



No. 00564

A. GENERAL INFORMATION:

1. Spill incident Number: 788449
2. Name of Location 8th NKALI PIPELINE
3. Name of nearest community ODAGWA
4. State RIVERS LGA ETCHE
5. Type of Production facility/Installation PIPELINE Asset owner /District NOSP / LAND

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 13th MARCH 2012
- b. Date/Period of investigation, 15th MARCH 2012
- c. Description of spill point environment

- | | | |
|----------------------------------------------------|-----|-----|
| <input type="checkbox"/> Firmed soil | [Y] | [N] |
| <input checked="" type="checkbox"/> Loose soil | [Y] | [N] |
| <input type="checkbox"/> Previously excavated area | [Y] | [N] |
| <input type="checkbox"/> Under water | [Y] | [Y] |
| <input type="checkbox"/> Swampy | [Y] | [Y] |
| <input type="checkbox"/> Exposed pipe surface | [Y] | [Y] |

AFTER JOINT INVESTIGATION THE
 SPILL WAS DUE TO
 THIRD PARTY INTERFERENCE

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: _____

- | | | |
|--------------------------------------------------|-----|-----|
| <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). _____ | [Y] | [N] |

e. Spill point coordinates MINNA MID-BELT

Northing:

109225.91m

Easting:

521925.28m



C. RISK/DAMAGE ASSESSMENT

No. 0564

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: NATURAL DEPRESSION

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				



No. 0564

B. Crops/Economic Trees

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

C. Fish/Nets/Ponds

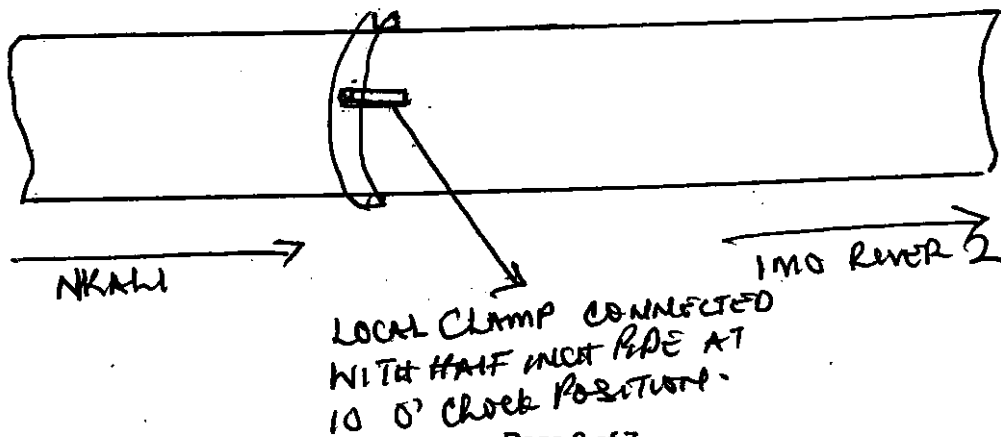
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

A SECTION OF 8" NKALI PIPELINE AT ODACIWA SHOWING ILLEGAL BUNKERING POINT AT 10 O'CLOCK POSITION





No. 0564

G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact: 0.007 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} : 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 (m^2) occupied by pool of free phase oil: 70 m^2
- ii. Average Depth (m) of pool of free phase oil: 0.0003 m
- iii. Volume of pooled of free phase oil, V_{pool} : 0.22 barrels
- iv.

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

- i Area (m^2) covered by the oil: 70
- ii Average Depth (m) below ground surface of infiltration of oil: 0.07
- iii Soil type: Clay
- iv. p_e (effective porosity of the soil): 8%
- v.

0.35 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	APPLICABLE	
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: 788444

No. 0564

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>0.1</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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 0.1 + NIL + 0.38 + 0.22 + NIL = 0.67 \text{ BARRELS}$

$V_{Est}(bbls) = 0.67 \text{ BARRELS}$

10. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{vap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 0.1 + NIL + 0.38 + 0.22 + NIL = 0.67 \text{ BARRELS}$

$V_{Est}(bbls) = 0.67 \text{ BARREL}$

- *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 15 / 03 / 20 12 at incident site by joint investigation representative from

- Host Community
- Department of Petroleum Resources [DPR]: *See DPR REPORT ATTACHED*
- 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



DEPARTMENT OF PETROLEUM RESOURCES

FIELD JOINT INVESTIGATION REPORT

(Note: As practicable as possible the field report is to be signed in the field by all the participating parties)

- 1. Company SPNC
- 2. Incident Serial Number 7884AS
- 3. Name of Location/Facility 8" NKALI PIPELINE AT OMAWA
E.I.CHE L.G.A, RIVERS STATE

- 4. Type of Incident: (Indicate ✓ where appropriate and X where not applicable)
 - o Crude Oil Spill
 - o Product Spill (Specify)
 - o Drilling Mud/Chemicals Spill
 - o Fire
 - o Others (specify)

- 5. Details of Incident
 - i. Date of Incident: 13/03/2012
 - ii. Date Reported to the DPR:
 - iii. Date/Period of First Investigation: 15/03/2012
 - iv. Date/Period of Second/Subsequent Investigation:
 - v. Cause of Incident (Indicate ✓ where appropriate and X where not applicable)
 - o Corrosion
 - o Equipment Failure
 - o Human Error (Production/Maintenance)
 - o Third Party Interference (BUNKERING)
 - o Mystery Spill
 - o Others (Specify)

Additional description of cause of incident (if any): After excavation, it was observed that a half inch pipe was fitted on the 8" pipeline at 10 P'clock position. The spill occurred as a result of sabotage.

- 6. Coordinates of Spill Point/Location(s): Northing 109225.91m Easting C21925.28m
- 7. Brief Description of Circumstances Around Spill Point(s) (Please indicate containment measures put in place, point of breach along pipeline and any necessary details observed at site. Attach additional sheets if necessary)

8. Delineation of Impacted Area: (Indicate ✓ where appropriate and X where not applicable)

- a) Within company's facilities/ROW
- b) Outside company's facilities/ROW

9. Description of Environment Around Spill Point/Location(s): (Indicate ✓ where appropriate and X where not applicable)

- Land
- Seasonal Swamp
- Swamp
- Coastland
- Inland waters
- Near shore
- Offshore

Please provide a graphic sketch of spill site/leak point (Detailed sketches and maps can be attached where necessary)

Table of Key Coordinates of Mapped Area

S/N	Eastings	Northings
481	521931.46	109232.04
482	521931.46	109232.04
483	521825.25	109232.05
484	521822.21	109232.06
485	521897.57	109232.11
486	521912.97	109232.08
487	521916.06	109235.14
488	521922.22	109235.13

S/N	Eastings	Northings

10. Property Impacted (Provide details) N/A

11. Communities Impacted N/A

a)

b)

c)
d)

e)
f)

12. Estimated Quantity Spilled (bbls): 0.67 BBL
(Please provide below, the methodology used, standards adopted and any assumptions made in the estimate. Where relevant, make brief comments on quantities unaccounted for. Attach and endorse additional sheets if necessary.)

13. Quantity Recovered (As at time of the investigation): NIL

14. Any Photograph or Video Recording? (Provide details): Pictures and video recordings were taken.

15. Additional Comments/Remarks, if any:
Surveillance activities should as a matter of urgency be stepped-up since all spills recorded in the area from 4 quarter of 2011 till date occurred through bunkering.