



No. 00018

A. GENERAL INFORMATION:

1. Spill incident Number: 620516
2. Name of Location 20" KOLOCREEK - RUMUEKPE PIPELINE
3. Name of nearest community OGBOGBOLO
4. State RIVERS LGA AHOADA - WEST
5. Type of Production facility/Installation PIPELINE Asset owner /District UIG/P/NESP

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 9TH FEBRUARY, 2011
- b. Date/Period of investigation, 12TH FEBRUARY, 2011
- c. Description of spill point environment

- | | | |
|--|---|---|
| <input type="checkbox"/> Firmed soil | <input checked="" type="checkbox"/> [Y] | <input type="checkbox"/> [N] |
| <input type="checkbox"/> Loose soil | <input checked="" type="checkbox"/> [Y] | <input type="checkbox"/> [N] |
| <input type="checkbox"/> Previously excavated area | <input checked="" type="checkbox"/> [Y] | <input type="checkbox"/> [N] |
| <input type="checkbox"/> Under water | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Swampy | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Exposed pipe surface | <input checked="" type="checkbox"/> [Y] | <input type="checkbox"/> [N] |

FIRE WAS OBSERVED ON PART OF THE SPILL SITE AT TIME OF INVESTIGATION.

d. Description of leak point (tick as applicable);

- | | | |
|--|---|---|
| <input type="checkbox"/> Drilled hole, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Hack saw cut, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Explosive tear, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Complete Rupture | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Inward dent, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Well head tampering | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve, | <input checked="" type="checkbox"/> [Y] | <input type="checkbox"/> [N] |
| <input type="checkbox"/> Missing pipeline (flowline) | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point, | <input checked="" type="checkbox"/> [Y] | <input type="checkbox"/> [N] |
| <input type="checkbox"/> Third party tampering with Clamp Bolt/Nut, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Third party tampering with valve setting, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Third party tampering with flange Nuts/bolts, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Corrosion, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| Type: _____ | | |
| <input type="checkbox"/> Saver-pit over flow, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Surge vessel overflow, | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Outward dent | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |
| <input type="checkbox"/> Others (specify). _____ | <input type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |

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

e. Spill point coordinates **(WGS 84)**

- Northing:
- | | |
|---------|-----------------|
| POINT 1 | (04° 56' 48.8") |
| POINT 2 | (04° 56' 48.9") |
| POINT 3 | (04° 56' 48.9") |
| POINT 4 | (04° 56' 48.9") |
| POINT 5 | (04° 56' 51.1") |
| POINT 6 | (04° 56' 48.4") |
| POINT 7 | (04° 56' 48.4") |

- Easting:
- | | |
|---------|-----------------------------|
| POINT 1 | (006° 33' 17.3") |
| POINT 2 | (006° 33' 17.9") |
| POINT 3 | (006° 33' 18.2") |
| POINT 4 | (006° 33' 18.0") |
| POINT 5 | (006° 33' 30.4) |
| POINT 6 | (006° 33' 18.3") |
| POINT 7 | (006° 33' 18.4") |



C. RISK/DAMAGE ASSESSMENT

No. 0017

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 [5 ,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
<u>NONE FOUND 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

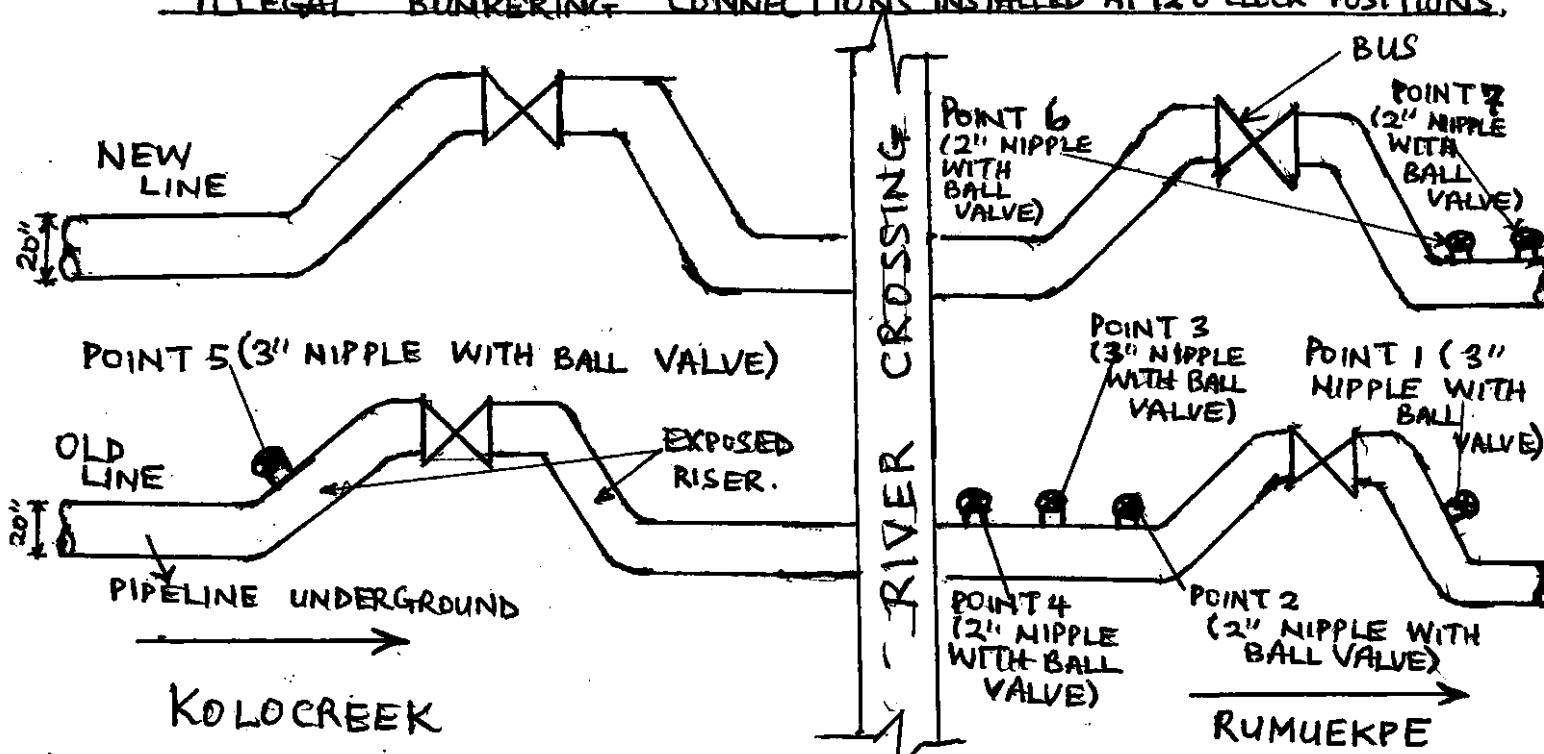
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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)

SECTION OF 20" KOLOCREEK - RUMUEKPE PIPELINE SHOWING
ILLEGAL BUNKERING CONNECTIONS INSTALLED AT 12 O'CLOCK POSITIONS.





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

E. Coordinates (SOME IMPACTED AREA BOUNDARY COORDINATES = WGS-84)

S/N	Northing	Easting
1	04° 56' 50.4"	006° 33' 26.0"
2	04° 56' 50.2"	006° 33' 26.2"
22	04° 56' 49.4"	006° 33' 20.7"
23	04° 56' 49.6"	006° 33' 20.7"
29	04° 56' 50.3"	006° 33' 20.4"
54	04° 56' 54.5"	006° 33' 35.5"
55	04° 56' 48.0"	006° 33' 16.6"
11	04° 56' 53.6"	006° 33' 36.0"
57	04° 56' 46.9"	006° 33' 20.7"
61	04° 56' 34.9"	006° 33' 17.0"
63	04° 56' 35.2"	006° 33' 16.1"
71	04° 56' 44.3"	006° 33' 16.1"



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G. INCIDENT INFORMATION:

- 17 Impacted Area Details (FOR 7 NO. ILLEGAL BUNKERING POINTS)
- a. Total calculated area of impact 3.98 Ha (39,800m²)
 - Impact within SPDC R.O.W 0.81 Ha (8,100m²)
 - Impact outside R.O.W 3.17 Ha (31,700m²)

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 (m²) occupied by pool of free phase oil 30,410
 - ii. Average Depth (m) of pool of free phase oil 0.017
 - iii.

Volume of pooled of free phase oil V _{pool} :	3,251.7	barrels
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b. Computation of volume of infiltrated oil in the soil (V-3).

- i. Area (m²) covered by the oil: 2,600
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.01
- iii. Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v.

	13.1	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	NOT APPLICABLE	
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

NOTE: TOTAL AREA BURNT BY FIRE IS APPROXIMATELY 6,800M². TOTAL FIRE-BURNT OIL-IMPACTED AREA IS 60% OF 6800M² = 4.080M². APPROXIMATE THICKNESS OF OIL WITHIN VICINITY OF IMPACT = 0.001M.

bbl

Spill Factors from USCG FOG (2000 Edition)

ESTIMATED VOLUME OF OIL BURNT BY FIRE IS
 4,080 x 0.001 x 6.29
 = 25.7 BARRELS.



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} :

1,096.8

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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 1,096.8 + NIL + 13.1 + 3,251.7 + NIL + 25.7$ (I.E. VOLUME BURNT BY FIRE)
= 4,387.3

$V_{Est}(bbls) = 4,387.3$ BARRELS

10. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 \cdot V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 1,096.8 + NIL + 13.1 + 3,251.7 + NIL + 25.7$ (I.E. VOLUME BURNT BY FIRE) = 4,387.3

$V_{Est}(bbls) = 4,387.3$ 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 12 / 02 / 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