

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED.

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1393279 JIV report S/N: 00635

(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: 1393279 2. Type of incident* OIL SPILL
 3. Name of Location OPUKUSHI WELL-34T FLOWLINE RISER
 4. Name of nearest community AGBIDIAMA/EGBEND-ANGALABIRI 5. State: BAYELSA 6. LGA EKEREMOR
 7. Type of Production facility/Installation FLOWLINE 8. Asset owner/District SWAMP WEST/OPUKUSHI

B. INCIDENT INFORMATION:

9. Details of incident
 a. Date of incident: 30TH APRIL, 2015
 b. Start date/time of investigation: 6TH MAY, 2015 AT 1331 HRS
 c. Investigation End date: 6TH MAY, 2015 Actual investigation duration, days: 1 DAY
 d. Description of spill point environment

- | | | |
|---|-------------------------------------|--|
| <input type="checkbox"/> Firmed soil | <input type="checkbox"/> Loose soil | <input type="checkbox"/> Recently excavated area |
| <input checked="" type="checkbox"/> Under water | <input 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 THE SPILL SITE, THE JIT OBSERVED THAT THE INCIDENT POINT WAS SUBMERGED. UPON LIFTING THE FLOWLINE, THE JOINT INVESTIGATION TEAM OBSERVED A PIN-HOLE AT AN ELBOW, AT 6 O' CLOCK POSITION

- c. 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 type="checkbox"/> Crude oil theft (illegal bunkering) point, | | <input type="checkbox"/> Third party tampering with Clamp |
| <input type="checkbox"/> Third party tampering with valve setting, | | <input type="checkbox"/> Third party tampering with flange, |
| <input type="checkbox"/> Corrosion | <input type="checkbox"/> Saver-pit over flow, | <input type="checkbox"/> Surge vessel overflow, |
| <input type="checkbox"/> Bulging Outward | <input type="checkbox"/> Flare System/Bund wall failure | <input type="checkbox"/> Accidental 3 rd party equipment |
| impact | <input type="checkbox"/> Valve Failure | <input type="checkbox"/> com unit failure |
| <input type="checkbox"/> Relief valve failure | <input checked="" type="checkbox"/> Others (specify) <u>EQUIPMENT FAILURE (PIN-HOLE)</u> | <input type="checkbox"/> Cold vent |

- 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

WGS 84

Measuring unit	
Northing: (LATITUDE)	Easting: (LONGITUDE)
4.91163	5.79478
/	/
/	/

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] | } | NONE WITHIN THE VICINITY |
| <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] | | |

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?

[Y] [X]

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] [X]

If yes to item 15 give brief description:

NOT APPLICABLE

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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.	RAFFIA PALM	2	3	6	11	CRUDE OIL STAINED
2.	PALM TREES	1	4	—	5	CRUDE OIL STAINED

18. Fish/Nets/Ponds

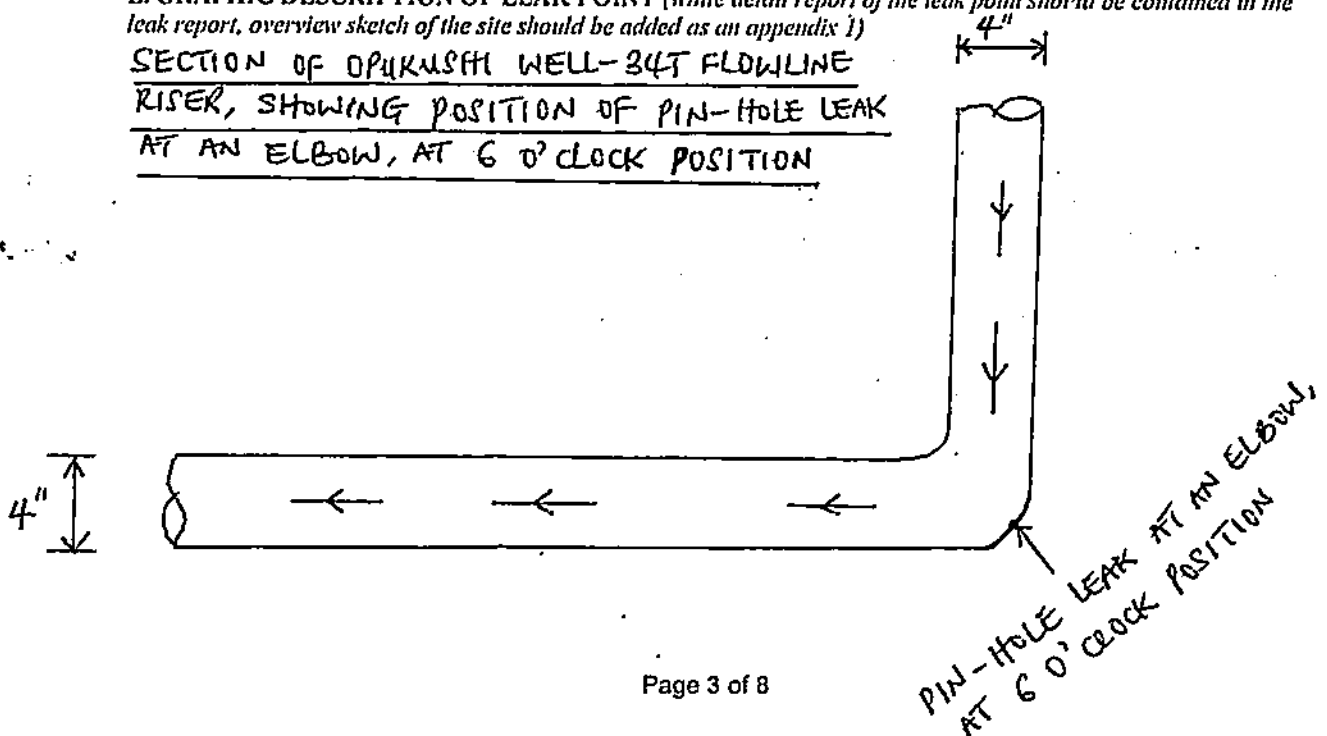
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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 1)

SECTION OF OPUKUSHI WELL-34T FLOWLINE RISER, SHOWING POSITION OF PIN-HOLE LEAK AT AN ELBOW, AT 6 O'CLOCK POSITION



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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)

WGS 84

S/N	Northing (LATITUDE)	Easting (LONGITUDE)
	4.91163	5.79392
	4.91170	5.79385
	4.91178	5.79395
	4.91141	5.79387
	4.91093	5.79397
	4.91076	5.79356
	4.91044	5.79358
	4.91055	5.79400
	4.91069	5.79423
	4.91067	5.79460
	4.91106	5.79446
	4.91178	5.79417
	4.91188	5.79417
	4.91109	5.79456
	4.91182	5.79430
	4.91156	5.79446
	4.91192	5.79429
	4.91184	5.79383
	4.91123	5.79380
	4.91122	5.79398
	4.91090	5.79409
	4.91085	5.79400
	4.91077	5.79455
	4.91071	5.79476
	4.91101	5.79465
	4.91061	5.79399
	4.91143	5.79437

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G. INCIDENT INFORMATION:

20. Impacted Area Details

- Total calculated area of impact 1.20 Ha
- Impact within SPDC R.O.W YES
- Impact outside SPDC R.O.W NO

21. 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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22. Net Estimated Spilled Volume V_{est} (bbbls) =	<u>6.67 BBLS</u>
Estimated Reported Volume** V_{rn} (bbbls) =	<u>7 BBLS</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 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 m^3 to barrels is Volume (m^3) 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 column estimation; record the calculation in a plain sheet of paper and attach to the JIV report.

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23. GENERAL STATUS OF THE SITE

A. 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"/>
B. Investigation of the incident site showed that there is residual impact on site requiring further works <input checked="" type="checkbox"/>

24. REPRESENTATIVES

<p>This report was filled, agreed and signed by the following joint investigation representatives:</p> <ul style="list-style-type: none">• 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"/>• Nigeria Police Force [NPF]: <input checked="" type="checkbox"/>• Shell Petroleum Development Company [SPDC]: <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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25. Appendix 1: Overview sketch of the site

