A. GENERAL INFORMATION:

1. Spill incident Number: 632853

2. Name of Location: BRIAN FLOW STATION

3. Name of nearest community: BRIAN

4. State: DELTA
   LGA: PAAPRI
   SOUTH WEST

5. Type of Production facility/Installation: FLOW STATION
   Asset owner /District: NWSA

B. INCIDENT INFORMATION:

6. Details of incident
   a. Date of incident: 04/03/2011 at 9:00 AM
   b. Date/Period of investigation: 11/03/2011
   c. Description of spill point environment
      - Firmed soil: [Y]
      - Loose soil: [Y]
      - Previously excavated area: [Y]
      - Under water: [Y]
      - Swampy: [Y]
      - Exposed pipe surface: [Y]
   d. Description of leak point (tick as applicable):
      - Drilled hole: [Y]
      - Hack saw cut: [Y]
      - Explosive tear: [Y]
      - Complete Rupture: [Y]
      - Inward dent: [Y]
      - Well head tampering: [Y]
      - Failed Weld-on illegal hot tap valve: [Y]
      - Missing pipeline (flowline): [Y]
      - Crude oil theft (illegal bunkering) point: [Y]
      - Third party tampering with Clamp Bolt/Nut: [Y]
      - Third party tampering with valve setting: [Y]
      - Third party tampering with flange Nuts/bolts: [Y]
      - Corrosion: [Y]
      - Type: [Y]
      - Saver-pit over flow: [Y]
      - Surge vessel overflow: [Y]
      - Outward dent: [Y]
      - Others (specify): [Y]

   e. Spill point coordinates
      - Northing: 169581 mN
      - Easting: 3458258 mE

Page 1 of 7
C. RISK/DAMAGE ASSESSMENT

7. Type of environment of spill site:

- [ ] Land
- [x] Swamp
- [ ] Water

Type of environment of which oil has spread:

- [ ] Land
- [ ] Swamp
- [x] Water (Presence / Spills in the Environment: [INLAND / OFFSHORE])

8. Distance from the nearest sensitive habitat:

- [ ] Government reserved and designated protected area [ ] m
- [ ] Drinking water source [ ] m
- [ ] Built up area [100] m
- [ ] Farmlands [ ] m
- [ ] Fish Farm/Pond [ ] m
- [ ] Fishing net [ ] m
- [ ] Others (specify) [ ] m

9. Containment measures put in place:

- [x] Booms [N]
- [ ] Trench [Y] [N]
- [ ] Dyke [Y] [N]

- [ ] Others: ____________________________

10. Any pictures or video coverage? [x] [N]

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

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

<table>
<thead>
<tr>
<th>S/N</th>
<th>Type of Structures</th>
<th>Description</th>
<th>Size</th>
<th>Number</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN</td>
<td>AREA</td>
<td>OF IMPACT</td>
<td></td>
</tr>
</tbody>
</table>

Page 2 of 7
### B. Crops/Economic Trees

<table>
<thead>
<tr>
<th>S/N</th>
<th>Types of crops</th>
<th>Young</th>
<th>Medium</th>
<th>Matured</th>
<th>Quantity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN</td>
<td>AREA</td>
<td>OF IMPACT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### C. Fish/Nets/Ponds

<table>
<thead>
<tr>
<th>S/N</th>
<th>Fish/Nets/Ponds</th>
<th>Description</th>
<th>Quantity/Size</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN AREA OF IMPACT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### D. Others (Specify) i.e. Animal Traps

<table>
<thead>
<tr>
<th>S/N</th>
<th>Others</th>
<th>Description</th>
<th>Quantity/Size</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN AREA OF IMPACT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

![Diagram of leak point]
F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION

<table>
<thead>
<tr>
<th>S/N</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>169581</td>
<td>345828 SILL POINT</td>
</tr>
<tr>
<td>2</td>
<td>169643</td>
<td>345881</td>
</tr>
<tr>
<td>3</td>
<td>169614</td>
<td>345882 (BOOM)</td>
</tr>
<tr>
<td>4</td>
<td>169615</td>
<td>345914</td>
</tr>
</tbody>
</table>
G. INCIDENT INFORMATION:

17 Impacted Area Details

a. Total calculated area of impact:
   - Impact within SPDC R.O.W. **NIL (NO IMPACT)**
   - Impact outside R.O.W. **NIL (NO IMPACT)**

18 Volume of oil recovered before completion of JIV (V_{rej}):
   - Recovered oil V_{rej} **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):
      - Area (m^2) occupied by pool of free phase oil **NIL**
      - Average Depth (m) of pool of free phase oil
      - Volume of pooled of free phase oil, V_{pool} **NIL** barrels

   b. Computation of volume of infiltrated oil in the soil (V_3):
      - Area (m^2) covered by the oil: **NOT APPLICABLE**
      - Average Depth (m) below ground surface of infiltration of oil:
      - Soil type:
      - \( \rho \) (effective porosity of the soil):

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

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>Percentage coverage</th>
<th>Volume (m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barely Visible</td>
<td>0.000004</td>
<td></td>
</tr>
<tr>
<td>Silvery</td>
<td>0.000008</td>
<td></td>
</tr>
<tr>
<td>Slight Colour</td>
<td>0.00015</td>
<td></td>
</tr>
<tr>
<td>Bright Colour</td>
<td>0.0003</td>
<td></td>
</tr>
<tr>
<td>Dull</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Dark</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Black oil</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Emulsion (30% Oil)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Percent Total: 100%
Total Volume: bbl

**ESTIMATING BY METER READING AND DAILY PRODUCTION:**

- 24 HRS PRODUCTION READING FROM METER (ABOUT 21,810BBL)
- MINUS METER READING AFTER INCIDENT (ABOUT 21,143.68BBL)
- EQUALS DEFERMENT (ABOUT 386.52BBL)

21. Calculation of evaporated volume:
   
   i. Oil type: 
   ii. E-Factor: 
   iii. Volume of evaporated oil, $V_{ev}$:

<table>
<thead>
<tr>
<th>Oil Type</th>
<th>Bonny Light</th>
<th>Bonny Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Factor</td>
<td>E-Factor</td>
<td></td>
</tr>
<tr>
<td>&lt;1 day</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>1-7 days</td>
<td>25%</td>
<td>15%</td>
</tr>
<tr>
<td>&gt;7 days</td>
<td>40%</td>
<td>25%</td>
</tr>
</tbody>
</table>

9. Gross Total Estimated Spilled Volume $V_{est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{ev}(bbls)$

$V_{est}(bbls) = \boxed{3 \text{ bbls}}$

10. Net Total Estimated Spilled Volume $V_{net}(bbls) = V_{vap}(bbls) + 0.6\times V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{ev}(bbls)$

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) x 6.29
Emulsification factor for spill on water to consider is 60% of volume of oil.

This report was filled and signed on the 11/03/2011 at incident site by joint investigation representative from:
- 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]: [✓]