

JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N 1086

(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: 2097834 2. Type of incident* OIL SPILL
 3. Name of Location OKORDIA MANIFOLD
 4. Name of nearest community IKARMA 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 JUNE, 2018
 b. Start date/time of investigation: 13TH JUNE, 2018
 c. Investigation End date: 13TH JUNE, 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: THE OKORDIA MAJOR BARREL DRAIN VALVES WERE OBSERVED TAMPERED BY UNKNOWN PERSON (S) WHILE THE ELBOW ON THE DRAIN LINE WAS OBSERVED CUT AND PUNCTURED TO WIDEN THE POINT OF FLOW OR SPILL.

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 checked="" 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>PUNCTURED DRAIN LINE BY UNKNOWN PERSON (S)</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,

JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N: 1086

g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: <u>LATITUDE</u>	Easting: <u>LONGITUDE</u>
<u>5.15423</u>	<u>6.45228</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~~ ^{SEASONAL} 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
<input type="checkbox"/> Drinking water source
<input type="checkbox"/> Built up area
<input type="checkbox"/> Farmlands
<input type="checkbox"/> Fish Farm/pond
<input type="checkbox"/> Fishing net
<input type="checkbox"/> Others (specify). | [
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,m]
,m]
,m]
,m] | } | NONE SEEN
WITHIN
VICINITY |
|---|---------------------------------|---|---|---------------------------------|

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]

JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N: 1086

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

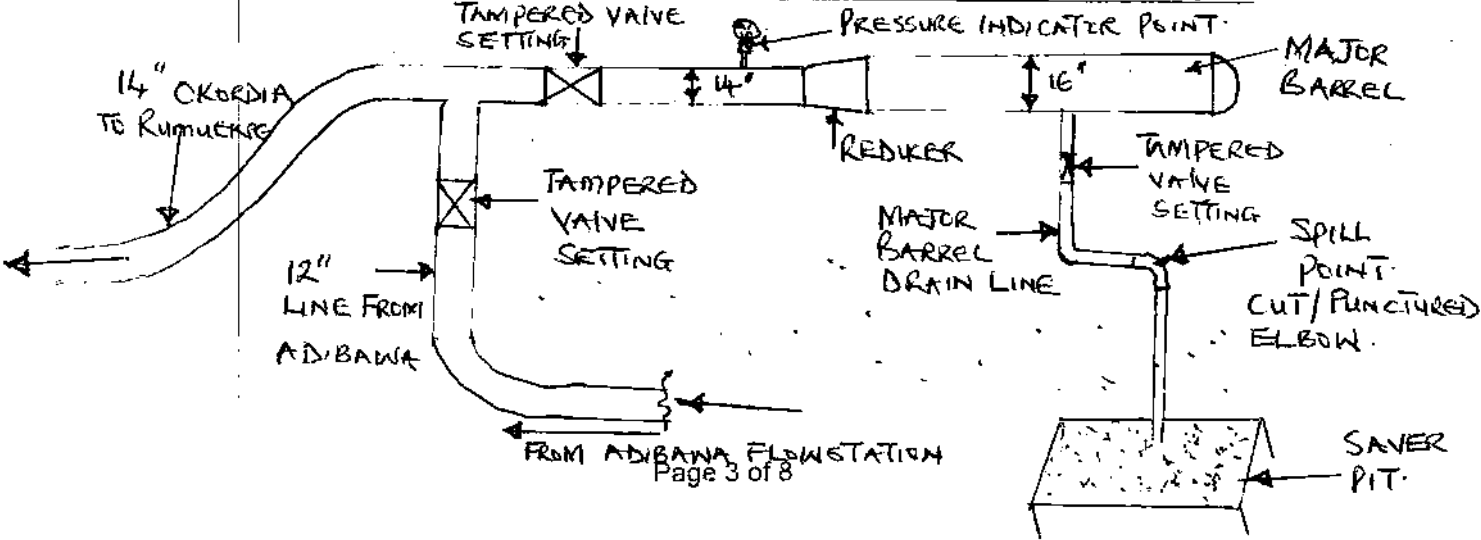
S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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 I)

SECTIONAL VIEW OF OKORDIA MANIFOLD AT IKRAMIA SHOWING THIRD PARTY TAMPERING WITH MAJOR BARREL DRAIN VALVES AND PUNCTURED DRAIN LINE BY UNKNOWN PERSON (S)



JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N: 1086

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	LATITUDE	Easting	LONGITUDE
WP29		5.15419		6.45242
WP32		5.15463		6.45206
WP33		5.15483		6.45103
WP35		5.15506		6.45063
WP36		5.15507		6.45054
WP37		5.15515		6.45092
WP38		5.15515		6.45131
WP39		5.15523		6.45139
WP40		5.15460		6.45119
WP41		5.15453		6.45322
WP42		5.15435		6.45326
WP43		5.15410		6.45303
WP44		5.15398		6.45263
WP46		5.15343		6.45302
WP47		5.15335		6.45300
WP48		5.15324		6.45236
WP49		5.15236		6.45084
WP50		5.15253		6.45083
WP51		5.15330		6.45209
WP54		5.15381		6.45242
WP55		5.15368		6.45260
WP56		5.15351		6.45237

JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N: 1086

G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 1.9332 Ha
- Impact within R.O.W YES
- Impact outside R.O.W YES

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

Recovered oil V_{rec} :	<u>NIL</u>	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

<u>NIL</u>	Barrels
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c. Net Estimated Spilled Volume V_{Est} (bbls)* =

758.08 BARRELS

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

759 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 m^3 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.

JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N: 1086

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
- ii. Investigation of the incident site showed that there is residual impact on site requiring further works

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

JOINT INVESTIGATION REPORT

INCIDENT NO: 2097834 JIV report S/N: 1086

f. Appendix 1: Overview sketch of the site

