



No. 00755

**A. GENERAL INFORMATION:**

1. Spill incident Number: 670188
2. Name of Location 12" IMO RIVER 1 - OGALE PIPELINE
3. Name of nearest community OWAZA
4. State ABIA LGA UKINA - WEST
5. Type of Production facility/Installation PIPELINE Asset owner /District UIG/P/NRSP

**B. INCIDENT INFORMATION:**

6. Details of incident

- a. Date of incident 8<sup>TH</sup> JUNE, 2011
- b. Date/Period of investigation, 9<sup>TH</sup> JUNE, 2011
- c. Description of spill point environment

- |                                                    |      |      |
|----------------------------------------------------|------|------|
| <input type="checkbox"/> Firmed soil               | [Y]✓ | [N]  |
| <input type="checkbox"/> Loose soil                | [Y]  | [N]✓ |
| <input type="checkbox"/> Previously excavated area | [Y]✓ | [N]  |
| <input type="checkbox"/> Under water               | [Y]  | [N]✓ |
| <input type="checkbox"/> Swampy                    | [Y]  | [N]✓ |
| <input type="checkbox"/> Exposed pipe surface      | [Y]  | [N]✓ |

AFTER JOINT INVESTIGATION  
 OF THE INCIDENT, SPILL  
 WAS FOUND TO BE DUE  
 TO THIRD PARTY  
 INTERFERENCE.

d. Description of leak point (tick as applicable);

- |                                                                        |      |      |
|------------------------------------------------------------------------|------|------|
| <input type="checkbox"/> Drilled hole,                                 | [Y]✓ | [N]  |
| <input type="checkbox"/> Hack saw cut,                                 | [Y]  | [N]✓ |
| <input type="checkbox"/> Explosive tear,                               | [Y]  | [N]✓ |
| <input type="checkbox"/> Complete Rupture                              | [Y]  | [N]✓ |
| <input type="checkbox"/> Inward dent,                                  | [Y]  | [N]✓ |
| <input type="checkbox"/> Well head tampering                           | [Y]  | [N]✓ |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve,         | [Y]  | [N]✓ |
| <input type="checkbox"/> Missing pipeline (flowline)                   | [Y]  | [N]✓ |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point,    | [Y]✓ | [N]  |
| <input type="checkbox"/> Third party tampering with Clamp Bolt/Nut,    | [Y]  | [N]✓ |
| <input type="checkbox"/> Third party tampering with valve setting,     | [Y]  | [N]✓ |
| <input type="checkbox"/> Third party tampering with flange Nuts/bolts, | [Y]  | [N]✓ |
| <input type="checkbox"/> Corrosion,                                    | [Y]  | [N]✓ |

Type: NET APPLICABLE.

- |                                                                 |     |      |
|-----------------------------------------------------------------|-----|------|
| <input type="checkbox"/> Saver-pit over flow,                   | [Y] | [N]✓ |
| <input type="checkbox"/> Surge vessel overflow,                 | [Y] | [N]✓ |
| <input type="checkbox"/> Outward dent                           | [Y] | [N]✓ |
| <input type="checkbox"/> Others (specify) <u>NOT APPLICABLE</u> |     |      |

e. Spill point coordinates

Northing: (MINNA MID-BEIT) Easting:

105285 mN

524794.73 ME



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C. RISK/DAMAGE ASSESSMENT

7. Type of environment of spill site:

- Land ✓
- Swamp
- water

Type of environment of which oil has spread:

- Land ✓
- Swamp
- water

8. Distance from the nearest sensitive habitat

- Government reserved and designated protected area [ .NIL ,m ]
- Drinking water source [ NIL ,m ]
- Built up area [ NIL ,m ]
- Farmlands [ 20- ,m ]
- Fish Farm/Pond [ NIL ,m ]
- Fishing net [ NIL ,m ]
- Others (specify). NOT APPLICABLE.

9. Containment measures put in place;

- Booms [ Y ] [ N ] ✓
- Trench [ Y ] [ N ] ✓
- Dyke [ Y ] [ N ] ✓

Others: NATURAL CONTAINMENT.

10. Any pictures or video coverage? [ Y ] ✓ [ N ]

11. Was there any disruption to the investigation? [ Y ] [ N ] ✓

If yes give brief description:

NOT APPLICABLE

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

A. Structures / Properties

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



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B. Crops/Economic Trees

S/N	Types of crops	Young	Medium	Matured	Quantity	Comments
	Palm TREES	NIL	NIL	✓	10	
	/	/	/	/	/	/
	/	/	/	/	/	/

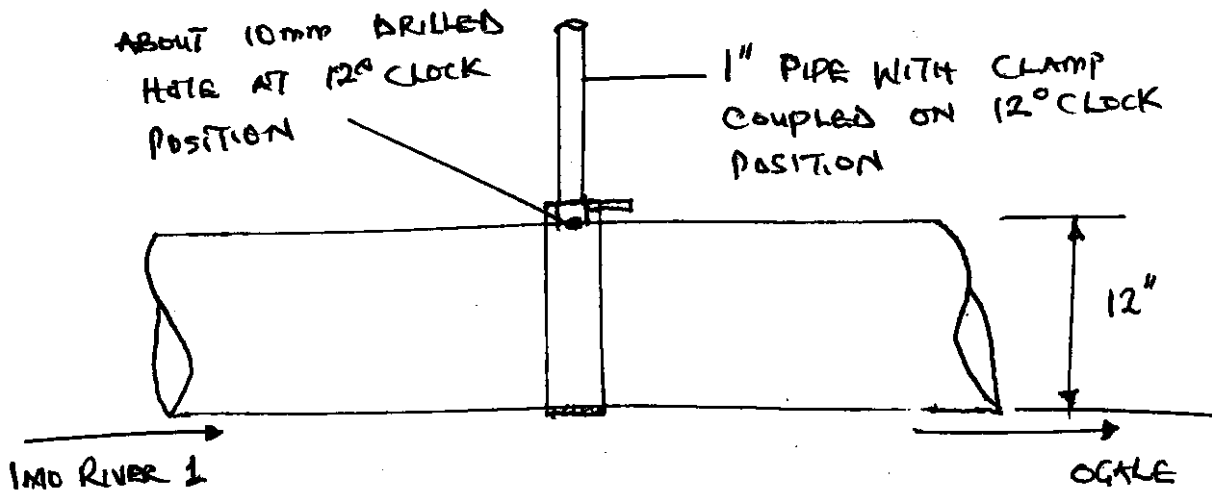
C. Fish/Nets/Ponds

S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
		NO ONE WITHIN AREA OF IMPACT		

D. Others (Specify) i.e. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
		NO ONE WITHIN AREA OF IMPACT		

E. GRAPHIC DESCRIPTION OF LEAK POINT (Details should be contained in leak repair report)







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**G. INCIDENT INFORMATION:**

**17 Impacted Area Details**

- a. Total calculated area of impact 0.05 Ha
- Impact within SPDC R.O.W 0.03 Ha
  - Impact outside R.O.W 0.02 Ha

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

Recovered oil $V_{rec}$ :	<u>NIL</u>	barrels
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**19. Computation of the residual volume on site**

a. Computation of the volume of pooled free phase oil (on land or confined water body).

- i. Area ( $m^2$ ) occupied by pool of free phase oil 300  $m^2$
- ii. Average Depth (m) of pool of free phase oil 0.0011 m
- iii.

Volume of pooled of free phase oil: $V_{pool}$ :	<u>2.10</u>	barrels
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iv.

b. Computation of volume of infiltrated oil in the soil (V-3).

- i Area ( $m^2$ ) covered by the oil: 500  $m^2$
- ii Average Depth (m) below ground surface of infiltration of oil: 0.007 m
- iii Soil type: CLAY
- iv.  $p_e$  (effective porosity of the soil): 8%
- v.

	<u>1.76</u>	barrels
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**20. Computation of volume of oil on open water based on standard coloration.**

	Thickness (mm)	Percentage coverage	Volume (m3)
Barely Visible	0.00004		
Silvery	0.00008		
Slight Colour	0.00015	<b>NOT</b>	
Bright Colour	0.0003		
Dull	0.001	<b>APPLICABLE</b>	
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume <u>NIL</u> bbl

Spill Factors from USCG FOG (2000 Edition)



**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**  
 JOINT INVESTIGATION REPORT FOR INCIDENT NO: 670188

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Volume of oil on open water	NIL	barrels
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21. Calculation of evaporated volume:

- i. Oil type: BONNY MEDIUM
- ii. E-Factor: 15%
- iii.

Volume of evaporated oil	0.67	barrels
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Oil Type		Bonny Light	Bonny Medium
		E-Factor	E-Factor
Period Since Oil Spill	<1 day	10%	5%
	1-7 days	25%	15%
	>7 days	40%	25%

9. Gross Total Estimated Spilled Volume  $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) = 0.67 + 1.76 + 2.10 = 4.53 \text{ BBLs}$

10. Net Total Estimated Spilled Volume  $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) = 4.53 \text{ Barrels.}$

- \*Calculation of the respective estimated volume is to done using the new spill estimation software on site
- \*Conversion of m3 to barrel is Total volume VT (m3) x6.29
- \*Emulsification factor for spill on water to consider is 60% of volume of oil.

This report was filed and signed on the 09 / 06 /20 11 at incident site by joint investigation representative from

- Host Community
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Nigeria Police Force [NPF]:
- Shell Petroleum Development Company [SPDC]:

*Tick as applicable*