

JOINT INVESTIGATION REPORT

INCIDENT NO: 1634018 JIV report S/N: Nº 0000167

(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: 1634018 2. Type of incident* OIL SPILL
3. Name of Location 12" IMORIVER - OGALE PIPELINE
4. Name of nearest community OWAZA 5. State: ABIA 6. LGA UKWA WEST
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD (SPDC) / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 14TH MAY 2016
b. Start date/time of investigation: 17TH MAY 2016 / 11:00 HRS
c. Investigation End date: 17TH MAY 2016 Actual investigation duration, days: ONE (1) DAY
d. Description of spill point environment

- Firm soil Loose soil Recently excavated area
 Under water Swampy Exposed pipe surface
 Well Platform (on Water) Drill Rig

Additional observations around the spill point: PIPE RANGE SPANNER WAS FOUND AT THE SPILL POINT DURING EXCAVATION EXCAVATION.

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 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)

Northing: <u>LAT</u>	Easting: <u>LONG</u>
<u>4.94641</u>	<u>7.184861</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
- Drinking water source
- Built up area
- Farmlands
- Fish Farm/Pond
- Fishing net
- Others (specify). —

[.m]
[.m]
[.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?

[N]

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

[N]

If yes to item 14, give brief description:

LEAK REPAIR COMMENCED IMMEDIATELY AFTER JOINT INVESTIGATION.

15. Was there any disruption to the investigation?

[Y]

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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						

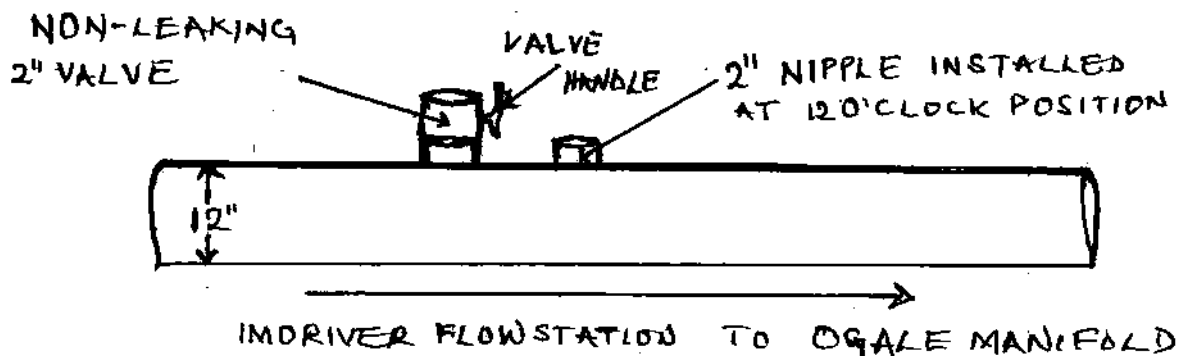
18. Fishing Nets/Fish Ponds

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) A SECTION OF 12" IMORIVER-OGALE PIPELINE SHOWING 2" NIPPLE ~~AREA~~ INSTALLED AT 12 O'CLOCK POSITION, AND A 2" NON-LEAKING VALVE INSTALLED AT 12 O'CLOCK POSITION 26CM FROM THE NIPPLE.



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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*)

S/N	Northing	Easting
SEE ATTACHED		

 17/05/2016

**JIV ON 12" IMO RIVER - OGALE PIPELINE AT OWAZA
INCIDENT NO: 2016_1634018**

PT_NO	LONGITUDE (WGS 84)	LATITUDE (WGS 84)	REMARK
1	7.184861	4.946417	SPILL POINT
2	7.184833	4.946611	
3	7.184833	4.946806	
4	7.184583	4.946528	
5	7.1845	4.946667	
6	7.184528	4.946667	
7	7.18436	4.946778	
8	7.18472	4.946917	
9	7.18483	4.946861	
10	7.18486	4.946611	
11	7.184472	4.946722	
12	7.184889	4.946389	
13	7.184889	4.946528	
14	7.18461	4.946417	
15	7.184694	4.946472	
16	7.184694	4.9465	
17	7.184611	4.946333	
18	7.184611	4.94625	
19	7.184583	4.946111	
20	7.184556	4.945972	
21	7.184556	4.946111	
22	7.184556	4.945972	
23	7.184556	4.945972	
24	7.184611	4.945917	
25	7.18475	4.945833	
26	7.184639	4.945639	
27	7.18475	4.945639	
28	7.184639	4.945333	
29	7.184583	4.945361	
30	7.184583	4.945306	
31	7.1845	4.945417	
32	7.184639	4.945722	
33	7.18475	4.946111	
34	7.184778	4.946222	
35	7.184806	4.946222	

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.40 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} :	147	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

NIL	Barrels
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c. Net Estimated Spilled Volume V_{Est} (bbbls)* =

329.63

Estimated Reported Volume V_{reg} (bbbls) =**

330 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:

CRUDE OIL RECOVERY COMMENCED ON THE 15TH
MAY THEREBY REDUCING THE INFILTRATION.

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 = 0.33 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

<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

