

JOINT INVESTIGATION REPORT

INCIDENT NO: 1350803 JIV report S/N: Nº 0000344

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

A. GENERAL INFORMATION:

1. Spill incident Number: 1350803 2. Type of incident* OIL SPILL
3. Name of Location TUNU WELL-6T FLOWLINE
4. Name of nearest community AGBIDIAMA 5. State: BAYELSA 6. LGA EKEREMOR
7. Type of Production facility/Installation FLOWLINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIG. LIMITED

B. INCIDENT INFORMATION:

9. Details of incident
a. Date of incident: 1ST MARCH, 2015
b. Start date/time of investigation: 7TH MARCH, 2015 AT 1310HRS
c. Investigation End date: 16TH JUNE, 2015 Actual investigation duration, days: 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 checked="" 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: ON ARRIVAL AT SITE, THE LEAK POINT WAS OBSERVED TO BE SUBMERGED IN WATER. WHEN THE FLOWLINE WAS LIFTED, THE JOINT INVESTIGATION TEAM OBSERVED A TEAR (ABOUT 1.5M LONG) ON THE FLOWLINE 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 checked="" type="checkbox"/> Tear (<u>1.5m LONG</u>). |
| <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 checked="" 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.

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g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: <u>DECIMAL DEGREE</u>	Easting: <u>DECIMAL DEGREE</u>
<u>04.88196</u>	<u>005.61596</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

- | | |
|--|--------------|
| <input type="checkbox"/> Government reserved and designated protected area | [, m] |
| <input type="checkbox"/> Drinking water source | [o , 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 | [o , m] |
| <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?

[] [N]

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

[Y] []

If yes to item 14, give brief description:

REPAIR IS BEING PLANNED BY THE
ASSET ENGINEERING TEAM

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
NONE WITHIN AREA OF IMPACT					

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1.	PALM TREES	4	—	—	4	STAINED WITH CRUDE OIL
2.	MANGROVES	FEW	—	—	FEW	STAINED WITH CRUDE OIL
/						

18. Fishing Nets/Fish Ponds

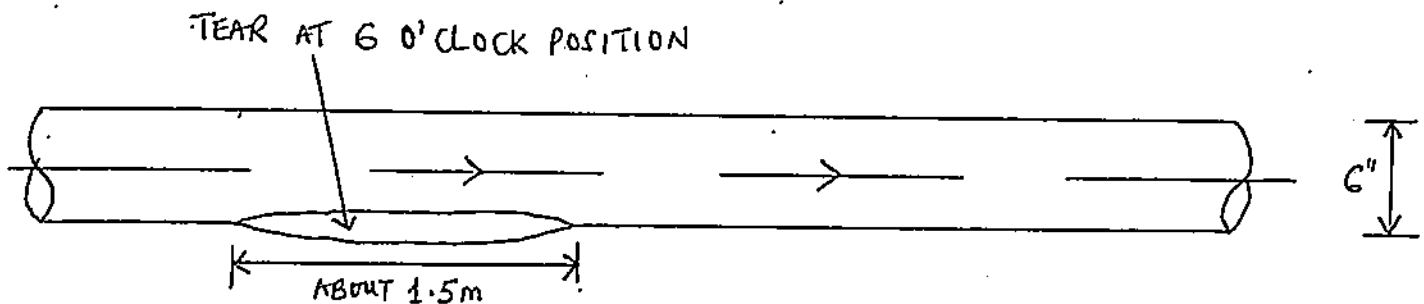
S/N	Nets/Ponds	Description	Quantity/Size	Comments
1.	FISH NET	OIL STAINED FISH NETS	1	CRUDE OIL STAINED FISH NET
2.	FISH TRAPS	OIL STAINED FISH TRAPS	FEW	CRUDE OIL STAINED FISH TRAPS
/				

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 1)

SECTION OF TUNU WELL-GT FLOWLINE AT AGBIDIAMA. SHOWING; A TEAR (ABOUT 1.5M LONG) AT 6 O' CLOCK POSITION



TUNU WELL-GT FLOWLINE AT AGBIDIAMA

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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 LIST OF
(APPENDIX - 1)
COORDINATES

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 5.7 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} :	NIL	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

NIL	Barrels
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c. Net Estimated Spilled Volume V_{Est} (bbls)* =

26.08 BBLS

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

27 BBLS

***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:

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 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

<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 checked="" type="checkbox"/> <p style="text-align: right;"><i>Tick as applicable</i></p>
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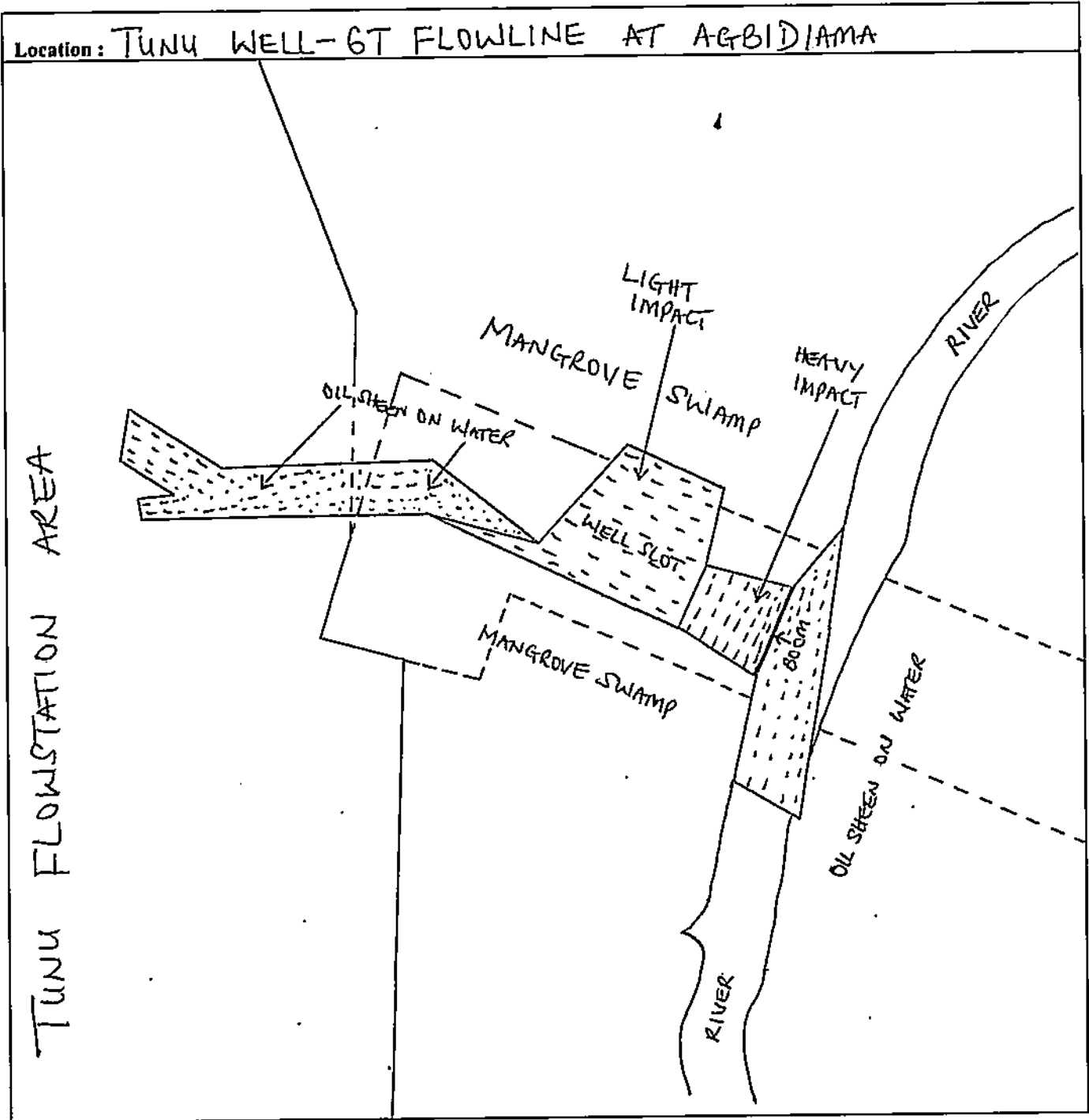
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f. Appendix 1: Overview sketch of the site



APPENDIX 1 FID: 1350803

NAME	EAST	NORTH	DESCRIPTION
1	354506.63	97527.405	SHEEN
2	354512.71	97554.921	SHEEN
3	354643.15	97537.194	SHEEN
4	354901.12	97665.517	SHEEN
5	355095.59	97611.278	SHEEN
6	354949.41	97623.184	SHEEN
7	354748.46	97544.073	SHEEN
8	354596.85	97477.663	SHEEN
9	354585.47	97490.627	SHEEN
10	354611.4	97508.09	SHEEN
11	354506.63	97527.405	SHEEN
12	354949.41	97623.184	LIGHT
13	355095.59	97611.278	LIGHT
14	355095.59	97698.326	LIGHT
15	355198.78	97681.392	LIGHT
16	355229.21	97564.975	LIGHT
17	355219.94	97525.288	LIGHT
18	354949.41	97623.184	LIGHT
19	355219.94	97525.288	HEAVY
20	355229.21	97564.975	HEAVY
21	355308.58	97538.517	HEAVY
22	355291.38	97482.954	HEAVY
23	355291.38	97482.954	BOOM
24	355308.58	97538.517	BOOM
25	355348.27	97616.569	SHEEN
26	355327.63	97442.473	SHEEN
27	355291.65	97271.023	SHEEN
28	355262.28	97353.308	SHEEN
29	355291.38	97482.954	SHEEN
30	355308.58	97538.517	SHEEN
31	355348.27	97616.569	SHEEN