

JOINT INVESTIGATION REPORT

INCIDENT NO: 1684151 JIV report S/N: Nº 0000373

(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: 1684151 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: 31ST JULY, 2016
b. Start date/time of investigation: 21ST SEPTEMBER, 2016 AT 1309 HRS
c. Investigation End date: 22ND SEPT. 2016 Actual investigation duration, days: 2 DAYS
d. Description of spill point environment

- | | | |
|---|--|--|
| <input type="checkbox"/> Firm soil | <input type="checkbox"/> Loose soil | <input type="checkbox"/> Recently excavated area |
| <input checked="" 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: INCIDENT CAUSE WAS CONFIRMED AS THIRD PARTY INTERPERENCE, ESTABLISHED ON EXCAVATION OF THE LEAK POINT. A MAJOR IN-WARD DENT AND TEAR (AT 12 O'CLOCK POSITION) DUE TO EXTERNAL IMPACT WAS OBSERVED ON THE PIPELINE.

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

- | | | |
|---|--|--|
| <input type="checkbox"/> Drilled hole | <input type="checkbox"/> Hack saw cut | <input checked="" type="checkbox"/> Tear (_____) |
| <input type="checkbox"/> Complete Rupture | <input checked="" 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"/> 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

Northing: <u>(LATITUDE)</u>	Easting: <u>(LONGITUDE)</u>
<u>5.28532</u>	<u>5.37127</u>
<u>km</u>	<u>km</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

Government reserved and designated protected area [,m]
 Drinking water source [0 ,m]
 Built up area [,m]
 Farmlands [,m]
 Fish Farm/Pond [,m]
 Fishing net [,m]
 Others (specify). MANGROVES [0, 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 OF FREE PHASE CRUDE OIL IS ONGOING

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
1	MANGROVES	FEW	FEW	FEW	FEW	STAINED WITH OIL
<i>(Remaining rows are crossed out with diagonal lines)</i>						

18. Fishing Nets/Fish Ponds

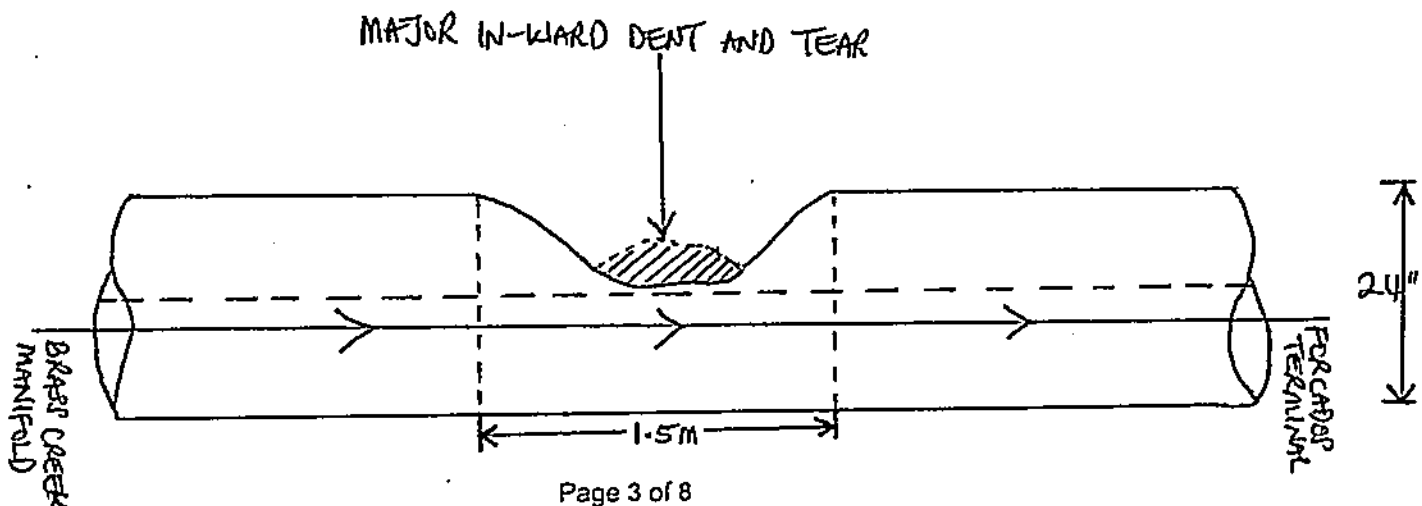
S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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.)

SECTION OF 24" TRANS-RAMOS PIPELINE AT ODIMADI AXIS, SHOWING A MAJOR IN-WARD BENT AND TEAR AT 12 O'CLOCK POSITION



APPENDIX - 1

24"TRP SPILL @ ODIMODI; INC NO:1684151_1692296; INV.DATE: 21-22/09/2016

POINT	EASTING	NORTHING	POINT	EASTING	NORTHING
SP1	5.37134	5.28507	678	5.37382	5.28693
SP2	5.37133	5.28513	679	5.37291	5.28681
SP3	5.37127	5.28532	680	5.37308	5.29734
632	5.37081	5.28878	681	5.37051	5.28872
633	5.37291	5.28744	682	5.37292	5.28721
634	5.37206	5.28681	683	5.37275	5.28683
635	5.37213	5.28679	684	5.37169	5.28708
636	5.37289	5.28768	685	5.37213	5.28662
637	5.37314	5.28649	686	5.3722	5.28662
638	5.37567	5.28742	687	5.3722	5.2868
639	5.37588	5.28817	688	5.37306	5.28625
640	5.37536	5.28871	689	5.37314	5.28625
641	5.37388	5.2898	690	37454	5.28665
642	5.37319	5.29018	691	5.37532	5.28694
643	5.37347	5.28934	692	5.37064	5.2872
644	5.37399	5.28905	693	5.37	5.28695
645	5.37458	5.28865	694	5.37308	5.28657
646	5.37537	5.28765	695	5.36765	5.28658
647	5.37476	5.28719	696	5.37038	5.2865
648	5.37117	5.28717	697	5.36956	5.28666
649	5.37064	5.28676	698	5.36866	5.28642
650	5.37114	5.28688	699	5.36765	5.28603
651	5.37108	5.28544	701	5.3658	5.28625
653	5.37149	5.28508	702	5.36499	5.28629
654	5.37141	5.28488	703	5.36485	5.28569
655	5.37115	5.28486	704	5.36402	5.28571
657	5.37301	5.27881	705	5.3632	5.28522
659	5.37141	5.28553	706	5.36271	5.28524
660	5.37288	5.27877	707	5.36255	5.2849
662	5.36884	5.2868	708	5.36298	5.28445
663	5.36217	5.28503	709	5.36215	5.28443
664	5.36087	5.28434	700	5.37454	5.28665
665	5.36048	5.28333	710	5.36155	5.28434
666	5.35826	5.28249	711	5.36103	5.28341
667	5.35499	5.28215	712	5.36116	5.28275
668	5.35415	5.28087	713	5.36018	5.2829
669	5.35381	5.28091	714	5.3595	5.28285
670	5.3548	5.28155	715	5.35911	5.2829
671	5.35536	5.28237	716	5.35883	5.28309
672	5.35599	5.28163	717	5.3588	5.28276
673	5.35807	5.28252	718	5.35872	5.28248
674	5.36426	5.28634	719	5.35852	5.28241
675	5.36666	5.28693	720	5.35853	5.28223
676	5.37501	5.28832	721	5.35818	5.28195
677	5.37445	5.28698	722	5.35801	5.28178

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POINT EASTING NORTHING

723	5.35755	5.28175
724	5.35689	5.28182
725	5.35686	5.28122
726	5.35594	5.28104
727	5.35571	5.28162
728	5.35458	5.28098
729	5.35444	5.28066
730	5.37094	5.28626
731	5.37113	5.28476
732	5.3714	5.28415
733	5.37145	5.28402
734	5.37193	5.28231
735	5.37214	5.28151
736	5.37274	5.27933
737	5.37293	5.27913
738	5.37282	5.27957
739	5.37275	5.27983
740	5.37251	5.28087
741	5.37194	5.28319
742	5.37153	5.28486
743	5.37143	5.28561

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 18.89HA
- 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>187</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)* =

417 BBLs

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

417 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:

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 (m^3) 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

Whenever 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

<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 checked="" 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 checked="" type="checkbox"/> <p style="text-align: right;"><i>Tick as applicable</i></p>

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f. Appendix 1: Overview sketch of the site

