

JOINT INVESTIGATION REPORT

INCIDENT NO: 2119145 JIV report S/N: 1095

(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: 2119145 2. Type of incident* OIL SPILL
3. Name of Location 16" NUN RIVER - KOLD CREEK PIPELINE
4. Name of nearest community OPOROMA 5. State: BAYELSA 6. LGA SOUTHERN IJAW
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: 11TH JULY 2018
b. Start date/time of investigation: 14TH JULY 2018/1130HRS
c. Investigation End date: 14TH JULY 2018 Actual investigation duration, days: ONE (1) DAY
d. Description of spill point environment

- | | | |
|---|--|--|
| <input type="checkbox"/> Firm soil | <input 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: THE TEAM OBSERVED AN IRREGULAR HOLE AT 6 O'CLOCK POSITION.

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,

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g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: <u>LATITUDE</u>	Easting: <u>LONGITUDE</u>
<u>4.80629</u>	<u>6.10189</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] } NONE SEEN
 [] ,m] } WITHIN
 [] ,m] } VICINITY
 [] ,m]
 [] ,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:

SPILL RESPONSE / LEAK REPAIR

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
<u>NONE WITHIN AREA OF IMPACT</u>					

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1	<u>PALM TREE</u>	<u>YES</u>	<u>YES</u>	<u>YES</u>	<u>MANY</u>	<u>IMPACTED</u>
2	<u>TIMBER TREE</u>				<u>MANY</u>	<u>IMPACTED</u>

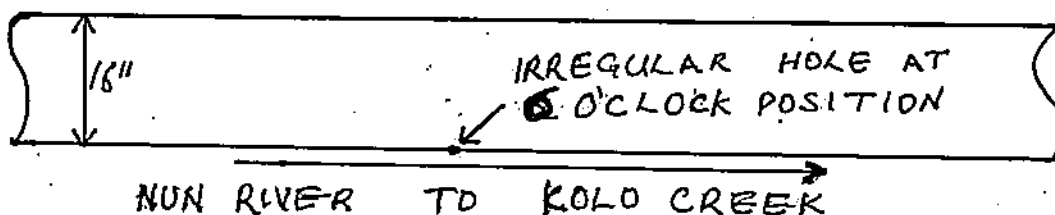
18. Fishing Nets/Fish Ponds

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

19. Others (Specify) i.e. Animal Traps

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

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.) A SECTION OF 16" NUN RIVER - KOLO CREEK PIPELINE AT OPOROMA SHOWING AN IRREGULAR HOLE AT 6 O'CLOCK POSITION DUE TO CORROSION.



NUN RIVER TO KOLO CREEK
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16" NUN RIVER TO KOLOCREEK TRUNKLINE AT OPOROMA			
INCIDENT NUMBER: 2018_2119145			
POINT ID	LATITUDE	LONGITUDE	REMARK
1	4.80648	6.10192	WGS 84
2	4.80652	6.10201	WGS 84
3	4.80657	6.10209	WGS 84
4	4.80655	6.10213	WGS 84
5	4.80655	6.10218	WGS 84
6	4.80655	6.10225	WGS 84
7	4.80651	6.10225	WGS 84
8	4.8065	6.10229	WGS 84
9	4.80638	6.10226	WGS 84
10	4.80632	6.10215	WGS 84
11	4.80625	6.10201	WGS 84
12	4.80621	6.10205	WGS 84
13	4.80615	6.10213	WGS 84
14	4.8061	6.10226	WGS 84
15	4.80614	6.10238	WGS 84
16	4.80617	6.10246	WGS 84
17	4.8062	6.10254	WGS 84
18	4.80609	6.10264	WGS 84
19	4.80592	6.10263	WGS 84
20	4.80565	6.10299	WGS 84
21	4.80548	6.1029	WGS 84
22	4.80572	6.10251	WGS 84
23	4.80595	6.10231	WGS 84
24	4.80611	6.10195	WGS 84
25	4.80615	6.10184	WGS 84
26	4.80593	6.10128	WGS 84
27	4.80574	6.10085	WGS 84
28	4.80594	6.10074	WGS 84
29	4.80611	6.10105	WGS 84
30	4.80619	6.10128	WGS 84
31	4.80628	6.10155	WGS 84
32	4.80638	6.10187	WGS 84

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.769 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>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. Net Estimated Spilled Volume V_{Est} (bbls)* =

179.67 BARRELS

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

180 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:

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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 = 0.35 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.

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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
- 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

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f. Appendix 1: Overview sketch of the site

