



A. GENERAL INFORMATION:

1. Spill incident Number: 632299
 2. Name of Location 20" KOLOCREEK - RUMUEKPE PIPELINE
 3. Name of nearest community OGBOGOTOLO
 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 11TH & 12TH 7TH MARCH, 2011
 b. Date/Period of investigation, 12TH MARCH, 2011

- c. Description of spill point environment
- | | | |
|---|-----|-----|
| <input checked="" type="checkbox"/> Firmed soil | [Y] | [N] |
| <input type="checkbox"/> Loose soil | [Y] | [N] |
| <input checked="" type="checkbox"/> Previously excavated area | [Y] | [N] |
| <input type="checkbox"/> Under water | [Y] | [N] |
| <input type="checkbox"/> Swampy | [Y] | [N] |
| <input checked="" type="checkbox"/> Exposed pipe surface | [Y] | [N] |

- d. Description of leak point (tick as applicable);
- | | | |
|--|-----|-----|
| <input checked="" type="checkbox"/> Drilled hole, | [Y] | [N] |
| <input type="checkbox"/> Hack saw cut, | [Y] | [N] |
| <input type="checkbox"/> Explosive tear, | [Y] | [N] |
| <input checked="" 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 checked="" 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: _____ | | |
| <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). _____ | | |

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

e. Spill point coordinates (MINNA MID-BELT)

	Northing: (m)	Easting: (m)
①	104961.651	455274.755
②	104961.660	455271.674
③	104958.641	455253.174
④	104958.641	455253.174
⑤	104986.251	455268.664
⑥	104989.287	455281.000
⑦	104880.244	466744.450



No. 1029

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 [10 ,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? [] [N]

11. Was there any disruption to the investigation? [Y] []

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			



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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

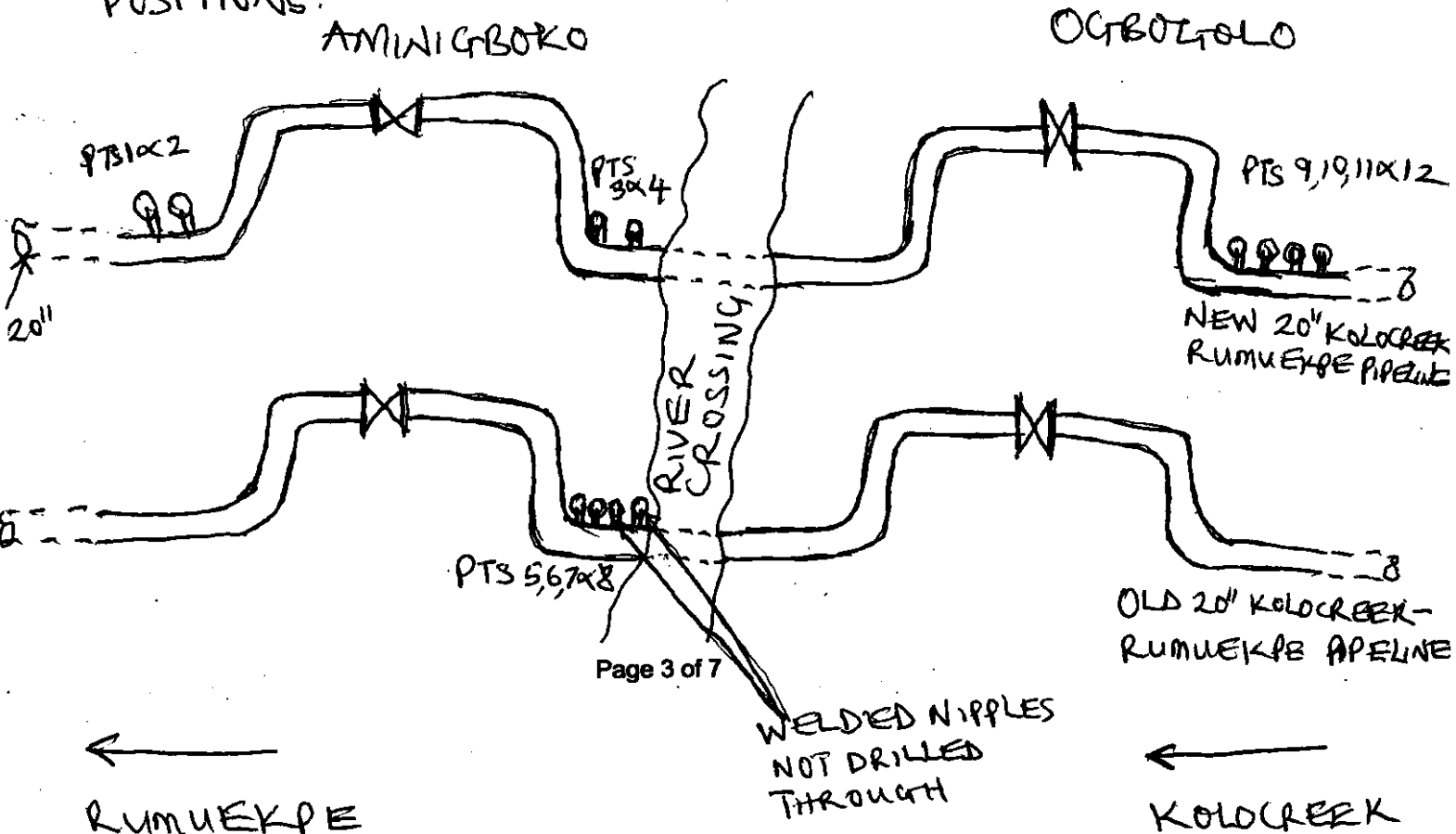
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

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

S/N	Northing (m)	Easting (m)
36	104958.632	455256.256
37	104956.593	455254.941
38	104955.578	455250.083
39	104957.313	455248.613
40	104960.403	455249.992
41	104983.196	455262.491
42	104986.269	455262.500
43	104986.278	455259.419
44	104983.278	455259.394
51	104867.880	454769.068
52	104864.735	454793.713
53	104858.544	454809.104
54	104861.599	454861.599
55	104867.681	454836.867
56	104870.672	454864.611
56a	104870.067	454864.809
53a	104857.829	454809.312



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G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 165.17 m²
- Impact within SPDC R.O.W 33.17 m²
 - Impact outside R.O.W 132 m²

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

Recovered oil V_{recj}: 11.89 bbls barrels

VOLUME RECOVERED FROM THE DUG TRENCH AFTER REMOVING 40% WATER CUT.

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 23 m²
- ii. Average Depth (m) of pool of free phase oil 0.42 m
- iii.

Volume of pooled of free phase oil, V_{pool}: 36.46 barrels

VOLUME IN THE EXCAVATED PIT, AFTER REMOVING 40% WATER CUT.

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

- i. Area (m²) covered by the oil: 165.17 m²
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.027 m
- iii. Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v.

Volume of infiltrated oil, V_{inf}: 2.24 barrels

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	NOT APPLICABLE	
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)



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED
 JOINT INVESTIGATION REPORT FOR INCIDENT NO: 632299

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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} : 16.86 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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
 $11.89 = 16.86 + NIL + 2.24 + 36.46 +$

$V_{Est}(bbls) = 67.45$ BARRELS

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

$V_{Est}(bbls) = 67.45$ 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 12th / 03/2011 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