

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0118 724785

(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: 724785 2. Type of incident\* SPILL  
 3. Name of Location 12<sup>th</sup> EGBEMA - OGUTA PIPELINE  
 4. Name of nearest community EZIOBU 5. State: IMO 6. LGA OGUTA  
 7. Type of Production facility/Installation OIL PIPELINE 8. Asset owner/District NESP

**B. INCIDENT INFORMATION:**

9. Details of incident

- a. Date of incident: 8<sup>th</sup> OCTOBER 2011  
 b. Date/Period of investigation: 13<sup>th</sup> OCTOBER 2011

c. Description of spill point environment

- Firmed soil  Loose soil  Previously excavated area  
 Under water  Swampy  Exposed pipe surface  
 Well Platform (on Water)  Rig

d. 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,  
 External Corrosion  Internal 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) \_\_\_\_\_

e. Incident due to:

- Third party interference  Operational  Others (specify) \_\_\_\_\_

f. Spill point coordinates

|                   |  |                       |  |
|-------------------|--|-----------------------|--|
| Measuring unit    |  | <u>MINNA MID BELT</u> |  |
| Northing:         |  | Easting:              |  |
| <u>182039.64m</u> |  | <u>477141.39m</u>     |  |

\*This can be: a) Oil Spill b) Drilling fluid/Chemical c) Siltation d) construction e) Encroachment f) Fire,

**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0118724785

**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 [ Nil ,m]
- Drinking water source [ 112m,m]
- Built up area [ Nil ,m]
- Farmlands [ Nil ,m]
- Fish Farm/Pond [ Nil ,m]
- Fishing net [ Nil ,m]
- Others (specify). [ Nil ,m]

12. Containment measures put in place;

- Booms       Trench       Dyke

Others: NATURAL DEPRESSION

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

14. 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**

15. Structures / Properties

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

**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0118 724785

16. Crops/Economic Trees

| S/N | Type of crops       | Young | Medium       | Matured      | Quantity      | Comments     |
|-----|---------------------|-------|--------------|--------------|---------------|--------------|
|     | PLANTAIN            |       |              | ✓            | 15            |              |
|     | PINEAPPLE           |       | ✓            |              | 10            |              |
|     | <del>PLANTAIN</del> |       | <del>✓</del> | <del>✓</del> | <del>15</del> | <del>✓</del> |

17. Fish/Nets/Ponds

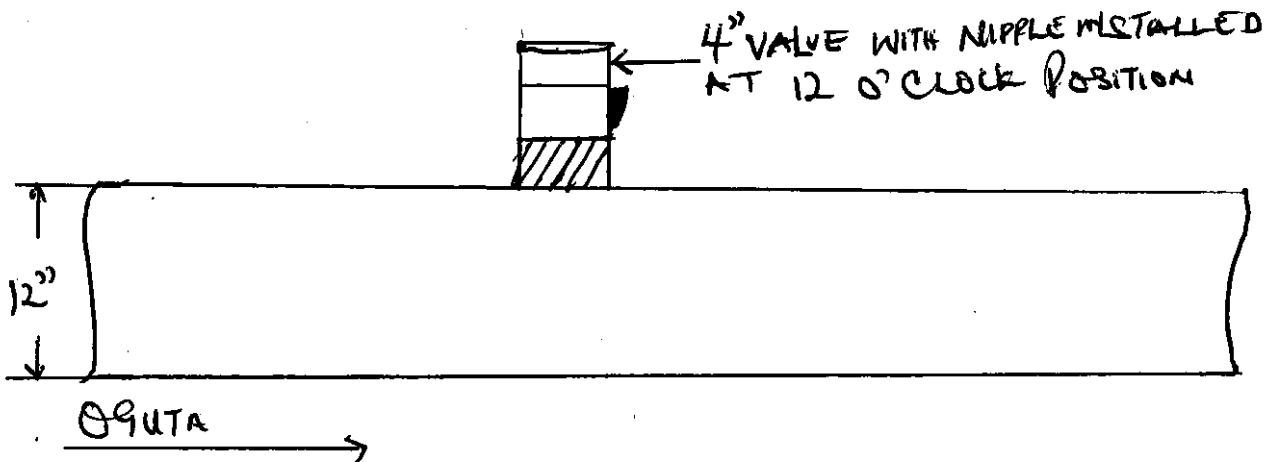
| S/N | Fish/Nets/Ponds | Description                | Quantity/Size | Comments |
|-----|-----------------|----------------------------|---------------|----------|
|     |                 | NONE WITHIN AREA OF IMPACT |               |          |

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** (Overview sketch of the site should be added as an appendix 1)

A SECTION OF 12" EGBEMA-OGUTA PIPELINE AT EZIOSU SHOWING BUNKERING POINT AT 12 O'CLOCK POSITION





**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0118 724785

b. Computation of volume of infiltrated oil in the soil ( $V_{inf}$ ).

- i. Area ( $m^2$ ) covered by the oil: 100
- ii. Area of the pool of free phase oil in touch with soil: NIL
- iii. Average Depth (m) below ground surface of infiltration of oil: 0.005
- iv. Soil type: CLAY
- v.  $P_e$  (effective porosity of the soil): 8%

|  |             |         |
|--|-------------|---------|
| iv. Volume of infiltrated oil. $V_{inf}$ | <u>0.25</u> | barrels |
|--|-------------|---------|

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        | <u>NOT APPLICABLE</u> |                             |
| Silvery            | 0.00008        |                       |                             |
| Slight Color       | 0.00015        |                       |                             |
| Bright Color       | 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 |

|   |            |         |
|---|------------|---------|
| iii. Volume of oil on open water. $V_{wat}$ | <u>NIL</u> | barrels |
|---|------------|---------|

22. Calculation of evaporated volume:

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

|   |             |         |
|---|-------------|---------|
| iii. Volume of evaporated oil. $V_{evap}$ | <u>0.05</u> | barrels |
|---|-------------|---------|

| 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%          |

23. Gross Total Estimated Spilled Volume  $V_{Est}(bbls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 0.05 + NIL + 0.25 + NIL + NIL = 0.3 \text{ barrels}$

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO:

0.118 724785

|   |
|---|
| $V_{Est}(bbls) = 0.3 \text{ BARREL}$  |
| 24. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls) = 0.05 + Nil + 0.25 + Nil + Nil =$ |
| $V_{Est}(bbls) = 0.3 \text{ BARREL}$  |

\*Calculation of the respective estimated volume is to be done using the new spill 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 Signatories

|   |
|---|
| This report was filled and signed on the <u>13/10/2011</u> at incident site by joint investigation representatives from   |
| <ul style="list-style-type: none"><li>• Host Community <input checked="" type="checkbox"/></li><li>• Department of Petroleum Resources [DPR]: <input checked="" type="checkbox"/></li><li>• National Oil Spill Detection and Response Agency [NOSDRA]: <input checked="" type="checkbox"/></li><li>• State Ministry of Environment [SME]: <input checked="" type="checkbox"/></li><li>• Nigeria Police Force [NPF]: <input checked="" type="checkbox"/></li><li>• Shell Petroleum Development Company [SPDC]: <input checked="" type="checkbox"/></li></ul> |
| <i>Tick as applicable</i>   |

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0118724785

20. Appendix 1: Overview sketch of the site

