

JOINT INVESTIGATION REPORT

INCIDENT NO: 2076704 JIV report S/N: 1053-

(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: 2076704 2. Type of incident* OIL SPILL
3. Name of Location OKORDIA MANIFOLD
4. Name of nearest community IKARAMA 5. State: BAYELSA 6. LGA YENAGOA
7. Type of Production facility/Installation MANIFOLD
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 11TH MAY, 2018
b. Start date/time of investigation: 12TH MAY, 2018
c. Investigation End date: 12TH MAY 2018 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 type="checkbox"/> Swampy | <input checked="" type="checkbox"/> Exposed pipe surface |
| <input type="checkbox"/> Well Platform (on Water) | <input type="checkbox"/> Drill Rig | |

Additional observations around the spill point:

NOT APPLICABLE

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 type="checkbox"/> Failed Weld-on illegal hot tap valve | <input type="checkbox"/> Failed Clamp, | <input type="checkbox"/> Missing Pipeline/Flowline |
| <input 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"/> Corrosion | <input checked="" type="checkbox"/> Others(specify) <u>THIRD PARTY TAMPERING WITH</u> | |
- f. Incident caused by:
 Third party interference (Sabotage ; crude theft ; Line theft ; Accidental 3rd party damage
 Operational Mystery spills Others(specify) _____

*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

| Northing: | Easting: |
|-----------|-----------|
| LATITUDE | LONGITUDE |
| 5.15431 | 6.45214 |
| / | / |
| / | / |

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

- Government reserved and designated protected area
- Drinking water source
- Built up area
- Farmlands
- Fish Farm/pond
- Fishing net
- Others (specify).

[,m] } NONE SEEN
 [,m] }
 [,m] } WITHIN
 [,m] } VICINITY.
 [,m] }

12. Containment measures put in place;

- Booms
 Trench
 Dyke
 Natural depression
 Pit
 None
 Others: _____

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:

RECOVERY AND REPAIR WORK ARE ON-GOING.

15. Was there any disruption to the investigation?

[Y] [N]

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If yes to item 15 give brief description:

NOI 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

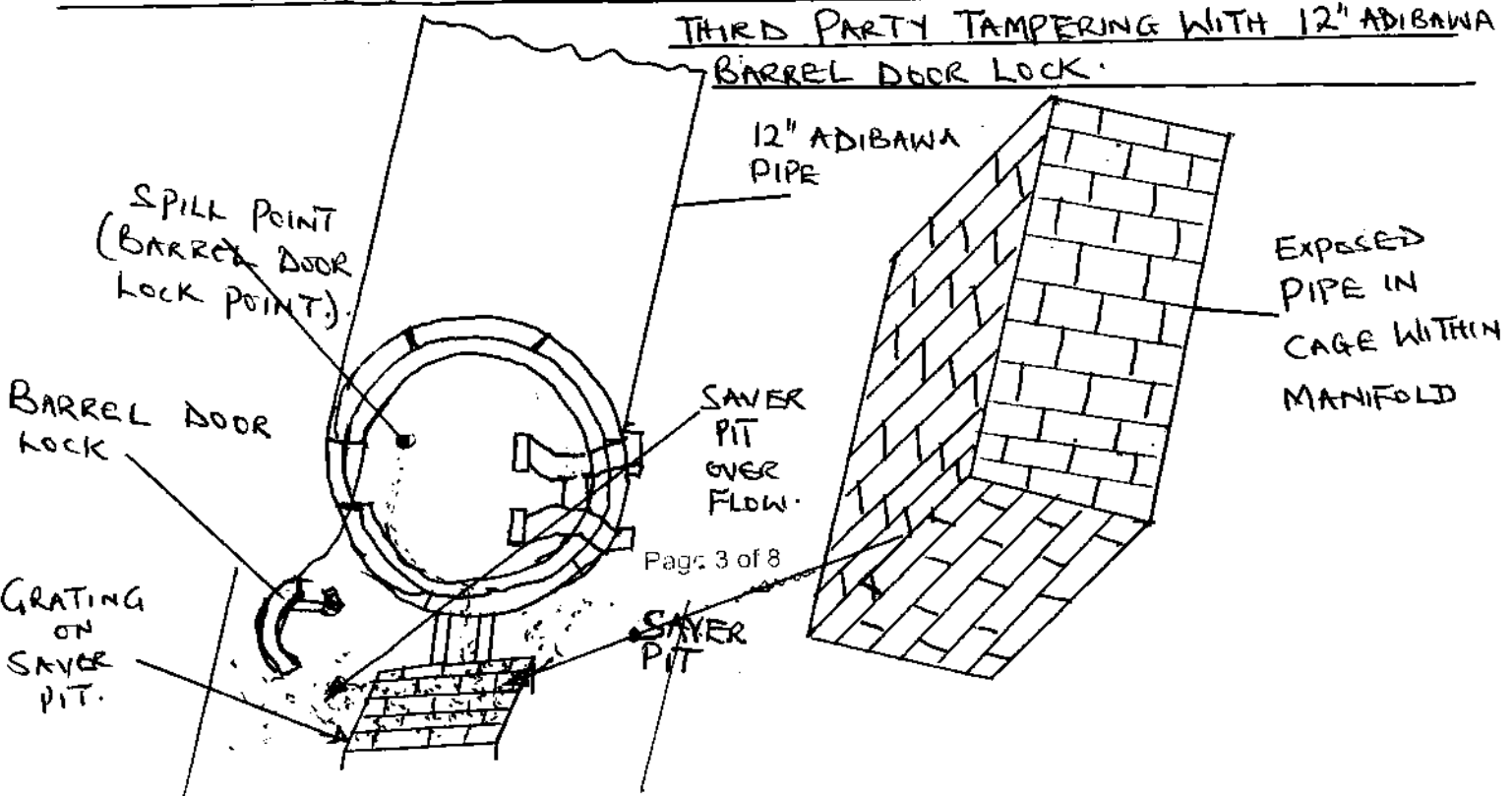
| S/N | Nets/Ponds | Description | Quantity/Size | Comments |
|----------------------------|------------|-------------|---------------|----------|
| NONE WITHIN AREA OF IMPACT | | | | |

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 I)*

**SECTIONAL VIEW OF OKORDIA MANIFOLD AT IKARMA SHOWING
THIRD PARTY TAMPERING WITH 12" ADIBAWA
BARREL DOOR LOCK.**



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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

| S/N | Northing <u>LATITUDE</u> | Easting <u>LONGITUDE</u> |
|-----|--------------------------|--------------------------|
| | 5.15431 | 6.45214 |
| | 5.1543 | 6.45213 |
| | 5.15432 | 6.45215 |
| | 5.1543 | 6.45217 |
| | 5.15429 | 6.45216 |
| | 5.15443 | 6.45201 |
| | 5.15452 | 6.45216 |
| | 5.15445 | 6.45221 |
| | 5.15443 | 6.45218 |
| | 5.1544 | 6.45218 |
| | 5.1542 | 6.45236 |
| | 5.15412 | 6.45232 |
| | 5.15418 | 6.45224 |
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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.058HA
- 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)* =

4.88 BARRELS

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

5 BARRELS

***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 6e (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

| |
|--|
| <p>This report was filled, agreed and signed by the following joint investigation team representatives:</p> <ul style="list-style-type: none">• Host Community: <input checked="" type="checkbox"/>• Department of Petroleum Resources [DPR]: <input type="checkbox"/>• National Oil Spill Detection and Response Agency [NOSDRA]: <input checked="" type="checkbox"/>• State Ministry of Environment [SME]: <input checked="" type="checkbox"/>• Asset Owner: <input checked="" type="checkbox"/>• Signatories agree with reported findings: <input checked="" type="checkbox"/>• Separate DPR form has been filled out with same findings <input type="checkbox"/> <p style="text-align: right;"><i>Tick as applicable</i></p> |
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f. Appendix I: Overview sketch of the site

