



No. 00553

A. GENERAL INFORMATION:

1. Spill incident Number: 778618
2. Name of Location 36" NKPOKU - BOMU T/L
3. Name of nearest community AGBONCHIA
4. State RIVERS LGA ELEME
5. Type of Production facility/Installation PIPELINE Asset owner /District NESP

B. INCIDENT INFORMATION:

6. Details of incident
- a. Date of incident 19TH, FEBRUARY, 2012
- b. Date/Period of investigation, 23RD, FEBRUARY, 2012
- c. Description of spill point environment

- | | | |
|---|-----|-----|
| <input type="checkbox"/> Firmed soil | [Y] | [N] |
| <input checked="" 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 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 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: SABOTAGE
- | | | |
|--|-----|-----|
| <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> | | |

e. Spill point coordinates

MWNA MID BELT

Northing: 92024.26m Easting: 518612.07m



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). **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
NONE WITHIN AREA OF IMPACT					



B. Crops/Economic Trees

S/N	Types of crops	Young	Medium	Matured	Quantity	Comments
NONE WITHIN AREA OF IMPACT						

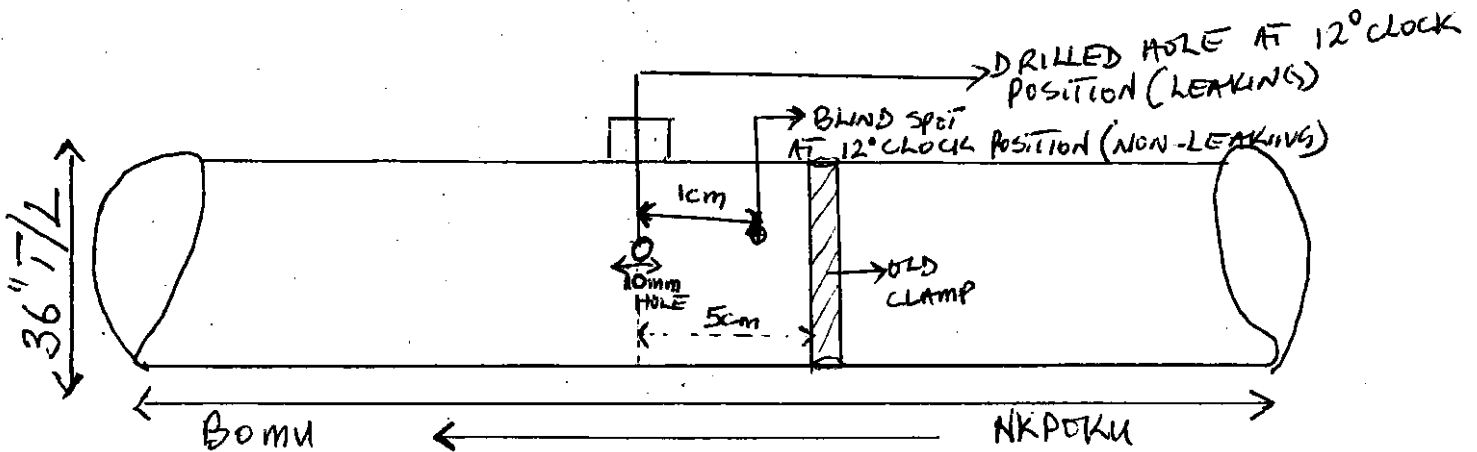
C. Fish/Nets/Ponds

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, SHOWING 36" NKPOKU - BOMU PIPELINE AT AGBONCHITA, SHOWING LOCATIONS, 2 NOS DRILLED HOLE SPOTS (LEAKING AND BLIND) DRILLED AT 12° CLOCK POSITIONS.



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED
JOINT INVESTIGATION REPORT FOR INCIDENT NO: ~~778618~~

No 00553

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

E. Coordinates **MINNA MID BELT**

S/N	Northing	Easting
1	92036.55m	518609.01m
2	92027.30m	518624.40m
3	92018.08m	518627.46m
4	91956.47m	518713.62m
5	91956.45m	518725.94m
6	91941.08m	518728.99m
7	91941.11m	518716.67m
8	91928.83m	518710.48m
9	91907.36m	518691.95m
10	91876.67m	518682.64m
11	91799.92m	518657.83m
12	91787.64m	518654.73m
13	91744.67m	518636.15m
14	91683.28m	518614.46m
15	91671.01m	518605.19m
16	91637.23m	518598.96m
17	91615.74m	518592.75m
18	91569.68m	518583.41m
19	91683.30m	518602.13m
20	91698.65m	518608.33m
21	91750.83m	518630.00m
22	91877.97m	518680.06m
23	91908.30m	518689.08m
24	91930.60m	518708.63m
25	91947.26m	518713.60m
26	92011.93m	518633.61m
27	92027.35	518599.75m



G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 0.32 HA.
- Impact within SPDC R.O.W _____
 - Impact outside R.O.W _____

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

Recovered oil V_{rec} :	87.6	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 3200
- ii. Average Depth (m) of pool of free phase oil 0.001
- iii.

Volume of pooled of free phase oil. V_{pool} :	20.1	barrels
--	------	---------

iv.

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

- i. Area (m^2) covered by the oil: 3200
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.002
- iii. Soil type: MEDIUM SAND.
- iv. p_e (effective porosity of the soil): 25%
- v.

	10.1	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
			NIL
			bbl

Spill Factors from USCG FOG (2000 Edition)



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO:

778618
No. 0553

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} :	39	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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 39 + NIL + 10.1 + 20.1 + 87.6 = 156.8 BBLs$

$V_{Est}(bbls) =$

10. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 39 + NIL + 10.1 + 20.1 + 87.6 = 156.8 BBLs$

$V_{Est}(bbls) =$

*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 23RD FEB /2012 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