



No. 00118

**A. GENERAL INFORMATION:**

1. Spill incident Number: 659017
2. Name of Location 10" DIEB4 CREEK - NUN RIVER PIPELINE
3. Name of nearest community NUN RIVER - ONYOMA
4. State BAYELSA LGA SOUTHERN IJAW
5. Type of Production facility/Installation PIPELINE Asset owner /District UIG/INESP

**B. INCIDENT INFORMATION:**

6. Details of incident

- a. Date of incident 11<sup>TH</sup> MAY, 2011
- b. Date/Period of investigation, 18<sup>TH</sup> MAY, 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>       |      |      |

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

e. Spill point coordinates

Northing: (MINNA MID BELT) Easting:

SPILL POINT 1 82948.13MN 404595.73ME

SPILL POINT 2. 82871.32MN 404586.21ME



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C. RISK/DAMAGE ASSESSMENT

7. Type of environment of spill site:

- Land
- Swamp (SEASONAL SWAMP)
- water

Type of environment of which oil has spread:

- Land
- Swamp (SEASONAL 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: 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>				



B. Crops/Economic Trees

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

C. Fish/Nets/Ponds

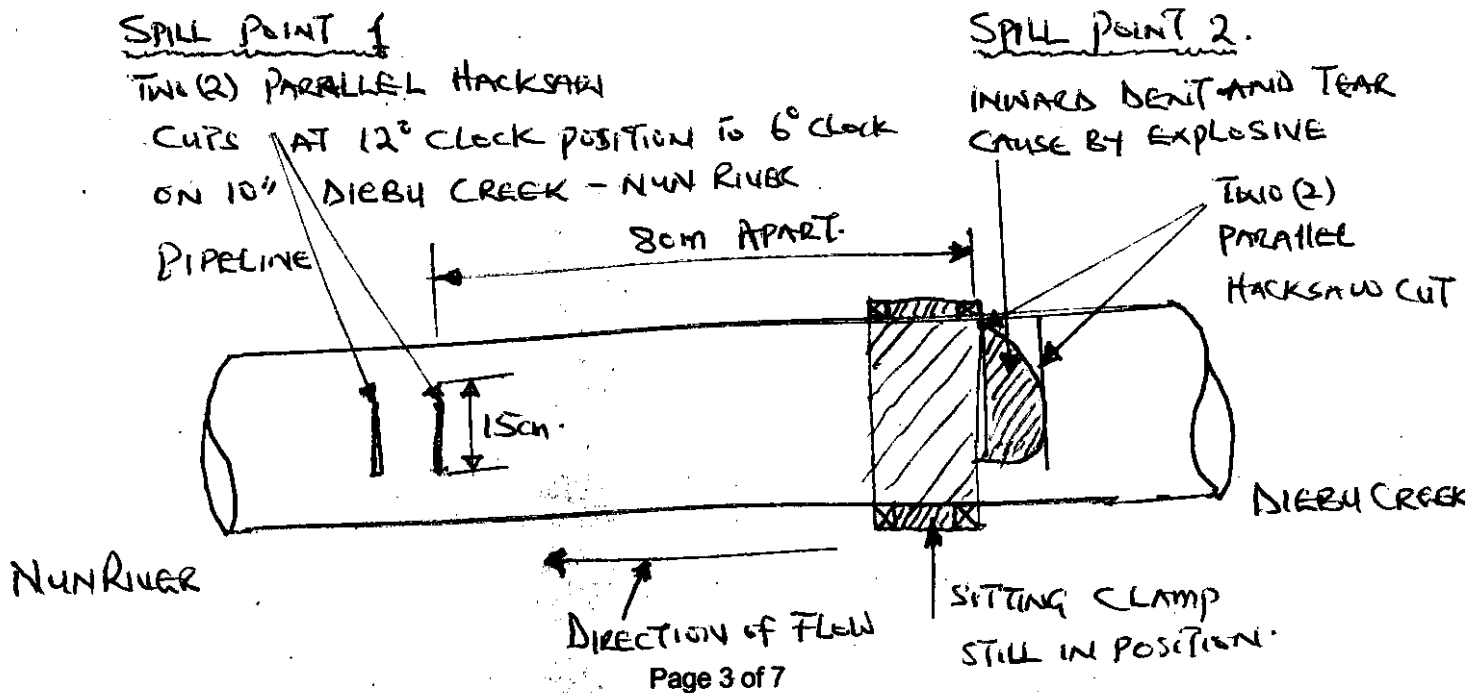
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

TOP OR PLAN VIEW OF 10" DIEBU CREEK - NUN RIVER LEAK POINTS  
AT ONYOMA NUN RIVER





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

E. Coordinates (MINNA MID BEIT)

S/N	Northing (METER)	Easting (METER)
Pt 1	83144.02 MN	404579.11 ME
Pt 2	83141.67 MN	404626.94 ME
Pt 3	83075.78 MN	404689.94 ME
Pt 4	82860.54 MN	404685.90 ME
Pt 5	82836.28 MN	404646.88 ME
Pt 6	82831.28 MN	404601.86 ME
Pt 7	82813.27 MN	404586.11 ME
Pt 8	82813.48 MN	404571.39 ME
Pt 9	82923.59 MN	404584.53 ME
Pt 10	82925.25 MN	404563.89 ME
Pt 11	82959.60 MN	404558.22 ME



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**G. INCIDENT INFORMATION:**

17 Impacted Area Details

- a. Total calculated area of impact 3.57 Ha
- Impact within SPDC R.O.W 0.496 Ha
  - Impact outside R.O.W 3.074 Ha

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

Recovered oil $V_{rec}$ :	<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 ( $m^2$ ) occupied by pool of free phase oil 14,500  $m^2$
- ii. Average Depth (m) of pool of free phase oil 0.001 m
- iii.

Volume of pooled of free phase oil. $V_{pool}$ :	<u>88.06</u>	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: 31,850  $m^2$
- ii Average Depth (m) below ground surface of infiltration of oil: 0.0001 m
- iii Soil type: CLAY
- iv.  $p_e$  (effective porosity of the soil): 8%

	<u>1.60</u>	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	<u>NOT</u>	
Bright Colour	0.0003		
Dull	0.001	<u>APPLICABLE</u>	
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)



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 659017

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Volume of oil on open water - $V_{wat}$	NIL	barrels
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21. Calculation of evaporated volume:

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

Volume of evaporated oil - $V_{vap}$	29 89	barrels
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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  $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$   
 $29.89 + 1.60 + 88.06 = 119.55 \text{ BARRELS}$

$V_{Est}(bbls) =$

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

$V_{Est}(bbls) = 119.55 \text{ BARRELS}$

- \*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 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*