Energy & Petroleum Regulatory Authority

OIL SPILL PROCEDURES AND GUIDELINES FOR UPSTREAM PETROLEUM OPERATIONS IN KENYA 2025

Quality Energy, Quality Life

IN EXERCISE of the powers conferred by Part 1 Section 9 (1) of the Petroleum Act (Cap. 308) the Authority makes the following guidelines: -

CITATION AND COMMENCEMENT

These guidelines may be cited as the Oil Spills Procedures and Guidelines for Upstream Petroleum Operations 2025.

DEFINITION OF TERMS

- **"Authority"** means the Energy & Petroleum Regulatory Authority, established as the successor to the Energy Regulatory Commission (ERC) under section 10 of the Energy Act (Cap. 314).
- **"Best petroleum industry practices"** means practices, methods, standards and procedures generally accepted and followed internationally by prudent, diligent, skilled, and experienced operators in upstream petroleum operations including practices, methods, standards and procedures intended to: -
  1. Conserve petroleum by maximizing the recovery of petroleum in a technically and economically sustainable manner.
  2. Promote operational safety and prevention of accidents; and
  3. Protect the environment by minimizing the impact of upstream petroleum operations.
- **"Contractor"** means the person with whom the national government concludes a petroleum agreement.
- **"Facility"** includes-
  1. Any structure, device, roads or other associated installations or infrastructure, including pipelines, rail stations, pump stations, compressor stations and equipment constructed, placed or used to carry out upstream petroleum operations.
  2. Vessel, vehicle, or craft when stationary and used for drilling or support of ongoing upstream petroleum operations.
  3. Vessel, vehicle, or craft for transportation of petroleum in bulk when connected to a facility for loading of petroleum.
- **"Ministry"** means the ministry currently responsible for petroleum in Kenya.
- **"Operator"** means the designated entity responsible for managing the day-to-day operation of oil and gas exploration, development, and production.
- **"Pollution"** means any direct or indirect alteration of the physical, thermal, chemical, biological, or radioactive properties of any part of the environment by discharging, emitting, or depositing wastes or emitting noise to affect any beneficial use adversely, to cause a condition which is hazardous or potentially hazardous to public health, safety, welfare or to animals, birds, wildlife, fish or aquatic life, land, property and water resources or to plants or to cause a contravention of any condition limitation or restriction which is subject to a license under the Petroleum Act (Cap. 308).

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LIST OF ACRONYMS

EMCA	Environmental Management and Coordination Act
EPRA	Energy & Petroleum Regulatory Authority
NEMA	National Environment Management Authority
NCP	National Contingency Plan
NOSCP	National Oil Spill Contingency Plan
PPE	Personal Protective Equipment

1. INTRODUCTION

An oil spill is the release of liquid petroleum hydrocarbons, typically crude oil or refined oil products into the environment. Oil spills can occur in various settings, including on land, in rivers, lakes and, most notably, in oceans and seas. They can arise from a wide range of activities, including accidents involving oil tankers, pipeline ruptures, offshore drilling operations and industrial mishaps. Oil spills can have significant and detrimental environmental, economic and social impacts. Some common causes of oil spills in upstream petroleum activities include:

1. Equipment Failure:

- Malfunctioning valves, pumps and other machinery can lead to leaks and spills.
- Corrosion of pipelines and equipment can weaken their integrity, making them more prone to failure.

2.. Human Error:

- Mistakes made by personnel during routine maintenance, operations, or emergencies can result in oil spills.
- Inadequate training or communication breakdowns can contribute to human error.

3. Natural Disasters:

- Hurricanes, earthquakes, tsunamis and other natural disasters can damage off-shore petroleum infrastructure leading to spills.
- Strong storms can cause vessels to lose control and collide with platforms or pipelines.

4.. Design and Engineering Flaws:

- Poorly designed equipment or structures can be vulnerable to failure, increasing the risk of oil spills.
- Inadequate engineering standards and oversight can contribute to design related spills. For example, failure of pressure control systems during drilling leads to a blowout.

5.. Inadequate Maintenance and Inspections:

- A lack of regular maintenance and inspections can result in undetected issues that eventually lead to spills.
- Failure to address known maintenance needs can exacerbate the risk.

6. Aging Infrastructure:

- Older offshore facilities and pipelines are more susceptible to corrosion and mechanical failure, increasing the likelihood of spills.
- Reinvestment in infrastructure upgrades is often required to mitigate this risk.

7. Inadequate Safety Measures:

- Poor safety practices and a lack of adherence to industry standards and regulations can contribute to oil spills.
- Insufficient safety equipment and protocols can fail to contain spills when they occur.

8. Third-Party Activities:

- Collisions with vessels such as tankers or supply ships can damage offshore infrastructure and lead to oil spills.
- Acts of sabotage or vandalism by third parties can also cause spills.

9. Environmental Conditions:

- Extreme weather conditions, such as heavy storms or ice formation, can make off-shore operations more challenging and increase the risk of spills.
- Harsh environments with high waves, strong currents and low visibility can make containment and response efforts difficult.

Oil spill management guidelines in the upstream petroleum industry are therefore essential for preventing, preparing for, responding to and recovering from oil spill incidents and accidents that may occur during exploration, drilling, production, transportation or storage activities. These guidelines are typically developed in collaboration with regulatory authorities, industry organizations and environmental experts to ensure that companies are well-prepared to handle potential oil spill incidents.

2. PURPOSE

These guidelines provide procedures for handling spills as well as related accidents and emergencies related to the upstream petroleum sector in Kenya. The oil spill management procedure guidelines are multifaceted, aiming to address various aspects of prevention, preparedness, response, and recovery in the event of an oil spill.

3. SCOPE

These guidelines apply to all upstream petroleum Operators with operations (both onshore and offshore) in Kenya, including their associated contractors.

4. GUIDELINES

1. Where a spill occurs, an operator will endeavour to ensure that specific response strategies to address the unique characteristics of the event are in place. The key response strategies and priorities will aim to ensure:
    - Safety of the public and incident responders;
    - Control of fire and explosion risks;
    - Oil spill source control;
    - Containment of the spill (unless activity is deemed unsafe);
    - Protection of any sensitive ecosystems and resources such as wetlands and protected zones;
    - Removal and clean-up of spilled product;
    - Management of resultant waste; and
    - Restoration of affected environments.
2. An operator will develop an oil clean-up plan in compliance with the National Oil Spill Contingency Plan (NOSCP) and other rele-vant environmental, health and safety regulations or guidelines.
3. An operator is required to ensure that modes employed for the transportation of petroleum are safe.

4.1 OIL SPILL CATEGORIZATION

The National Contingency Plan (NCP) for the release of Hydrocarbons (onshore and offshore spills) provides a categorization of oil spills. These tiers are defined based on the size and complexity of the spill and help determine the level of response required. Under the International Convention on Oil Pollution Preparedness, the accepted industry standard is that the three categories of oil spills do not only rely on volumes released but more on the type of response required, i.e., local, regional/national, or national/international. The complexity of the oil spill will be determined by the characteristics of the site of the spill, the type of oil, and the response capabilities within the different levels i.e. tier 1,2, and 3. The NCP identifies the three levels as described below.

1. Tier 1 Spill:

- The spills are relatively small and typically involve a manageable volume of oil. Manageable volume might be designated as any volume below a specific threshold (less than 4 barrels or less than 4,000 litres).
- They require handling by local resources, and the response primarily focuses on containment and clean-up within the capabilities of the responsible party (usually the operator of the onshore/offshore facility).
- Tier 1 spills may have minimal environmental impact and pose limited public health and safety.

2. Tier 2 Spill:

- These spills are of intermediate size and complexity, falling between Tier 1 and Tier 3 spills. These are spills of more than 4,000 litres but below 40,000 litres.
- They spread over a larger geographical area, affecting multiple ecosystems, wildlife habitats, and coastal communities.
- They involve a larger quantity of oil compared to minor Tier 1 spills.
- They cause extensive environmental damage, including contamination of water bodies, shoreline habitats and sensitive ecosystems, harming marine life and wildlife.
- They may exceed the responsible party's immediate response capabilities, requiring additional resources and coordination from state agencies.
- Tier 2 spills often involve extensive containment, clean-up and environmental monitoring efforts to mitigate potential impacts.

3. Tier 3 Spill:

- These are the largest and most complex onshore/ offshore oil spills category. Such spills will be greater than 40,000 litres in volume.
- Tier 3 spills are large-scale disasters, potentially involving millions of litres of spilled oil.
- The environmental impact can be catastrophic, affecting vast coastline and marine ecosystems and potentially reaching distant shores due to ocean currents for offshore ecosystems of large aquat-ic/ sensitive environments for onshore spills.
- Socioeconomic impacts can also be severe, impacting fisheries, tourism, and coastal communities.
- Tier 3 spills require a coordinated, multi-agency response effort including state and county authorities, as well as industry and environmental organizations.
- The response to Tier 3 spills may include mobilizing extensive resources, deploying specialized equipment, and implementing comprehensive plans to address the crisis.
- The classification of oil spills into these three tiers helps streamline the response process, ensuring that

the appropriate level of resources and expertise is allocated to address each spill's unique challenges effectively. It also helps in the decision-making process for activating and co-ordinating response efforts.

4.2 OIL SPILL INCIDENT ASSESSMENT

Operators are required to use best petroleum industry practices to assess and size up any spill that occurs properly. This is necessary to adequately mobilize the personnel, equipment, and expertise to deal with oil spills, especially those of national significance.

Operators will monitor sites where oil spills have occurred to determine the concentration of contaminant(s) present, establish evacuation approaches, and maintain isolation perimeters. While undertaking this assessment, operators will ensure that the following actions are covered:

i. Identification of the spilled material as well as the safety hazards that are likely to present to project workers, contractors, and the public;
ii. An evaluation of the spill/release characteristics as they influence movement, recovery, and environmental impact;
iii. Undertake an estimation of the size of the spill and its movement;
iv. Determine the level of Emergency Response Team activation required for the exercise; and
v. Establish response action priorities.

Response Resources and Logistics

4.2.3 Operators will ensure that oil spill response resources are adequately provided for or accessible and include specialized equipment to monitor air quality, clean up oiled areas and contain and collect oil. For monitoring, there will be a regular collection of groundwater samples from the monitoring wells and analyzing them for oil contamination levels for Parameters like BTEX (benzene, toluene, ethylbenzene, and xylenes) and Total Petroleum Hydrocarbons (TPH)

4.2.4 Resource needs are defined by the category of spill (Tier 1, 2 & 3) as follows. Operators must have in place the proper planning, trained response management and equipment for responding to a Tier 1 oil spill from their facilities or vessels. These resources must be available to respond immediately and to cascade to locations needed to augment a Tier 2 or 3 response.

4.3 OIL SPILL RESPONSE RESOURCING

Operators will be responsible for ensuring that resources required to respond to oil spill incidences are quickly available either from their own resources (tier 1) or quickly accessible from other sources through prior arrangements and plans (tier 2 &3). Kenya's NCP provides the minimum resources that must be available depending on the spill level.

1. Tier 1 Resources

Operators must have available spill response equipment appropriate to the types of oils handled and local environmental conditions. These resources must be capable of being deployed locally within one (1) hour at the facility or asset to address minor spills. Minimum resources include equipment for:

i. Safety:
   - air quality monitors
   - appropriate Personal Protective Equipment (PPE)
ii. Containment equipment such as sandbags and barriers
iii. Protection: barriers to safeguard sensitive areas
iv. Oil recovery equipment,
v. Waste handling equipment,
vi. Clean-up and treatment equipment

2. Tier 2 Resources

Tier 2 resources are resources that may be mobilized from locations within Kenya to support a Tier 2 response capability. They may include industry dedicated and government oil spill response resources or resources and expertise from contractors and other non-state entities. Response capabilities for this tier of spill will entail a broader range of and more advanced equipment, responders and specialization.

3. Tier 3 Resources

Tier 3 resources consist of regionally or internationally available resources which could be mobilized from neighbouring countries or international spill response hubs. Tier 3 responders may be resources from the region or global reach.

5. OIL SPILL MANAGEMENT STRATEGIES

The two main procedures include Mechanical and Non-Mechanical. An operator and any other parties involved will apply prudence and duty of care while undertaking recovery measures. Reference will be made to the guidelines provided under the NCP and other relevant laws. Mechanical and Non-mechanical recovery methods are briefly described below.

5.1 MECHANICAL RECOVERY

This method entails the physical removal of spilled oil from the environment. The method is generally viewed as less aggressive to the environment and is usually applied in combination with other recovery methods. Typically, mechanical and non-mechanical are not used in the same location.

5.2 NON –MECHANICAL RECOVERY

Non-mechanical recovery entails the use of chemical dispersants, in-situ burning, and burning of oiled materials. It also involves the application of surface cleaners. However, the procedures will require careful consideration of the resultant environmental impacts and seeking approval prior to their use.

5.3 STRATEGIES FOR OIL SPILL MANAGEMENT SHALL ENTAIL:

5.3.1 Prioritizing Prevention of oil spills through:

- Utilizing well-designed equipment, regularly maintaining infrastructure, and adhering to safety protocols.
- Implement best practice procedures such as slow drilling speeds, proper well casing and cementation and real-time monitoring of drilling parameters to minimize the risk of accidents.

5.3.2 Develop comprehensive plans that out-line response procedures, containment strategies and communication protocols for different spill scenarios and provide regular personnel training on these plans.

5.3.3 Maintain a readily available stock of essential equipment for containment, recovery, and clean-up operations. This shall include booms, skimmers, dispersants (with proper au-thorization), and personal protective equipment (PPE).

5.3.4 Establish pre-arrangements with specialized oil spill response companies to ensure access to additional equipment and personnel in case of a major spill.

5.3.5 Develop clear communication channels between the operator, government agencies, local communities and other stakeholders during a spill event is crucial.

5.3.6 Take immediate and urgent action upon detection of a spill including prompt activation of the emergency response plan.

5.3.7 Mobilize personnel and equipment to initiate clean-up operations based on factors such as the type of oil, location, and weather conditions.

5.3.8 Immediately notify relevant government agencies and regulatory authorities, including EPRA, NEMA, and relevant County Government, about the spill.

5.3.9 An environmental bond shall be secured as provided for under the EMCA, 1999, to provide financial security for cleanup and remediation efforts. The fund shall be made use of as outlined by the same Act.

5.3.10 In the event of a spill, implement effective cleanup strategies, such as mechanical recovery, skimming, or the use of dispersants (with proper authorization), to remove the spilled oil from the environment.

5.3.11 Undertake long-term plans for restoring impacted ecosystems and habitats damaged by the spill. It will involve restoration, revegetation programs and monitoring programs to track the recovery of affected areas.

5.3.12 Affected persons and communities shall be compensated as a result of losses due to the spill.

6. RESTORATION

On completion of the oil spill recovery and clean-up, operators will be required by one or more government institutions to undertake necessary interventions to restore affected areas.

Operators will also be expected to undertake such measures even without a prompt from such institutions as part of good industry practice.

EFFECTIVE DATE

The effective date of the guidelines shall be:

30th June 2025

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