



No. 01037

A. GENERAL INFORMATION:

1. Spill incident Number: 639812
2. Name of Location 6" IMO RIVER WELL 59T FLOWLINE AT IGIRIUKWU
3. Name of nearest community IGIRIUKWU
4. State ABIA LGA UKWA WEST
5. Type of Production facility/Installation FLOWLINE Asset owner /District LAND 1

B. INCIDENT INFORMATION:

6. Details of incident

a. Date of incident

27TH MARCH, 2011

b. Date/Period of investigation,

30TH MARCH, 2011

c. Description of spill point environment

- Firmed soil [Y] [N]
- Loose soil [Y] [N]
- Previously excavated area [Y] [N]
- Under water [Y] [N]
- Swampy [Y] [N]
- Exposed pipe surface [Y] [N]

AFTER JOINT INVESTIGATION OF THE INCIDENT, SPILL WAS FOUND TO BE DUE TO

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

- Drilled hole [Y] [N]
 - Hack saw cut, [Y] [N]
 - Explosive tear, [Y] [N]
 - ~~Complete Rupture~~ [Y] [N]
 - Inward dent, [Y] [N]
 - Well head tampering [Y] [N]
 - Failed Weld-on illegal hot tap valve, [Y] [N]
 - Missing pipeline (flowline) [Y] [N]
 - Crude oil theft (illegal bunkering) point, [Y] [N]
 - Third party tampering with Clamp Bolt/Nut, [Y] [N]
 - Third party tampering with valve setting, [Y] [N]
 - Third party tampering with flange Nuts/bolts, [Y] [N]
 - Corrosion, [Y] [N]
- Type: _____
- Saver-pit over flow, [Y] [N]
 - Surge vessel overflow, [Y] [N]
 - Outward dent [Y] [N]
 - Others (specify). _____ [Y] [N]

THIRD PARTY INTERFERENCE.

e. Spill point coordinates

(MUNNA MID-BELT)

Northing:

Easting:

1) 109738.66 m

526082.07 m

2) 109779.84 m

525992.82 m



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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). [,m]
- NOT APPLICABLE

9. Containment measures put in place;

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

Others: _____

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

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

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					



B. Crops/Economic Trees

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

C. Fish/Nets/Ponds

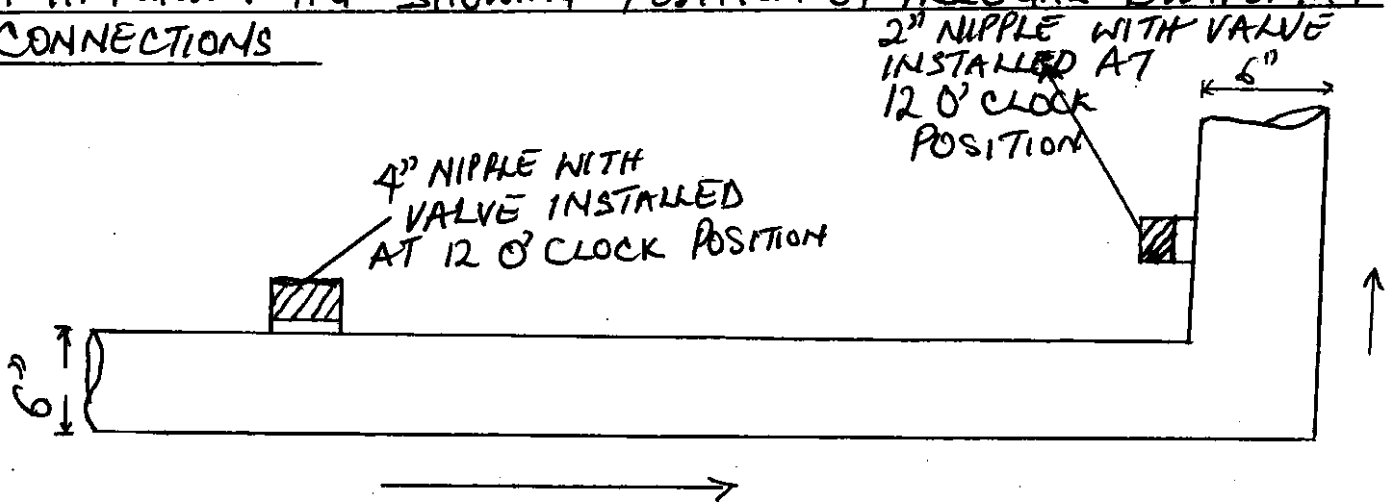
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

A SECTION OF 6" IMO RIVER WELL 59T FLOWLINE AT
IGIRIKWU-IPU SHOWING POSITION OF ILLEGAL BUNKERING
CONNECTIONS





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G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 227m² (0.0227 Ha)
- Impact within SPDC R.O.W 217m² (0.0217 Ha)
 - Impact outside R.O.W 10m² (0.001 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 (m²) occupied by pool of free phase oil NOT APPLICABLE
- ii. Average Depth (m) of pool of free phase oil NOT APPLICABLE
- iii.

Volume of pooled of free phase oil. V _{pool} :	<u>NIL</u>	barrels
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b. Computation of volume of infiltrated oil in the soil (V-3).

- i. Area (m²) covered by the oil: 227
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.008
- iii. Soil type: MEDIUM SAND
- iv. p_e (effective porosity of the soil): 20%
- v.

Volume of infiltrated oil	<u>2.3</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	<u>NOT APPLICABLE</u>	
Silvery	0.00008		
Slight Colour	0.00015		
Bright Colour	0.0003		
Dull	0.001		
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

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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>0.4</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 $V_{Est}(bbbls) = V_{vap}(bbbls) + V_{wat}(bbbls) + V_{inf}(bbbls) + V_{pool}(bbbls) + V_{recJ}(bbbls) = 2.3 + NIL + 0.4 + NIL + NIL = 2.7 \text{ BARRELS}$

$V_{Est}(bbbls) = 2.7 \text{ BARRELS}$

10. Net Total Estimated Spilled Volume $VEst(bbbls) = V_{vap}(bbbls) + 0.6 * V_{wat}(bbbls) + V_{inf}(bbbls) + V_{pool}(bbbls) + V_{recJ}(bbbls) = 2.3 + NIL + 0.4 + NIL + NIL = 2.7$

$VEst(bbbls) = 2.7 \text{ BARRELS}$

- *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 filled and signed on the 30 / 03 / 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