

JOINT INVESTIGATION REPORT

INCIDENT NO: 2446418 JIV report S/N: 1030133

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

A. GENERAL INFORMATION:

1. Fountain Incident Number: 2446418 2. Type of incident* OIL SPILL
3. Name of Location NEW 20" (KCTL) KOLO CREEK-RUNDUEKPE PIPELINE
4. Name of nearest community OKOMA 5. State: RIVERS 6. LGA AHOADA EAST
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 Reported: 03-09-2019 (3RD SEPTEMBER, 2019)
b. Start date/time of investigation: 05-09-2019 3:30 PM (5TH SEPTEMBER, 2019 / 1530 HRS)
c. Investigation End date: 5TH SEPTEMBER, 2019 Actual investigation duration, days: ONE 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:

NOT APPLICABLE

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 checked="" 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, g) non leaking Theft point removal
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g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: LATITUDE	Easting: LONGITUDE
4.97131	6.64453
/	/

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 to Sensitive habitat within 100m radius

- | | | | | |
|--|---|--|---|--|
| <input type="checkbox"/> Government reserved and designated protected area | [| | , | |
| <input type="checkbox"/> Drinking water source | [| | , | |
| <input type="checkbox"/> Built up area | [| | , | |
| <input checked="" type="checkbox"/> Farmlands | [| | , | |
| <input type="checkbox"/> Fish Farm/Pond | [| | , | |
| <input type="checkbox"/> Fishing net | [| | , | |
| <input type="checkbox"/> Others (specify). | [| | , | |

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:

REPAIR BY CLAMPING.

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

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If yes to item 15 give brief description:

NOT APPLICABLE

16. Was JIV delayed?

If yes to item 16 give brief description: NOT APPLICABLE

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>NOT APPLICABLE</u>					

18. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1.	CASSAVA	YES	YES	YES	IMPACTED	IMPACTED
2.	PALM TREE	—	—	YES	IMPACTED	IMPACTED
/ / / / / / / /						

19. Fish/Nets/Ponds

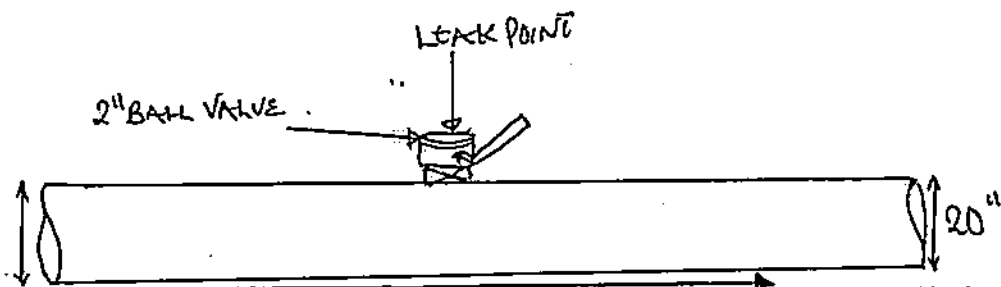
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
<u>NOT APPLICABLE</u>				

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

S/N	Others	Description	Quantity/Size	Comments
<u>NOT APPLICABLE</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 1)

SECTION OF 20" KOLO CREEK - RUMMERPE PIPELINE AT OKOMA SHOWING CRUDE OIL THEFT POINT INSTALLED AT 12 O'CLOCK POSITION



FROM KOLO CREEK TO RUMMERPE

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F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION

21. Impacted area boundary Coordinates (If more, Print and attach as an appendix)

S/N	Northing	Easting

SEE ATTACHED APPENDIX LISTINGS FOR COORDINATE LISTINGS

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 1.846928Ha (1.85Ha)
- Impact within SPDC R.O.W YES
- Impact outside SPDC 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)* =	<u>153.33 BARRELS</u>
Estimated Reported Volume** V_{rm} (bbls) =	<u>154 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 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 $Volume (m^3) \times 6.29$; **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"/>

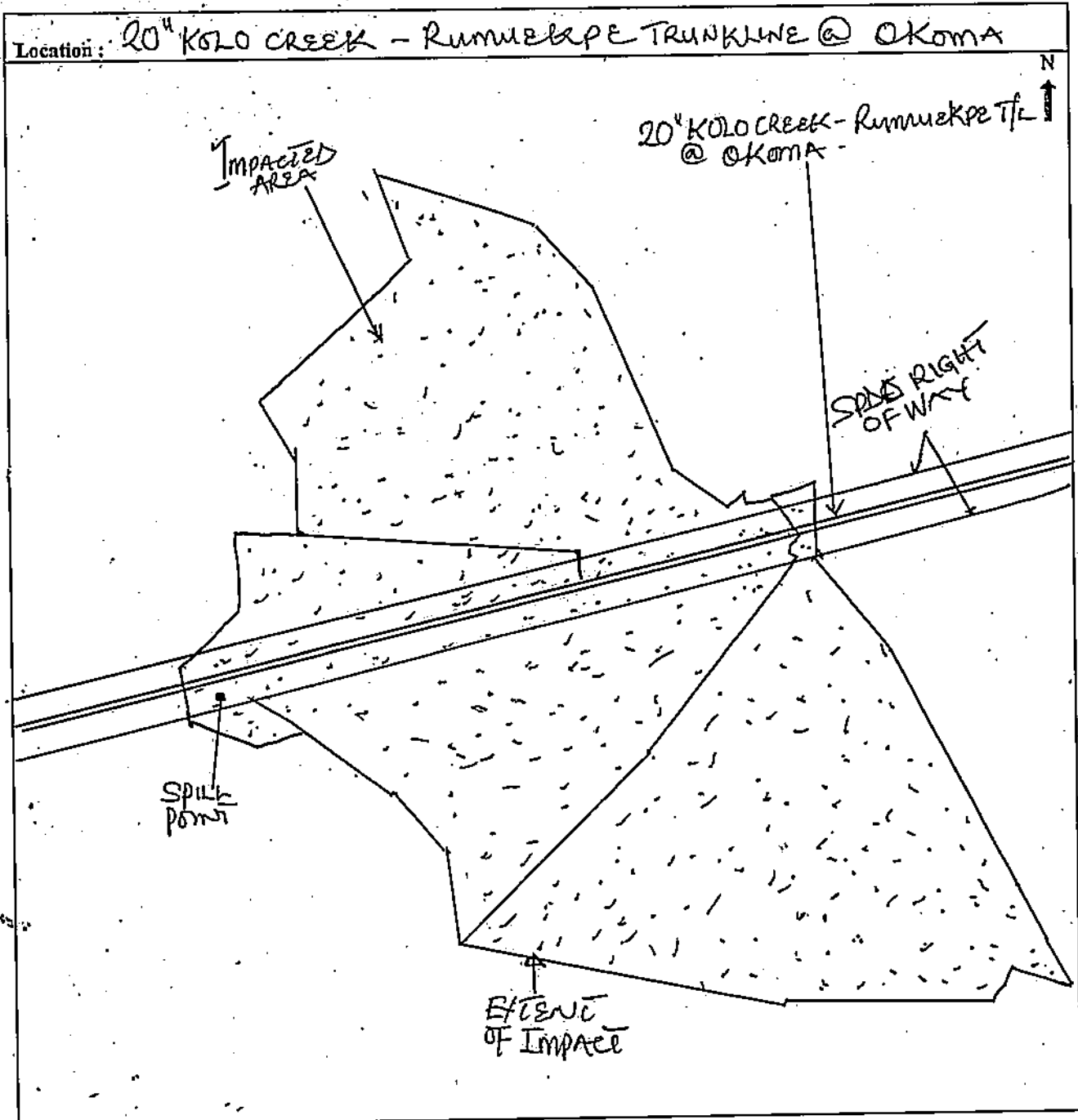
e. Representatives

This report was <u>filled</u> , <u>agreed</u> and <u>signed</u> by the following joint investigation team representatives:	
• 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"/>	
• Shell Petroleum Development Company [SPDC]: <input checked="" type="checkbox"/>	
• <i>Separate DPR form has been filled out with same findings</i> <input checked="" type="checkbox"/>	
	<i>Tick as applicable</i>

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f. Appendix d: Overview sketch of the site



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