



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED
JOINT INVESTIGATION REPORT FOR INCIDENT NO: 689543

No. 01591

A. GENERAL INFORMATION:

1. Spill incident Number: 689543
2. Name of Location 10 INCH OGINI-ERIEMU DELIVERY LINE @ OGINI
3. Name of nearest community ELLU AND OYRODE
4. State DELTA LGA ISOKO NORTH
5. Type of Production facility/Installation DELIVERY LINE Asset owner /District PIPELINE

B. INCIDENT INFORMATION:

6. Details of incident

- a. Date of incident 15/07/2011
- b. Date/Period of investigation, 22/07/2011 @ 1550 HRS
- c. Description of spill point environment

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

e. Spill point coordinates

Northing:

Easting:

173969m

430219m



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☒ Land
☐ Swamp
☐ water

☒ Land
☐ Swamp
☐ water

☐ Government reserved and designated protected area [N/L,m]
☐ Drinking water source [N/L,m]
☐ Built up area [N/L,m]
☐ Farmlands [N/L,m]
☐ Fish Farm/Pond [N/L,m]
☐ Fishing net [N/L,m]
☐ Others (specify). [N/L,m]

<input type="checkbox"/> Booms	[Y]	[N]
<input checked="" type="checkbox"/> French	[Y]	[N]
<input type="checkbox"/> Dyke	[Y]	[N]

☐ Others:

11. Was there any disruption to the investigation? [Y] [N]

A. Structures / Properties

S/N	Type of Structures	Description	Size	Number	Comments
					NONE WITHIN AREA OF IMPACT



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B. Crops/Economic Trees

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

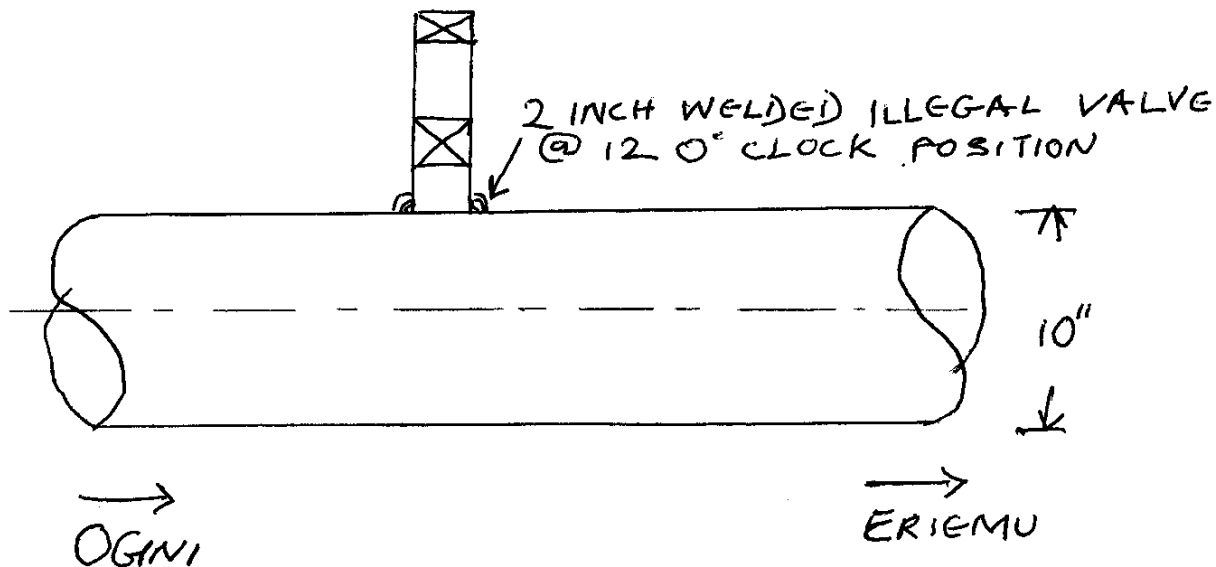
C. Fish/Nets/Ponds

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
		NOTICE WITHIN AREA OF IMPACT		

E. GRAPHIC DESCRIPTION OF LEAK POINT (Details should be contained in leak repair report)





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E. Coordinates

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G. INCIDENT INFORMATION:

17 Impacted Area Details

- a. Total calculated area of impact 9.5 m²
- Impact within SPDC R.O.W 9.5 m²
 - Impact outside R.O.W NIL

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 _____
- ii. Average Depth (m) of pool of free phase oil _____
- iii.

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

iv.

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

- i Area (m²) covered by the oil: 9.5 m²
- ii Average Depth (m) below ground surface of infiltration of oil: 0.01 m
- iii Soil type: LATERITE
- iv. p_e (effective porosity of the soil): 20%

v.

Volume of infiltrated oil. V_{in}: 0.12 barrels

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

	Thickness (mm)	Percentage coverage	Volume (m3)
Barely Visible	0.00004		
Silvery	0.00008		
Slight Colour	0.00015		
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)



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Volume of oil on open water V_{wat} :

NIL

barrels

21. Calculation of evaporated volume:

i. Oil type: Bonny Medium

ii. E-Factor: 15%

iii.

Volume of evaporated oil V_{vap} :

0.02

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 $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$

$V_{Est}(bbls) =$ 0.14 BBLs

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

$V_{Est}(bbls) =$ 0.14 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 22/07/2011 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

DPR WAS INFORMED/INVITED BUT COULD NOT PARTICIPATE IN THE VISIT.