

JOINT INVESTIGATION REPORT

INCIDENT NO: 2785801 JIV report S/N: 0618

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

A. GENERAL INFORMATION:

1. Fountain Incident Number: 2785801 2. Type of incident* OIL SPILL
3. Name of Location 16" NUN RIVER - KOLO CREEK PIPELINE
4. Name of nearest community DTUEGWU 5. State: BAIELSA LGA _____
7. Production Facility/Installation OIL PIPELINE
8. Asset Owner/Hub THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD (SPDC) PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date Reported: 18TH NOVEMBER 2020
b. Start date/time of Investigation: 22ND NOVEMBER 2020/1255HRS
c. Investigation End date: 22ND NOVEMBER 2020 Day(s) on site: ONE (1) DAY
d. Description of spill point environment

- | | | |
|---|-------------------------------------|---|
| <input type="checkbox"/> Firm soil | <input 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 | <input type="checkbox"/> Sand bag(s) |

Additional observations around the spill point:

NOT APPLICABLE

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

- | | | |
|---|---|--|
| <input type="checkbox"/> Smooth round-edge hole | <input type="checkbox"/> Rough-edge hole | <input checked="" type="checkbox"/> Hack saw cut |
| <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"/> Tear (_____) | | |
| <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) Water Leak (e) Fire (f) Non-leaking theft point removal

Version 2020/01

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

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g. Spill Point Coordinates (*Incidents $\leq 100m$ apart to be aggregated into one Joint Investigation Report)

h. Measuring unit

WIGS 84

Northing:	Easting:
4. 845097	6. 238626
4. 844743	6. 238012
_____	_____

C. RISK ASSESSMENT

10. Details of Environment

i. Type of environment where spill occurred (select one):

- Land
 Swamp
 Water
 Seasonal swamp
 Shoreline/Waterfront

ii. Type of environment to which oil has spread:

- Land
 Swamp
 Waterbody (specify) FLOOD WATER

iii. Weather condition

- Dry
 Wet
 Windy
 Hot

11. Distance to Sensitive habitat within 100m radius

- | | | | |
|---|---|-----|----------------------------|
| <input type="checkbox"/> Government reserved and designated protected area | [| ,m] | } NONE SEEN WITHIN VIGINTY |
| <input type="checkbox"/> Drinking water source | [| ,m] | |
| <input type="checkbox"/> Surface water <input type="checkbox"/> Borehole | [| ,m] | |
| <input type="checkbox"/> Built up Area | [| ,m] | |
| <input type="checkbox"/> Residential Area <input type="checkbox"/> Commercial/Industrial Area | [| ,m] | |
| <input type="checkbox"/> Farmlands | [| ,m] | |
| <input type="checkbox"/> Fish Farm/Pond | [| ,m] | |
| <input type="checkbox"/> Fishing net | [| ,m] | |
| <input type="checkbox"/> Others (specify) _____ | [| ,m] | |

12. Containment measures put in place:

- Booms
 Trench
 Dyke
 Pit
 Natural depression
 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:

REPAIR BY CLAMPING

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15. Was there any disruption to the investigation? [Y] [X]

If yes to item 15 give brief description:

NOT APPLICABLE

16. Was JIV delayed? [Y] [X]

Reason(s): NOT APPLICABLE

- Delayed Community Access Approval Security Challenges Access constraint due to terrain
 Others (specify)

D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL

17. Structures / Properties

S/N	Type of Structures	Description	Size	Number	Comments
<u>NONE WITHIN AREA OF IMPACT</u>					

18. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
<u>NONE WITHIN AREA OF IMPACT</u>						

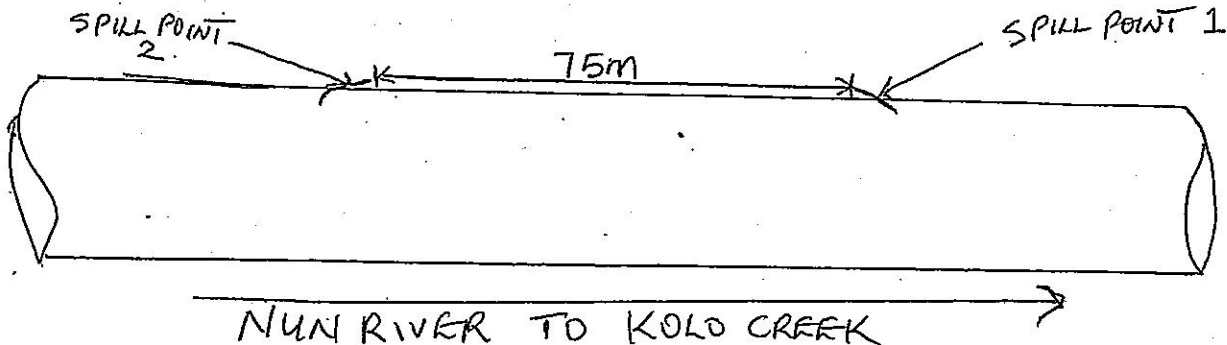
19. Fish/Nets/Ponds

S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
<u>NONE WITHIN AREA OF IMPACT</u>				

20. Others (Specify) e.g. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
<u>NONE WITHIN AREA OF IMPACT</u>				

E. GRAPHIC DESCRIPTION OF LEAK POINT (while detailed description of the leak point should be contained in the leak report, overview sketch of the site should be added as appendix 1) A SECTION OF 16" MUN RIVER - KOLO CREEK PIPELINE AT OTUEGWE SHOWING 2 NOS HACKSAW CUT 75M APART AT 12 O' CLOCK POSITIONS BY UNKNOWN PERSON(S)



Coordinate list for 16" Nun-River- Kolo creek Pipeline at Otuegwe (Inc.no=2785801) - WGS84

PTS	X(Eastings)	Y(Northings)	REMARKS
1	6.238626	4.845097	SP1
2	6.238012	4.844743	SP2
44	6.239085	4.846959	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
43	6.238688	4.846626	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
21	6.238365	4.846049	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
20	6.238194	4.845847	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
19	6.238198	4.845734	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
18	6.238041	4.845461	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
17	6.237891	4.845383	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
16	6.237795	4.845192	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
15	6.237696	4.845098	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
14	6.237679	4.844925	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
13	6.237769	4.844734	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
12	6.237881	4.844742	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
11	6.238094	4.844884	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
10	6.238397	4.845024	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
9	6.238596	4.845147	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
8	6.238698	4.845178	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
7	6.238731	4.845132	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
6	6.238783	4.845207	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
5	6.238992	4.845322	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
4	6.239103	4.845352	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
3	6.239125	4.845329	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
42	6.23809	4.844714	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
41	6.238236	4.84472	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
39	6.237998	4.844513	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
38	6.237921	4.844484	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
37	6.238057	4.844358	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
35	6.238618	4.84408	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
33	6.238598	4.843857	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
34	6.238521	4.844003	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
32	6.238379	4.844026	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
31	6.237992	4.844336	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
30	6.237797	4.844501	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
22	6.23773	4.8445	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
23	6.237669	4.844665	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
27	6.237405	4.845031	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
24	6.237563	4.845134	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
25	6.237506	4.845399	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
26	6.237476	4.845657	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
28	6.237457	4.846241	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
47	6.237514	4.847078	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
46	6.238165	4.847546	FREE PHASE CRUDE OIL ON FLOODED TERRAIN
45	6.23891	4.847347	FREE PHASE CRUDE OIL ON FLOODED TERRAIN

G. INCIDENT INFORMATION:

a. Impacted Area Details *

- Total calculated area of impact (Ha) 3.23ha
- Impact within SPDC R.O.W YES
- Impact outside SPDC R.O.W YES

* Round off to 2 decimal places if area is $\geq 100 \text{ m}^2$ or to 4 decimal places if area is $< 100 \text{ m}^2$ (e.g. 14.55, 0.0051, 0.0009)
 * Express in Hectares (Ha)

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. <u>Net Estimated Spilled Volume V_{Est} (bbls)* = <u>208.39 BBLs</u></u>
<u>Estimated Reported Volume** V_{rep} (bbls) = <u>209 BBLs</u></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 volume estimation or cause of spill:

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 column 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

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]:
- The Shell Petroleum Development Company [SPDC]:
- Separate DPR form has been filled out with same findings
- Separate NOSDRA form has been filled out with same findings
- Separate SME form has been filled out with same findings

Tick as applicable

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f. Appendix 1: Overview sketch of the site

