



No. 00124

**A. GENERAL INFORMATION:**

1. Spill incident Number: 660628
2. Name of Location CANTHRONE CHANNEL WELL 29 T FLOWLINE
3. Name of nearest community MBIAMA
4. State RIVERS LGA DECEMA
5. Type of Production facility/Installation FLOWLINE Asset owner /District SWAMP 1 CANTHRONE CHANNEL

**B. INCIDENT INFORMATION:**

6. Details of incident
- a. Date of incident 16TH MAY, 2011
- b. Date/Period of investigation, 18TH MAY, 2011
- c. Description of spill point environment
- |                                                    |     |     |                                                                                           |
|----------------------------------------------------|-----|-----|-------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Firmed soil               | [Y] | [N] | <u>AFTER JOINT INVESTIGATION OF THE INCIDENT SPILL WAS FOUND TO BE DUE TO HUMAN ERROR</u> |
| <input checked="" type="checkbox"/> Loose soil     | [X] | [N] |                                                                                           |
| <input type="checkbox"/> Previously excavated area | [Y] | [N] |                                                                                           |
| <input type="checkbox"/> Under water               | [Y] | [N] |                                                                                           |
| <input checked="" type="checkbox"/> Swampy         | [X] | [N] |                                                                                           |
| <input type="checkbox"/> Exposed pipe surface      | [Y] | [N] |                                                                                           |
- d. Description of leak point (tick as applicable);
- |                                                                        |     |     |
|------------------------------------------------------------------------|-----|-----|
| <input type="checkbox"/> Drilled hole,                                 | [Y] | [X] |
| <input type="checkbox"/> Hack saw cut,                                 | [Y] | [X] |
| <input type="checkbox"/> Explosive tear,                               | [Y] | [X] |
| <input type="checkbox"/> Complete Rupture                              | [Y] | [X] |
| <input type="checkbox"/> Inward dent,                                  | [X] | [N] |
| <input type="checkbox"/> Well head tampering                           | [Y] | [X] |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve,         | [Y] | [X] |
| <input type="checkbox"/> Missing pipeline (flowline)                   | [Y] | [X] |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point,    | [Y] | [X] |
| <input type="checkbox"/> Third party tampering with Clamp Bolt/Nut,    | [Y] | [X] |
| <input type="checkbox"/> Third party tampering with valve setting,     | [Y] | [X] |
| <input type="checkbox"/> Third party tampering with flange Nuts/bolts, | [Y] | [X] |
| <input type="checkbox"/> Corrosion,                                    | [Y] | [X] |
- Type: \_\_\_\_\_
- |                                                                                                    |     |     |
|----------------------------------------------------------------------------------------------------|-----|-----|
| <input type="checkbox"/> Saver-pit over flow,                                                      | [Y] | [N] |
| <input type="checkbox"/> Surge vessel overflow,                                                    | [Y] | [N] |
| <input type="checkbox"/> Outward dent                                                              | [Y] | [X] |
| <input type="checkbox"/> Others (specify) <u>RUN OVER BY A HEAVY EQUIPMENT ON THE RIGHT OF WAY</u> |     |     |
- e. Spill point coordinates (MINNA MID BELT)

Northing:

61354.99m

Easting:

504812.13m



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

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				



B. Crops/Economic Trees

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

C. Fish/Nets/Ponds

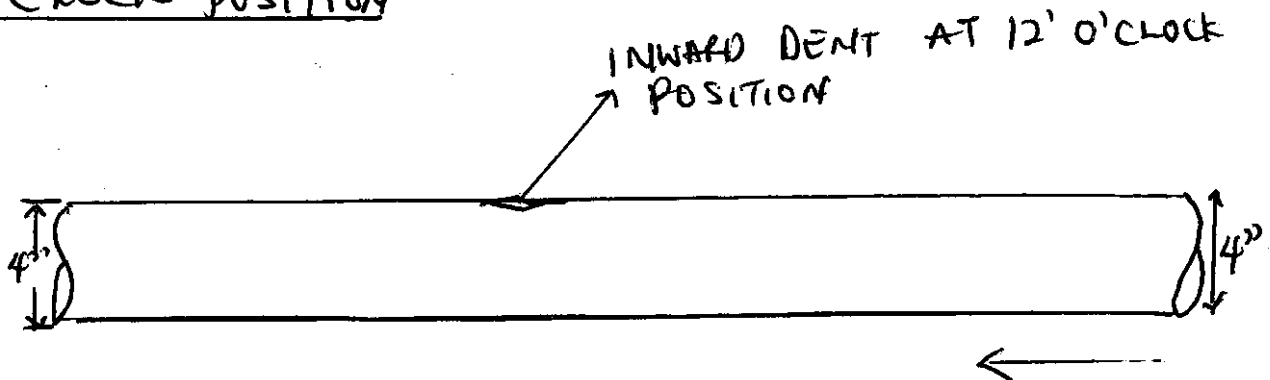
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

A SECTION OF 4" CANTHRONE CHANNEL WELL 297  
FLOW LINE SHOWING THE INWARD DENT AT 12' O'  
CLOCK POSITION





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

S/N	Northing	Easting
<del>1</del>	<del>50479</del>	
1	61333.51m	504799.75m
2	61339.70m	504778.19m
3	61376.55m	504787.51m
4	61394.93m	504812.21m
5	61437.90m	504827.71m
6	61382.55m	504855.34m



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**G. INCIDENT INFORMATION:**

**17 Impacted Area Details**

- a. Total calculated area of impact 0.349451 Ha (3,494.51 m<sup>2</sup>)
- Impact within SPDC R.O.W 0.349451 Ha (3,494.51 m<sup>2</sup>)
  - Impact outside R.O.W NIL

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

Recovered oil V <sub>recj</sub> :	<u>NIL</u>	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<sup>2</sup>) occupied by pool of free phase oil NOT APPLICABLE
- ii. Average Depth (m) of pool of free phase oil -----
- iii. -----

Volume of pooled of free phase oil V <sub>pool</sub> :	<u>NIL</u>	barrels
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iv.

b. Computation of volume of infiltrated oil in the soil (V<sub>-3</sub>).

- i Area (m<sup>2</sup>) covered by the oil: 3494.51 m<sup>2</sup>
- ii Average Depth (m) below ground surface of infiltration of oil: 0.001
- iii Soil type: CLAY
- iv. p<sub>e</sub> (effective porosity of the soil): 8%

	<u>1.8</u>	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	<u>NOT APPLICABLE</u>	
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 <u>NIL</u> bbl

Spill Factors from USCG FOG (2000 Edition)



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  $V_{vap}$ : 0.6 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  $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$   
 $0.6 + Nil + 1.8 + Nil + Nil = 2.4 \text{ BARRELS}$

$V_{Est}(bbls) = 2.4 \text{ BARRELS}$

10. Net Total Estimated Spilled Volume  $VEst(bbls) = V_{vap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$   
 $0.6 + Nil + Nil + 1.8 + Nil + Nil = 2.4$

$VEst(bbls) = 2.4 \text{ BARRELS}$

- \*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 filed and signed on the 18 / 05 / 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*