



No. 01028

A. GENERAL INFORMATION:

1. Spill incident Number: 633111
2. Name of Location 24" BOMU - BONNY PIPELINE AT K-DERE
3. Name of nearest community K-DERE
4. State RIVERS LGA GOKANA
5. Type of Production facility/Installation PIPELINE Asset owner /District UIG/P/NESP

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 10TH MARCH, 2011
- b. Date/Period of investigation, 11TH MARCH, 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: _____ | | |
| <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). _____ | | |

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

e. Spill point coordinates (MINNA MID-BELT)

Northing:
72908.858m

Easting:
534899.851m



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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 [3 ,m]
- Fish Farm/Pond [,m]
- Fishing net [,m]
- Others (specify). [,m]

9. Containment measures put in place:

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

Others: _____

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

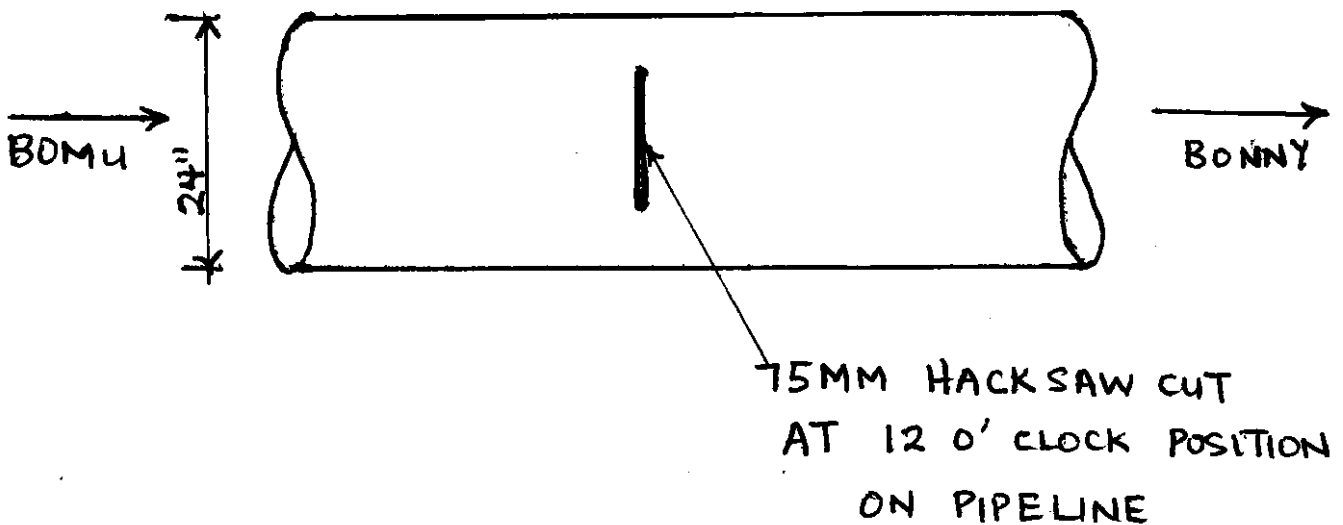
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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)

PLAN SECTION OF 24" BOMU-BONNY PIPELINE AT K-DERE
 SHOWING POSITION OF HACK SAW CUT.





F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION
 E. Coordinates (MINNA MID-BELT)

S/N	Northing (M)	Easting (M)
12	72730.564	534979.672
17	72752.238	534952.506
21	72739.949	534961.718
23	72739.811	534961.196
30	72770.886	534936.300
33	72752.114	534951.971
38	72767.547	534908.850
45	72819.770	534905.859
49	72832.251	534902.012
66	72962.779	534902.852
70	72902.694	534912.168
74	72908.848	534906.015
75	72908.858	534899.851
81	72899.660	534890.589
82	72896.588	534890.583



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G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 534 m² (0.05 Ha)
- Impact within SPDC R.O.W 393 m² (0.04 Ha)
 - Impact outside R.O.W 141 m² (0.01 Ha)

18 Volume of oil recovered before completion of JIV (V_{recj}):

Recovered oil V _{recj} :	5	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 231
- ii. Average Depth (m) of pool of free phase oil 0.078
- iii.

Volume of pooled of free phase oil. V _{pool} :	113.3	barrels
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iv.

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

- i Area (m²) covered by the oil: 303
- ii Average Depth (m) below ground surface of infiltration of oil: 0.03
- iii Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v.

Volume of infiltrated oil. V _{in} :	4.6	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	NOT	
Slight Colour	0.00015		
Bright Colour	0.0003		
Dull	0.001	APPLICABLE	
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume NIL

bbl

Spill Factors from USCG FOG (2000 Edition)



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Volume of oil on open water V_{wat} : NIL barrels

21. Calculation of evaporated volume:

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

Volume of evaporated oil V_{vap} : 21.7 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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 21.7 + NIL + 4.6 + 113.3 + 5 = 144.6$

$V_{Est}(bbls) = 144.6$ BARRELS

10. Net Total Estimated Spilled Volume $VEst(bbls) = V_{vap}(bbls) + 0.6*V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 21.7 + NIL + 4.6 + 113.3 + 5 = 144.6$

$VEst(bbls) = 144.6$ 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 11 / 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