



No. 00753

A. GENERAL INFORMATION:

1. Spill incident Number: 675384
2. Name of Location CANTHORNE CHANNEL II WELL 45T FLOWLINE
3. Name of nearest community (MBLAMA) CANTHORNE CHANNEL II
4. State RIVERS LGA DEGENDA
5. Type of Production facility/Installation FLOWLINE Asset owner /District NES I

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 20th JUNE, 2011
- b. Date/Period of investigation, 23RD JUNE, 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]✓

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: NATURAL CORROSION

- Saver-pit over flow, [Y] [N]✓
- Surge vessel overflow, [Y] [N]✓
- Outward dent [Y] [N]✓
- Others (specify). NOT APPLICABLE

AFTER JOINT INVESTIGATION OF THE INCIDENT SPILL WAS FOUND TO BE DUE TO OPERATIONAL FAILURE.

e. Spill point coordinates

Northing: (MINNA MID-BERT) Easting:

61705.99M 504430.6 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
- Drinking water source
- Built up area
- Farmlands
- Fish Farm/Pond
- Fishing net
- Others (specify). NOT APPLICABLE

[,m]
 [,m]
 [,m]
 [,m]
 [,m]
 [,m]
 [,m] } NOT APPLICABLE

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:

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



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B. Crops/Economic Trees

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

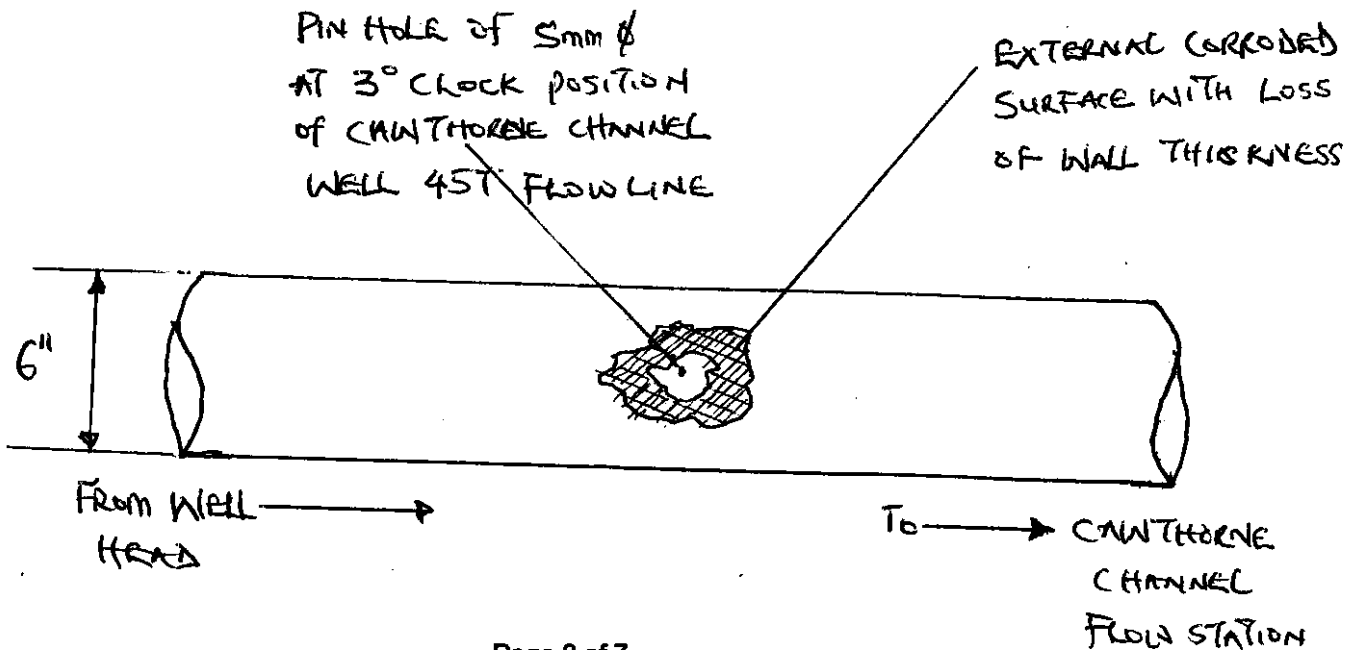
C. Fish/Nets/Ponds

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)





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G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 0.244 Hg
- Impact within SPDC R.O.W 0.244 H
 - Impact outside R.O.W NIL

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

Recovered oil V_{rec} :

NIL	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 (m^2) occupied by pool of free phase oil 2000 m^2
- ii. Average Depth (m) of pool of free phase oil 0.0002 m
- iii.

Volume of pooled of free phase oil. V_{pool} :

2.52	barrels
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iv.

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

- i Area (m^2) covered by the oil: 2400 m^2
- ii Average Depth (m) below ground surface of infiltration of oil: 0.0004 m
- iii Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v.

Volume of infiltrated oil. V_{in} :

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

	Thickness (mm)	Percentage coverage	Volume (m^3)
Barely Visible	0.00004		
Silvery	0.00008		
Slight Colour	0.00015		
Bright Colour	0.0003	NOT	
Dull	0.001		
Dark	0.002	APPLICABLE	
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume

CONTAINMENT WORK WAS EFFECTIVE THEREFORE PREVENTING IMPACT TO THE OPEN WATER.

NIL	bbl
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Spill Factors from USCG FOG (2000 Edition)



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 675384

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

21. Calculation of evaporated volume:

- i. Oil type: BONNY LIGHT
- ii. E-Factor: 25%
- iii.

Volume of evaporated oil V_{vap} : 1 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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) = 1 + 0.48 + 2.52 = 4 \text{ BARRELS}$

10. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 \cdot V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) = 4 \text{ BARRELS}$

- * 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 20 / 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