



No. 00773

A. GENERAL INFORMATION:

1. Spill incident Number: 673023
2. Name of Location 14" OKORDIA - RUMUOKPE PIPELINE AND AKALAMINI RISER.
3. Name of nearest community AKALAMINI
4. State RIVERS LGA ATTOADA - WEST
5. Type of Production facility/Installation PIPELINE Asset owner /District UIG/P/NE SP

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 14TH JUNE, 2011
- b. Date/Period of investigation, 19TH TO 20TH JUNE, 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] ✓ |

"AKALAMINI RISER WAS OBSERVED TAMPERED WITH THE OUTGOING 2" PRESSURE INDICATOR VALUE WAS USE AS OFF TAKE POINT BY THIRD PARTY."

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] ✓ |
| <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 N31A - BEIT) Easting:

SP1: 124121.29 m 446997.74 m

SP2: 123950.41 m 447591.85 m

SP3: 123925.59 m 447665.59 m



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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: 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>					



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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

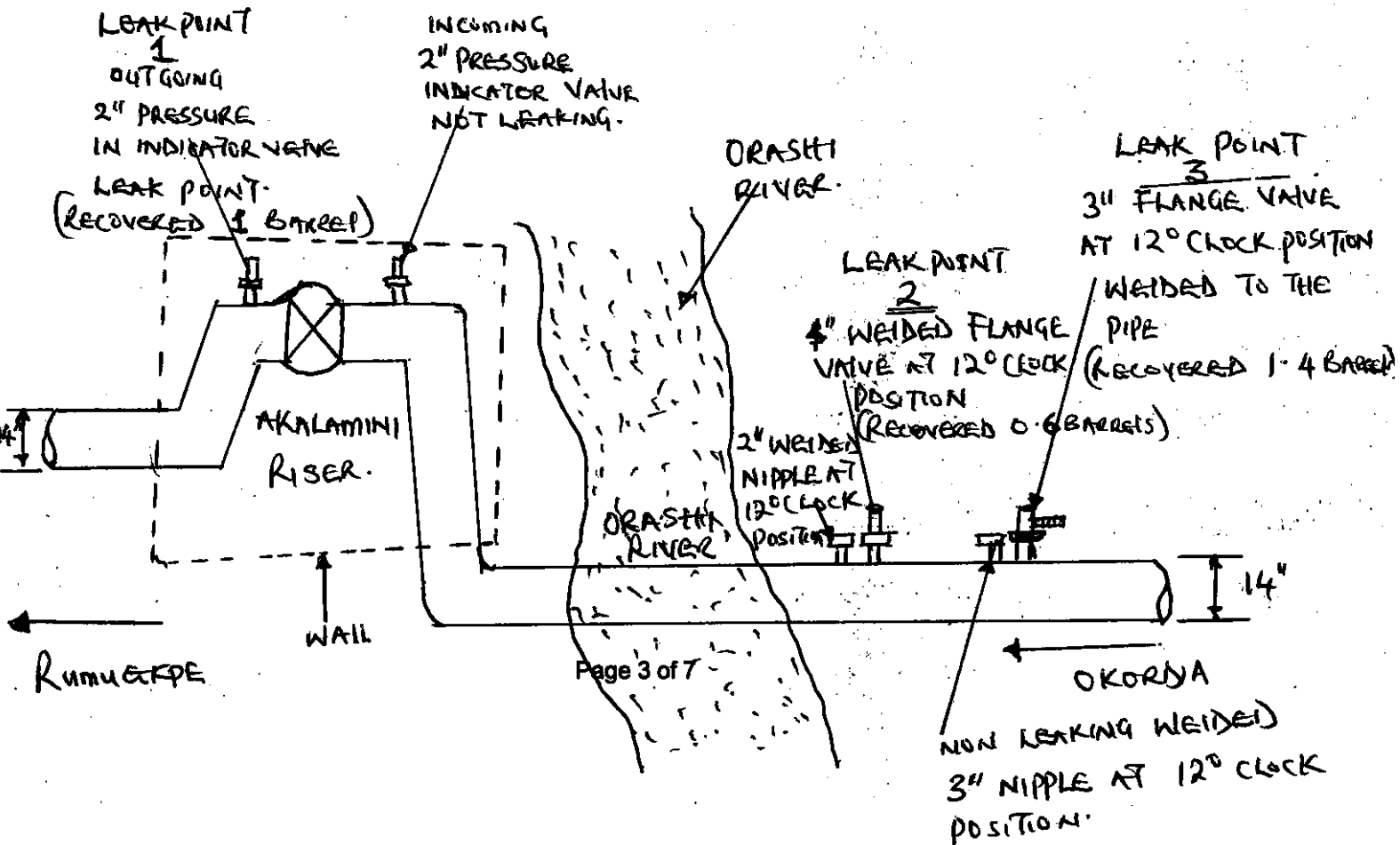
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

SECTIONAL VIEW OF 14" OKORNYA-RUMUGKPE PIPELINE MULTIPLE LEAK OF CRUDE OIL





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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
LEAK POINT 1 AKALAMINI RISER		
165	124112.02 m	447019.28 m
166	124115.00 m	447022.37 m
167	124124.40 m	447025.45 m
168	124121.150 m	447031.62 m
169	124112.02 m	447028.54 m
LEAK POINT 2. NORTHING EASTING		
173	123947.86 m	447593.64 m
174	123949.16 m	447586.07 m
175	123955.40 m	447587.94 m
176	123953.86 m.	447596.81 m
LEAK POINT 3 NORTHING EASTING.		
177	123920.57 m	447667.39 m
178	123922.37 m	447664.04 m
179	123922.67 m	447659.83 m
180	123929.30 m	447662.51 m
181	123927.37 m.	447670.56 m



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G INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact $(A) = 0.0081 \text{ Ha} + (B) + 0.0058 \text{ Ha} + (C) = 0.0055 \text{ Ha} = 0.0194 \text{ Ha}$
- Impact within SPDC R.O.W 0.0194 Ha
 - Impact outside R.O.W NIL

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

Recovered oil V_{rec} : 1 + 0.6 + 1.4 = 3 barrels barrels

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 VOLUME OF POOLED OIL
- ii. Average Depth (m) of pool of free phase oil IS EQUAL TO RECOVERED OIL AT THE THREE LEAK POINTS.
- iii. Volume of pooled of free phase oil, V_{pool} : barrels THREE

b. Computation of volume of infiltrated oil in the soil (V_3).

- i. Area (m^2) covered by the oil: 194 m^2
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.01 m
- iii. Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v. Volume of infiltrated oil, V_3 : 0.98 barrels

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		
Bright Colour	0.0003	<u>NOT</u>	
Dull	0.001		
Dark	0.002	<u>APPLICABLE</u>	
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}	<u>NIL</u>	barrels
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21. Calculation of evaporated volume:

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

Volume of evaporated oil V_{vap}	<u>0.70</u>	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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
$V_{Est}(bbls) = 0.70 + 0.98 + 3 = 4.68$ Barrels.
10. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 \cdot V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
$V_{Est}(bbls) = 4.68$ 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 20 / 06 / 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