

JOINT INVESTIGATION REPORT

INCIDENT NO: 2410546 JIV report S/N: 1030085

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

A. GENERAL INFORMATION:

1. Fountain Incident Number: 2410546 2. Type of incident* OIL SPILL
3. Name of Location IMO RIVER WELL 63T FLOW LINE
4. Name of nearest community IGIRI-UKWU (OWAZA) 5. State: ABIA 6. LGA UKWA-WEST
7. Type of Production facility/Installation FLOWLINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED / LAND EAST HUB

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date Reported: 27TH JULY 2019
b. Start date/time of investigation: 31ST JULY 2019 / 13:32
c. Investigation End date: 1ST AUGUST 2019 Actual investigation duration, days: TWO (2) DAYS
d. Description of spill point environment

- Firm soil Loose soil Recently excavated area
 Under water Swampy Exposed pipe surface
 Well Platform (on Water) Drill Rig

Additional observations around the spill point: A PIT WAS OBSERVED AT THE SPILL POINT. UPON EXCAVATION DURING JIV, BOTH THE SPILL POINT AND A WELD JOINT (APPROXIMATELY 25MM AWAY) WERE NOTICED COVERED WITH POLYKENE WRAP.

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

- Drilled hole Hack saw cut Tear (_____)
 Complete Rupture Inward dent, Well head tampering
 Failed Weld-on illegal hot tap valve Failed Clamp, Missing Pipeline/Flowline
 Crude oil theft (illegal bunkering) point, Saver-pit over flow Third party tampering with Clamp
 Third party tampering with valve setting Bulging Outward Third party tampering with flange,
 Flare System/Bund wall failure Cold vent Surge vessel overflow,
 Valve Failure Relief valve failure Accidental 3rd party equipment impact
 Others (specify) CORROSION

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, g) non leaking Theft point removal
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g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: <u>LATITUDE</u>	Easting: <u>LONGITUDE</u>
<u>4.98817</u>	<u>7.17744</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 to Sensitive habitat within 100m radius

- | | | | |
|--|---|--|-----|
| <input type="checkbox"/> Government reserved and designated protected area | [| | ,m] |
| <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] |
- NONE
OBSERVED
WITHIN
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:

NOT APPLICABLE

15. Was there any disruption to the investigation?

[Y] [N]

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If yes to item 15 give brief description:

NOT APPLICABLE

16. Was JIV delayed?

[X] [N]

If yes to item 16 give brief description: **CONCLUSION ON THE SPILL CAUSE WAS DELAYED DUE TO ANALYSIS OF ULTRASONIC TEST ON THE FLOWLINE.**
D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL

17. Structures / Properties

S/N	Type of Structures	Description	Size	Number	Comments
NONE WITHIN AREA OF IMPACT					

18. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
NONE WITHIN AREA OF IMPACT						

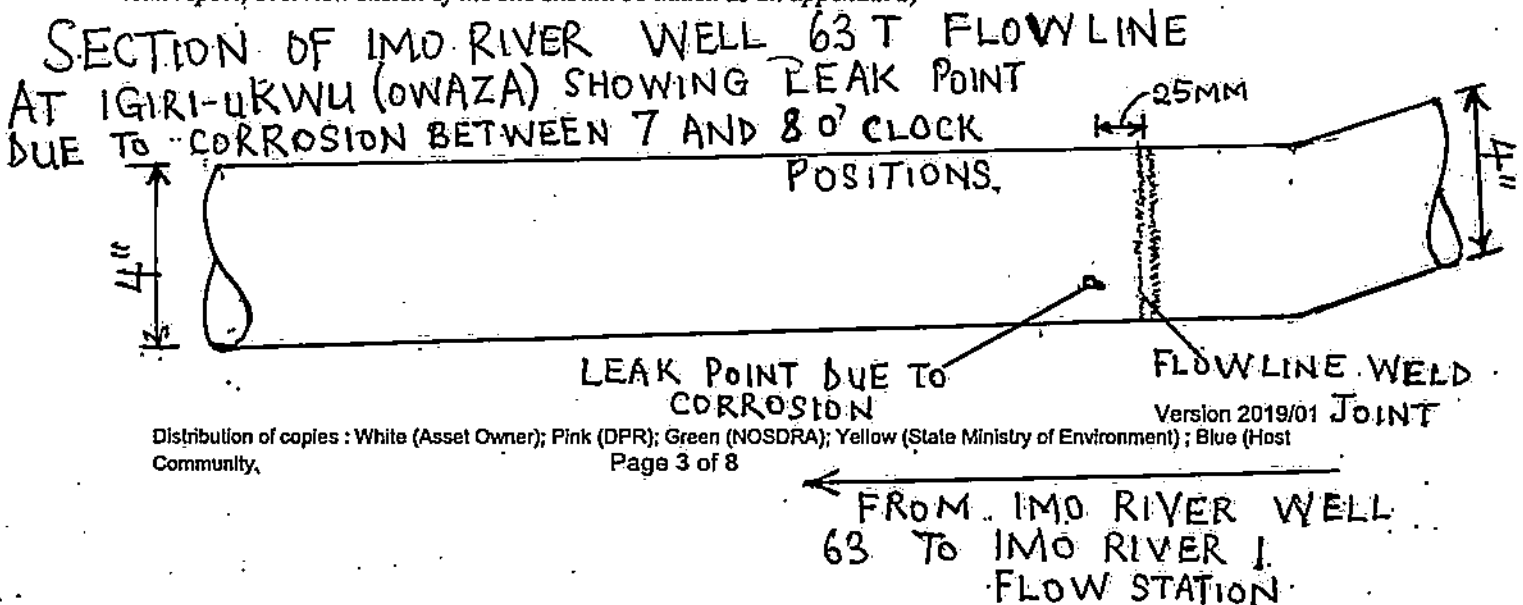
19. Fish/Nets/Ponds

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

20. 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)



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F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION

21. Impacted area boundary Coordinates (If more, Print and attach as an appendix)

WCS 84

S/N	Northing	LATITUDE	Easting	LONGITUDE
1.		4.98733		7.17768
2.		4.98709		7.17774
3.		4.98699		7.17776
4.		4.98761		7.17762
5.		4.98814		7.17744
6.		4.98815		7.17742
7.		4.98823		7.17744
8.		4.98818		7.17744
9.		4.98818		7.17746
10.		4.98817		7.17735
11.		4.98817		7.17734
12.		4.98783		7.17743
13.		4.98783		7.17742
14.		4.98792		7.17772
15.		4.98743		7.17783
16.		4.98726		7.17784
17.		4.98721		7.17801
18.		4.98714		7.17786
19.		4.98701		7.17788

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.24 Ha
- Impact within SPDC R.O.W. YES
- Impact outside SPDC R.O.W. YES

b. Volume of oil recovered before completion of JIV (V_{rec}):

Recovered oil V_{rec} : NIL Barrels

Controlled recovery/evacuation from source with no impact to environment:

NIL Barrels

c. Net Estimated Spilled Volume V_{est} (bbls)* = 36.73

Estimated Reported Volume** V_{rep} (bbls) = 37 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 volume estimation or cause of spill:

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.

Whenever 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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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"/>

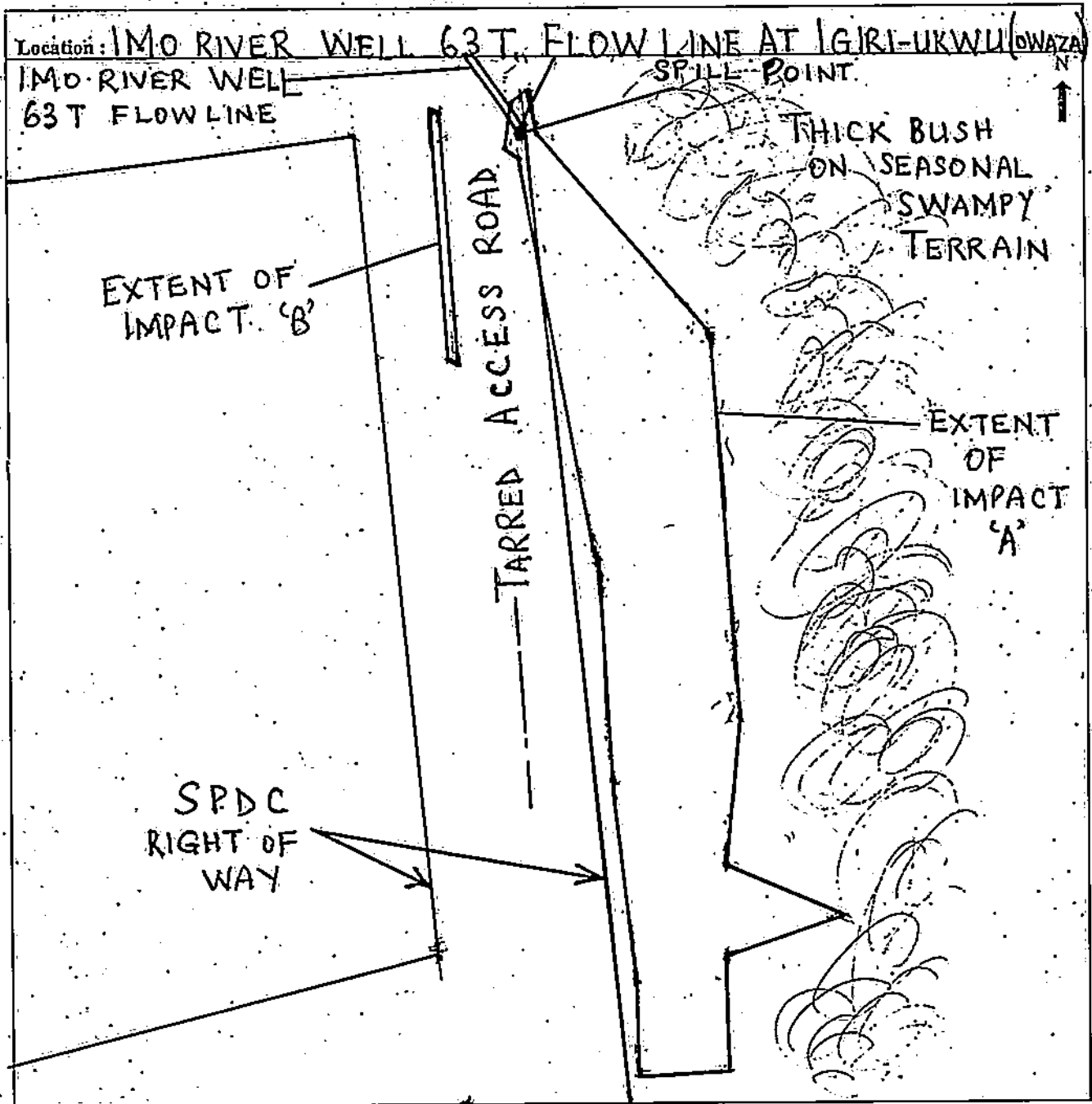
e. Representatives

<p>This report was <u>filled</u>, <u>agreed</u> and <u>signed</u> 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 checked="" type="checkbox"/>• National Oil Spill Detection and Response Agency [NOSDRA]: <input checked="" type="checkbox"/>• State Ministry of Environment [SME]: <input checked="" type="checkbox"/>• Shell Petroleum Development Company [SPDC]: <input checked="" type="checkbox"/>• <i>Separate DPR form has been filled out with same findings</i> <input checked="" type="checkbox"/> <p style="text-align: right;"><i>Tick as applicable</i></p>

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f. Appendix d: Overview sketch of the site



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