

JOINT INVESTIGATION REPORT

INCIDENT NO: 2293460 JIV report S/N: 0266

(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: 2293460 2. Type of incident* OIL SPILL
3. Name of Location 16" TUNU-BRASS CREEK PIPELINE
4. Name of nearest community AGBIDIAMA 5. State: BAYELSA 6. LGA EKEREMOR
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: 16TH MARCH, 2019
b. Start date/time of investigation: 29TH MARCH, 2019 / 1500HRS
c. Investigation End date: 9TH MARCH, 2019 Actual investigation duration, days: TWO (2) DAYS
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:

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"/> 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

Northing: <u>LATITUDE WGS84</u> <u>4.91504° N</u>	Easting: <u>LONGITUDE WGS84</u> <u>5.61352° E</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): _____

} NONE WITHIN THE VICINITY

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 CRUDE OIL AND REPAIR BY CLAMPING ARE ONGOING

15. Was there any disruption to the investigation?

[Y] [N]

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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>NON WITHIN AREA OF IMPACT</u>					

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1	<u>MANGROVES</u>	<u>NIL</u>	<u>FEW</u>	<u>FEW</u>	<u>50</u>	<u>IMPACTED</u>
<i>(Remaining rows are crossed out with diagonal lines)</i>						

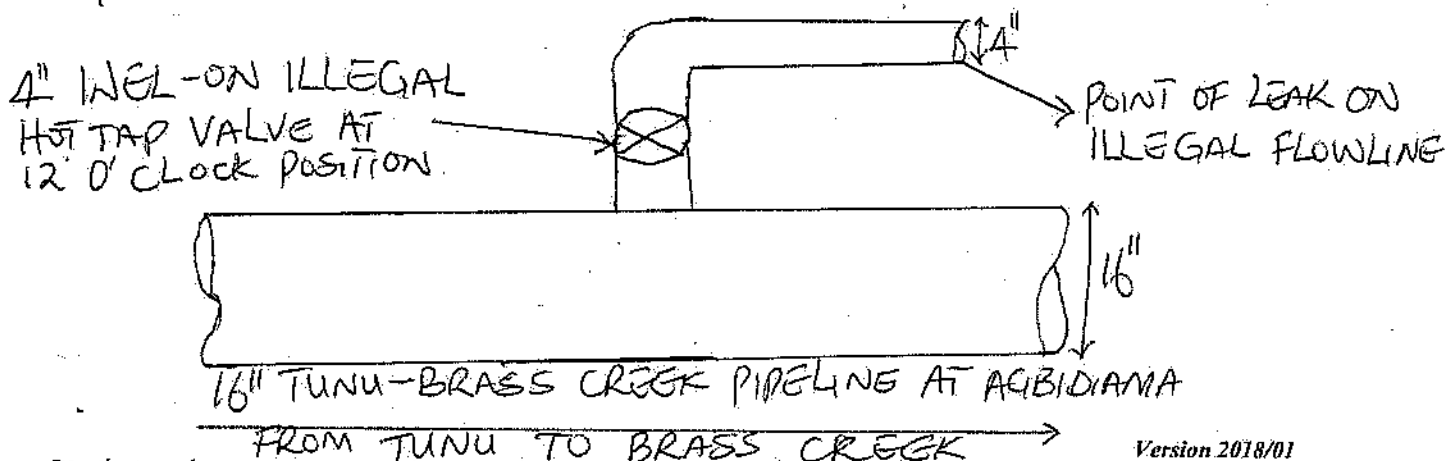
18. Fishing Nets/Fish Ponds

S/N	Nets/Ponds	Description	Quantity/Size	Comments
<u>NON WITHIN AREA OF IMPACT</u>				

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

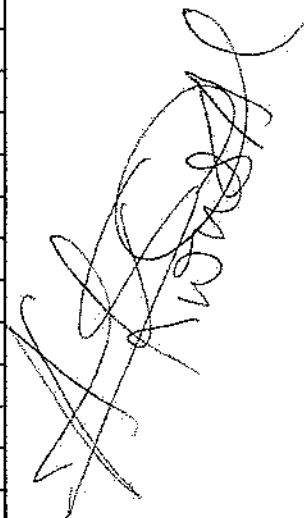
S/N	Others	Description	Quantity/Size	Comments
<u>NON WITHIN AREA OF IMPACT</u>				

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) A SECTION OF 16" TUNU-BRASS CREEK PIP @ ACBIDIAMA SHOWING 4" WELDON ILLEGAL HOT-TAP VALVE AT 12 O'CLOCK POSITION INSTALLED BY UNKNOWN PERSONS.



INC. NO. 2019_2293460**COORDINATES IN WGS 84.**

POINT	LATITUDE	LONGITUDE
SPILL POINT	4.91504	5.61352
P1	4.9146	5.61364
P2	4.91493	5.61342
P3	4.914957	5.613608
P4	4.916511	5.613095
P5	4.916553	5.613395
P6	4.916646	5.613884
P7	4.916572	5.613886
P8	4.916599	5.613077
P9	4.91644	5.61252
P10	4.915976	5.611478
P11	4.916067	5.611445
P12	4.914894	5.610182
P13	4.915591	5.610779
P14	4.914344	5.609542
P15	4.914954	5.610131
P16	4.913887	5.609208
P17	4.91385	5.60927
P18	4.91334	5.60912
P19	4.91351	5.60906
P20	4.914051	5.608015
P21	4.913906	5.608547
P22	4.913984	5.608606
P23	4.91414	5.60799
P24	4.91393	5.606879
P25	4.914013	5.60692
P26	4.91355	5.60693
P27	4.91361	5.60692
P28	4.913706	5.607019
P29	4.91375	5.607192
P30	4.913654	5.607188



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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 1.597 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>26</u>	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

<u>NCL</u>	Barrels
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c. Net Estimated Spilled Volume V_{Est} (bbls)* = 135.96 BBLs (BARRELS)

Estimated Reported Volume** V_{rep} (bbls) = 136 BBLs (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 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]:
- 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

