



No. 00761

**A. GENERAL INFORMATION:**

1. Spill incident Number: 663845
2. Name of Location BONNY - OLOMA WELL 12S FLOWLINE
3. Name of nearest community OLOMA
4. State RIVERS LGA BONNY
5. Type of Production facility/Installation FLOWLINE Asset owner /District NESI/CAWTHORNE CHANNEL

**B. INCIDENT INFORMATION:**

6. Details of incident

- a. Date of incident 24TH MAY, 2011
- b. Date/Period of investigation, 14TH AND 15TH 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]✓ |

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: <u>NOT APPLICABLE</u>  |      |      |
| <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>       | [Y]  | [N]✓ |

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

e. Spill point coordinates (MINNA MID - BELT)

Northing: (METRES)	Easting: (METRES)
SPILL POINT 1: 51606.07	524850.27
SPILL POINT 2: 51606.82	524852.79
SPILL POINT 3: 51608.24	524855.02



No. 0761

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** [ . ,m]

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:

THE INITIAL JOINT INVESTIGATION VISIT (J.I.V) OF 26TH MAY, 2011 WAS TERMED "INCONCLUSIVE" DUE TO THE INABILITY OF THE JOINT INVESTIGATION TEAM TO ACCESS THE EXACT LOCATION OF THE SPILL POINTS. A RE-SCHEDULED J.I.V WAS COMMENCED ON 14TH JUNE, 2011 AND CONCLUDED ON 15TH JUNE, 2011.

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



No. 0761

B. Crops/Economic Trees

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

C. Fish/Nets/Ponds

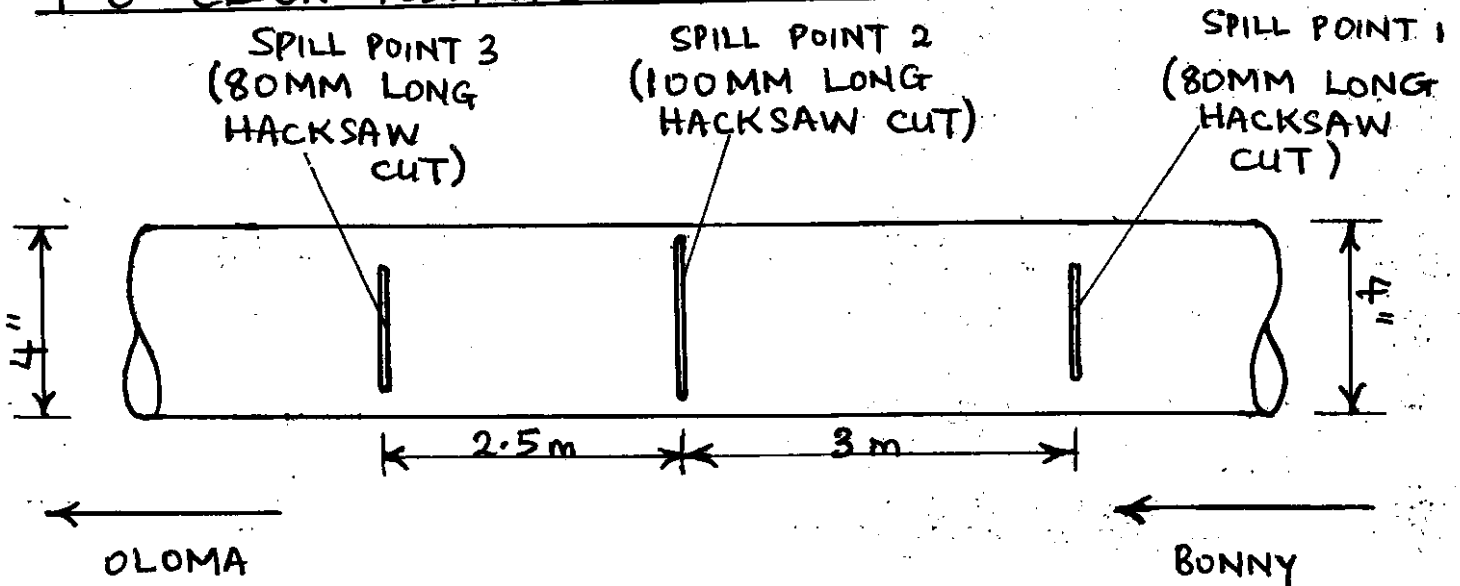
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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

S/N	Others	Description	Quantity/Size	Comments
1	MANGROVE	SWAMPY MANGROVE VEGETATION	A FEW PLANTS WITHIN A ROW.	SLIGHT IMPACT ON MANGROVE VEGETATION.

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

SECTION OF BONNY - OLOMA WELL 12 S FLOWLINE  
SHOWING LOCATIONS OF 3 NO. HACKSAW CUTS AT  
9 O' CLOCK POSITIONS ON FLOWLINE.







No. 0761

**G INCIDENT INFORMATION:**

17 Impacted Area Details

- a. Total calculated area of impact 0.03 Ha
  - Impact within SPDC R.O.W 0.01 Ha
  - Impact outside R.O.W 0.02 Ha

18 Volume of oil recovered before completion of JIV (V<sub>rec</sub>):

Recovered oil V<sub>recj</sub>: 

NIL	barrels
-----	---------

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<sup>2</sup>) 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<sub>pool</sub>: 

NIL	barrels
-----	---------

iv.

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

- i. Area (m<sup>2</sup>) covered by the oil: 300
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.004
- iii. Soil type: CLAY
- iv. p<sub>e</sub> (effective porosity of the soil): 8%
- v.

Volume of infiltrated oil, V<sub>3</sub>: 

0.6	barrels
-----	---------

20. Computation of volume of oil on open water based on standard coloration.

	Thickness (mm)	Percentage coverage	Volume (m3)
Barely Visible	0.00004	<b>NOT APPLICABLE</b>	
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
			<b>NIL</b> bbl

Spill Factors from USCG FOG (2000 Edition)



**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**  
 JOINT INVESTIGATION REPORT FOR INCIDENT NO: ~~663845~~

No. 0701

Volume of oil on open water $V_{wat}$ :	<u>NIL</u>	barrels
---	------------	---------

21. Calculation of evaporated volume:

- i. Oil type: BONNY LIGHT
- ii. E-Factor: 40%
- iii.

Volume of evaporated oil $V_{vap}$ :	<u>0.4</u>	barrels
--------------------------------------	------------	---------

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  $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 0.4 + NIL + 0.6 + NIL + NIL = 1$

$V_{Est}(bbls) =$  1 BARREL

10. Net Total Estimated Spilled Volume  $V_{Est}(bbls) = V_{vap}(bbls) + 0.6*V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 0.4 + NIL + 0.6 + NIL + NIL = 1$

$V_{Est}(bbls) =$  1 BARREL

- \*Calculation of the respective estimated volume is 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 15 / 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*