

JOINT INVESTIGATION REPORT

INCIDENT NO: 2066951 JIV report S/N: 1072

(Note: As practicable as possible the JIV report is to be signed in the field by all the participating parties)

A. GENERAL INFORMATION:

1. Spill incident Number: 2066951 2. Type of incident* OIL SPILL
3. Name of Location 24" TRANS - RAMOS PIPELINE
4. Name of nearest community ODIMODI 5. State: DELTA 6. LGA BURUTU
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: 26TH APRIL 2018
b. Start date/time of investigation: 6TH MAY 2018 / 10:30 HOUR
c. Investigation End date: 29TH MAY 2018 Actual investigation duration, days: THIRD (2) DAYS
d. Description of spill point environment:

- | | | |
|---|--|--|
| <input type="checkbox"/> Firm soil | <input checked="" 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:

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 checked="" type="checkbox"/> Corrosion | <input type="checkbox"/> Others(specify) _____ | |

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: 2066951 JIV report S/N: 1072

g. Spill point coordinates

h. Measuring unit

NGS 84

Northing: (DECIMAL DEGREE) <div style="text-align: center; font-size: 1.2em;">5.251979</div>	Easting: (DECIMAL DEGREE) <div style="text-align: center; font-size: 1.2em;">5.379727</div>
/	/
/	/
/	/

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 [,m]
- Drinking water source [,m]
- Built up area [,m]
- Farmlands NONE WITHIN [,m]
- Fish Farm/pond THE VICINITY [,m]
- Fishing net [,m]
- Others (specify) [,m]

12. Containment measures put in place:

- Booms
 Trench
 Dyke
 Natural depression
 Pit
 None

Others: _____

13. Any pictures or video coverage?

[N]

14. Further response/repair initiated as at the time of JIV?

[N]

if yes to item 14, give brief description:

RECOVERY AND REPAIR ACTIVITIES ARE ONGOING

15. Was there any disruption to the investigation?

[Y] [N]

JOINT INVESTIGATION REPORT

INCIDENT NO: 2066951 JIV report S/N: 1072

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
1	RAFFIA PALM	✓	✓	✓	LOT	IMPACTED
2	HARD/SOFT WOOD	✓	✓	✓	LOT	BY SPILL

18. Fishing Nets/Fish Ponds

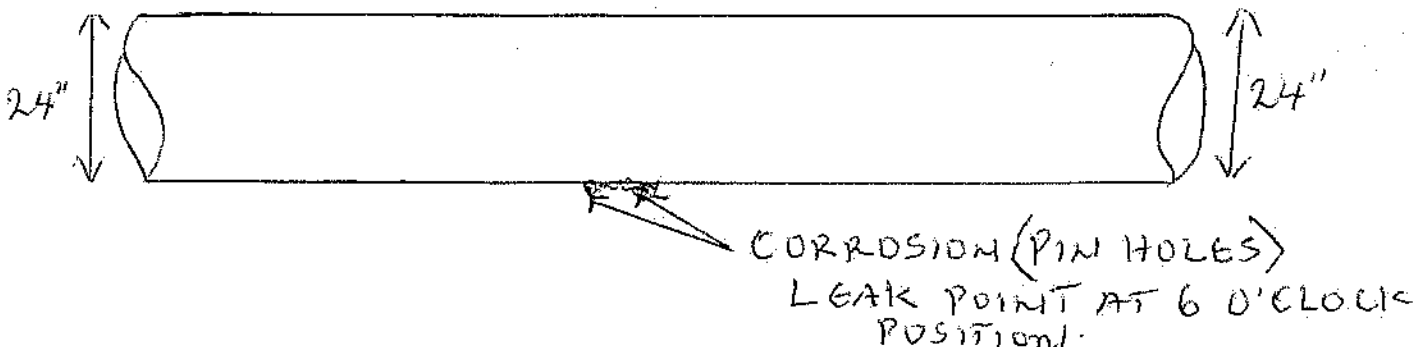
S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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)*

SECTION OF 24" TRANS - RAMOS PIPELINE AT ODIMODI
SHOWING CORROSION AT 6 O'CLOCK POSITION.



→
FROM BRASS CREEK MANIFOLD TO FORCADOS TERMINAL

JOINT INVESTIGATION REPORT

INCIDENT NO: 2066951 JIV report S/N: 1072

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)

S/N	Northing	Easting
<p>SEE ATTACHED FOR COORDINATE LISTINGS</p> <p>JR DIKE SOLOMON (GEOMATICS)</p>		

PTS	X	Y
106	5.37968	5.25192
107	5.37973	5.25194
108	5.37969	5.25201
109	5.37973	5.25203
110	5.37965	5.25204
111	5.37971	5.2521
112	5.37966	5.2524
113	5.37955	5.25243
114	5.37929	5.25256
115	5.37933	5.25261
116	5.37949	5.25255
117	5.37966	5.25253
118	5.37969	5.25235
119	5.379641	5.251912
120	5.37982	5.25184
121	5.37941	5.25232
122	5.37936	5.25193
123	5.37941	5.25182
124	5.37939	5.25116
125	5.37928	5.25118
126	5.37933	5.25302
127	5.37929	5.25315
128	5.37905	5.25307
129	5.37902	5.25296
130	5.37908	5.25347
131	5.37914	5.25359
132	5.37902	5.25405
133	5.37889	5.25403
134	5.37897	5.25411
1440	5.378443	5.254847
144	5.37847	5.25485
146	5.37972	5.25197
156	5.37679	5.26329
1140	5.378823	5.252635
1220	5.379084	5.251939
1290	5.37884	5.252927
1560	5.376762	5.263287
1441	5.378318	5.255456
1442	5.378351	5.255458
1443	5.378199	5.25607
1444	5.378234	5.25607
1445	5.377959	5.25729
1446	5.37799	5.257293
1447	5.37771	5.25853
1448	5.377743	5.258533
1449	5.377469	5.259772
1450	5.377498	5.259775
1451	5.377219	5.261026
1452	5.377253	5.261026

1453 5.37697 5.262287
1454 5.377 5.262285

JP

~~JP~~

01/06/2018

JOINT INVESTIGATION REPORT

INCIDENT NO: 2066951 JIV report S/N: 1072

G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 1.5 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>212</u>	Barrels
---------------------------	------------	---------

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

<u>Nil</u>	Barrels
------------	---------

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

579.05 BARRELS

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

580 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:

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: 2066951 JIV report S/N: 1072

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 JIV 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: 2066951 JIV report S/N: 1072

I. Appendix 1: Overview sketch of the site.

