

JOINT INVESTIGATION REPORT

INCIDENT NO: 2158908 JIV report S/N: 0043

(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: 2158908 2. Type of incident*: OIL SPILL
3. Name of Location: 36th NKPOKU - BOMU PIPELINE
4. Name of nearest community: AKIMUESARA (ENEKA) 5. State: RIVERS 6. LGA: OBIO AKPOR
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: 8th SEPTEMBER, 2018
b. Start date/time of investigation: 11th SEPTEMBER, 2018
c. Investigation End date: 12th 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 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: SANDBAGS CONCEALING CRUDE OIL THEFT POINT WAS OBSERVED

e. 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 checked="" 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

WGS 84

Measuring unit	Northing:	Easting:
	4.919725	7.033248
	↙ ↘	↙ ↘

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]
 NONE

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:

RECOVERY AND REPAIR ACTIVITIES ARE ONGOING

15. Was there any disruption to the investigation?

[N]

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If yes to item 15 give brief description:

JIV WAS ATTEMPTED ON THE 11TH SEPTEMBER, 2018 BUT DUE TO THE MUCH VOLUME OF CRUDE OIL AROUND THE ENVIRONMENT PREVENTING EXCAVATION, JIV WAS CONCLUDED ON THE 13TH SEPTEMBER, 2018.

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
	UNCOMPLETED BUILDING	UNCOMPLETED BUILDING	800m ²	2	LIGHT IMPACT

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1	RAPA PALM TREE		✓		FEW	IMPACTED BY SPILL

18. Fishing Nets/Fish Ponds

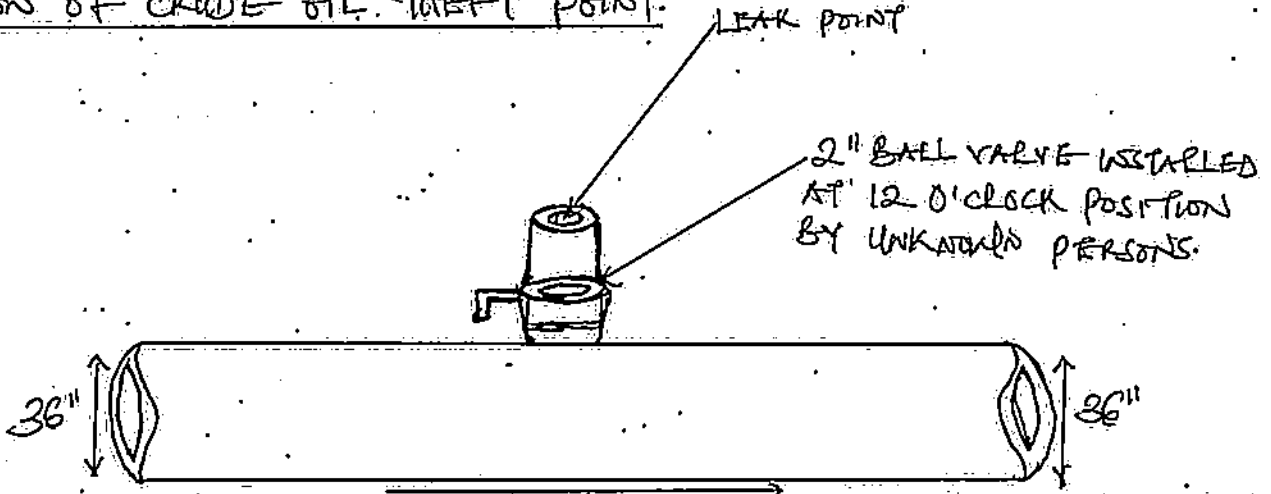
S/N	Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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)

SECTION OF 36" NKPOKY - BOMU PIPELINE AT RUMECARA (ENEKA) SHOWING POSITION OF CRUDE OIL LEAK POINT.



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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)

WCS 84

S/N	Northing	Easting

See attachment (Appendix A)

PA
13/09/2018

Coordinate list for Inc.no:2158908(36" Nkpoku-Bomu Pipeline at Rumuesara-Eneka)-Appendix-A

PTS	WGS 84	
	Y(Northings)	X(Eastings)
475	4.919725	7.033248
476	4.91965	7.0333
478	4.91938	7.03319
479	4.91943	7.03249
480	4.91951	7.03264
481	4.91953	7.03277
482	4.91951	7.03285
483	4.91943	7.03291
484	4.91945	7.03292
485	4.91936	7.03292
486	4.9194	7.03313
487	4.91955	7.03314
488	4.91957	7.03313
489	4.9196	7.03304
490	4.91965	7.03307
491	4.91963	7.03318
492	4.91963	7.03326
493	4.91956	7.03325
494	4.9196	7.03331
495	4.91963	7.03341
496	4.9196	7.03354
497	4.91961	7.03361
498	4.91973	7.03354
499	4.91983	7.03352
500	4.91989	7.03349
501	4.9199	7.03339
502	4.91982	7.03323
503	4.91983	7.03316
504	4.91979	7.03317
505	4.91974	7.03304
506	4.9198	7.03301
507	4.91974	7.03295
508	4.91969	7.0329
509	4.91975	7.03285
510	4.91965	7.0327
511	4.91962	7.03277
512	4.91962	7.03266
513	4.91954	7.03258
514	4.91946	7.03244
515	4.9197	7.03263
516	4.91958	7.03242
517	4.91956	7.03228
518	4.91964	7.0324

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519	4.9197	7.03243
520	4.91975	7.03252
521	4.91974	7.03262
522	4.919323	7.033429
523	4.919736	7.033255
524	4.919715	7.03325
525	4.919727	7.033235
↖	↖	↖

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.29 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} :	420	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

NIL	Barrels
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<p>c. Net Estimated Spilled Volume V_{est} (bbls)* = <u>621.97 BARRELS</u></p>
<p>Estimated Reported Volume** V_{rep} (bbls) = <u>622 BARRELS</u></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 (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"/>

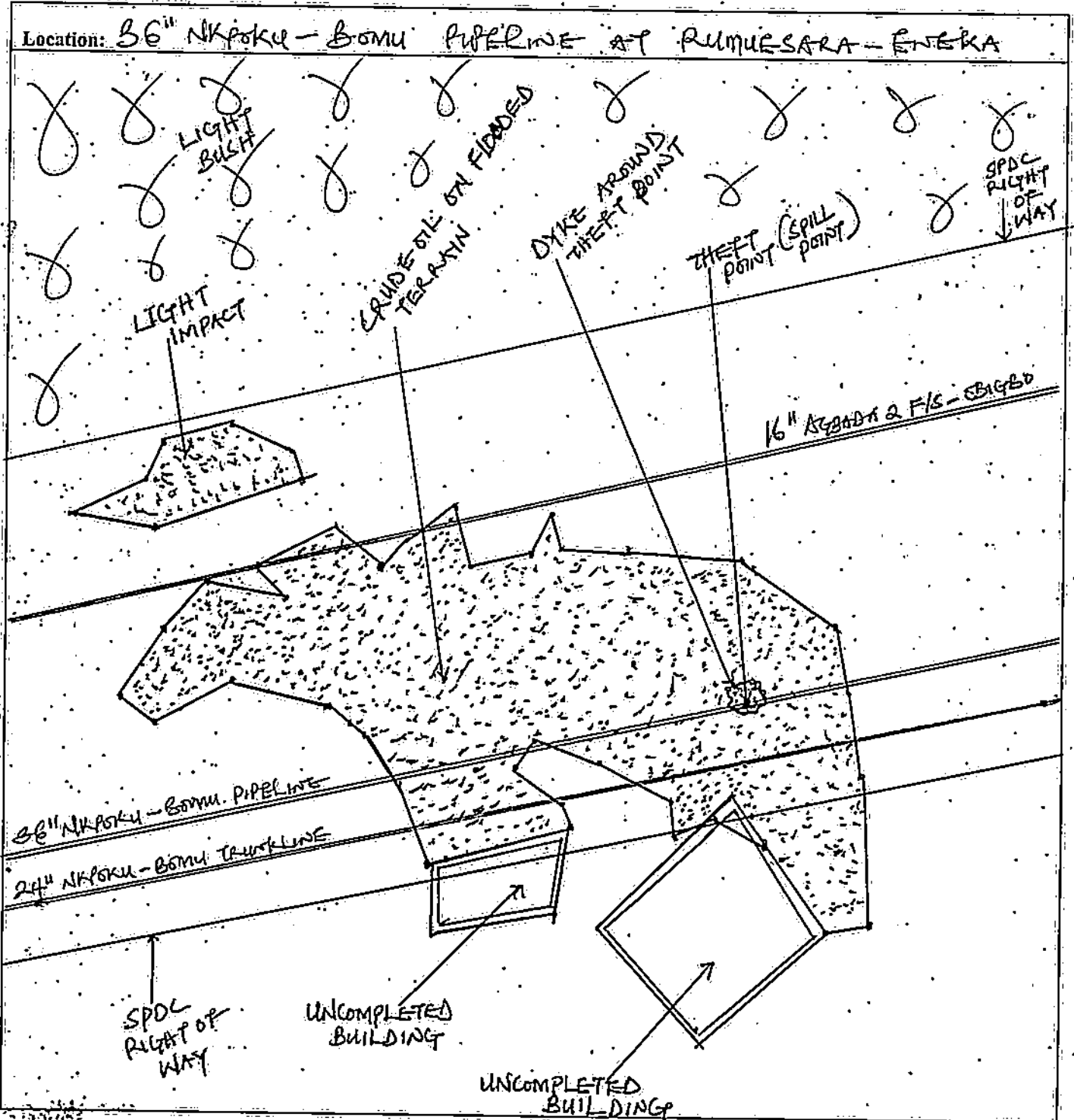
e. Representatives

<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 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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