

**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**

**JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0276 828663**

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

**A. GENERAL INFORMATION:**

1. Spill incident Number: 828663      2. Type of incident \* OIL SPILL  
 3. Name of Location OBIGBO NORTH WELL O3L FLOWLINE  
 4. Name of nearest community UMUEBULU 5. State: RIVERS 6. LGA ETCHE  
 7. Type of Production facility/Installation OIL FLOW LINE 8. Asset owner/ District NEL I / PHCI

**B. INCIDENT INFORMATION:**

**9. Details of incident**

- a. Date of incident: 13<sup>TH</sup> JUNE 2012  
 b. Start date/time of investigation: 15<sup>TH</sup> JUNE 2012  
 c. Investigation End date: 15<sup>TH</sup> JUNE 2012  
 d. Description of spill point environment  
 Firmed soil                       Loose soil                       Previously excavated area  
 Under water                       Swampy                       Exposed pipe surface  
 Well Platform (on Water)                       Rig  
 e. Description of leak point (tick as applicable);  
 Drilled hole                       Hack saw cut                       Explosive tear,  
 Complete Rupture                       Inward dent,                       Well head tampering  
 Failed Weld-on illegal hot tap valve,                       Missing Pipeline/Flowline)  
 Crude oil theft (illegal) bunkering) point,                       Third party tampering with Clamp  
 Third party tampering with valve setting,                       Third party tampering with flange,  
 Corrosion                       Saver-pit over flow,                       Surge vessel overflow  
 Outward dent                       Flare System/Bund wall failure  
 Valve Failure                       com unit failure                       Cold vent  
 Relief valve failure                       Others (specify) \_\_\_\_\_  
 f. Incident caused by:  
 Third party interference                       Operational                       Mystery \_\_\_\_\_

**g. Spill point coordinates**

Measuring unit	
Northing(m)	Easting(m)
<u>98756.45</u>	<u>517744.57</u>

MINNA MID BELT

\*This can be a) Oil spill b) Drilling fluid/Chemical c) siltation d) construction e) Encroachment f) Fire.

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**C. RISK ASSESSMENT**

10. Type of environment:

- Land       Swamp       Water       Seasonal swamp

i. Type of environment to which oil has spread:

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

ii. Weather condition

- Raining       Sunny

11. 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      [NIL ,m]  
 Fish Farm/Pond      [NIL ,m]  
 Fishing net      [NIL ,m]  
 Others (specify). NOT APPLICABLE

12. Containment measures put in place;

- Booms       Trench       Dyke  
 Others: NOT APPLICABLE

13. Any pictures or video coverage?       [N]

14. 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**

15. Structures / Properties

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

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16. Crops/Economic Trees

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

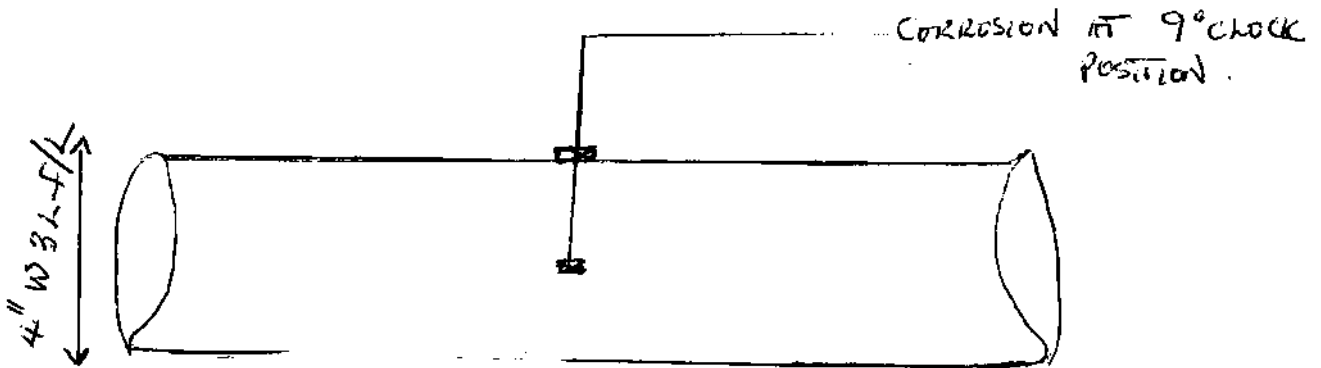
17. Fish/Nets/Ponds

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

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

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

**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 1)



SECTION SHOWING OBIGBO NORTH WELL 3L FLOWLINE AT UMMIEBUKH,  
 SHOWING OIL LEAK POINT ON 4" W 3 LIMA FLOWLINE CORROSION AT  
 9° CLOCK POSITION.



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iii. Emulsification factor: NIL

iv. 

Volume of pool of free phase oil, $V_{pool}$ :	<u>NIL</u>	barrels
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b. Computation of volume of infiltrated oil in the soil ( $V_{inf}$ ).

i. Area \*(m<sup>2</sup>) covered by the oil: 20 m<sup>2</sup>

ii. Area of the pool of free phase oil in touch with soil: NIL

iii. Average Depth (m) below ground surface of infiltration of oil: 0.01 m

iv. Soil type: CLAY

v.  $P_e$  (effective porosity of the soil): 2%

iv. 

Volume of infiltrated oil, $V_{inf}$	<u>0.1 BBL</u>	barrels
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21. Computation of volume of oil on open water based on standard coloration.

i. Total area of oil on open water: NIL

ii. Table of average depth of oil on water based on coloration\*\*

	Thickness (mm)	Percentage coverage	Volume (m <sup>3</sup> )
Barely Visible	0.00004		
Silvery	0.00008		
Slight Color	0.00015		
Bright Color	0.0003		
Dull	0.001		
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume <span style="float: right;">bbl</span>

NOT APPLICABLE

iii. 

Volume of oil on open water, $V_{wat}$ :	<u>NIL</u>	barrels
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22. Calculation of evaporated volume:

i. Oil type: BONNY MEDIUM

ii. E-Factor: 5%

iii. 

Volume of evaporated oil, $V_{evap}$ :	<u>0.0053</u>	barrels
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Evaporation Factors (E-Factor) for SPDC Crude oil			
Oil Type	Days on site	Bonny Light	Bonny Medium
Period Since Oil Spill	< 1 day	10%	5%
	1-7 days	25%	15%
	> 7 days	40%	25%

\*If area is not same as the total area of impact, please indicate in the overview sketch  
 \*\* Spill Factor from USCG FOG (2000 Edition)

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**23. Gross Total Estimated Spilled Volume**

$$V_{Est} (bbbls) = V_{evap} (bbbls) + V_{wat} (bbbls) + V_{inf} (bbbls) + V_{pool} (bbbls) + V_{recJ} (bbbls)$$

$$V_{Est} (bbbls) = 0.0053 + NIL + 0.1 + NIL + NIL = 0.105 \text{ BARREL}$$

**24. Net Total Estimated Spilled Volume**

$$V_{Est} (bbbls) = V_{evap} (bbbls) + 0.6 * V_{wat} (bbbls) + V_{inf} (bbbls) + V_{pool} (bbbls) + V_{recJ} (bbbls)$$

$$V_{Est} (bbbls) = 0.11 \text{ BARRELS}$$

\*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 m3 to barrels is Total volume VT (m3) x 6.29

\*Emulsification factor for spill on water to consider is 60% of volume of oil.

**25. GENERAL STATUS OF THE SITE**

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

**26 REPRESENTATIVES**

This report was filled and signed on the 15 / 06 / 2012 at incident site by joint investigation representatives 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*

27. Appendix 1: Overview sketch of the site

