

# JOINT INVESTIGATION REPORT

INCIDENT NO: 1990386 JIV report S/N: 1110

(Note: As practicable as possible the JIV report is to be signed in the field by all the participating parties)

## A. GENERAL INFORMATION:

1. Spill incident Number: 1990386 2. Type of incident\* OIL SPILL  
3. Name of Location FORCADOS TERMINAL SINGLE POINT MOORING (SPM) 1  
4. Name of nearest community OGULAGHA 5. State: DELTA 6. LGA BURUTU  
7. Type of Production facility/Installation SPM  
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED / SWAMP WEST

## B. INCIDENT INFORMATION:

### 9. Details of incident

- a. Date of incident: 22<sup>ND</sup> DECEMBER, 2017  
b. Start date/time of investigation: 4<sup>TH</sup> JANUARY, 2018 AT 1555 HRS  
c. Investigation End date: 6<sup>TH</sup> JANUARY, 2018 Actual investigation duration, days: 3 DAYS  
d. Description of spill point environment

- |   |                                     |  |
|---|-------------------------------------|--|
| <input type="checkbox"/> Firm soil                | <input type="checkbox"/> Loose soil | <input type="checkbox"/> Recently excavated area |
| <input checked="" type="checkbox"/> Under water   | <input type="checkbox"/> Swampy     | <input type="checkbox"/> Exposed pipe surface    |
| <input type="checkbox"/> Well Platform (on Water) | <input type="checkbox"/> Drill Rig  |  |

Additional observations around the spill point: CAUSE OF LEAK WAS CONFIRMED AS EQUIPMENT FAILURE, ESTABLISHED DURING A DIVING OPERATION TO THE LEAK POINT (ABOUT 60M FROM SPM-1). THE DIVERS OBSERVED A LOOSED PRESSURE RELEASE PLUG AT 12 O'CLOCK POSITION, LEADING TO TINY DROPLETS OF HYDROCARBON BEING RELEASED TO THE SEA SURFACE AS OIL SHEEN.

### c. Description of leak point (tick as applicable);

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Drilled hole                               | <input type="checkbox"/> Hack saw cut   | <input type="checkbox"/> Tear (_____)                                      |
| <input type="checkbox"/> Complete Rupture                           | <input type="checkbox"/> Inward dent,   | <input type="checkbox"/> Well head tampering                               |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve       | <input type="checkbox"/> Failed Clamp,  | <input type="checkbox"/> Missing Pipeline/Flowline                         |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point, | <input type="checkbox"/> Saver-pit over flow  | <input type="checkbox"/> Third party tampering with Clamp                  |
| <input type="checkbox"/> Third party tampering with valve setting   | <input type="checkbox"/> Bulging Outward  | <input type="checkbox"/> Third party tampering with flange,                |
| <input type="checkbox"/> Flare System/Bund wall failure             | <input type="checkbox"/> Cold vent  | <input type="checkbox"/> Surge vessel overflow,                            |
| <input type="checkbox"/> Valve Failure                              | <input type="checkbox"/> Relief valve failure   | <input type="checkbox"/> Accidental 3 <sup>rd</sup> party equipment impact |
| <input type="checkbox"/> Corrosion                                  | <input checked="" type="checkbox"/> Others(specify) <u>LOOSED PRESSURE RELEASE PLUG</u> |  |

### f. Incident caused by:

- Third party interference (Sabotage ; crude theft ; Line theft ; Accidental 3<sup>rd</sup> party damage   
 Operational  Mystery spills  Others(specify) \_\_\_\_\_

\*This can be: a) Oil Spill b) Drilling fluid/Chemical c) Siltation d) construction e) Encroachment f) Fire,

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g. Spill point coordinates:

h. Measuring unit: WGS 84

Northing: (LATITUDE) <u>5.160368</u>	Easting: (LONGITUDE) <u>5.171106</u>

## C. RISK ASSESSMENT

10. Type of environment:

- Land     
  Swamp     
  Water     
  Seasonal swamp     
  Shoreline/Waterfront

i. Type of environment to which oil has spread:

- Land     
  Swamp     
  Water     
  River (identify) \_\_\_\_\_

ii. Weather condition

- Rain     
  Sunny     
  Dry     
  Wet     
  Windy     
  Hot     
  Cool

11. Distance from the nearest sensitive habitat

- |  |   |   |     |
|--|---|---|-----|
| <input type="checkbox"/> Government reserved and designated protected area | [ |   | ,m] |
| <input type="checkbox"/> Drinking water source                             | [ | ○ | ,m] |
| <input type="checkbox"/> Built up area                                     | [ |   | ,m] |
| <input type="checkbox"/> Farmlands   | [ |   | ,m] |
| <input type="checkbox"/> Fish Farm/pond                                    | [ |   | ,m] |
| <input type="checkbox"/> Fishing net                                       | [ |   | ,m] |
| <input type="checkbox"/> Others (specify):                                 | [ |   | ,m] |

12. Containment measures put in place;

- Booms     
  Trench     
  Dyke     
  Natural depression     
  Pit     
  None
- Others: \_\_\_\_\_

13. Any pictures or video coverage?

[Y]       [N]

14. Further response/repair initiated as at the time of JIV?

[Y]       [N]

if yes to item 14, give brief description:

NOT APPLICABLE

15. Was there any disruption to the investigation?

[Y]       [N]

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If yes to item 15 give brief description: NOT APPLICABLE

**D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL**

**16. Structures / Properties**

S/N	Type of Structures	Description	Size	Number	Comments
	<u>NONE WITHIN AREA OF IMPACT</u>				

**17. Crops/Economic Trees**

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
	<u>NONE WITHIN AREA OF IMPACT</u>					

**18. Fishing Nets/Fish Ponds**

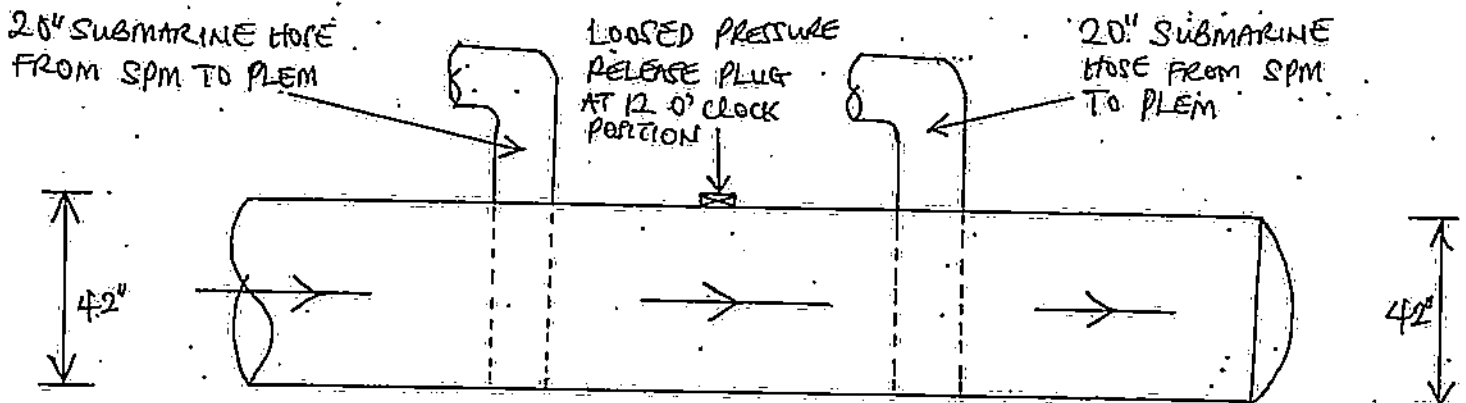
S/N	Nets/Ponds	Description	Quantity/Size	Comments
	<u>NONE WITHIN AREA OF IMPACT</u>			

**19. Others (Specify) i.e. Animal Traps**

S/N	Others	Description	Quantity/Size	Comments
	<u>NONE WITHIN AREA OF IMPACT</u>			

**E. GRAPHIC DESCRIPTION OF LEAK POINT** (While detail report of the leak point should be contained in the leak report, overview sketch of the site should be added as an appendix.)

SECTION OF FORWARD TERMINAL SPM-1 POINT PIPELINE END MANIFOLD (PLEM) SHOWING; POSITION OF LOOSED PRESSURE RELEASE PLUG.





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**G. INCIDENT INFORMATION:**

**a. Impacted Area Details**

- Total calculated area of impact 2.14 Ha
- Impact within R.O.W YES
- Impact outside R.O.W NO

**b. Volume of oil recovered before completion of JIV ( $V_{rec}$ ):**

Recovered oil $V_{rec}$ :	<u>NIL</u>	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

<u>NIL</u>	Barrels
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**c. Net Estimated Spilled Volume  $V_{Est}$  (bbls)\* =**

0.28 BBLs

**Estimated Reported Volume\*\*  $V_{red}$  (bbls) =**

0.3 BBLs

**\*Notes:**

- Volume estimation was done using an excel based tool (see attached for details on the calculation)
- Reported spilled volume is an estimate

Write other relevant notes taken into consideration for estimating the spilled in the box below:

**NOTE:** DURING THE JIV, NO OIL OR IMPACT WAS SEEN ON WATER DUE TO TIME LAG.

HENCE, ALL JIV MEMBERS AGREED THAT DATA FROM THE DIVERS REPORT AND GEO-TAGGED PICTURES TAKEN FROM THE DIVING SUPPORT VESSEL (DSV) BETWEEN 26<sup>TH</sup> AND 28<sup>TH</sup> OF DECEMBER, 2017 SHOULD BE USED TO CALCULATE THE SPILL VOLUME AND IMPACTED AREA.

Calculation of the respective estimated volume is to be done on site as far as practicable using the new spill volume estimation software on site. Conversion of  $m^3$  to barrels is Volume (in 3) x 6.29. \*\*Round up estimated volume to next whole number using the following rules:

- Any spill volume in excess of 1 bbl is rounded up to the next whole number.
- Any spill volume in less than 1 bbl is rounded up to the next 0.1 bbl.

Examples: Calculated volume = 15.3 bbl — Reported volume = 16 bbl  
 Calculated volume = 0.35 bbl — Reported volume = 0.4 bbl  
 Calculated volume = 0.01 bbl — Reported volume = 0.1 bbl

Wherever this estimation tool is not applicable please refer to paragraph 6c (Deviations) of the JIV procedure to use appropriate steps for volume estimation: record the calculation in a plain sheet of paper and attach to the JIV report.

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d. General Status of the site

- i. Joint investigation of the incident site found that there is no residual impact after the initial response and JIT therefore recommend that the site be closed out
- ii. Investigation of the incident site showed that there is residual impact on site requiring further works

e. Representatives

This report was filled, agreed and signed by the following joint investigation team representatives:

- Host Community:
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Asset Owner:
- Signatories agree with reported findings:
- Separate DPR form has been filled out with same findings

*Tick as applicable*

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f. Appendix 1: Overview sketch of the site

