

JOINT INVESTIGATION REPORT

INCIDENT NO: 2133476 JIV report S/N:0033

(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: 2133476 2. Type of incident* OIL SPILL
3. Name of Location 14" OKORDIA - RUMUEKPE PIPELINE
4. Name of nearest community IKARAMA 5. State: BAYELSA 6. LGA YENAGOA
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD (SPDC) / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 1ST AUGUST 2018
b. Start date/time of investigation: 17TH AUGUST 2018 / 1200HRS
c. Investigation End date: 22ND AUGUST 2018 Actual investigation duration, days: TWO (2) 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 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 A HACK SAW CUT AT 1 O'CLOCK POSITION

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

- | | | |
|--|--|--|
| <input type="checkbox"/> Drilled hole | <input checked="" 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"/> 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) _____

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g. Spill point coordinates

(WGS 84)

Measuring unit Northing:	Easting:
5.13489	6.46911
/	/
/	/

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 SEEN
WITHIN
VICINITY

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?

[N]

If yes to item 14, give brief description:

SPILL RESPONSE / LEAK REPAIR

15. Was there any disruption to the investigation?

[N]

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If yes to item 15 give brief description:

F.T.O ISSUES DELAYED THE JIV BUT WAS LATER RESOLVED

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						

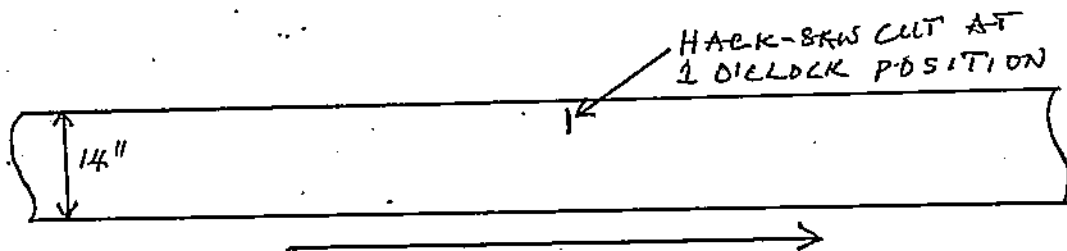
18. Fishing Nets/Fish Ponds

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 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 14" OKORDIA - RUMUEKPE FIRELINE AT IKARAMA SHOWING HACKSAW CUT AT 10'CLOCK POSITION DONE BY UNKNOWN PERSONS.



OKORDIA TO RUMUEKPE

JIV_2133476_IKARAMA

PT ID	LAT	LONG
sp	5.13489	6.46911
wp117	5.13573	6.46917
wp118	5.13559	6.46938
wp119	5.13548	6.46937
wp120	5.13492	6.46912
wp121	5.13482	6.46905
wp122	5.13453	6.46899
wp123	5.13419	6.46884
wp124	5.13361	6.4687
wp125	5.13301	6.46846
wp126	5.13284	6.46836
wp127	5.13259	6.46826
wp128	5.13258	6.46819
wp129	5.13261	6.46815
wp130	5.13271	6.46806
wp131	5.13291	6.46806
wp132	5.13316	6.46817
wp133	5.13338	6.46812
wp134	5.13359	6.46822
wp135	5.13409	6.46833
wp136	5.13467	6.4686
wp137	5.13505	6.46872
wp138	5.13511	6.46875
wp139	5.13528	6.46872
wp140	5.13528	6.46879
wp141	5.13544	6.46893

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 1.5689 Ha
- Impact within R.O.W YES
- Impact outside R.O.W YES

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

Recovered oil V_{recd} :	19	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)* =

846.01 BARRELS
<p>Estimated Reported Volume** V_{rep} (bbls) = 847 BARRELS</p>

***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:

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 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"/>

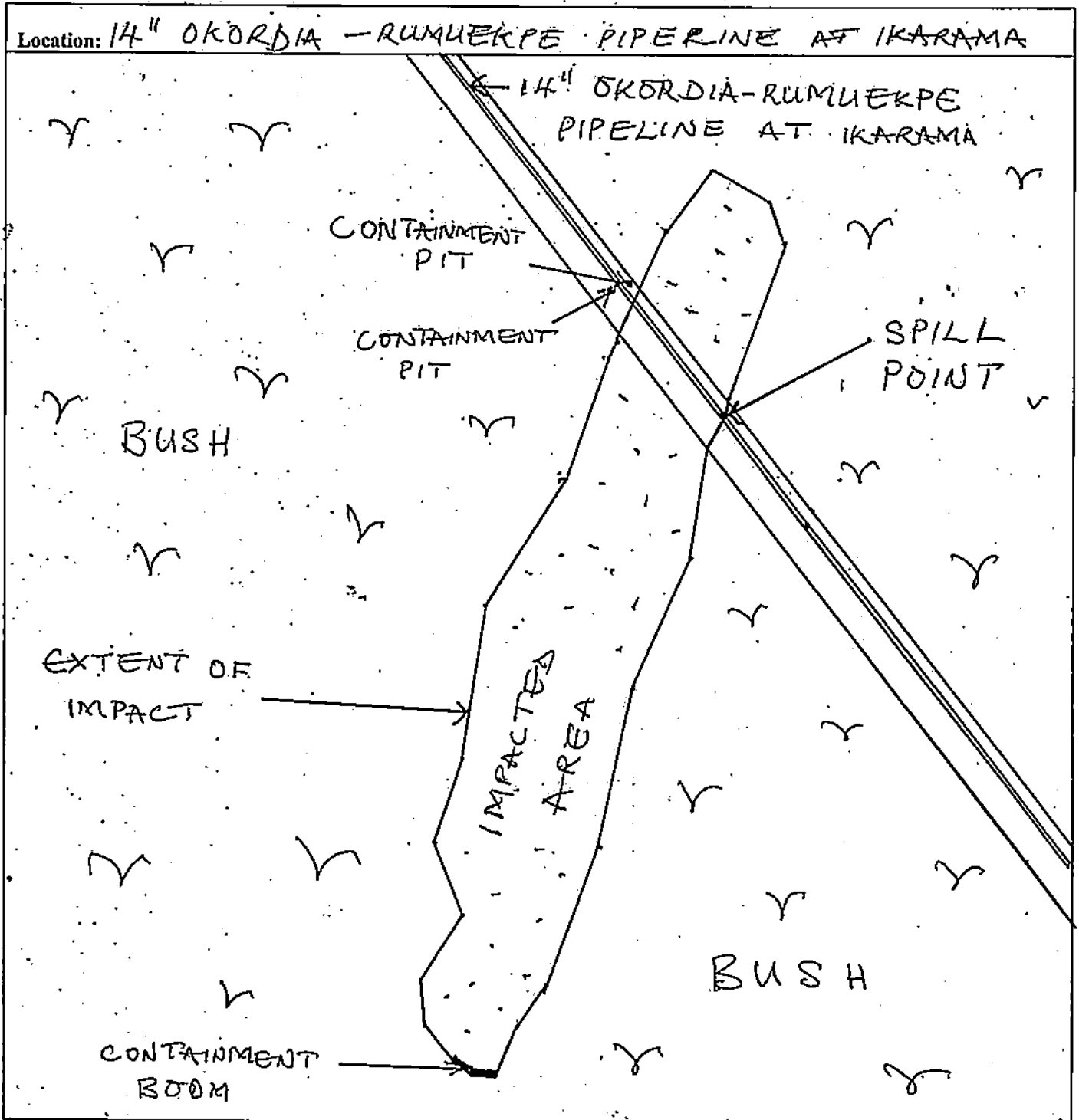
c. Representatives

<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 type="checkbox"/> <p style="text-align: right;"><i>Tick as applicable</i></p>

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f. Appendix 1: Overview sketch of the site



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