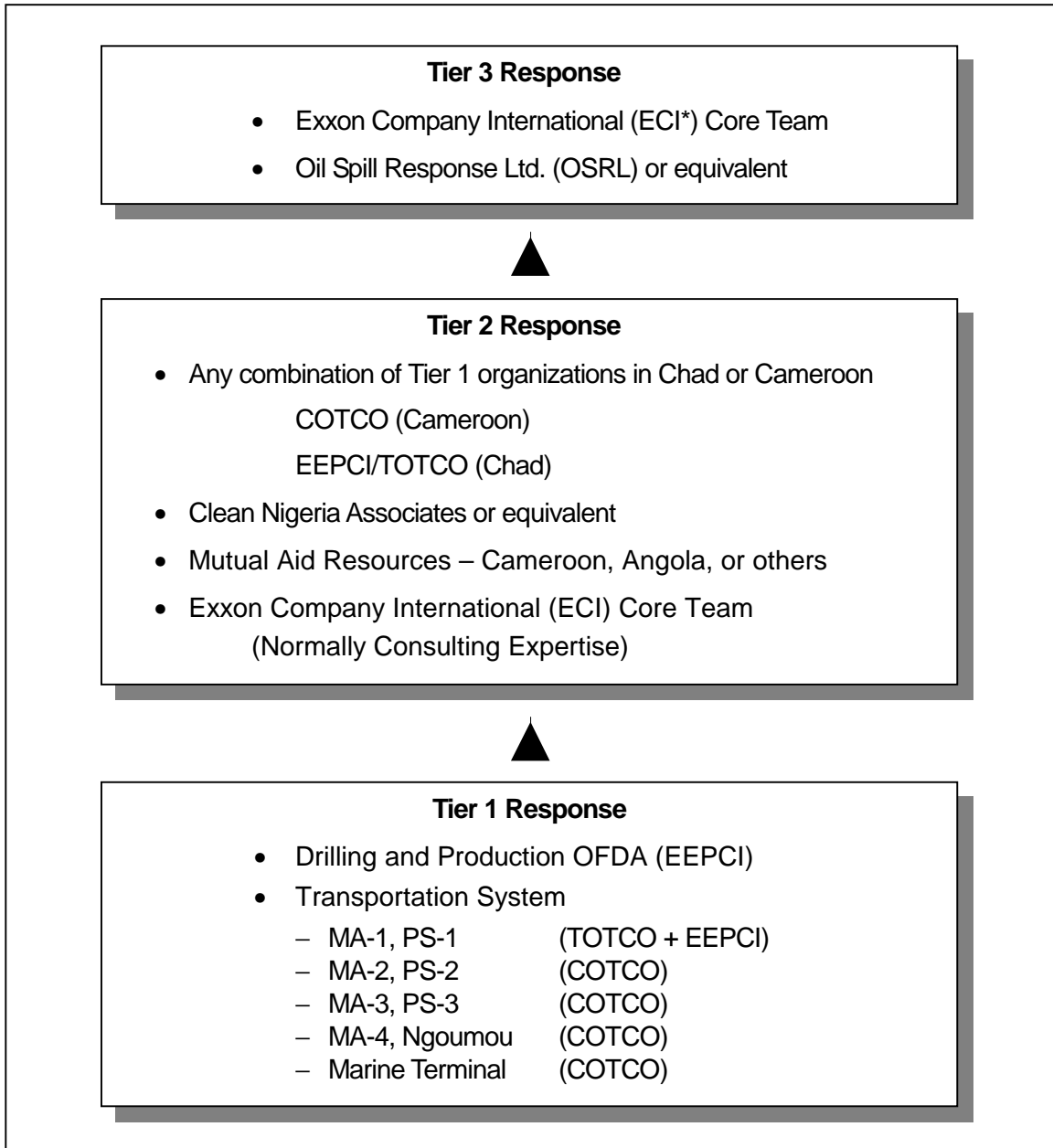
### **Oil Spill Response Mutual Aid and Cooperatives**

Oil spill response (OSR) organizations, such as those provided through Mutual Aid programs and oil spill cooperatives, will augment the Project resources available for spill response, as needed. The OSR organizations stockpile equipment and have trained responders to maintain, mobilize, deploy, and use their resources on a spill. Candidate OSR organizations are a Mutual Aid program between oil companies operating within the central African region, CNA, CCC, and OSRL. Contracts or other terms of agreement will be established with OSR organizations before first oil to ensure an appropriate level of support for possible Tier 2 and Tier 3 spill incidents. The resources available through contracted OSR organizations will be listed in the organization's inventory and appended or included, by reference, in this GOSRP at the time of Project operations. Project management will take appropriate steps, such as audits, to ensure that the resources identified as available through the OSR organizations are in the inventory and operational.

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<sup>2</sup> Response times are estimates based on available information at the time of this writing. Estimates will be re-evaluated and adjusted, if appropriate, during development of the ASOSRPs.

**Figure 1-4. Key Response Organizations for Project Tiered Response to Spills**



\*In this plan, ECI refers to the present Exxon division or its equivalent successor.

## 1.4 Company Environmental Policy

It is the policy of EEPIC, TOTCO, and COTCO to conduct their business in a manner that is compatible with the balanced environmental and economic needs of the communities in which they operate. Further, it is each Company's policy to comply with all applicable environmental laws and regulations and apply responsible standards where laws or regulations do not exist. Each Company is committed to continuous efforts to improve environmental performance throughout its activities. It will encourage concern and respect for the environment, emphasize every employee's responsibility in environmental performance, and ensure appropriate operating practices and training. The Companies will communicate with the public on environmental matters and share their experience with others to facilitate improvements in industry performance.

Accordingly, each Company's policy is to:

- Work with government and industry groups to foster timely development of effective environmental laws and regulations based on sound science and consideration of risks, costs, and benefits, including effects on energy and product supply.
- Manage its business with the goal of preventing incidents and of controlling emissions and wastes to below harmful levels, and to design, operate, and maintain facilities to this end.
- Respond quickly and effectively to incidents resulting from its operations, cooperating with industry organizations and government agencies, as appropriate.
- Conduct and support research to improve understanding of the impact of its business on the environment, to improve methods of environmental protection, and to enhance its capability to make operations and products compatible with the environment.
- Undertake appropriate reviews and evaluations of its operations to measure progress and to ensure compliance with this environmental policy.