

JOINT INVESTIGATION REPORT

INCIDENT NO: 2259160 JIV report S/N: 0227

(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: 2259160 2. Type of incident* OIL SPILL
3. Name of Location 20" KOLOCREEK - RUMMEKPE (TRUNKLINE) PIPELINE
4. Name of nearest community ODAU (Km9) 5. State: RIVERS 6. LGA ABUA/ODUAL
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE STEEL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 2ND FEBRUARY 2019
b. Start date/time of investigation: 8TH FEBRUARY 2019 / 1304 HRS
c. Investigation End date: 8TH FEBRUARY 2019 Actual investigation duration, days: ONE DAY
d. Description of spill point environment

- | | | |
|---|--|---|
| <input type="checkbox"/> Firm soil | <input checked="" type="checkbox"/> Loose soil | <input checked="" 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 JOINT INVESTIGATION TEAM OBSERVED TWO (2) NUMBERS OF 3" BALL VALVE ILLEGALLY INSTALLED ON THE 20" KOLOCREEK - RUMMEKPE PIPELINE AT ODAU (KM9).

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"/> 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. Version 2018/01
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g. Spill point coordinates

Measuring unit WAS 84

Northing: <u>4.92832 (Lat)</u>	Easting: <u>6.43714 (Long)</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
 ^{SEASONAL} 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?

[X] [N]

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

[X] [N]

If yes to item 14, give brief description:

RECOVERY OF SPILLED CRUDE OIL AND TEMPORARY REPAIR WORK OF THEFT POINT ON-GOING

15. Was there any disruption to the investigation?

[Y] [X]

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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

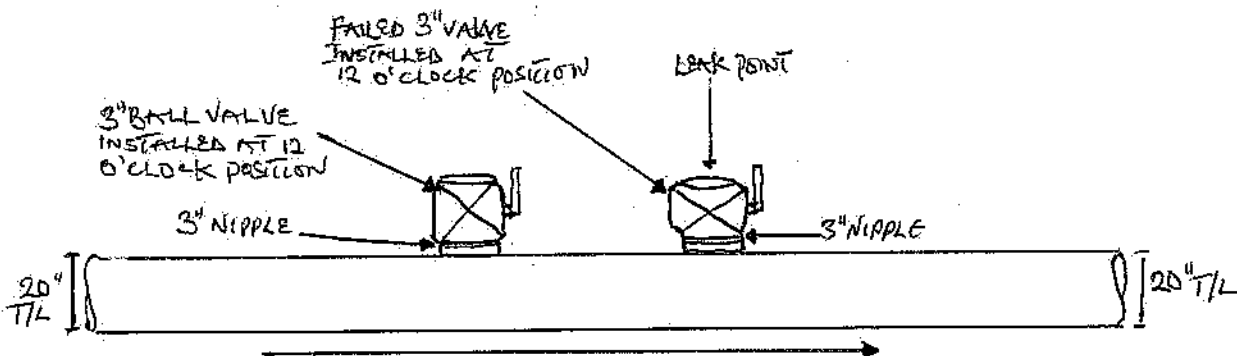
S/N	Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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 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)

SECTIONAL VIEW OF 20" KOLO CREEK-RUMMERPE (TRUNKLINE) PIPELINE AT ODAU SHOWING LEAK DUE TO 3" BALL VALVE THEE FITTING INSTALLED AT 12 O' CLOCK POSITION BY UNKNOWN PERSON(S).



20" Kolo Creek - Rumuekpe Pipeline at Odau (km9) FID. 2259160

HEAVY IMPACT

Pt	x	y
1	6.43615	4.92828
2	6.43706	4.92837
3	6.43709	4.92842
4	6.43713	4.92843
5	6.4389	4.9287
6	6.43912	4.92873
7	6.44093	4.92902
8	6.44093	4.92912
9	6.43904	4.92884
10	6.43904	4.92917
11	6.43883	4.92927
12	6.43879	4.92906
13	6.43868	4.92899
14	6.43854	4.92875
15	6.43573	4.92941
16	6.43662	4.92841
17	6.43618	4.92835
1	6.43615	4.92828
BOOM		
1a	6.43914	4.92853
2a	6.43909	4.92876
1b	6.44086	4.92886
2b	6.44084	4.92896
1c	6.44092	4.929
2c	6.44092	4.92909
sp1	6.43714	4.92832
sp2	6.43716	4.9283

HEAVY IMPACT

Pt	x	y
1	6.4371	4.92838
2	6.43706	4.92838
3	6.43713	4.9282
4	6.43779	4.92834
5	6.43869	4.92842
6	6.43871	4.92825
7	6.43891	4.92809
8	6.43905	4.92813
9	6.4392	4.92824
10	6.43931	4.92824
11	6.43943	4.92826
12	6.43948	4.92828
13	6.43929	4.92861
14	6.44435	4.92876
15	6.44036	4.9287
16	6.44073	4.92876
17	6.44073	4.92881
18	6.44085	4.92886
19	6.44082	4.92898
20	6.43912	4.92868
21	6.43889	4.92864
22	6.43714	4.92839
1	6.4371	4.92838

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 3.528494 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)* =** 290.17 BARRELS

Estimated Reported Volume V_{rep} (bbls)=** 291 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 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) \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 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 JIV 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

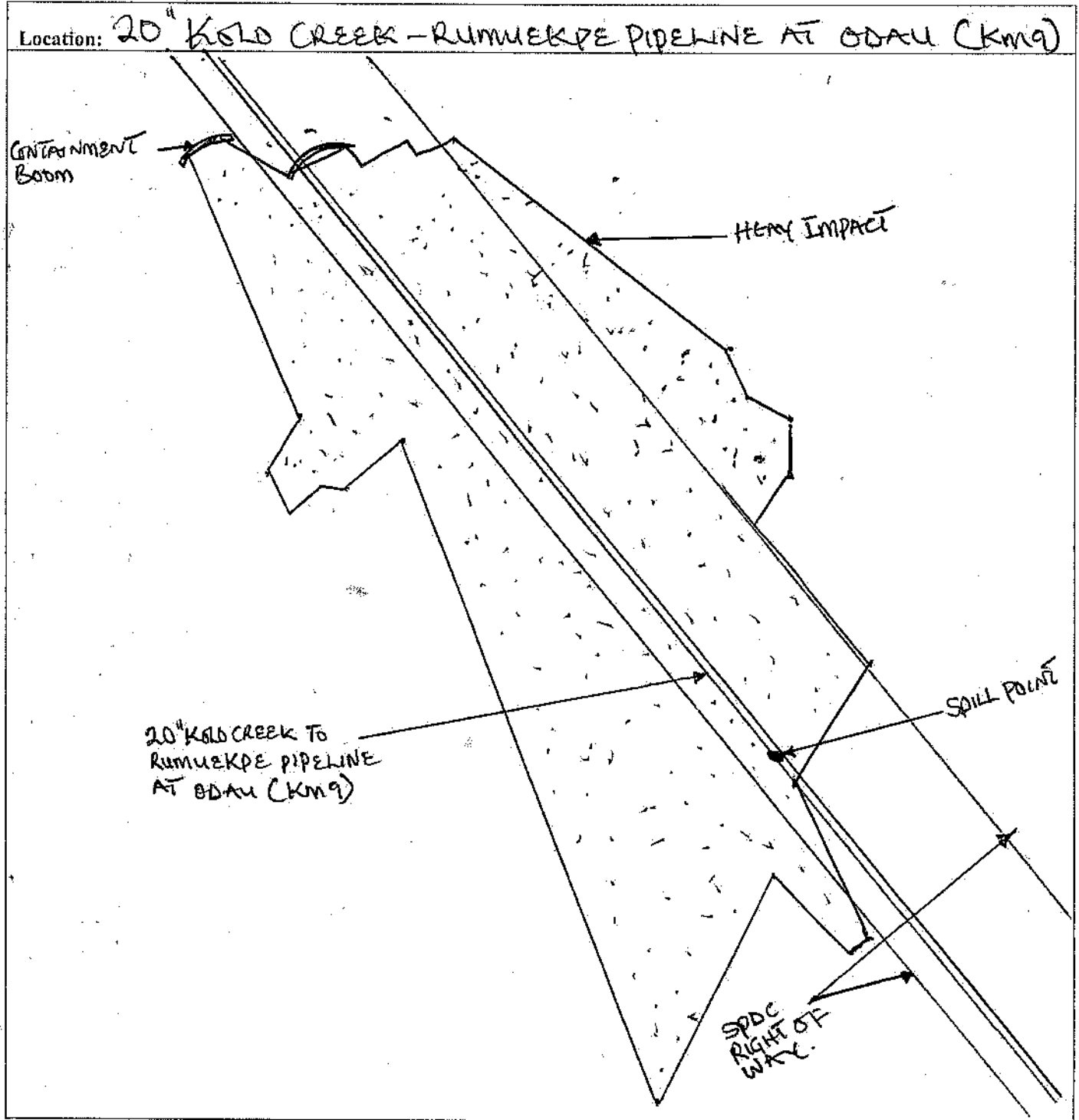
<p>This report was filled, agreed and signed by the following joint investigation team representatives:</p> <ul style="list-style-type: none">• Host Community: <input checked="" type="checkbox"/>• Department of Petroleum Resources [DPR]: <input type="checkbox"/>• National Oil Spill Detection and Response 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 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



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