



No: 00108

A. GENERAL INFORMATION:

1. Spill incident Number: 683733
2. Name of Location NUN RIVERS WELL ISS FLOWLINE
3. Name of nearest community ONYOMA COMMUNITY
4. State BAYELSA LGA SOUTHERN TAW.
5. Type of Production facility/Installation FLOWLINE Asset owner /District NEL II

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 30TH JUNE, 2011
- b. Date/Period of investigation, 11TH JULY, 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]✓ |

AFTER JOINT

[Y]✓ [N] INVESTIGATION OF
 [Y] [N]✓ THE INCIDENT,
 [Y] [N]✓ SPILL WAS FOUND
 [Y] [N]✓ TO BE DUE TO
 [Y] [N]✓ THIRD PARTY
 [Y] [N]✓ INTERFERENCE.

e. Spill point coordinates (MINNA NDIS - BETI)

Northing:

87771.75m

Easting:

402549.74m



No. 0108

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 [NIL ,m]
- Drinking water source [NIL ,m]
- Built up area [NIL ,m]
- Farmlands [12 ,m]
- Fish Farm/Pond [NIL ,m]
- Fishing net [NIL ,m]
- Others (specify). [2K ,m]

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>				



B. Crops/Economic Trees

S/N	Types of crops	Young	Medium	Matured	Quantity	Comments
	CASSAVA	✓	✓	NIL	40m x 50m	-
/	/	/	/	/	/	/
/	/	/	/	/	/	/

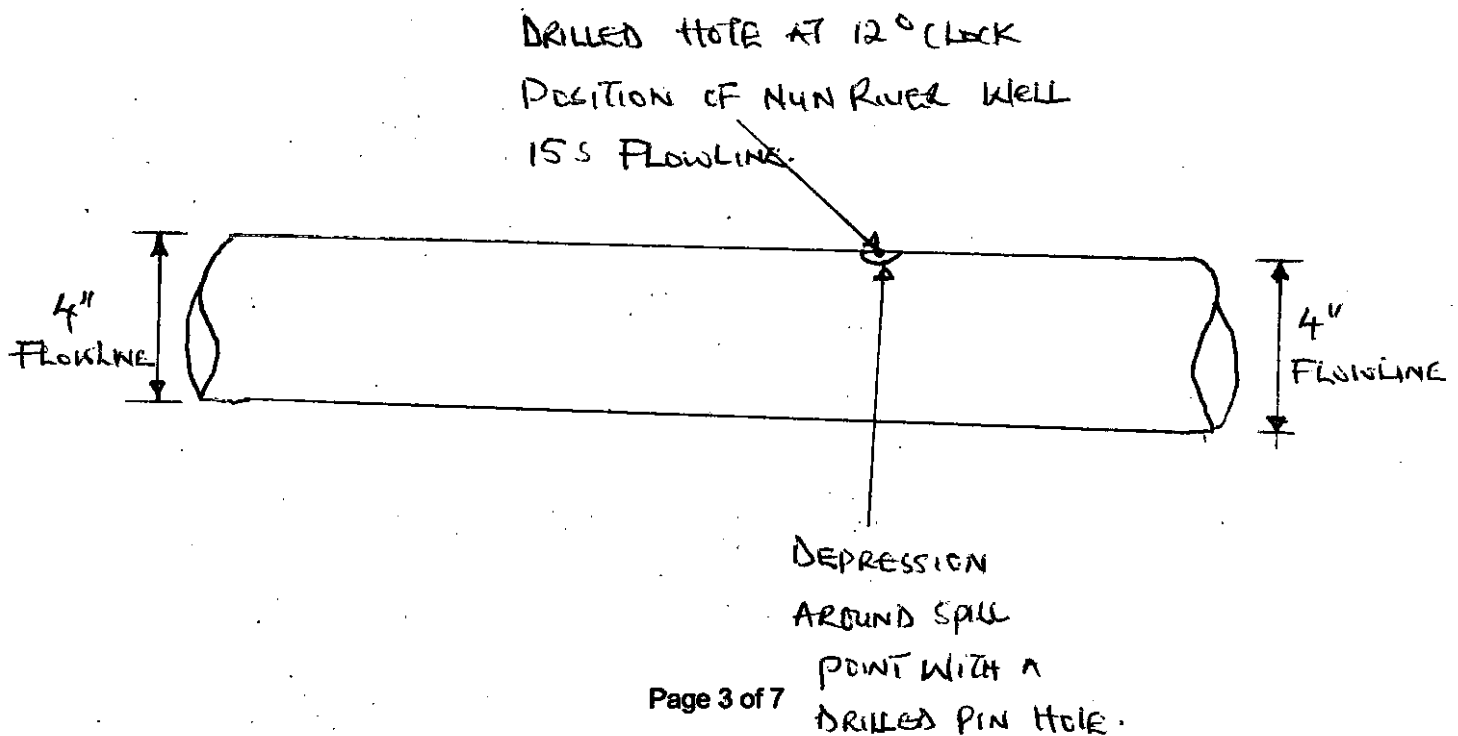
C. Fish/Nets/Ponds

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)





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

S/N	Northing (METER)	Easting (METER)
	87759.35 m	402542.45 m
	87764.73 m	402534.86 m
	87786.64 m	402549.63 m
	87781.60 m	402557.09 m
	87759.35 m	402542.45 m
	87688.07	402575.89
	87696.63	402569.68
	87699.56	402557.96
	87723.25	402524.72
	87727.45	402527.52
	87733.31	402536.44
	87733.09	402543.11
	87759.16	402549.41
	87759.34	402542.45
	87760.01	402542.88
	87759.72	402550.20
	87730.96	402543.46
	87730.80	402537.98
	87727.31	402532.88
	87706.84	402561.51
	87703.72	402574.46
	87692.82	402582.36
	87688.07	402575.88



No. 0108

G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 0.0827 Ha
- Impact within SPDC R.O.W 0.0278 Ha
 - Impact outside R.O.W 0.0579 Ha

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

Recovered oil V_{rec} :	<u>NIL</u>	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 248 m^2
- ii. Average Depth (m) of pool of free phase oil 0.001m
- iii.

Volume of pooled of free phase oil, V_{pool} :	<u>1.56</u>	barrels
--	-------------	---------

iv.

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

- i Area (m^2) covered by the oil: 827 m^2
- ii Average Depth (m) below ground surface of infiltration of oil: 0.0005m
- iii Soil type: CLAY
- iv. p_e (effective porosity of the soil): 8%
- v.

	<u>0.21</u>	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		
Dull	0.001	100	0.00058
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume

AREA of SHEEN
 = 0.0579 Ha
 = 579 m^2

0.0036 bbl

Spill Factors from USCG FOG (2000 Edition)



No. 0108

Volume of oil on open water, V_{wat} 0.0036 barrels

21. Calculation of evaporated volume:

i. Oil type: BONNY LIGHT

ii. E-Factor: 40%

iii.

Volume of evaporated oil, V_{vap} 1.18 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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) = 1.18 + 0.0036 + 0.21 + 1.56 = 2.95 \approx 2.95 \text{ BARRELS}$

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

$V_{Est}(bbls) = 0.0036 \times 0.60 + 1.18 + 0.21 + 1.56 = 2.95 \text{ BARRELS}$

- * 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 11 / 07 / 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