

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0260 822915

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

**A. GENERAL INFORMATION:**

1. Spill incident Number: 822915 2. Type of incident \* OIL SPILL  
 3. Name of Location 18" ASSA - RUMUEKPE PIPELINE  
 4. Name of nearest community DMUDIOGA 5. State: RIVERS 6. LGA EMOHUA  
 7. Type of Production facility/Installation OIL PIPELINE 8. Asset owner/ District NPE/ EGBEMA

**B. INCIDENT INFORMATION:**

**9. Details of incident**

- a. Date of incident: 3RD JUNE, 2012.  
 b. Start date/time of investigation: 7TH JUNE, 2012.  
 c. Investigation End date: 7TH JUNE, 2012.  
 d. Description of spill point environment  
 Firmed soil  Loose soil  Previously excavated area  
 Under water  Swampy  Exposed pipe surface  
 Well Platform (on Water)  Rig  
 e. Description of leak point (tick as applicable);  
 Drilled hole  Hack saw cut  Explosive tear,  
 Complete Rupture  Inward dent,  Well head tampering  
 Failed Weld-on illegal hot tap valve,  Missing Pipeline/Flowline)  
 Crude oil theft (illegal) bunkering) point,  Third party tampering with Clamp  
 Third party tampering with valve setting,  Third party tampering with flange,  
 Corrosion  Saver-pit over flow,  Surge vessel overflow  
 Outward dent  Flare System/Bund wall failure  
 Valve Failure  com unit failure  Cold vent  
 Relief valve failure  Others (specify) \_\_\_\_\_  
 f. Incident caused by:  
 Third party interference  Operational  Mystery \_\_\_\_\_

**g. Spill point coordinates**

Measuring unit Meter (MID-BELT) MINNA.

Northing:  <u>128099.07</u>	Easting:  <u>476563.32</u>
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**C. RISK ASSESSMENT**

10. Type of environment:

- Land       Swamp       Water       Seasonal swamp

i. Type of environment to which oil has spread:

- Land       Swamp       Water       River (identify) \_\_\_\_\_

ii. Weather condition

- Raining       Sunny

11. 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). **PALM TREE PLANTATION**      2 m

12. Containment measures put in place;

- Booms       Trench       Dyke

Others: \_\_\_\_\_

13. Any pictures or video coverage?      [Y]  [N]

14. 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.**

15. Structures / Properties

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

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16. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Maured	Quantity	Comments
NONE WITHIN AREA OF IMPACT						

17. Fish/Nets/Ponds

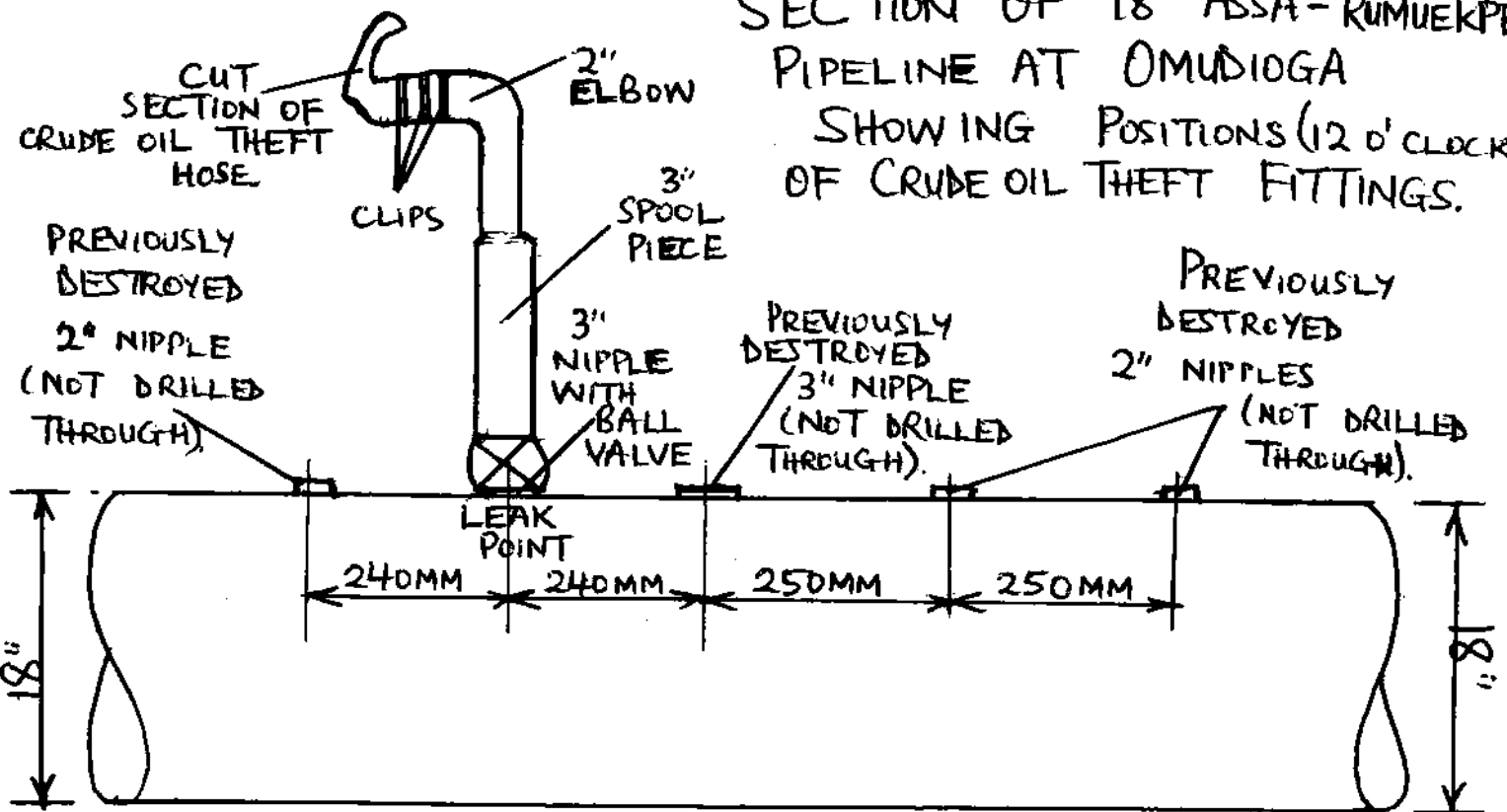
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT.				

18. Others (Specify) i.e. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT.				

E. GRAPHIC DESCRIPTION OF LEAK POINT *While detail report of the leak point should be contained in the Leak report, overview sketch of the site should be added as an appendix 1)*

SECTION OF '18" ASSA-RUMUEKPE PIPELINE AT OMUDIAGA SHOWING POSITIONS (12 O'CLOCK) OF CRUDE OIL THEFT FITTINGS.





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iii. Emulsification factor: NIL

iv. 

Volume of pool of free phase oil. $V_{pool}$	<u>0.5</u>	barrels
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b. Computation of volume of infiltrated oil in the soil ( $V_{inf}$ ).

- i Area \*(m<sup>2</sup>) covered by the oil: 196
- ii Area of the pool of free phase oil in touch with soil: 2
- iii Average Depth (m) below ground surface of infiltration of oil: 0.01
- iv Soil type: CLAY
- v  $P_c$  (effective porosity of the soil): 8%

iv. 

Volume of infiltrated oil. $V_{inf}$	<u>1</u>	barrels
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21. Computation of volume of oil on open water based on standard coloration.

- i. Total area of oil on open water: NIL
- ii. Table of average depth of oil on water based on coloration\*\*

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

iii. 

Volume of oil on open water. $V_{wat}$	<u>NIL</u>	barrels
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22. Calculation of evaporated volume:

- i. Oil type: BONNY LIGHT
- ii. E-Factor: 25%

iii. 

Volume of evaporated oil. $V_{evap}$	<u>0.5</u>	barrels
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Evaporation Factors (E-Factor) for SPDC Crude oil			
Oil Type	Days on site	Bonny Light	Bonny Medium
Period Since Oil Spill	< 1 day	10%	5%
	1-7 days	25%	15%
	> 7 days	40%	25%

\*If area is not same as the total area of impact, please indicate in the overview sketch  
 \*\* Spill Factor from USCG FOG (2000 Edition)

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<b>23. Gross Total Estimated Spilled Volume</b>	
$V_{Est}(bbls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recj}(bbls)$	$= 0.5 + NIL + 1 + 0.5 + NIL = 2$
$V_{Est}(bbls) =$	<b>2 BARRELS</b>
<b>24. Net Total Estimated Spilled Volume</b>	
$V_{Est}(bbls) = V_{evap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recj}(bbls) + NIL$	$= 0.5 + NIL + 1 + 0.5 + NIL = 2$
$V_{Est}(bbls) =$	<b>2 BARRELS.</b>

\*Calculation of the respective estimated volume is to be done on site as far as practicable using the new spill volume estimation software on site

\*Conversion of m3 to barrels is Total volume VT (m3) x 6.29

\*Emulsification factor for spill on water to consider is 60% of volume of oil.

**25. GENERAL STATUS OF THE SITE**

A. Joint investigation of the incident site found that there is no residual impact after the initial response and therefore recommend that the site be closed out <input type="checkbox"/>
B. Investigation of the incident site showed that there is residual impact on site requiring further works <input checked="" type="checkbox"/>

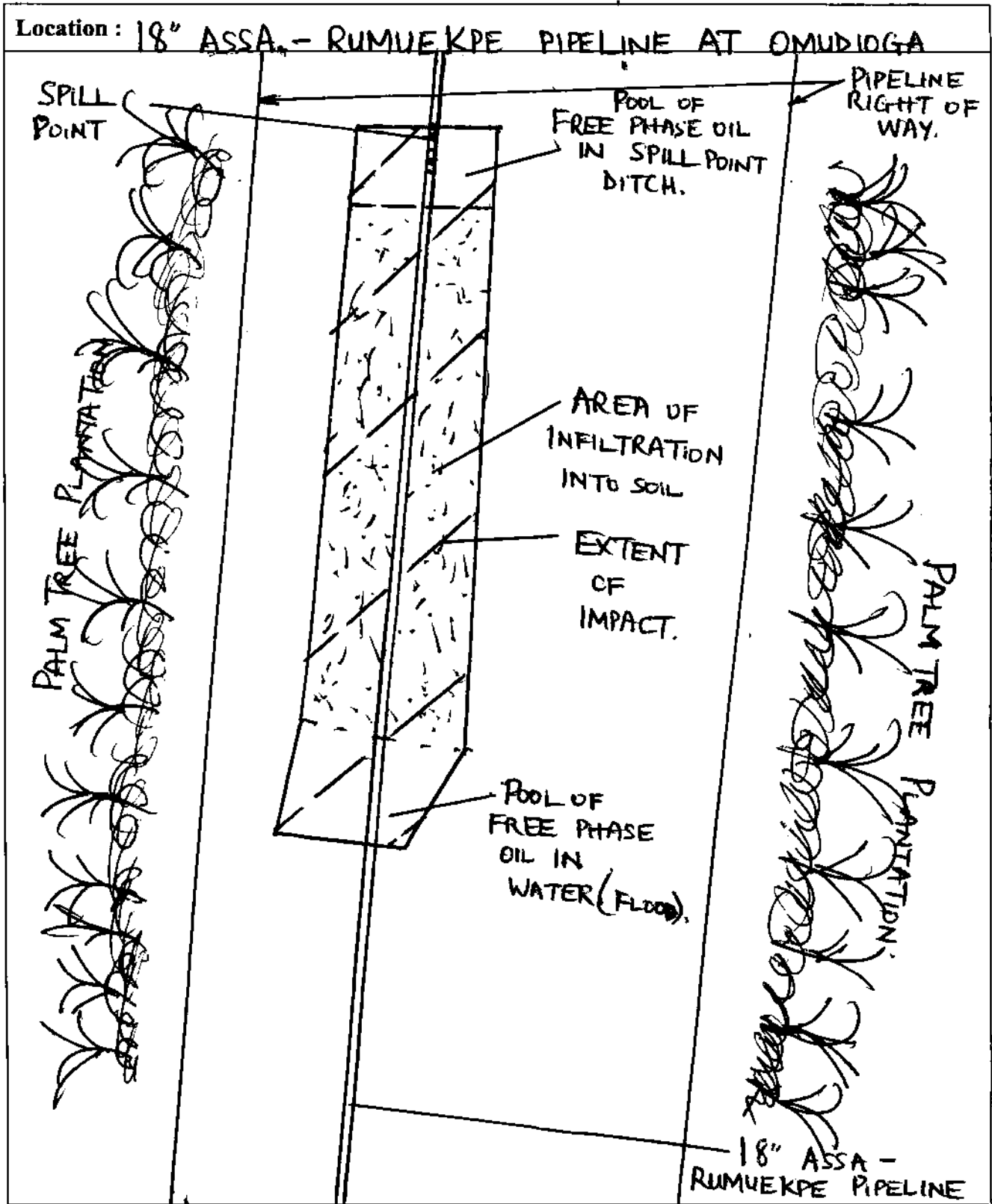
**26 REPRESENTATIVES**

This report was filed and signed on the **07/06/2012** at incident site by joint investigation representatives from

- Host Community
- Department of Petroleum Resources [DPR]:  **DPR INCIDENT INVESTIGATION 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*

27. Appendix 1: Overview sketch of the site









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: SPDC
- 2. Incident Serial Number: 822915
- 3. Name of Location/Facility: 18" ASSA/RUMUEKPE TRUNKLINE @ UMUDIOGA, EMETHA LGA, RIVERS STATE

4. Type of Incident: (Indicate ✓ where appropriate and X where not applicable)

- Crude Oil Spill
- Product Spill (Specify)
- Drilling Mud/Chemicals Spill
- Fire
- Others (specify)

5. Details of Incident

- i. Date of Incident: 03/06/2012
- ii. Date Reported to the DPR:
- iii. Date/Period of First Investigation: 07/06/2012
- iv. Date/Period of Second/Subsequent Investigation:
- v. Cause of Incident (Indicate ✓ where appropriate and X where not applicable)
  - Corrosion
  - Equipment Failure
  - Human Error (Production/Maintenance)
  - Third Party Interference
  - Mystery Spill
  - Others (Specify)

Additional description of cause of incident (if any): A failed weld-on illegal hot tap valve was sighted on the 18" pipeline at 12 O'clock position.

- 6. Coordinates of Spill Point/Location(s): Northing 128099.07 Easting 476563.02
- 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
P1	128099.08	476560.24
P2	128099.06	476566.40
P3	128074.50	476560.17
P4	128071.43	476557.08
P5	128073.06	476552.33
P6	128077.00	476554.02

S/N	Eastings	Northings

10. **Property Impacted** (Provide details) N/A

11. **Communities Impacted** N/A

a)

b)

c)  
d)

e)

2 BBLs

12. Estimated Quantity Spilled (bbls): ~~2 BBLs~~ 2 BBLs  
(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): 1.5 BBLs

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

15. Additional Comments/Remarks, if any:  
The leak point has previously been encased. A 3" nipple with ball valve, fitted with a 2" elbow was ~~previously~~ fitted on the leak point. 3 (2") nipples (not drilled through) and 2 (3") nipples (not drilled through), 250mm apart from one another were also fitted. The spill occurred as a result of loose or that [unclear].