

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

(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: 2255965 2. Type of incident*: OIL SPILL
3. Name of Location: 12" IMO RIVER - OGALE PIPELINE
IGIRI-UKWU
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 LIMITED / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 29TH JANUARY 2019
b. Start date/time of investigation: 31ST JANUARY 2019 / 14:09
c. Investigation End date: 3RD FEBRUARY 2019 Actual investigation duration, days: FOUR (4) DAYS
d. Description of spill point environment: 2019

- | | | |
|---|--|---|
| <input type="checkbox"/> Firm soil | <input checked="" type="checkbox"/> Loose soil | <input checked="" type="checkbox"/> Recently excavated area |
| <input type="checkbox"/> Under water | <input 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: A CLUSTER OF FLOW LINES WAS OBSERVED AROUND THE 12" PIPELINE ON WHICH THE SPILL POINT WAS NOTICED. ILLEGAL PIPELINE DE-COATING WERE OBSERVED AROUND BOTH THE SPILL POINT AND A SABOTAGE ATTEMPT ON THE PIPELINE.

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>PUNCTURED HOLE</u> | |

f. Incident caused by:

- Third party interference (Sabotage ; crude theft ; Line theft ; Accidental 3rd party damage
 Operational Mystery spills Others (specify) _____

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

g. Spill point coordinates

Measuring unit

WGS 84

Northing: LATITUDE	Easting: LONGITUDE
0496 04.97631	007-18650
/	/

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]
 [] IMPACTED BY SPILL
 [] ,m]
 [] ,m]
 [] ,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 OF FREE-PHASE OIL WAS DONE

15. Was there any disruption to the investigation?

[Y] [N]

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

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
1	TENTS	ZINC - CONSTRUCTED	1 -	3 NO.	IMPACTED BY SPILL
2	BUILDING	BUNGALOW	-	1 No.	EXTERNAL WALL EDGE IMPACTED

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1	PAWPAW		✓		1 No.	SPILL - IMPACTED

18. Fishing Nets/Fish Ponds.

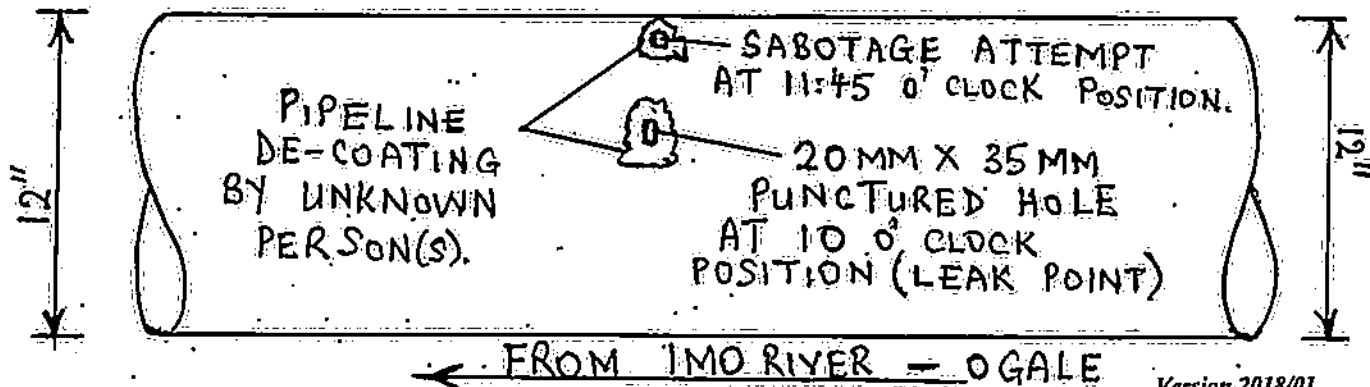
S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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 detailed report of the leak point should be contained in the leak report, overview sketch of the site should be added as an appendix 1)

SECTION OF 12" IMO RIVER - OGALE PIPELINE AT IGIRI-UKWU (OWAZA) SHOWING LEAK POINT.



Version 2018/01

Distribution of copies: White (Asset Owner); Pink (DPR); Green (NOSDRA); Yellow (State Ministry of Environment); Blue (Host Community).

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

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 APPENDIX A for COORDINATES LISTING

APPENDIX A

12" IMO RIVER - OGALE PIPELINE AT IGIRI-UKWU (OWAZA)

INCIDENT NO. 2255965

IMPACTED AREA COORDINATES

POINT_ID	LATITUDE_Y	LONGITUDE_X
324	4.97631	7.18653
325	4.97607	7.18654
326	4.97608	7.1865
327	4.97617	7.1865
328	4.97626	7.18651
329	4.97631	7.18653
330	4.97628	7.18647
331	4.97625	7.18642
332	4.97621	7.18637
333	4.97623	7.18634
334	4.97634	7.18632
335	4.97642	7.18636
336	4.97643	7.1864
337	4.97642	7.18652
340	4.97631	7.18655
341	4.97607	7.18652
342	4.976478	7.186523
343	4.976498	7.186538
344	4.976541	7.186534
345	4.97655	7.186478
346	4.976546	7.186468
347	4.976433	7.186468
348	4.976363	7.186136
349	4.976318	7.186108
350	4.976341	7.186173
351	4.97637	7.186263
352	4.976381	7.186331
353	4.97638	7.18634
354	4.976424	7.18647

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.07 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>128</u>	Barrels
---------------------------	------------	---------

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

<u>NIL</u>	Barrels
------------	---------

c. <u>Net Estimated Spilled Volume V_{est} (bbls)* =</u>	<u>155.64</u>
<u>Estimated Reported Volume** V_{rep} (bbls) =</u>	<u>156 BARRELS</u>

*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 volume 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 (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.

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.

Version 2018/01

Distribution of copies: White (Asset Owner); Pink (DPR); Green (NOSDRA); Yellow (State Ministry of Environment); Blue (Host Community).

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

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 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>
--

JOINT INVESTIGATION REPORT

INCIDENT NO: 2255965 JIV report S/N: 0230

f. Appendix 1: Overview sketch of the site

