

JOINT INVESTIGATION REPORT

INCIDENT NO: 1474132 JIV report S/N: Nº 0000358

(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: 1474132 2. Type of incident* OIL SPILL
3. Name of Location 20" OPUKUSHI - BRASS CREEK PIPELINE
4. Name of nearest community TAMOGBENE s. State: BAYELSA 6. LGA EKEREMOR
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 29TH AUGUST, 2015
b. Start date/time of investigation: 6TH SEPTEMBER, 2015 AT 1515 HRS
c. Investigation End date: 6TH SEPT. 2015 Actual investigation duration, days: ONE DAY
d. Description of spill point environment

- | | | |
|---|--|--|
| <input type="checkbox"/> Firm soil | <input type="checkbox"/> Loose soil | <input type="checkbox"/> Recently excavated area |
| <input type="checkbox"/> Under water | <input checked="" type="checkbox"/> Swampy | <input type="checkbox"/> Exposed pipe surface |
| <input type="checkbox"/> Well Platform (on Water) | <input type="checkbox"/> Drill Rig | |

Additional observations around the spill point: ON EXCAVATION, A 4" FAILED ILLEGAL HOT TAP VALVE WAS OBSERVED WELDED ON THE 20" OPUKUSHI-BRASS CREEK PIPELINE AT 12 O'CLOCK POSITION. THE LEAK WAS OBSERVED TO HAVE STOPPED AT THE TIME THE JIT GOT TO SITE.

e. Description of leak point (tick as applicable):

- | | | |
|--|---|--|
| <input type="checkbox"/> Drilled hole | <input type="checkbox"/> Hack saw cut | <input type="checkbox"/> Tear (_____). |
| <input type="checkbox"/> Complete Rupture | <input type="checkbox"/> Inward dent, | <input type="checkbox"/> Well head tampering |
| <input checked="" type="checkbox"/> Failed Weld-on illegal hot tap valve | <input type="checkbox"/> Failed Clamp, | <input type="checkbox"/> Missing Pipeline/Flowline |
| <input checked="" type="checkbox"/> Crude oil theft (illegal bunkering) point, | <input type="checkbox"/> Saver-pit over flow | <input type="checkbox"/> Third party tampering with Clamp |
| <input type="checkbox"/> Third party tampering with valve setting | <input type="checkbox"/> Bulging Outward | <input type="checkbox"/> Third party tampering with flange, |
| <input type="checkbox"/> Flare System/Bund wall failure | <input type="checkbox"/> Cold vent | <input type="checkbox"/> Surge vessel overflow, |
| <input type="checkbox"/> Valve Failure | <input type="checkbox"/> Relief valve failure | <input type="checkbox"/> Accidental 3 rd party equipment impact |
| <input type="checkbox"/> Others(specify) _____ | | |

f. Incident caused by:

- Third party interference (Sabotage ; crude theft ; Line theft ; Accidental 3rd party damage
 Operational Others (including Mystery spills) _____

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

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g. Spill point coordinates

h. Measuring unit

WGS 84 (DECIMAL-DEGREE)

| Northing: <u>(Latitude)</u> | Easting: <u>(Longitude)</u> |
|-----------------------------|-----------------------------|
| 00 | 00 |
| 04 56 | 00 00 |
| <u>4.937222</u> | <u>5.707278</u> |

C. RISK ASSESSMENT

10. Type of environment:

- Land
 Swamp
 Water
 Seasonal swamp
 Shoreline/Waterfront

i. Type of environment to which oil has spread:

- Land
 Swamp
 Water
 River (identify) _____

ii. Weather condition

- Rain
 Sunny
 Dry
 Wet
 Windy
 Hot
 Cool

11. Distance from the nearest sensitive habitat

- | | | |
|--|---|-----|
| <input type="checkbox"/> Government reserved and designated protected area | [| .m] |
| <input type="checkbox"/> Drinking water source | [| .m] |
| <input type="checkbox"/> Built up area | [| .m] |
| <input type="checkbox"/> Farmlands | [| .m] |
| <input type="checkbox"/> Fish Farm/Pond | [| .m] |
| <input type="checkbox"/> Fishing net | [| .m] |
| <input type="checkbox"/> Others (specify). | [| .m] |

} NONE WITHIN THE VICINITY

12. Containment measures put in place:

- Booms
 Trench
 Dyke
 Natural depression
 Pit
 None

Others: COFFER-DAM

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

14. Further response/repair initiated as at the time of JIV? [Y] [N]

If yes to item 14, give brief description:

NOT APPLICABLE

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

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If yes to item 15 give brief description: NOT APPLICABLE

D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL

16. Structures / Properties

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

17. Crops/Economic Trees

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

18. Fishing Nets/Fish Ponds

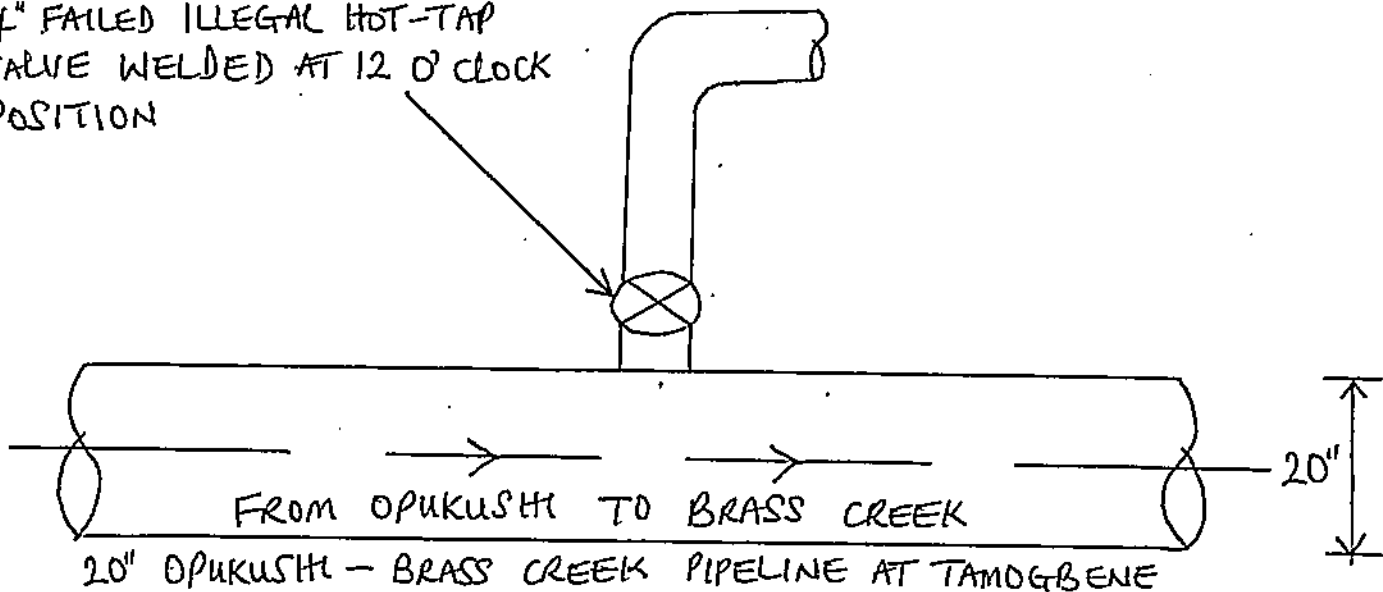
| S/N | Nets/Ponds | Description | Quantity/Size | Comments |
|-----|----------------------------|-------------|---------------|----------|
| | NONE WITHIN AREA OF IMPACT | | | |

19. 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)

4" FAILED ILLEGAL HOT-TAP
VALVE WELDED AT 12 O' CLOCK
POSITION



20" OPUKUSHI - BRASS CREEK PIPELINE AT TAMOGBENE

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

20. Impacted area boundary Coordinates (If more, Print and attach as an appendix)

WGS 84 (DECIMAL DEGREE)

| S/N | Northing | Easting |
|-----|-----------|-----------|
| 1. | 4.93725° | 5.707333° |
| 2. | 4.937139° | 5.707361° |
| 3. | 4.937111° | 5.707417° |
| 4. | 4.937132° | 5.70717° |
| 5. | 4.937194 | 5.706861° |
| 6. | 4.937222° | 5.706945° |
| 7. | 4.937237° | 5.70724° |
| 8. | 4.937237° | 5.707296° |
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06/09/2015

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.05 Ha.
- Impact within R.O.W YES
- Impact outside R.O.W NO

b. Volume of oil recovered before completion of JIV (V_{rec}):

| | | |
|---------------------------|-----|---------|
| Recovered oil V_{rec} : | NIL | Barrels |
|---------------------------|-----|---------|

Controlled recovery/evacuation from source with no impact to environment:

| | |
|-----|---------|
| NIL | Barrels |
|-----|---------|

c. Net Estimated Spilled Volume V_{Est} (bbls)* =

2.94 BBLS

Estimated Reported Volume V_{rep} (bbls) =**

3 BBLS

***Notes:**

- Volume estimation was done using an excel based tool. (see attached for details on the calculation)
- Reported spilled volume is an estimate

Write other relevant notes taken into consideration for estimating the spilled in the box below:

NOT APPLICABLE

*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 Volume (m³) x 6.29; **Round up estimated volume to next whole number using the following rules:*

- Any spill volume in excess of 1 bbl is rounded up to the next whole number.
- Any spill volume in less than 1 bbl is rounded up to the next 0.1 bbl.

*Examples: Calculated volume = 15.3 bbl ----- Reported volume = 16 bbl
 Calculated volume = 0.35 bbl ----- Reported volume = 0.4 bbl
 Calculated volume = 0.01 bbl ----- Reported volume = 0.1 bbl*

Wherever this estimation tool is not applicable please refer to paragraph 6c (Deviations) of the JIV procedure to use appropriate steps for volume estimation; record the calculation in a plain sheet of paper and attach to the JIV report.

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d. General Status of the site

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

e. Representatives

This report was filled, agreed and signed by the following joint investigation team representatives:

- Host Community:
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Asset Owner:
- Signatories agree with reported findings:
- Separate DPR form has been filled out with same findings

Tick as applicable

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f. Appendix 1: Overview sketch of the site

