



No. 00120

**A. GENERAL INFORMATION:**

1. Spill incident Number: 657417
2. Name of Location APARA WELL 3T WELL HEAD
3. Name of nearest community RUMUOLA | RUMUDAOLU
4. State RIVERS LGA PORT HARCOURT
5. Type of Production facility/Installation WELL HEAD Asset owner /District NEL 1

**B. INCIDENT INFORMATION:**

6. Details of incident

- a. Date of incident 7<sup>TH</sup> MAY, 2011
- b. Date/Period of investigation, 10<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>       | [Y]  | [N]✓ |

"THE INVESTIGATING TEAM OBSERVED THE LEAK HAS BEEN STOP AND THE KEROTEX VALVE THAT WAS FULLY OPEN HAD BEEN CLOSED BY THE OPERATION TEAM"

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

e. Spill point coordinates

Northing: (MINNA MID-BEIT) Easting: 504212.95m.  
92346.62m



C. RISK/DAMAGE ASSESSMENT

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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 [ NIL ,m]
- Drinking water source [ NIL ,m]
- Built up area [ NIL ,m]
- Farmlands [ NIL ,m]
- Fish Farm/Pond [ NIL ,m]
- Fishing net [ NIL ,m]
- Others (specify). NIL [ NIL ,m]

9. Containment measures put in place;

- Booms [Y] [N]
- Trench [Y] [N]
- Dyke [Y] [N]
- Others: CELLAR PIT

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 CARRIED OUT ON 10TH MAY 2011 WAS (DISRUPTED AND) TERMED INCONCLUSIVE DUE TO DISAGREEMENT OF THE CAUSE OF SPILL.

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
1	CORN		✓	NIL		
2	YAM	✓		NIL		
3	VEGETABLE	✓		NIL		

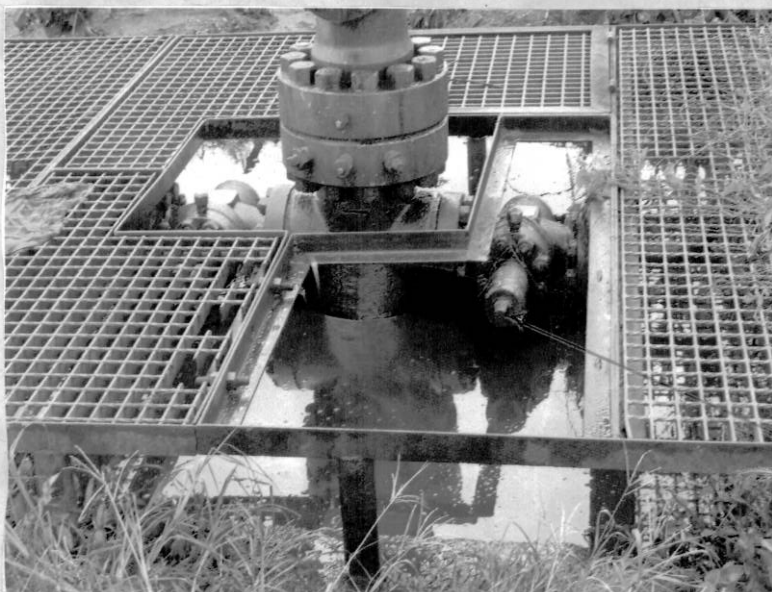
C. Fish/Nets/Ponds

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)



BELOW IS KEROTEX VALVE ON  
 CASTING GATE VALVE.  
 IDENTIFIED AS THE  
 LEAK POINT.

THE TAMPERED  
 KEROTEX VALVE.



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED  
JOINT INVESTIGATION REPORT FOR INCIDENT NO: 6517417

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

S/N	Northing (METRE)	Easting (METRE)
Pt 174	92331.26m	504212.92m
Pt 175	92331.27m	504209.84m
Pt 176	92337.41m	504209.85m
Pt 177	92346.64m	504203.71m
Pt 178	92349.69m	504212.96m
Pt 179	92352.73m	504228.37m
Pt 180	92349.66m	504249.988
Pt 181	92349.66m	504228.37m
Pt 182	92346.61m	504219.12m



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**G INCIDENT INFORMATION:**

17 Impacted Area Details

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

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

Recovered oil $V_{rec}$	1	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 \_\_\_\_\_
- ii. Average Depth (m) of pool of free phase oil \_\_\_\_\_
- iii. \_\_\_\_\_

Volume of pooled of free phase oil $V_{pool}$	NOT APPLICABLE	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: 200  $m^2$
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.601 m
- iii. Soil type: SANDY MEDIUM
- iv.  $p_e$  (effective porosity of the soil): 25%
- v. \_\_\_\_\_

	0.31	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		
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

NIL      bbl

Spill Factors from USCG FOG (2000 Edition)



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Volume of oil on open water	NIL	barrels
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21. Calculation of evaporated volume:

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

Volume of evaporated oil	0.24	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  $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) = 0.24 + 0.31 + 1 = 1.55$  BARRELS.

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

$V_{Est}(bbls) = 1.55$  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 10<sup>th</sup> / 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*