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**NATIONAL OIL SPILL DETECTION AND RESPONSE
AGENCY ACT (No. 15 of 2006)**

**OIL SPILL RECOVERY, CLEAN-UP, REMEDIATION AND DAMAGE
ASSESSMENT REGULATIONS, 2011**



ARRANGEMENT OF SECTIONS

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SCHEDULES

S. I. 25 of 2011

**NATIONAL OIL SPILL DETECTION AND RESPONSE
AGENCY ACT (No. 15 of 2006)**

**OIL SPILL RECOVERY, CLEAN-UP, REMEDIATION AND
DAMAGE ASSESSMENT REGULATIONS, 2011**

[26th of May, 2011]

Commence-
ment.

In exercise of the powers conferred on it by Section 26 of the National Oil Spill Detection and Response Agency, (Establishment) Act No. 15 of 2006 ("the Act") and all other powers enabling it in that behalf, the NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY hereby makes the following regulations :

PART I—OBJECTIVE AND SCOPE OF APPLICATION

1. Objective : These Regulations establish procedures, methods and other requirements for detection, response, clean-up and remediation of oil spills from onshore and offshore petroleum facilities into or upon land and navigable waters of Nigeria or adjoining shorelines.

Operational
coverage of
the
Regulations.

Scope : These Regulations shall apply to all onshore and offshore petroleum facilities engaged in exploration, production, storing, processing, refining and distribution of oil products that have the potential to spill into or upon land and navigable waters of Nigeria or adjoining shorelines :

Provided that these Regulations shall apply without prejudice to any other existing regulations for the prevention of oil spill into or upon land and navigable waters of Nigeria or adjoining shorelines.

PART II—OPERATIONAL PROCEDURES FOR SPILL RESPONSE

2—(1) The owner or operator of onshore or offshore facility from which oil is discharged into or upon land or navigable waters of Nigeria shall provide monitoring system or equipment for oil spill detection and shall carry out rapid assessment to evaluate the severity of the spill incident by aerial and visual surveillance in order to quantify the spilled oil.

Requirement
for oil spill
detection.

(2) Aerial observation which includes aerial reconnaissance or surveillance shall :

(a) be an essential element in effective response to marine oil spill, determining the location, extent of contamination or predicting the direction and fate of oil slick at sea ;

(b) guide the deployment of response equipment, control of operations at sea, timely protection of coastline sites and shoreline clean-up preparations ;

(c) be undertaken visually or by use of remote sensing systems ; and

(d) be essential in determining the real extent of contamination in land areas, especially in difficult terrain.

(3) Visual observation of floating oil from the air shall be one of the simplest methods of determining the location and scale of an oil spill.

Methods for
Observation
and
Recording.

3. An owner or operator of a facility making a report shall make available maps, geo-referencing charts and other basic data such as the location of the spill source and of pertinent coastal features to assist in the accurate location of the spill site.

Oil Spill
Reporting.

4.—(1) Any person who observes a spill or an oil slick at sea shall report to the facility owner, the Agency or any other related regulatory or security organisation.

(2) The owner or operator of such facilities shall quickly take measures to verify and confirm the incident and if the incident is confirmed to have occurred, the operator shall respond in accordance with OSCP/SPCCP of the facility.

(3) The owner of an onshore or offshore facility shall within 24 hours notify the Agency of any oil spill from such facility.

(4) The format for reporting oil spills shall be, as prescribed in the First, Second and Third Schedules respectively, to these Regulations.

Joint
Investigation
Visit.

5. A joint investigation team comprising the owner or operator of a spiller facility, Community and State Government representatives and the Agency, shall be constituted immediately after an oil spill notification, to visit the spill site and investigate the cause and extent of the spillage and a report of their findings prepared by the Agency in accordance with the Fourth Schedule to these Regulations.

Requirement
for oil spill
emergency
response.

6. In the event of a spill, the operator shall—

(a) contain the spill with suitable barrier and recover the free phase oil using appropriate equipment ;

(b) use approved dispersants to break up the oil and speed its natural biodegradation ;

(c) apply biological agents to the spill to hasten biodegradation ; or

(d) adopt the best practice method to allow it disperse or break down by natural means if there is no threat to the environment.

Protective
Strategies.

7. In using Environmental Sensitivity Index (ESI) maps and other similar aids, the operator shall give priority to the protection of sensitive resources.

Quantifying
Free Phase
Oil.

8.—(1) The JIT shall make an estimate of the quantity of oil observed at sea and on land to guide in planning the required scale of clean-up response.

(2) The Estimation of the volume of spill may be done by using any of the following industry practices, namely—

(a) American Petroleum Institute ;

- (b) Oil Spill Response Limited ;
 - (c) Minerals Management Services ;
 - (d) Physical inspection and management ; or
- any other industry acceptable practice approved by the Agency.

(3) Oil spill incidents are classified into three, namely—

- (a) Minor Spill : 0 – 25 barrels to inland waters
0 – 250 barrels to land or coastal or offshore waters ;
- (b) Medium Spill : 25 -250 barrels to inland waters
250 – 2500 barrels to land or coastal or offshore waters ; and
- (c) Major Spill : Above 250 barrels to inland waters
Above 2500 barrels to land or coastal or offshore waters.

- | | |
|--|---|
| <p>9. The operator shall promptly remove oil from contaminated shorelines to avoid the oil weathering with time and sticking more firmly to rocks and sea walls, or becoming mixed with or buried in sediments.</p> | <p>Shoreline
Clean-up.</p> |
| <p>10. The operator shall deal specially with mobile oil residues which may pick up sediment in <i>inshore</i> waters, in the surf zone or after temporarily stranding on beaches and then washing off.</p> | <p>Mobile Oil.</p> |
| <p>11. The operator shall remove bulk oil from sand beaches, using a combination of well-organised teams of manual labourers assisted by front-end loaders and other mechanical equipment to transport recovered wastes.</p> | <p>Sand
Beaches
Clean-up.</p> |
| <p>12. The operator shall recover bulk oil from rocky shores close to amenity beaches or sea walls and slipways manually or by using vacuum units or other skimmers on pooled oil.</p> | <p>Rocky
Shores
Clean-up.</p> |
| <p>13. Residual oil shall be left to weather and degrade naturally on sensitive shoreline types such as salt marshes and mangroves, as extensive damage can be caused by the physical disturbance of clean-up teams and vehicles than by the oil itself.</p> | <p>Saltmarsh
and
Mangrove.</p> |
| <p>14. The operator shall apply fertilizers to adjust the balance in the C:N:P ratio and enhance the degradation rate by the indigenous microbial community.</p> | <p>Inland Clean-
Up by
Biostimula-
tion.</p> |
| <p>15. The operator shall deploy bioaugmentation where natural microbes for oil degradation are not abundant.</p> | <p>Inland Clean-
Up by
Bioaugmenta-
tion.</p> |
| <p>16. The operator shall use bioremediation for the breakdown of final traces of oil after clean-up by other methods and the addition of nutrients such as nitrogen and phosphorus which aid rapid microbial growth shall be preferred</p> | <p>Bioremedia-
tion for
Shoreline.</p> |

to the addition of cultured, specialist bacteria *due to the latter being rapidly out-competed by naturally occurring oil degrading bacteria which are adapted to local conditions.*

Termination of Clean-up.

17. The Agency shall constantly monitor and evaluate all clean-up activities, to ensure that they remain appropriate as circumstances change and shall immediately terminate any operation that has been shown to be ineffective or unacceptable.

PART III—CONTAINMENT AND RECOVERY

Containment and Recovery.

18.—(1) Isolation and containment of an oil spill shall be the first line response to all oil spills and suitable barrier shall be put on the path of the spreading oil in order to stop the spread and prevent pollution escalation into the environment.

(2) For containment on land, the oil spill may be prevented from spreading by containment dikes, bund walls or any other industry acceptable process that contains the oil spill.

(3) In recovery, efforts should target the heaviest oil concentrations and areas where collection will reduce the likelihood of oil reaching sensitive resources and shorelines

(4) Where soil is impacted, it shall be remediated after the evacuation of the free phase oil.

Containment and Recovery Equipment.

19. Operator may use any of the under-listed equipment for containment and recovery operations, namely-booms, skimmers, absorbents, dikes, bunds, ridges and storage facilities.

Weather and Sea Conditions.

20. Depending on oil type, prevailing weather and sea conditions, alternative response options may be made for oil containment and recovery at sea.

Use of Dispersants in Spill Containment and Recovery.

21. The Agency shall take into account oil characteristics, sea and weather conditions, as well as surrounding environmental sensitivities in approving the use of dispersants in Spill Containment and Recovery.

Application of Dispersants at Sea.

22. Dispersants may be applied to open water by the following methods—

- (a)** vessel spraying ; and
- (b)** aerial spraying

Restriction on the Use of Dispersants in Oil Spill Management.

23. The use of dispersants offshore shall be restricted to a distance of not less than ten nautical miles away from shoreline, and no dispersant may be used in the inland areas.

24. The Agency shall monitor the application and effectiveness of chemical dispersants.

Monitoring
of
Dispersant's
Effectiveness.

25.—(1) On completion of clean-up, the Agency shall undertake damage assessment in collaboration with the relevant stakeholders.

Damage
Assessment.

(2) The assessment shall include data on extent of damage to the environment including the biodiversity, water resources, fishery and other fishery resources, properties (NOAA, 2000) socio-economic losses and damage assessment is a responsibility that shall be undertaken by the Agency in collaboration with the relevant stakeholders.

(3) The assessment shall form the basis of the compensations to be paid for the losses.

26.—(1) An owner or operator of an oil spill facility shall pay compensation to an oil Spill victim for damage caused to the victims person, business or property.

Compensa-
tion.

(2) Compensation shall not be paid for spills caused by third party interference or sabotage.

(3) An owner or operator shall internalise the cost of compensation as part of polluter-pay-principle.

27. Compensation shall be paid for damage to buildings, economic trees or crops by any person who surveys, digs, lays pipes or such other activities for the supply and distribution of energy and fuel.

Basis for
Compensa-
tion.

PART IV—OIL AND OILY WASTE MINIMISATION AND MANAGEMENT

28. Oil and oily wastes shall be collected and stored separately and barges, trucks, skip, drums, fast tanks and properly lined retention pits shall be used in the storage of oil and oily waste for a period not exceeding sixty days.

Storage.

29. Oil recovered from oil spill response activities shall be recycled in line with recognised industry practices approved by the Agency.

Management
of
Recovered
Oil.

30. The disposal of oily wastes shall be strictly in accordance with the methods approved by the Agency which may include—

Disposal of
Oily
Wastes.

(a) Incineration ;

(b) Stabilization ; and

(c) Landfill.

31. Owners or operators of oil facilities shall obtain approval from the Agency.

Remediation
of Impacted
Sites.

Site
Identifica-
tion.

32.—(1) Owners or operators shall identify the impacted site and report to the Agency:

(2) The Agency shall carry out a more in-depth and well structured site assessment where there is—

- (a) a record or evidence of previous spills ;
- (b) inadequate storage system by the owner or operator ;
- (c) poor operational history ;
- (d) complaint against the owner or operator ;
- (e) detection of contaminants from monitoring systems ;
- (f) warning letters and physical evidence of oil stain, oil sheen, soil and stressed vegetation ; and
- (g) Warning letters and clean-up orders from regulatory agencies.

(3) The polluted site identification shall include, where necessary, aerial reconnaissance with maps geo referencing and location, showing dimension of site, relationship to town and waterways, and photographs showing topography, nature and existing structures and information for each site shall be accompanied with relevant record keeping forms.

Site
Evaluation

33.—(1) The operator or owner of a facility shall identify and report any oil spill incident to the Agency.

(2) The Agency shall immediately after an oil spill notification constitute a joint investigation team comprising representatives of the oil company, state government, community and the Agency, to investigate the cause and extent of the spillage.

(3) The Agency shall prepare a report which shall be endorsed by all JIT members in accordance with the Fourth Schedule to these Regulations.

(4) The initial screening parameters that may assist on best type of remediation for polluted soils and sediment and the likely effect of different parameters on soil and sediment during remediation are as shown in the Sixth and Seventh Schedules to these Regulations.

(5) In defining the spill problem in site evaluation, the questions contained in the Eight Scheduled to these Regulations shall apply.

Type of
Impact.

34.—(1) Oil and gas environmental impacts are classified as current or historical and the remediation procedure is similar for both classifications.

(2) Historical site may be more difficult to remediate due to the age of the impacted site and some cases may require special remediation procedures such as salt or produce water and hydrocarbons (emulsion) mixture and old pits.

35.—(1) Operators shall identify the type of land use in assessing the extent of human and ecological exposure to the pollutant, in planning practical remediation programs.

Type of land use.

(2) The specified land uses considered in this guideline are :

(a) Agricultural—which includes all uses of land where the activity is primarily related to the productive capability of the land or facility and is agricultural in nature, or is related to the feeding and housing of animals such as livestock.

(b) Residential or Parkland—which includes all uses of land where dwelling on a permanent, temporary or seasonal basis is the primary activity such as institutions, hospitals, schools or daycare.

Parkland which includes all land uses in which the primary activity is recreational in nature and requires the natural or human designed capability of the land to sustain that activity such as Playgrounds.

(c) Commercial—which includes all uses of land where the primary activity is related to the buying, selling or trading of merchandise or services.

(d) Industrial—which includes all land uses where the primary activity is related to the production, manufacture or storage of materials.

36.—(1) Remediation shall commence as soon as the need to do so in any given site is established.

Measurement of the Site for Remediation.

(2) The size of the impacted sites shall be determined by measuring the perimeter and the coordinates using the Global Positioning System.

37.—(1) Site gradient and direction shall be determined by the following indicators—

Area Topography.

(a) Flat < 1%

(b) Slight 1 - 2%

(c) Moderate 2 - 5%

(d) Steep >5%

(2) The mode of Access to the impacted area shall be noted and documented by the operator and the operator shall communicate remediation plans to the Agency and address any landowner's concern.

(3) An owner or operator shall examine the surrounding topography record hills, valleys, bodies of water, and other significant land features.

An owner or operator shall identify any erosion problems, repair major erosion trails, determine erosion causes and establish erosion prevention program where necessary.

Land Use,
Cover and
Soil Type.

38.—(1) Land cover shall include crop, fallow, pasture and the type and amount of plant growth shall be determined and recorded.

(2) Predominant soil types such as sand, silt or clay are to be identified:

(a) Soil test results and depth of hydrocarbon penetration – if contained in top 15cm, removal shall be the best option.

(b) Soil removal (and replacement) is generally recommended for soil with Total Hydrocarbon Content (THC) value above 5000 mg/kg dry weight.

(c) Consider sensitivity of area and time required to remediate.

(d) Hydrocarbon contamination depth and concentration.

(e) Replacement soil should have a THC value of 50 mg/kg dry weight or below.

Soil
Sampling.

39. An owner or operator shall consider three major factors when developing a sampling procedure for an impacted site namely:

(a) *Number and Location of Samples*

An owner or operator shall obtain the control sample first, approximately 100m from the area of impact and the control sample shall be a true representation of the soil type in that area as follows—

(i) 1/3 acre = 3 site samples, one control.

(ii) 2/3 acre = 4 site samples, one control.

(iii) 1 acre = 5 site samples, one control.

(b) *Site uniformity*

Sample number shall be adjusted according to uniformity and non-uniform features may include heavy clay, sand, vegetated or non-vegetated areas, grade and other areas significantly different from control as follows—

(i) More than three non-uniform features—add one sample point;

(ii) Less than three non-uniform features—reduce one sample point in sites greater than two third acre.

(c) *Method of obtaining Soil Samples*

(i) The owner or operator shall collect samples strictly in the presence of the representatives of the Agency and community.

(ii) The Agency shall also collect samples for independent analysis and control.

(iii) The technique for taking soil samples shall be based on sample and site types.

(iv) Sample points shall be selected to best represent the soil surface of the impact area and the depth should be 0-15cm for top soil and 15-30 cm for bottom soil.

(v) Locations shall be marked with flags and Global Positioning System and recorded on the location site map.

(vi) The non-uniform area shall be sampled where it represents 1% of the site area.

(vii) The soil sample shall be placed in a pre-labelled plastic bag to be distributed to stakeholders showing site, date, sample ID number and technician's initials.

(viii) Tests shall be conducted within 72 hours and results of such test shall be recorded after each analysis is completed.

(ix) Storage and transport temperature shall be carried out to maintain the integrity of samples.

(x) Procedure for quality control of samples shall be recorded and included in report to the Agency.

40. Physical evaluation of the soil will aid in determining the impact of the incident, the proper remediation procedure and in monitoring remediation progress.

Physical
Evaluation of
Soil.

41. The owner or operator shall determine the amount of aggregation as rated below :

Percentage of
Aggregation.

(a) Poor – no aggregation.

(b) Fair – small clumping but majority of loose particles.

(c) Good – Moderate aggregation throughout soil sample.

(d) Excellent – Consistent throughout sample – garden quality soil.

42. An owner or operator shall determine the presence and amount of biological activity in the top 5cm of soil and the relative amount of "earthy" odour will quantify the amount of biological activity as rated below—

Biological
Activity.

(a) None – No earthy odour.

(b) Fair – Faint earthy odour.

(c) Good – Obvious earthy odour.

(d) Excellent – Heavy earthy odour.

43. An owner or operator shall use the "ribbon test" to determine the clay content of soil, whereby a small amount of soil is squeezed and rolled between the thumb and forefingers to determine the relative clay content of the soil and soil that remains intact but curls upon itself is considered to contain greater than 50% clay, < 35% - normal productive soil, 35 – 50% - clay soil and >50% - predominantly clay.

Clay
Content of
Soil.

44. The feel test shall also be used to determine the texture of the soil by rubbing some moist soil between the fingers wherein sand feels gritty, silt feels smooth and clay feels sticky.

The Feel
Test.

Depth of
Topsoil.

45. The extent of contamination of soil shall be determined by critically examining the soil profile from the core sample or from the sidewall cut and a thicker top oil layer supporting plant growth.

Ground
Water Plume
Characterisa-
tion.

46.—(1) Where deep seated hydrocarbon pollution is identified, an owner or operator shall confirm and fully determine the extent of contamination.

(2) The goal for plume characterization shall be to protect, enhance and restore ground water conditions to the maximum beneficial use to the extent that is technically and economically feasible while maintaining conditions that are protective of human health and the environment.

(3) The clean-up levels or goals shall be established on a case-by-case basis in a consistent manner.

(4) The process set forth below shall be utilized in plume characterization—

(a) *Plume characterization.*—Owners or operators shall carry out ground water pollution or contamination plume characterization fully to determine—

- (i) The extent of contamination ;
- (ii) The contamination source ;
- (iii) Ground water flow direction ;
- (iv) Ground water gradient ;
- (v) Ground water velocities ;
- (vi) Hydrogeologic units or formations impacted ; and
- (vii) Hydrologic connectivity between identifiable units.

(b) *Source Control Measures.*—Technological, chemical, or biological methods or combinations thereof shall be used to control the continued migration of pollution from the source and the following steps shall be taken when selecting appropriate source control measures or practices :

- (i) Removal (excavation) ;
- (ii) Physical barriers ;
- (iii) In situ treatment.

Record
Keeping.

47. An owner or operator shall keep accurate record of the remediation process.

Selection of
Remediation
Option:

48.—(1) Based on site assessment findings, the Agency shall approve a remediation option.

(2) Guide to selection of remediation options are provided in these Regulations.

49. After remediation option has been selected, the site owner or operator, based on the tiered level, shall appoint its staff or contractors to carry out the work and the following permits shall be obtained :

Permit
Requirements.

(a) *Remediation Work Plan Approval*—The work plan shall include a sampling plan which must sufficiently assess potential contamination and describe sampling locations, sample collection method and proposed analysis, and when the work plan has been reviewed and approved, the applicant will be issued a permit.

(b) *Health and Safety Plan*—A Health and Safety Plan must be developed for the site work and a copy shall be made available to the Agency prior to the commencement of any remediation work.

(c) *Accreditation*—Contractors must be duly accredited by the Agency based on the scope of work.

50. In undertaking a remediation work, an owner or operator shall :

Initial Site
Remediation
Work Plan.

(a) provide a list of contaminants and their concentration ranges in a tabular format ;

(b) define the contamination plume and show vertical and lateral extent of the contamination and the concentration in plain view and in cross section ;

(c) estimate volume of contaminated soil, water, sediment and underground water ; and

(d) include analyses by a laboratory certified by the Agency.

51.—(1) An owner or operator shall :

Geologic and
Hydrogeologic
Information.

(a) provide an overview of site geology and hydrology ;

(b) complete the site-specific description of soil lithology (including boring logs) ;

(c) document the depth to groundwater table and the groundwater features ;

(d) indicate the background levels of contaminants in the site vicinity and document all relevant permits ;

(e) prepare site and personnel health and safety plan, estimated time to conduct cleanup and show the fate and risk of the impact of residual contamination of groundwater as well as the specific methods that shall be used to remediate the site ; and

(f) owners or operators are to show justification for the methods to be used and provide assurance that all work shall be carried out in accordance with all applicable Local, State and Federal Laws and Regulations.

(2) An appropriate remediation technique for cleanup operations will depend on :

- (a) the type and concentration of the contaminants ;
- (b) the site specific geology and hydrology ;
- (c) the site specific engineering constraints ;
- (d) environmental and public health effects ; and
- (e) the site assessment findings.

(3) The following are required after the site remediation permit is issued :

- (a) Commencement of remediation as scheduled in the plan ; and
- (b) Submission of progress reports to the Agency.

Final
Remediation
Report.

52. On completion of remediation, a final Remediation Report shall be submitted to the Agency and the Report shall contain the following :

(a) *Variations from Initial Remediation Work Plan*—The Report shall identify all unexpected conditions encountered or variations from the actions proposed in the initial remediation report and provide logs of all new borings and wells ;

(b) *Excavated Materials*—The Report shall show limits of each earth material removed in plain view and cross-section and provide evidence that soil or sediment removed from the site was properly manifested or otherwise transported ;

(c) *Post-Remediation*—The Report shall verify the effectiveness of the remediation method through monitoring and evidence of contamination extraction from the subsurface, submit a Post -Remediation Monitoring Plan for residual contamination (applicable when clean-up levels have not been achieved) and attach laboratory results for all confirmation samples with chain of custody ;

(d) *Findings and conclusions*—The report shall contain findings and conclusions showing completeness of work and justification for the findings and conclusions.

Penalties for
Breach of
Regulations.

53. Any person who violates any provision of these Regulations shall be liable to pay the penalties provided for in Section 6(2) and (3) of the Act.

General
Principles of
Best
Available
Techniques.

54. These Regulations are made in line with the Best Available Techniques and best environmental practices relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants.

Background
and Glossary
of terms

55. The background information on these Regulations and the Glossary of terms are contained in the Twelfth and Thirteenth Schedules to these Regulations.

56. These Regulations may be cited as the Oil Spill Recovery, Clean-up, Remediation and Damage Assessment Regulations, 2011. Citation.

NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY



FORM A

OIL SPILL/LEAK NOTIFICATION REPORT

This report must be submitted within 24 hours of Spill Incidence

1. GENERAL INFORMATION					
I. Company Name:					
II. Incident Details- Spill Reference No.	Date of Incidence (dd/mm/yy)	Time of Incidence (24 standard daylight)	Date of Observation (dd/mm/yy)	Time of Observation (24 standard daylight)	
		hrs to hrs		hrs to hrs	
Survey By: <input type="checkbox"/> Boat / <input type="checkbox"/> Helicopter / <input type="checkbox"/> Overlook / <input type="checkbox"/> Sun / <input type="checkbox"/> Clouds / <input type="checkbox"/> Fog / <input type="checkbox"/> Rain / <input type="checkbox"/> Snow / <input type="checkbox"/> Windy					
Level of Impact: <input type="checkbox"/> No Impact <input type="checkbox"/> Slight Impact <input type="checkbox"/> Heavy Impact					
Estimated quantity spilled					
2. Site Details					
I. Site Name:		OML:			
II. GPS BEAD POINTS Total Length _____ m length Surveyed _____ m Differential GPS Yes/No					
Spill Start Point GPS BEAD POINTS _____ meters NORTHINGS _____ meters					
Spill End Point GPS BEAD POINTS _____ meters NORTHINGS _____ meters					
III. Site area					
<input type="checkbox"/> Land Swamp <input type="checkbox"/> Freshwater <input type="checkbox"/> Mangrove <input type="checkbox"/> Coastline <input type="checkbox"/> Near Shore					
<input type="checkbox"/> Offshore <input type="checkbox"/> Others (Specify) _____					
IV. Containment Measures in Place					
<input type="checkbox"/> Boom <input type="checkbox"/> Trenches <input type="checkbox"/> Birdwell <input type="checkbox"/> Sorbents <input type="checkbox"/> Others (Specify) _____					
V. Type of Contaminant					
<input type="checkbox"/> Crude Oil <input type="checkbox"/> Condensate <input type="checkbox"/> Chemicals <input type="checkbox"/> Refined Products <input type="checkbox"/> Others (Specify) _____					
VI. Facility					
<input type="checkbox"/> Pipeline <input type="checkbox"/> Flowline <input type="checkbox"/> Wellhead <input type="checkbox"/> Manifold <input type="checkbox"/> Flow Station <input type="checkbox"/> Rig					
<input type="checkbox"/> Storage Tank <input type="checkbox"/> Compressor Plant <input type="checkbox"/> Others (Specify) _____					
VII. Proportional Risk					
<input type="checkbox"/> Farmland <input type="checkbox"/> Fish Pond <input type="checkbox"/> Vegetation <input type="checkbox"/> Fishing Net <input type="checkbox"/> Surface water					
<input type="checkbox"/> Venerable Objects <input type="checkbox"/> Others (Specify) _____					
3. SURVEY TEAM NO					
Name		Organization		Phone Numbers	
REPORTING OFFICER					
DESIGNATION					
SIGNATURE					
DATE					
* Report must be submitted within 2 weeks of the Spill Incidence					

NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY



1. GENERAL INFORMATION			
I. Company Name:			
II. Date of Assessment:			
III. Incident Details:	Date of incidence (dd/mm/yy)	Date spill was stopped	Method Used
			<input type="checkbox"/> Capping <input type="checkbox"/> Well Shut-in <input type="checkbox"/> Valve Shut-in <input type="checkbox"/> R Station Shut down <input type="checkbox"/> Others (specify) _____
IV. Estimated quantity spilled			
V. Estimated quantity recovered			
VI. Cause of Spill			
<input type="checkbox"/> Corrosion <input type="checkbox"/> Equipment Failure <input type="checkbox"/> Third Party Interference <input type="checkbox"/> Accident <input type="checkbox"/> Operational Error <input type="checkbox"/> Others (specify) _____			
2. Site Details			
I. Site Name:		OVL:	
II. GPS BLD POINTS Total Length _____ m Length Surveyed _____ m Differential GPS Yes/No _____ Spill Start Point GPS EASTINGS _____ meters NORTHINGS _____ meters Spill End Point GPS EASTINGS _____ meters NORTHINGS _____ meters			
III. Site area			
<input type="checkbox"/> Land Swamp <input type="checkbox"/> Freshwater <input type="checkbox"/> Mangro <input type="checkbox"/> Coastal <input type="checkbox"/> Near Shore <input type="checkbox"/> Offshore <input type="checkbox"/> Others (Specify) _____			
IV. Facility			
<input type="checkbox"/> Pipeline <input type="checkbox"/> Flowline <input type="checkbox"/> Wellhead <input type="checkbox"/> Manifold <input type="checkbox"/> Flow Station <input type="checkbox"/> Rig <input type="checkbox"/> Storage Tank <input type="checkbox"/> Compressor Plant <input type="checkbox"/> Other (Specify) _____			
V. Site Characterisation			
a. Site Conditions <input type="checkbox"/> Slim <input type="checkbox"/> Rough <input type="checkbox"/> Not Applicable <input type="checkbox"/> Low Tide <input type="checkbox"/> High Tide Current direction: _____ Shell Height: _____ Current Strength: _____			
b. Weather Conditions <input type="checkbox"/> Bright Sunny <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Sight <input type="checkbox"/> Others (Specify) _____ Temperature: _____ Wind Direction: _____ Wind Speed: _____ Relative Humidity: _____			
VI. Visual Observation of Impacted area			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
(i) Any oil sheen on water	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
(ii) Any oil sheen on water	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
(iii) Any oil sheen on water	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
(iv) Any oil sheen on water	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
(v) Any oil sheen on water	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

FORM B

RISK BASED ASSESSMENT FOR OIL SPILL INCIDENCE (RBA)

Note : This report must be submitted within 2 weeks of Spill Incidence

Receptor Assessment

<i>Receptor</i>	<i>Pathway to Impacted (m²)</i>	<i>Distance to Impacted Area (m²)</i>	<i>Estimated Area of Impact Area (m²)</i>	<i>Receptor Impacted Area (Yes/No)</i>	<i>Remarks</i>
Farmland					
Fish Pond					
Vegetation					
Surface Water					
Ground Water					
Venerable Object					
Human Habitation					
Livestock					
Plantation					
Swamp					

vii. Any Casualties	Yes	No
If yes, give details.....		
.....		
.....		
.....		
viii. Clean-up Program details		
a. Method of clean up.....		
b. Time frame for clean-up.....		
ix. General Remarks		
.....		
.....		
.....		
.....		
.....		

REPORTING OFFICER :

DESIGNATION:

SIGNATURE : DATE:

** Clean-up program report must be submitted within 4 weeks of spill incidence.*



**NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY
FORM C
SITE CLEAN-UP/REMEDIATION ASSESSMENT REPORT**

1. GENERAL INFORMATION	
I. Company Name:	
II. Date of Assessment:	
2. Site Details	
I. Site Name:	OML:
II. Date/Time of Incident:	
III. Area and Depth of Impact:	
iv. GPS FIELD POINTS Total Length _____ m Length Surveyed _____ m Differential GPS Yes/No	
Spill Start Point GPS: EASTINGS _____ meters NOTINGS _____ meters	
Spill End Point GPS: EASTINGS _____ meters NOTINGS _____ meters	
v. Contaminated Media	
<input type="checkbox"/> Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Inland Surface Water <input type="checkbox"/> Brackish Swamp Surface Water <input type="checkbox"/> Off shore Surface Water <input type="checkbox"/> Underground Water <input type="checkbox"/> Others (Specify).....	
3. (i) Date Clean-up Programme Commenced:	
(ii) Method of Clean-Up	
<input type="checkbox"/> Low Pressure Wash <input type="checkbox"/> Manual <input type="checkbox"/> Mechanical <input type="checkbox"/> Surface Wash <input type="checkbox"/> Sorbents <input type="checkbox"/> Chemical Dispersant <input type="checkbox"/> Vacuum Skimming <input type="checkbox"/> Others(Specify).....	
(iii) Estimated quantity of oil / containment recovered:	
(iv) Method of Debris Disposal	
<input type="checkbox"/> Controlled Incineration <input type="checkbox"/> Buried in lined pit <input type="checkbox"/> Chemical Treatment <input type="checkbox"/> Sanitary Landfill <input type="checkbox"/> Land farming <input type="checkbox"/> Others (Specify).....	
4. Site Visual Observation	
(i) Nature of Soil	
<input type="checkbox"/> Show Heavy Impact <input type="checkbox"/> Medium Impact <input type="checkbox"/> Minimal Impact <input type="checkbox"/> Others.....	
(ii) Nature of Surface Water	
<input type="checkbox"/> Oil Sheen Present <input type="checkbox"/> No Oil Sheen Present <input type="checkbox"/> Others (Specify).....	
(iii) Nature of Vegetation	
<input type="checkbox"/> Withered <input type="checkbox"/> Withering <input type="checkbox"/> Luxuriant	
(iv) Site Photos <input type="checkbox"/> Yes <input type="checkbox"/> No	
(v) Date Site clean-up ended:	
(vi) Sample collected after the clean-up program	
<input type="checkbox"/> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Water <input type="checkbox"/> Others (Specify).....	

5. Result of Laboratory Analysis of Samples collected Pre/Post Remediation				
Parameter	Sample	Test Method	Result	
			Pre-Remd.	Pre-Remd.
TPH				
BTEX				
Trace Metals			Pre-Remd.	Pre-Remd.
Arsenic				
Barium				
Cadmium				
Chromium				
Copper				
Mercury				
Lead				
Nickel				
Zinc				
Total Dissolved				
Total suspended Solids				

6. Does Site require remediation Yes No

If yes,

(i) Date Site remediation commenced: _____

(ii) Method of Remediation

Land farming Biopile Bio venting Air Sparging Chemical Oxidation

Washing/Leaching Phyto remediation Enhanced Natural Attenuation

Monitored Enhanced Natural Attenuation Thermal Desorption Others (specify) _____

(iii) Is remediation method in situ or ex situ?

(iv) Details of remedial method (attached as an annex)

7. Details of rehabilitation plans for impacted population (attached as an annex)

8. Cost of Spill

a. Clean-up cost:- _____

b. Clean-up remediation:- _____

c. Cost of Repair works: _____

d. Naira loss due to oil Spilled: _____

e. Lost Man Hours: _____

Total _____

9. Compensation paid, if any: _____

10. Method of Settlement of Claim

Arbitration/Mediation

Direct Negotiation between
Landlord and Operator

Court Settlement

Not Applicable

Others (specify).....

11. Date/Time of Visit by Regulations :.....

12. Remarks by any Third Party

.....
.....
.....

13. General Remarks

.....
.....
.....

14. NOTE : Officials of NOSDRA must be present when samples are collected, and when analyses begin.

REPORTING OFFICER:.....

DESIGNATION:.....

SIGNATURE:..... DATE:.....



**NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY
JOINT INVESTIGATION VISIT (JIV) FORM**

Note : This JIV Form is to be completed and signed by all participating parties in the field

1. Company:

2. Type of Complaint/Incident:

- Oil Pollution Fire/Explosion Drilling Mud/Chemical Pollution
- Others (Specify).....

3. Incident Details

- i. Date of Incident: ii. Date first reported:.....
- iii. Date of first investigation:.....
- iv. Date of follow-up investigation:.....
- v. Time investigation started:.....
- vi. Estimated quantity spilled:.....

4. Site Details

- i. Site/Location:.....
- ii. Position of Spill/Leak:.....
- iii. Spill area
 - Land Swamp Freshwater Mangrove Coastline
 - Near shore Offshore Others (specify).....
- iv. Structural Controls In Place
 - Boom Trenches Bund wall Sorbents Others (specify).....

5. Circumstances Around Spill Point

- i. Visual observation of Hole Position
 - 12 O. Clock 10 O. Clock 2 O. Clock 3 O. Clock
 - 4 O. Clock 5 O. Clock 6 O. Clock
- ii. Type of Oil contaminant
 - Crude Oil Condensate Chemicals Refined Products
 - Others (specify).....
- iii. Facility
 - Pipeline Flow line Wellhead Manifold Flow Station Rig
 - Storage Tank Compressor Plant Others (specify).....
- iv. Cause Of Spill
 - Corrosion Equipment Failure Third Party Interference Accident

Operational Error Others (specify).....

v. Visible Sign of Third Party Interference

Hacksaw Marks Drilled Holes Blasting Theft Acid

Others (specify).....

e) Shoreline/water

NAME	DIRECTION OF SLICK	LENGTH OF SLICK	WIDTH OF SLICK

8. Photograph/Map/Chart Ref.

Still photographs Video coverage Mapping

9. Samples taken.....

10. Investigation carried out by

Foot Boat Aircraft

11. Remarks/Recommendation.....
.....
.....

12. Time Investigation ended.....

13. Name and Signature of Participants

◆ NOSDRA

- 1. _____
- 2. _____
- 3. _____

◆ DPR

- 1. _____
- 2. _____
- 3. _____

◆ STATE MINISTRY OF ENVIRONMENT

- 1. _____
- 2. _____
- 3. _____

❖ LOCAL GOVERNMENT COUNCIL

1. _____
2. _____
3. _____

❖ COMPANY

1. _____
2. _____
3. _____

❖ COMMUNITY

1. _____
2. _____
3. _____

FIFTH SCHEDULE

CRUDE OIL CHARACTERISTICS AND TYPE OF OIL IN NIGERIA

TABLE 5A—Nigeria Crude Oils

The table below shows the various crude oil types in Nigeria and some of their physico-chemical characteristics, including viscosities.

Crude Name	Density @15°C	API	Sulphur Content	Asphalt Content	Pour Point	Fraction Boiling <200°C as % Wt	Viscosity cst @30°C
Oso Condensate	0.7965	46.0	0.046	0.05	-9	47.00	1.58
Brass River	0.8100	43.1	0.074	0.05	-6	41.90	2.14
Qua Iboe	0.8395	37.0	0.11	0.05	9	31.05	3.12
Pennington	0.8460	35.7	0.08	0.05	3	24.70	3.80
Escravos	0.8475	35.4	0.15	0.11	-6	30.40	4.24
Bonny Light	0.8495	35	0.13	0.07	-3	26.45	4.86
OPL 209	0.85	35	-	-	-	-	-
Forcados Blend	0.8790	29.4	0.19	0.05	-6	15-95	8.50
Odudu	0.8830	28.7	0.19	0.05	-39	19.70	9.19
Bonny Medium	0.9000	25.6	0.21	0.05	-42	15.50	9.57

(Source: TOPCON OSCP, 2005)

NOTES :

- Surface sea temperatures over the continental slope range between 26° to 29°C.
- The fresh viscosities of all the above crudes are well below the 2,000 cst threshold as identified by the efficiency licensing authorities in the UK and France (AEA and CEDRE respectively).
- Temperatures below the reference temperatures combined with weathering will cause the viscosity to increase but because of the low emulsion potential of all Nigeria crudes currently being produced the dispersant application window is likely to be open for at least 48h.

TABLE 5B—Utility Oil Data

<i>Oil Type</i>	<i>Density @15°C</i>	<i>Flash Point °C</i>	<i>Viscosity @30°C</i>	<i>Pour Point °C</i>	<i>Description and Strategy</i>
Aviation Gas	<0.8	38 - 60	0.5 @ 15°C	<-40	Extremely volatile; will evaporate completely in a very short time Exclude all sources of ignition and leave to dissipate naturally
Diesel	0.8400	>55	3.5	-5 to -30	A very low viscosity distillate fuel; easily evaporates in warm conditions. Evaporation times of < 4 hours not usual. Spreads rapidly into windrows (ribbons of oil aligned to the wind direction) and forms a very thin slick. The only appreciable concentrations are at the downwind leading edge of the slick. Encourage natural dispersion. If resistant, apply only approved dispersants.
Lubricating Oil	>0.85	>60	300	-15	A relatively viscous oil prone to forming light emulsions if the sea has sufficient mixing energy (Guideline > Beaufort 4). Does not evaporate readily and can require an active response if natural weathering is failing.

TABLE 5B—Utility Oil Data—continued

					Encourage natural dispersion. Treat with dispersant if necessary.
Hydraulic Oil	0.880	> 60	100	< 0	<p>A relatively viscous oil prone to emulsification if the sea has sufficient mixing energy (Guideline > Beaufort 4). Does not evaporate readily and can require an active response if natural weathering is failing.</p> <p>Encourage natural dispersion. Treat with dispersant if necessary.</p>

TABLE 2.1 : INITIAL SCREENING OF SOIL/SEDIMENT BY GENERAL PARAMETERS

<i>Parameter/</i>	<i>Biological treatment</i>	<i>Soil washing</i>	<i>Solvent extraction</i>	<i>Solidification/ Stabilization</i>	<i>Incineration</i>	<i>Thermal Desorption</i>
Clay content						
Low	+	+	+	+	+	+
Medium	O	O	O	+	O	O
High	O	X	X	O	X	X
Humic content						
Low	+	+	+	+	+	+
Medium	+	O	O	+	+	+
High	+	O	O	+	+	+
Metals content						
Low	X	+	X	+	+	X
Medium	X	O	X	+	O	O
High	X	X	X	+	X	X
Particle size						
Small	+	X	O	X	O	O
Medium	+	O	+	+	+	+
High	O	+	+	O	O	O
Ph						
Low	X	O	+	+	O	O
Medium	+	+	+	+	+	+
High	X	O	O	O	+	+
Salinity	U	O	O	O	+	
Silt Content						
Low	+	+	+	+	+	+
Medium	+	O	+	+	O	O
High	+	O	X	+	X	X
Solid content						
Low	+	O	O	O	O	X
Medium	+	+	+	+	+	O
High	+	+	+	+	+	+

TABLE 2.1—Utility Oil Data—continued

Waste						
Composition	+	+	+	+	+	+
Homogeneous	O	O		+	+	+
Heterogeneous						
Waste content						
Low	O	+	+	+	+	+
Medium	+	+	+	+	O	O
High	O	O	X	O	X	X

Source: USEPA, 1993

LEGEND

- + Favourable to process
- O No effect on process expected
- x May impede process
- U Unspecific

TABLE 2.2 : Parameter Effects on Soil and Sediment

<i>Parameter</i>	<i>Biological treatment</i>	<i>Soil washing</i>	<i>Solvent extraction</i>	<i>Solidification/ Stabilization</i>	<i>Incineration</i>	<i>Thermal Desorption</i>
Clay content	No known effect	Impedes contaminant removal	Affects solvent use and efficiency	No known effect	No known effect	Can affect removal efficiency
Humic content	No apparent Effect	Inhibits contaminant	No apparent No effect	If > 45% (wt) can affect bonding	No effect	No known effect
Metals content Particle size	Can be toxic to microorganisms If non-uniform can affect activity	Does not remove insoluble metals Fines difficult to remove from wash	Does not remove insoluble metals Must be <1/4-	Does not remove leachable metals If < 200 mesh or > or >1/4- can Affect bonding	Volatile metals can vaporize Fines can be carried through the process	Volatile metals can vaporize
Ph	Most effective range 4.5-8.5	Affects choice of reagents	Affects choice of solvent	pH is automatically adjusted	If low, can cause acid attack	If outside 5 to 11 can cause corrosion
Salinity	Microorganisms must be adapted to high salt concentration	No apparent effect	No apparent effect	May affect bonding	Can be carried through process	Can be carried through process
Silt content	No apparent effect	Affects efficiency	Affects efficiency	May affect bonding	Can be carried through process	Can be carried through process
Solids content	Depends on the process type	No apparent effect	No apparent effect	If <15% requires higher reagent use	Most efficient as content increases	Most efficient as content increases
Waste composition	If heterogeneous can affect sustained activity	Affect waste solution formulation	Affects waste solution formulations	If heterogeneous can affect bonding	Can affect energy requirements if heterogeneous	Can affect energy requirements if heterogeneous
Water content	Content outside 40-80% inhibits activity	No effect	No effect	No known effect	If high, affects feed handling and requirement	Affects energy use energy

Defining the Spill Problem in Site Evaluation

Operators shall carry out a thorough analysis of the problem. A thorough investigation may avert unnecessary remediation costs. The following questions shall be asked and answers provided :

What is the history of the site?

Thorough historical assessment of the site will aid in identifying and locating the contaminant(s). It may also aid in assessing responsibility for the contamination.

Possible Impacts?

Contaminated site may affect many people and other living organisms.

Determine both the pathway of contamination and all possible receptors of contamination.

Answers shall be provided for the following important questions.

Is the site near an existing tank farm, flow station, pipeline, oil well or other facility?

Is it near where a tank farm or storage site previously existed?

Has there ever been a spill on or near the property?

What is the length, width and depth of the contaminated area?

What is the soil or water type?

Where is the surface and ground water?

How did the contamination enter the site?

Did it enter the ground water?

Will it affect people through either toxic vapors or soil contamination?

Could there be any effects on vegetation, wildlife or domestic animals?

How will the contamination affect adjacent sites?

What will the site be used for in the future?

Are there any special factors relating to public use of the area?

Is the site commercial, agricultural or residential?

NINTH SCHEDULE

ENVIRONMENTAL SENSITIVITY INDEX (ESI) MAPPING

TABLE 6A—Outer Coast Sensitivity

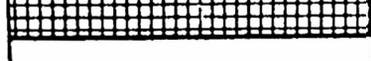
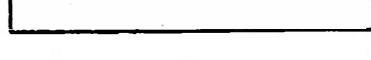
	<i>Value</i>	<i>Sensitivity in Decreasing Order</i>
	10.0	Mangrove
	5	Mixed Sediments Beach
	4	Medium Coarse Beach
	3	Fine Sand Beach
	2	Eroding Mud Beach
	1	Exposed Seawalls/Riprap

TABLE 6B—Coastal and Interior Habitats

<i>Colour</i>	<i>Value</i>	<i>Sensitivity in Decreasing Order</i>
	10.3	Mangrove Full Grown/Tall
	10.2	Mangrove Degraded; Nypha Palm
	10.1	Mangrove Brackish: Highly stressed
	9	Fresh Water Wetlands - Raphia Complex
	8	Fresh Water Wetlands - Degraded
	7	Grasslands
	6	Saline Flats
	3.1	Abandoned Beach Ridge
	3	Barrier Sand

TENTH SCHEDULE

GUIDELINES FOR THE STOCKING AND LISTING OF RESPONSE EQUIPMENT AND MATERIALS

Owners/operators shall stock a minimum quantity of functional equipment and materials at any point in time that can be used for the effective combat of minor spills (tier 1) or for the first line of defence for bigger spills. The stock shall consist of the following :

1. BOOMS

These shall be described in accordance with the following characteristics :

- Types
- Total length
- Draft/freeboard length and weight per unit
- Design or intended use (e.g. use in open sea or sheltered water operations)
- Mobilization time Means of transportation required
- Available transportation
- Estimated procurement cost/meter

The following characteristics shall be specified.

- Types, total numbers
- Weight and size per unit
- Design or intended use
- Mobilization time
- Means of transportation required
- Available transportation
- Estimated procurement cost
- Estimated daily Rental Cost

2. RECOVERED OIL STORAGE EQUIPMENT

The following characteristics shall be specified

- Types, total numbers/capacity
- Weight and size per/unit
- Additional support equipment necessary
- Design or intended use
- Mobilization time

- Means of transportation required
- Available transportation
- Personnel for handling
- Estimated procurement cost
- Estimated daily rental cost

3. SPECIALIZED SHORELINE CLEAN-UP EQUIPMENT (WHEN APPLICABLE)

The following characteristics shall be specified.

- Types
- Weight and size per unit
- Additional support equipment necessary
- Design or intended use
- Mobilization time
- Means of transportation required
- Available transportation
- Personnel for handling
- Estimated procurement cost
- Estimated daily rental cost
- Types, total stock of each type-Method of Application Estimated price
- Portable equipment (on bond and ashore)
- Types of emission First Aid Kits

4. VESSELS (SPECIALIZED AND OTHERS)

The following characteristics shall be specified

- Type, length, breadth, speed
- Onboard storage capacity
- Application (open sea or sheltered waters)
- Mobilization time
- Personnel for handling
- Estimated daily rental cost

5. AIRCRAFT (WHEN APPLICABLE)

The following characteristics shall be specified

- Type, -rotary/fixed wing
- Operating speed

- Load capacity
- Mobilization time
- Estimated daily rental cost

6. DISPERSANTS

The following characteristics shall be specified

- System of storage
- Approval Data (Reference Number)
- Toxicity, Efficiency and biodegradability data
- Means of transportation
- Available transportation
- Expiration Date(s) per dispersant(s)

7. LIGHTERING EQUIPMENT

The following characteristics shall be specified

- Pumps ; total stocks by type/capacity and weight including prime mover
- Hoses ; length, diameter and weight/section
- Fenders ; total stocks by type/size and weight 1
- Personnel for handling
- Estimated procurement cost
- Estimated daily rental cost

8. COMMUNICATIONS AND AUXILLARY EQUIPMENT

- Equipment on Board
- Frequencies
- Power source
- Signalling lamps
- Estimated Procurement Cost
- Estimated daily Rental Cost

9. OTHERS

- Lighting Equipment
- Emergency Safety Equipment

ELEVENTH SCHEDULE

**RESULTS OF LABORATORY ANALYSES FOR SAMPLES
COLLECTED FROM IMPACTED ENVIRONMENT
MEDIUM/MEDIA**

**PARAMETERS RESULT OF IMPACTED ENVIRONMENT (MEDIUM/
MEDIA) SEDIMENT/SOIL SURFACE WATER UNDERGROUND**

WATER

Sample Control

pH

Polyaromatic Hydrocarbons

-Benzene

-Toluene

-Ethyl-

Benzene

-Xylene

THC

Sulphide

COD

Lead Nickel

Vanadium

Chromium

(Total)

(Attach Sample Location Map)

**OPERATOR/AGENCY/SPILLER/STATE GOVERNMENT/
COMMUNITY CLEAN-UP SUPERVISOR**

5. COMMENTS / DISCUSSION

6. RECOMMENDATION

**7. CONCLUSION (INDICATE WHETHER THE CLEAN-UP IS
CERTIFIED AS :**

(i) SATISFACTORY [.]

(ii) NOT SATISFACTORY []

8. SIGNATURES/ DATE

BACKGROUND**1. INTRODUCTION**

Oil spill incidents are some of the most challenging environmental consequences of oil exploration, production and transportation. This phenomenon has the potential to impact the environment and socio-economic livelihood of the people e.g. farmlands, aquatic life, and water quality.

As a result of the above, it becomes necessary to develop guidelines and standards for the recovery of oil spill, clean-up and restoration of impacted sites to their original status as well as procedures for damage assessment for the purpose of compensation. This will ensure standardization of procedures employed by operators with regards to its environmental implication/impacts in oil spill recovery, clean-up and remediation as well as damage assessment.

The National Oil Spill Detection and Response Agency (NOSDRA), a parastatal under the Federal Ministry of Environment, was established by the National Oil Spill Detection and Response Agency (Establishment) Act No. 15, 2006, as the institutional framework for the implementation of the National Oil Spill Contingency Plan (NOSCP).

The Agency is vested with the statutory responsibility of co-ordinating the management of oil spill incidents with respect to clean up, remediation and damage assessment.

The vision of the Agency is to create, nurture and sustain a zero tolerance oil spill incident in the Nigerian Environment.

The Mission of the Agency is to restore and preserve the environment by ensuring best oil field, storage and transmission practices in exploration, production and use of oil in the quest to achieve sustainable development in Nigeria.

The main objective of the Agency is to ensure that all operators and stakeholders in the petroleum sector are provided with relevant regulations for achieving uniform standard of practice and enforcement in oil spill recovery, clean up, remediation and damage assessment in the sector.

The objectives of the Agency are to :

- To establish a viable national operational organization that ensures a safe, timely, effective and appropriate response to major or disastrous oil pollution ;
- To identify high-risk as well as priority areas for protection and clean up ;
- To establish the mechanism to monitor and assist where expedient direct the response, including the capability to mobilize the necessary resources

to save lives, protect threatened environment, and clean up to the best practical extent of the impacted site ;

- To maximize the effective use of the available facilities and resources of corporate bodies, their international connections and oil spill co-operatives i.e. Clean Nigeria Associates (CNA) in implementing appropriate spill response ;
- To ensure funding, appropriate and sufficient pre-positioned pollution combating equipment and materials, as well as functional communication network system required for effective response to major oil pollution ;
- To ensure a programme of activation, training and drill exercises to ensure readiness to oil pollution preparedness and the management of operational personnel ;
- To co-operate and provide advisory services, technical support and equipment for purposes of responding to major oil pollution incident in the West African sub-region upon request by any neighbouring country, particularly where a part of the Nigerian territory may be threatened ;
- To provide support for research and development (R&D) in the local development of methods, materials and equipment for oil spill detection and response ;
- To determine and preposition vital combat equipment at most strategic areas for rapid response ; and
- To carry out such other activities as are necessary or expedient for the full discharge of its functions and the execution of the Plan.

GLOSSARY OF TERMS/ACRONYMS

<i>ADR</i>	Alternative Dispute Resolution
<i>Adequate</i>	The nature of the facility will depend on the type of terminal and the nature of the use of the terminal by visiting ships.
<i>Agency</i>	National Oil Spill Detection and Response Agency
<i>ANZECC</i>	Australian and New Zealand Environment and Conservation Council, made up of the Environment and Conservation Ministers of the Commonwealth of Australia, its States and Territories and New Zealand.
<i>AQIS</i>	Australian Quarantine and Inspection Service.
<i>AST</i>	Above Ground Storage Tanks.
<i>Baseline</i>	The lowest astronomical tide along the coast but it includes straight lines enclosing bays and indentations that are not bays and straight baselines that depart from the coastline.
<i>BOD</i>	Biological Oxygen Demand.
<i>BBU</i>	Bitumen Blowing Unit.
<i>Cargo handling</i>	The loading, discharging and transferring of cargo.
<i>Cargo Record Book</i>	This is a document that is carried and maintained on ships that carry oil and noxious liquid substances in bulk as cargo. The book needs to be completed on a tank-to-tank basis when various operations take place in the ship. These specified operations include disposal of residues to reception facilities ashore.
<i>CNA</i>	Clean Nigeria Associates.
<i>Crude oil</i>	A naturally occurring petroleum liquid consisting mainly of different types of hydrocarbons and containing varying proportions of other substances; unrefined petroleum.
<i>DPR</i>	Department of Petroleum Resources.
<i>EIA</i>	Environmental Impact Assessment.
<i>ESA</i>	Environmental Site Assessment.
<i>ESI</i>	Environmental Sensitivity Index.
<i>FCCU</i>	Fluid Catalytic Cracking Unit.

FMEnv	Federal Ministry of Environment.
FMOT	Federal Ministry of Transport.
Harmful substances	These include any substance which, if it introduced into the sea, is likely to create hazards to human health, to harm living resources and marine life and to damage amenities or to interfere with other proper uses of the sea.
Hazardous substances	These are also harmful substances but are more dangerous because of their toxicity, flammability, or other physical and chemical characteristics.
Hold sweepings	The residues of dry cargo to be removed after normal discharge.
IMO	International Maritime Organization.
LC	Langmuir Circulation.
Manual	"Comprehensive Manual on Port Reception Facilities" published by IMO in 1995.
MARPOL Convention	International Convention for the Prevention of Pollution from Ships 1973 as modified in 1978. This important international agreement regulates operational discharges from ships and also obliges governments which agree to the Convention to ensure that adequate waste reception facilities are provided in ports boat harbours and marine and bulk liquid terminals.
Master	The person in charge of a vessel.
MEPC	Marine Environment Protection Committee of the IMO.
MOSM	Multiphase Oil Spill Model.
NEMA	National Emergency Management Agency.
NESREA	National Environmental Standards, Regulatory and Enforcement Agency.
NIMASA	Nigerian Maritime Administration and Safety Agency.
NIOMR	Nigerian Institute for Oceanography and Marine Research.
NIWA	National Inland Waterways Authority.
NNPC	Nigerian National Petroleum Corporation.

NOAA	National Oceanographic and Atmospheric Administration of the US.
NOSDRA	National Oil Spill Detection and Response Agency.
NOSM	Nigerian Oil Spill Model.
NPA	Nigerian Ports Authority.
Noxious liquid substance	A "noxious" substance is a substance which if discharge into the sea would present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea.
Oily mixtures	A mixture with any oil content. See also "Oily wastes"
Oily waste	Oily wastes are either undiluted oil or water from a ship that is contaminated by oil. It can include waste from machinery spaces of ships such as residues from fuel oils and lubricating oils and also oily water in ships' bilges. Oily wastes can also include contaminated ballast water and water that has been used to wash tanks of tankers. Oily wastes can also contain detergents and other chemical additives.
OPTS	Oil Producers' Trade Section
OSRL	Oil Spill Response Limited
Petroleum	Crude oil and liquid hydrocarbon products derived from it such as the various types of fuel and diesel oils.
PPE	Personal Protective Equipment
Reception facilities	Fundamentally a reception facility is any system or even any container that can receive ship-generated residues and mixtures containing oil, noxious liquids, sewage and garbage.
Residue	Any substance, for example a noxious liquid substance, that remains on board the ship after discharge and/or washing and is to be disposed.
Ship	This means a vessel of any type (including all boats) whatsoever operating in the marine environment.
Ship's Agent	A person or business usually appointed by a ship owner or person in charge of a ship to act on behalf of the ship in various matters in a port.
SLAR	Side-Looking Airborne Radar

<i>Slop tank</i>	A tank on a ship used to store oily waste for later environmentally acceptable disposal.
<i>Slops</i>	Residual oil which has been transferred to a collecting tank (a "slop tank : on a ship). This is usually mixed with other recovered oils and/or water.
<i>Sludge</i>	Residues from various oils and chemical cargoes after discharge and sewage treatment systems.
<i>Tanker</i>	A ship designed to carry liquids in bulk, whether these liquids are petroleum cargo, chemicals, agricultural oils or other liquids.
<i>Terminal</i>	A place in a port where ships are berthed or moored for the purpose of handling cargo or for other purposes such as bunkering or repairs.
<i>THC</i>	Total Hydrocarbon Content
<i>Undue delay</i>	Undue delay occurs when a ship is unable to proceed because of formalities or unavailability of reception facilities where the ship is berthed.
<i>USEPA</i>	United States Environmental Protection Agency
<i>UST</i>	Underground Storage Tank
<i>VOC</i>	Volatile Organic Carbon
<i>Waste Management</i>	This is a systematic approach of receiving and treatment of ship generated wastes.

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PETER IDABOR
Director-General and Chief Executive
National Oil Spill Detection and Response Agency.