

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

(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: 2065596 2. Type of incident* OIL SPILL
3. Name of Location 20" KOLOCREEK - RUMUEKPE (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 SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 25TH APRIL, 2018
b. Start date/time of investigation: 29TH JUNE, 2018 AND
c. Investigation End date: 4TH JULY, 2018 Actual investigation duration, days: TWO DAYS

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 THE LEAK POINT OUTSIDE SPDC RIGHT OF WAY ON A 2" PIPE CONNECTED TO THE THEFT POINT, ILLEGALLY INSTALLED ON THE 20" KOLOCREEK - RUMUEKPE PIPELINE AT ODAU (KM9).

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

- | | | |
|--|--|--|
| <input type="checkbox"/> Drilled hole | <input type="checkbox"/> Jack 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,

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: <u>LATITUDE</u>	Easting: <u>LONGITUDE</u>
<u>N 4.92826</u>	<u>E 6.43668</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

- | | | | | |
|--|---|-----|---|-----------|
| <input type="checkbox"/> Government reserved and designated protected area | [| .m] | } | NONE SEEN |
| <input type="checkbox"/> Drinking water source | [| .m] | | |
| <input type="checkbox"/> Built up 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] | } | WITHIN |
| | [| .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 SPILLED CRUDE OIL AND TEMPORARY REPAIR OF THFT POINT ONGOING

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

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

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

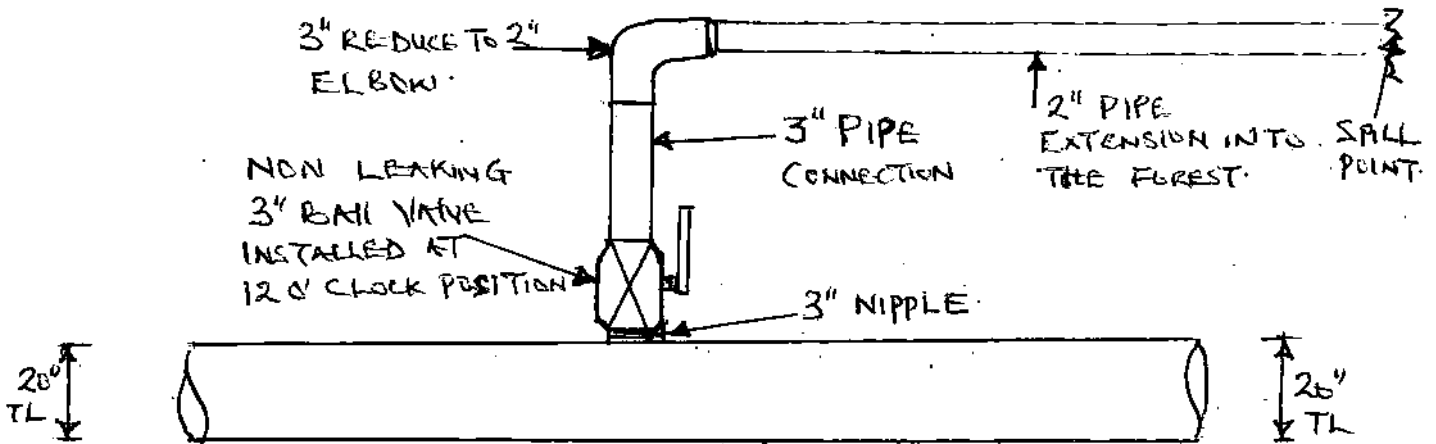
S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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

SECTIONAL VIEW OF 20" KOLUCREEK - RUMUEKPE (TRUNKLINE) PIPELINE AT ODAY SHOWING LEAK DUE TO 3" BALL VALVE THEFT FITTING INSTALLED AT 12 O' CLOCK POSITION BY UNKNOWN PERSON(S)



PT_ID	LAT_Y	LONG_X
SP	4.92821	6.43668
184	4.92836	6.4366
185	4.92842	6.43658
186	4.92866	6.43639
187	4.92906	6.43618
188	4.92981	6.43592
189	4.9299	6.43613
190	4.92988	6.43673
191	4.93024	6.43692
192	4.93029	6.43701
193	4.93019	6.43717
194	4.93006	6.43726
195	4.9299	6.43737
196	4.92982	6.43757
197	4.92959	6.43776
198	4.92951	6.43779
199	4.92939	6.4379
200	4.92923	6.43823
201	4.92923	6.43883
202	4.92919	6.43896
203	4.92913	6.43914
204	4.92901	6.43924
205	4.92902	6.43949
206	4.9288	6.43949
207	4.92875	6.43951
208	4.92913	6.44234
210	4.928964	6.442371
211	4.929311	6.442295
212	4.928826	6.441705
213	4.929231	6.441596
214	4.928502	6.439568
215	4.928088	6.436668
216	4.929052	6.441643
217	4.928238	6.436613

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

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 LISTING FOR COORDINATES LISTING

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 6.38Ha
- 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)* =

388.32 BARRELS

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

389 BARREL

***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:

* THE JOINT INVESTIGATION TEAM OBSERVED ABOUT 75% OF THE IMPACTED AREA WAS BURNT BY UNKNOWN PERSON(S)

* OLD IMPACTED AREA FROM PREVIOUS INCIDENT WAS OBSERVED RE-IMPACTED.

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 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.

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

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

JOINT INVESTIGATION REPORT

INCIDENT NO: 2065596 JIV report S/N: 0955

f. Appendix 1: Overview sketch of the site

