

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

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0090

(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: 864306      2. Type of incident\* OIL SPILL  
 3. Name of Location BENISEDE WELL 15  
 4. Name of nearest community OJOB0      5. State: BAYELSA 6. LGA BURUTU  
 7. Type of Production facility/Installation WELL HEAD      8. Asset owner/District NWS2

**B. INCIDENT INFORMATION:**

9. Details of incident

- a. Date of incident: 03/09/2012  
 b. Date/Period of investigation: 12/09/2012 AT 12:14 HRS  
 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	
Northing:  <p style="text-align: center; font-size: 1.5em;">111138<sub>m</sub></p>	Easting:  <p style="text-align: center; font-size: 1.5em;">362474<sub>m</sub></p>

\*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: 0099 864306

**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). [      ,m]

12. Containment measures put in place;

- Booms       Trench       Dyke

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

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

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

If yes give brief description:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**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
	NONE WITHIN AREA OF IMPACT				

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

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 009° 864306

16. Crops/Economic Trees

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

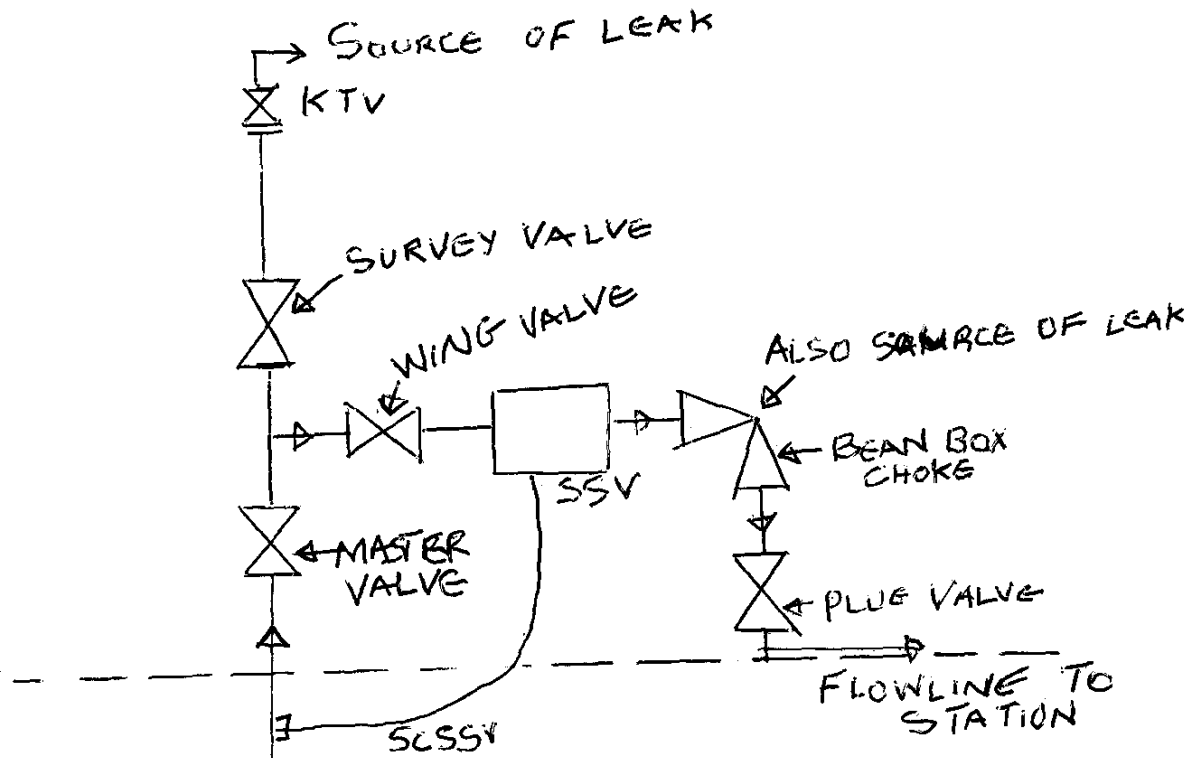
17. Fish/Nets/Ponds

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



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

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0099 864306

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

19. Impacted area boundary Coordinates (If more than 12 points, Attach as an appendix 2)

S/N	Northing	Easting
SP	111138	362474
	111148	362468
	111142	362474
	111136	362468
	111139	362462
	111145	362463
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**G. INCIDENT INFORMATION:**

20. Impacted Area Details

- Total calculated area of impact 113.14 m<sup>2</sup>
- Impact within SPDC R.O.W 113.14 m<sup>2</sup>
- Impact outside R.O.W NIL

21. Volume of oil recovered before completion of JIV (V<sub>rec</sub>):

Recovered oil V <sub>rec</sub> :	<u>NIL</u>	barrels
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20. Computation of the residual volume on site

- a. Computation of volume of pool of free phase oil (on land or confined water body).
- i. Area (m<sup>2</sup>) occupied by pool of free phase oil NIL
  - ii. Average Depth (m) of pool of free phase oil NOT APPLICABLE
  - iii. Emulsification factor: NOT APPLICABLE

iv. Volume of pool of free phase oil. V <sub>pool</sub> :	<u>NIL</u>	barrels
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**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0099 864306

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

- i. Area ( $m^2$ ) covered by the oil: NIL
- 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: NOT APPLICABLE
- iv. Soil type: NOT APPLICABLE
- v.  $P_e$  (effective porosity of the soil): NOT APPLICABLE

iv. Volume of infiltrated oil. $V_{inf}$	<u>NIL</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: 113.14  $m^2$
- ii. Table of average depth of oil on water based on coloration \*

	Thickness (mm)	Percentage coverage	Volume ( $m^3$ )
Barely Visible	0.00004	/	/
Silvery	0.00008	/	/
Slight Color	0.00015	/	/
Bright Color	0.0003	<u>70%</u>	<u>0.0000237594</u>
Dull	0.001	<u>30%</u>	<u>0.000033942</u>
Dark	0.002	/	/
Black oil	0.1	/	/
Emulsion (30% Oil)	1	/	/
Percent Total		100%	Total Volume <u>0.00 <math>m^3</math></u>

iii. Volume of oil on open water. $V_{wat}$	<u>0.00</u>	barrels
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22. Calculation of evaporated volume:

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

iii. Volume of evaporated oil. $V_{evap}$	<u>0.00</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%

23. **Gross Total Estimated Spilled Volume**  $V_{Est}(bbls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{rec}(bbls)$

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 009864306

$V_{Est}(bbls) = 0.0005 \text{ BBLs}$
24. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recf}(bbls)$
$V_{Est}(bbls) = 0.0003 \text{ BBLs}$

\*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 checked="" type="checkbox"/>
B. Investigation of the incident site showed that there is residual impact on site requiring further works <input type="checkbox"/>

26 Signatories

This report was filled and signed on the <u>12/09/2012</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>

20. Appendix 1: Overview sketch of the site

