

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0122734895

(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: 734895 2. Type of incident\* SPILL  
 3. Name of Location 24" NKPOKU - BOMU PIPELINE  
 4. Name of nearest community BIARA 5. State: RIVERS 6. LGA GOKANA  
 7. Type of Production facility/Installation OIL PIPELINE 8. Asset owner/District UIG/P/NESP

**B. INCIDENT INFORMATION:**

9. Details of incident

a. Date of incident: 1<sup>ST</sup> NOVEMBER, 2011  
 b. Date/Period of investigation: 3<sup>RD</sup> NOVEMBER 2011

c. Description of spill point environment

- Firmed soil
- Loose soil
- Previously excavated area
- Under water
- Swampy
- Exposed pipe surface
- Well Platform (on Water)
- Rig

d. 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,
- External Corrosion
- Internal 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) \_\_\_\_\_

e. Incident due to:

- Third party interference
- Operational
- Others (specify) \_\_\_\_\_

f. Spill point coordinates

MINNA MID BEL

Measuring unit (m)	
Northing: (m)	Easting: (m)
<del>535239.89</del>	535239.89
77824.28	535239.97
77824.70	

\*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 [ 10 ,m]
- Fish Farm/Pond [ Nil ,m]
- Fishing net [ Nil ,m]
- Others (specify) [ Nil ,m]

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
	<u>NONE WITHIN AREA OF IMPACT</u>				

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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

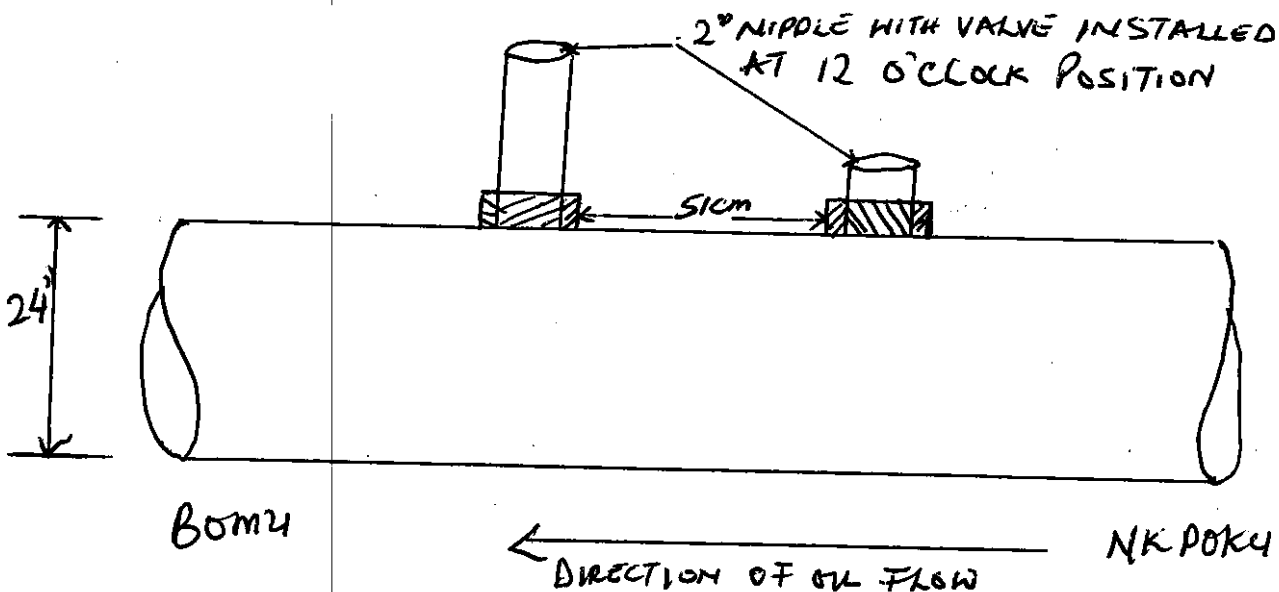
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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 (Overview sketch of the site should be added as an appendix 1)

A SECTION OF 24" NKPOKU-BOMU PIPELINE AT BIARA SHOWING  
 ILLEGAL BUNKERING POINT AT 12 O'CLOCK POSITION



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**F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION**

19. Impacted area boundary Coordinates (If more than 12 points, Attach as an appendix 2)

S/N	Northing	Easting
35	77829.04	535241.31
36	77822.89	535241.29
37	77822.90	535238.21
38	77825.97	535238.22

**G. INCIDENT INFORMATION:**

20. Impacted Area Details

- Total calculated area of impact 0.0014Ha
- Impact within SPDC R.O.W \_\_\_\_\_
- Impact outside R.O.W \_\_\_\_\_

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

Recovered oil $V_{rec.J}$	<u>Nil</u>	barrels
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20. Computation of the residual volume on site

- a. Computation of volume of pool of free phase oil (on land or confined water body).
- i. Area ( $m^2$ ) occupied by pool of free phase oil NOT
  - ii. Average Depth (m) of pool of free phase oil NOT
  - iii. Emulsification factor: APPLICABLE

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 ( $m^2$ ) covered by the oil: 14  $m^2$
- ii. Area of the pool of free phase oil in touch with soil: NUL
- iii. Average Depth (m) below ground surface of infiltration of oil: 0.03
- iv. Soil type: CHAY
- v.  $P_e$  (effective porosity of the soil): 8%

iv. Volume of infiltrated oil, $V_{inf}$	<u>0.2</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: NUL
- ii. Table of average depth of oil on water based on coloration \*

	Thickness (mm)	Percentage coverage	Volume ( $m^3$ )
Barely Visible	0.00004	<u>NUL</u>	
Silvery	0.00008		
Slight Color	0.00015		
Bright Color	0.0003	<u>APPLICABLE</u>	
Dull	0.001		
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume <u>NUL</u> bbl

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

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

iii. Volume of evaporated oil, $V_{evap}$ :	<u>0.03</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%

23. Gross Total Estimated Spilled Volume  $V_{Est}(bbls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{rec}(bbls) = 0.03 + NUL + 0.2 + NUL + NUL = 0.23$  BARRELS

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$V_{Est}(bbls) = 0.23$
24. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{rec}(bbls) = 0.03 + Nil + 0.2 + Nil + Nil = 0.23$
$V_{Est}(bbls) = 0.23$

- \*Calculation of the respective estimated volume is to be done using the new spill 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 <input checked="" type="checkbox"/>
B. Investigation of the incident site showed that there is residual impact on site requiring further works <input type="checkbox"/>

**26 Signatories**

This report was filled and signed on the <u>03/11/2011</u> at incident site by joint investigation representatives from
<ul style="list-style-type: none"><li>• Host Community <input checked="" type="checkbox"/></li><li>• Department of Petroleum Resources [DPR]: <input type="checkbox"/></li><li>• National Oil Spill Detection and Response Agency [NOSDRA]: <input checked="" type="checkbox"/></li><li>• State Ministry of Environment [SME]: <input checked="" type="checkbox"/></li><li>• Nigeria Police Force [NPF]: <input checked="" type="checkbox"/></li><li>• Shell Petroleum Development Company [SPDC]: <input checked="" type="checkbox"/></li></ul>
<i>Tick as applicable</i>

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20. Appendix 1: Overview sketch of the site

