

JOINT INVESTIGATION REPORT

INCIDENT NO: 2152522 JIV report S/N: 0081

(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: 2152522 2. Type of incident*: OIL SPILL
3. Name of Location 14" OKORDIA - Rumuekpe Pipeline
4. Name of nearest community IHUONDO 5. State: RIVERS 6. LGA ABADA EAST
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: 20th AUGUST 2018
b. Start date/time of investigation: 31st AUGUST 2018/15:40 HRS
c. Investigation End date: 1st SEPTEMBER 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 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 3" BALL VALVE INSTALLED AT 12 O'CLOCK POSITION BY UNKNOWN PERSONS.

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 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) _____

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g. Spill point coordinates

Measuring unit

Measuring unit	
Northing: LATITUDE	Easting: LONGITUDE
4.99782	6.66593

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).

[NIL ,m]
[NIL ,m]
[NIL ,m]
[20 ,m]
[NIL ,m]
[NIL ,m]
NDNE

12. Containment measures put in place;

- ☒ Booms ☐ Trench ☐ Dyke ☐ Natural depression ☐ Pit. ☐ None
☐ Others: _____

13: Any pictures or video coverage?

$[M]$ $[N]$

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

$$[\text{Y}] \quad [\text{N}]$$

If yes to item 14, give brief description:

yes to item 14, give brief description:
RECOVERY OF CRUDE OIL AND REPAIR BY CLAMPING
ON GOING.

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
	NONE WITHIN AREA OF IMPACT				

17. Crops/Economic Trees

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

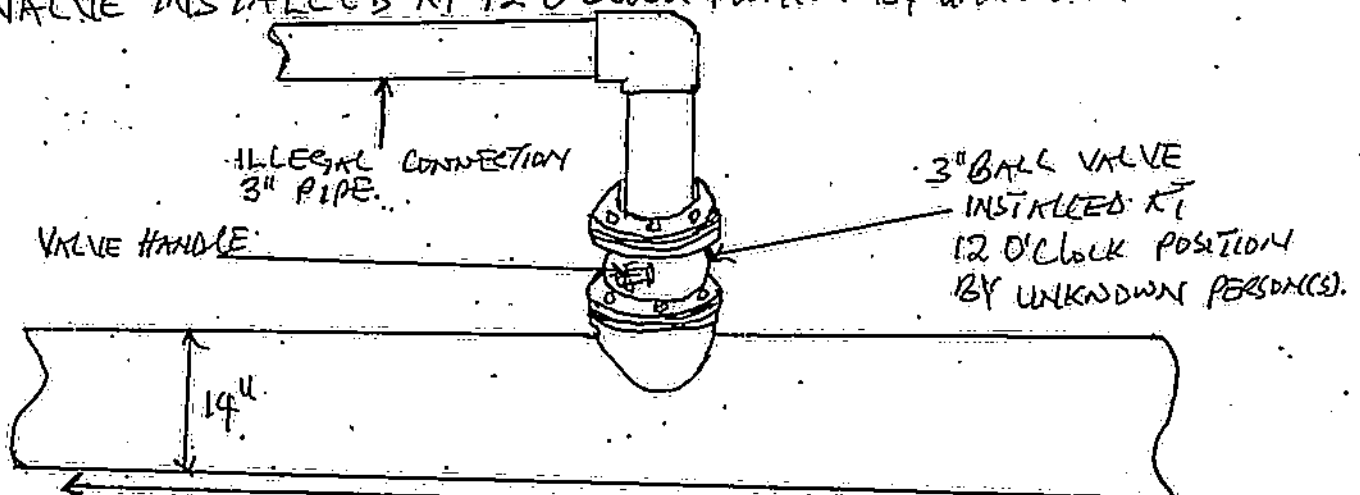
18. Fishing Nets/Fish Ponds

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 PIPELINE AT IHUDW6 SHOWING 3" BALL VALVE INSTALLED AT 12 O'CLOCK POSITION BY UNKNOWN PERSON(S).



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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
<i>Please find attached</i>		
<i>04/07/2018</i> <i>215 2522</i> <i>SINNOV</i>		

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12/05/84

S/N	Long	Lat	Remark
1	6.66593	4.99782	Incident Point(Bunkering)
2	6.66591	4.99782	Bunkering Pipe no Impact
3	6.66586	4.99771	
4	6.66572	4.99527	
5	6.66567	4.99525	SECONDARY IMPACT ON LAND(HOSE ROUTE) <i>Light Impact along the Bunkering hose</i>
6	6.66560	4.99529	
7	6.66551	4.99539	
8	6.66543	4.99549	
9	6.66534	4.99564	
10	6.66529	4.99579	
11	6.66529	4.99592	
12	6.66530	4.99600	
13	6.66535	4.99609	
14	6.66538	4.99616	
15	6.66538	4.99629	
16	6.66539	4.99643	
17	6.66535	4.99652	
18	6.66534	4.99657	
19	6.66543	4.99667	
20	6.66549	4.99677	
21	6.66554	4.99685	
22	6.66557	4.99692	
23	6.66562	4.99701	
24	6.66569	4.99710	
25	6.66576	4.99747	
26	6.66576	4.99739	
27	6.66574	4.99721	
28	6.66569	4.99707	
29	6.66559	4.99695	
30	6.66552	4.99678	
31	6.66544	4.99667	
32	6.66536	4.99655	
33	6.66541	4.99644	
34	6.66539	4.99617	
35	6.66535	4.99604	
36	6.66532	4.99599	
37	6.66532	4.99588	
38	6.66532	4.99575	
39	6.66542	4.99555	
40	6.66555	4.99536	
41	6.66572	4.99527	
S/N	long	Lat	
41	6.66581	4.99717	
42	6.66574	4.99714	
43	6.66575	4.99720	

seasonal

klas 84

44	6.66576	4.99728	Light Impact on S Swamp
45	6.66578	4.99739	
46	6.66586	4.99733	
47	6.66590	4.99724	
48	6.66584	4.99719	
49	6.66581	4.99717	
S/N	Long	Lat	
50	6.66592	4.99740	Heavy Impact on Land
51	6.66586	4.99733	
52	6.66576	4.99740	
53	6.66576	4.99753	
54	6.66579	4.99770	
55	6.66584	4.99773	
56	6.66594	4.99753	
57	6.66592	4.99740	
S/N	Long	Lat	
58	6.66598	4.99686	Heavy Impact on Seasonal Swamp
59	6.66586	4.99672	
60	6.66574	4.99674	
61	6.66569	4.99659	
62	6.66538	4.99597	
63	6.66538	4.99608	
64	6.66542	4.99618	
65	6.66543	4.99631	
66	6.66545	4.99637	
67	6.66546	4.99641	
68	6.66543	4.99649	
69	6.66541	4.99656	
70	6.66545	4.99668	
71	6.66552	4.99674	
72	6.66558	4.99682	
73	6.66556	4.99683	
74	6.66561	4.99688	
75	6.66562	4.99696	
76	6.66569	4.99703	
77	6.66573	4.99708	
78	6.66574	4.99715	
79	6.66582	4.99717	
80	6.66595	4.99712	
81	6.66598	4.99686	

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.699 Hectfs
- Impact within R.O.W NIL
- Impact outside R.O.W 0.699 Hectfs

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

Recovered oil V_{rec} :	<u>0.62</u>	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

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

9.96 BARRELS

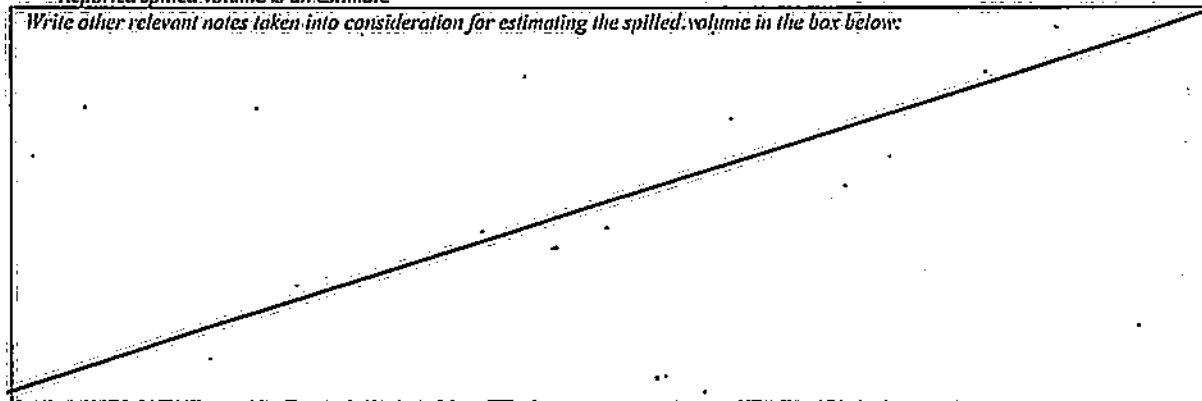
Estimated Reported Volume** V_{rep} (bbls) =

10 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:



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 JIV 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"/>

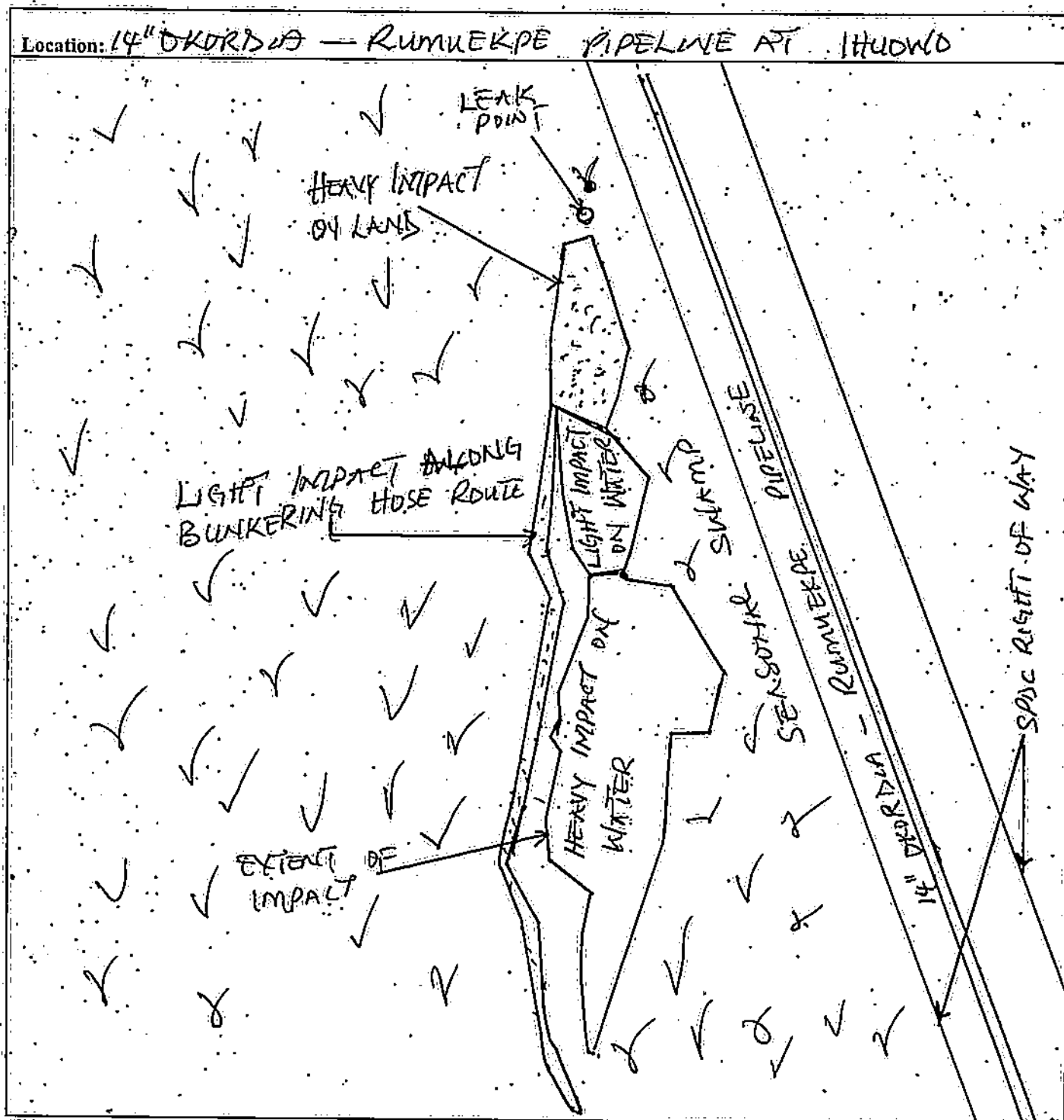
e. Representatives

This report was filled, agreed and signed by the following joint investigation team representatives:	
<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"/>	<i>Tick as applicable</i>

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f. Appendix 1: Overview sketch of the site



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