



No. 00558

A. GENERAL INFORMATION:

1. Spill incident Number: 2012-789470
2. Name of Location 16" NUNR-FOCK TIL
3. Name of nearest community ANGAMA - G BENI
4. State BAYELSA LGA SOUTHERN PTAW
5. Type of Production facility/Installation TRUNK-LINE Asset owner /District UIG/P/NPE

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 15 MARCH 2012
- b. Date/Period of investigation, 17 MARCH 2012 - 19 MARCH 2012
- 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 type="checkbox"/> [Y] | <input checked="" 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 type="checkbox"/> [Y] | <input checked="" type="checkbox"/> [N] |

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 checked="" type="checkbox"/> [Y] | <input 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 type="checkbox"/> [Y] | <input checked="" 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 type="checkbox"/> [Y] | <input checked="" 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). _____ | | |

e. Spill point coordinates MINNA MID BELT

Northing: 90967.53m

Easting: 408043.13m



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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 [1,500 ,m]
- Farmlands [1,500 ,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:

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					



B. Crops/Economic Trees

S/N	Types of crops	Young	Medium	Matured	Quantity	Comments
1	PALM TREES				A FEW	THIRD PARTY AREA

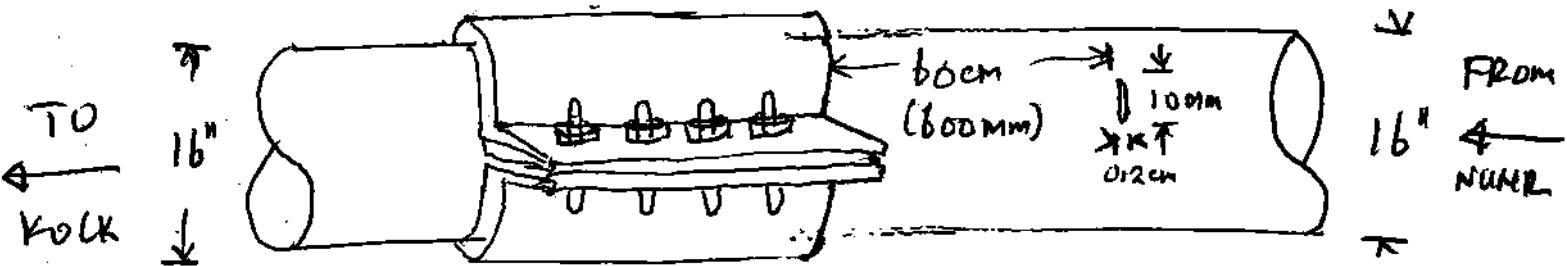
C. Fish/Nets/Ponds

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)




- * HACKSAW CUT AT 20' CLOCK POSITION AS INDICATED
- * LENGTH OF CUT WAS 10MM
- * 60 CM (600MM) AWAY FROM PREVIOUSLY CLAMPED POSITION



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

E. Coordinates

S/N	Northing	Easting
1	90979.73 m	408067.84 m
2	90973.57 m	408073.99 m
3	90921.73 m	407953.56 m
4	90921.74 m	407950.48 m
5	90940.14 m	407962.87 m
6	90946.31 m	407956.73 m
7	90927.99 m	407922.75 m
8	90937.30 m	407898.12 m
9	90940.43 m	407879.63 m
10	90940.51 m	407858.05 m
11	90928.30 m	407833.34 m
12	90925.46 m	407765.50 m
13	90950.12 m	407747.08 m
14	90974.82 m	407713.25 m
15	90993.34 m	407691.74 m
16	91008.51 m	407747.29 m
17	90996.18 m	407759.58 m
18	90974.76 m	407731.75 m
19	90959.30 m	407756.36 m
20	90934.64 m	407777.86 m
21	90934.46 m	407830.28 m
22	90955.87 m	407861.18 m
23	90940.32 m	407913.54 m
24	90973.97 m	407956.83 m
25	90943.17 m	407975.22 m

 19/03/2012



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G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 0.59 Ha. (5,900 m²)
- Impact within SPDC R.O.W ~~0.074 Ha (740 m²)~~
 - Impact outside R.O.W ~~0.516 Ha (5,160 m²)~~

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

Recovered oil V_{recj}: NIL 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 (m²) occupied by pool of free phase oil 0.13 Ha (1,300 m²)
- ii. Average Depth (m) of pool of free phase oil 0.0035 m
- iii. **EMULSION FACTOR DISCOUNTED IS 40%**
 Volume of pooled of free phase oil, V_{pool}: 17.2 barrels
- iv.

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

- i. Area (m²) covered by the oil: 0.59 Ha (5,900 m²)
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.012 m
- iii. Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v.

[REDACTED] 35.63 barrels

20. Computation of volume of oil on open water based on standard coloration.

	Thickness (mm)	Percentage coverage	Volume (m3)
Barely Visible	0.00004	NOT	
Silvery	0.00008		
Slight Colour	0.00015		
Bright Colour	0.0003	APPLICABLE	
Dull	0.001		
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume bbl

Spill Factors from USCG FOG (2000 Edition)



Volume of oil on open water V_{wat} : NIL barrels

21. Calculation of evaporated volume:

- i. Oil type: BONNY LIGHT
- ii. E-Factor: 40%
- iii.

Volume of evaporated oil V_{vap} : 21.13 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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
 $21.13 + NIL + 35.63 + 17.2 + NIL = 74 Bbls$

$V_{Est}(bbls) =$

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

$21.13 + NIL + 35.63 + 17.20 + NIL$

$V_{Est}(bbls) =$

74 Bbls.

- *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 19 / 03 / 20 12 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