



No. 00117

**A. GENERAL INFORMATION:**

1. Spill incident Number: 658912
2. Name of Location 12<sup>th</sup> IMO RIVER PIPELINE
3. Name of nearest community OWAZA
4. State ABIA LGA UKWA - WEST
5. Type of Production facility/Installation PIPELINE Asset owner /District UIG/P/NEED

**B. INCIDENT INFORMATION:**

6. Details of incident

- a. Date of incident 11<sup>th</sup> MAY, 2011
- b. Date/Period of investigation, 12<sup>th</sup> MAY, 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] ✓ |

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: NBT 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> |     |       |

AFTER JOINT INVESTIGATION OF

THE INCIDENT, SPILL WAS FOUND TO BE DUE TO THIRD PARTY INTERFERENCE.

e. Spill point coordinates

Northing:  
~~523661.27~~  
 108485.15m

Easting:  
~~108~~  
 523661.27m



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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 [ ,m]
- Drinking water source [ ,m]
- Built up area [ ,m]
- Farmlands [ ,m]
- Fish Farm/Pond [ ,m]
- Fishing net [ ,m]
- Others (specify)  NOT APPLICABLE

9. Containment measures put in place;

- Booms [ Y ] [ N ]
- Trench [ Y ]  [ N ]
- Dyke [ Y ] [ N ]
- Others: NOT APPLICABLE

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
	NONE WITHIN AREA OF IMPACT				



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B. Crops/Economic Trees

S/N	Types of crops	Young	Medium	Matured	Quantity	Comments
	NONE WITHIN AREA OF IMPACT					

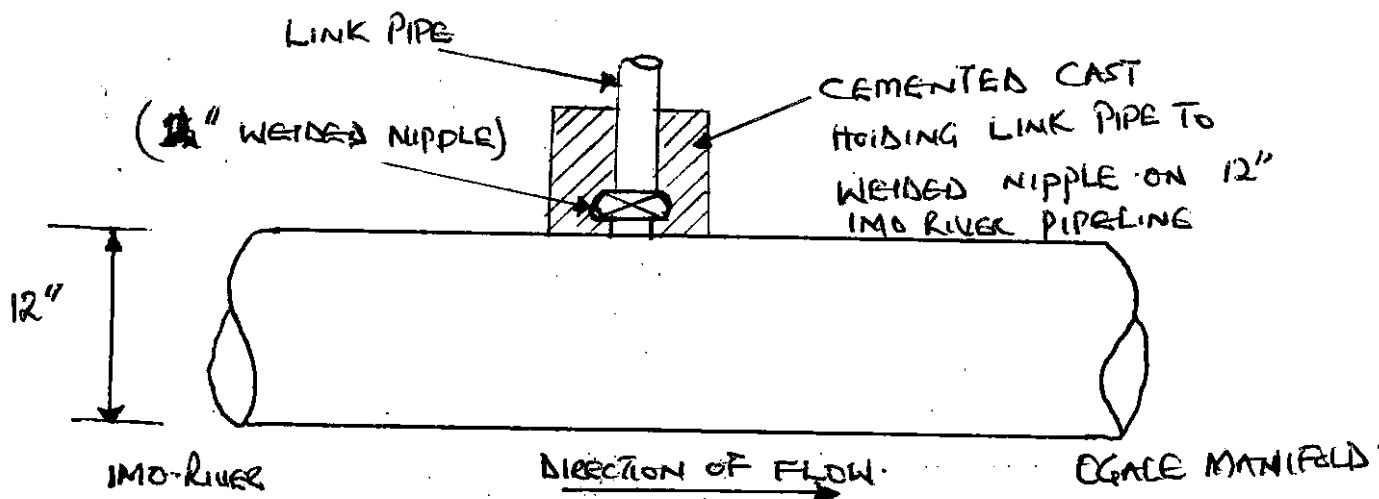
C. Fish/Nets/Ponds

S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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

S/N	Others	Description	Quantity/Size	Comments
	NONE 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 0.06 Ha
- Impact within SPDC R.O.W 0.06 Ha
  - Impact outside R.O.W NIL

**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 480  $m^2$
- ii. Average Depth (m) of pool of free phase oil 0.007m
- iii.

Volume of pooled of free phase oil $V_{pool}$ :	<u>21.13</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: 540  $m^2$
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.005m
- iii. Soil type: CLAY
- iv.  $p_e$  (effective porosity of the soil): 8%
- v.

	<u>1.36</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	<u>NOT</u>	
Bright Colour	0.0003		
Dull	0.001	<u>APPLICABLE</u>	
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: 658912

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Volume of oil on open water - $V_{wat}$ :	<u>Nil</u>	barrels
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21. Calculation of evaporated volume:

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

Volume of evaporated oil - $V_{vap}$ :	<u>3.97</u>	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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
$V_{Est}(bbls) = 3.97 + 1.36 + 21.13 = 26.46$ BARRELS
10. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
$V_{Est}(bbls) = 26.46$ 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 filled and signed on the 12 / 05 / 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*