

JOINT INVESTIGATION REPORT

INCIDENT NO: 2265934 JIV report S/N: 0248

(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: 2265934 2. Type of incident*: OIL SPILL
3. Name of Location 28th NKPOKU - BOMU PIPELINE
4. Name of nearest community ALETO 5. State: RIVERS 6. LGA ELEME
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED (SPDC) / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 13th FEBRUARY, 2019
b. Start date/time of investigation: 14th FEBRUARY, 2019 / 14⁰⁰HRS
c. Investigation End date: 15th FEBRUARY, 2019 Actual investigation duration, days: ONE (1) DAY
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:

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) _____

JOINT INVESTIGATION REPORT

INCIDENT NO: 2265934 JIV report S/N: 0248

g. Spill point coordinates

Measuring unit WGS 84

Northing: <u>LAT</u>	Easting: <u>LONG</u>
<u>4.809025</u>	<u>7.103891</u>
<u> </u>	<u> </u>
<u> </u>	<u> </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
 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 | [NIL ,m] |
| <input type="checkbox"/> Drinking water source | [NIL ,m] |
| <input type="checkbox"/> Built up area | [NIL ,m] |
| <input type="checkbox"/> Farmlands | [NIL ,m] |
| <input type="checkbox"/> Fish Farm/Pond | [NIL ,m] |
| <input type="checkbox"/> Fishing net | [NIL ,m] |
| <input type="checkbox"/> Others (specify): | [NONE] |

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:

RECOVERY AND REPAIR ACTIVITIES ARE ONGOING

15. Was there any disruption to the investigation?

[Y] [X]

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JOINT INVESTIGATION REPORT

INCIDENT NO: 2265934 JIV report S/N: 0248

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						

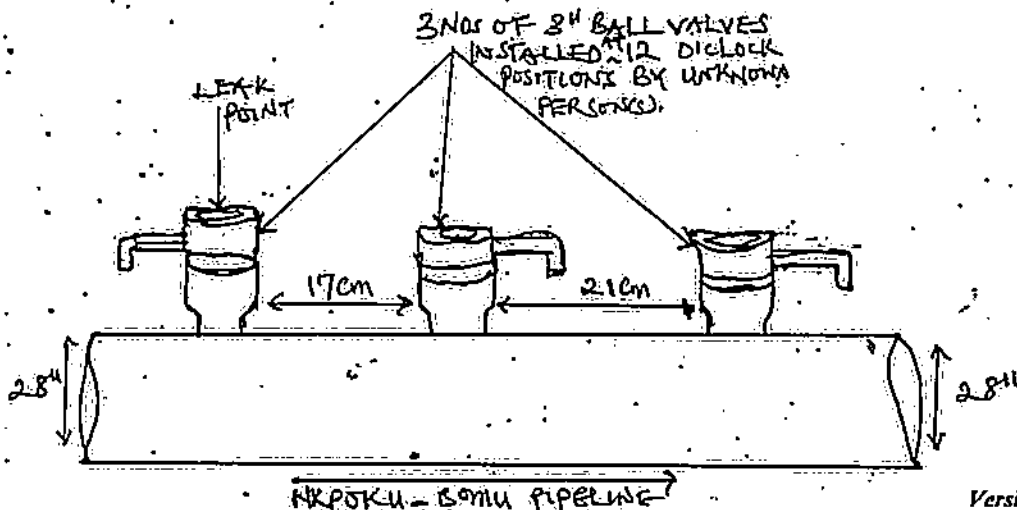
18. Fishing Nets/Fish Ponds

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 28" NKPOKU-BOMU PIPELINE AT ALETO SHOWING A 3 NOS OF 2" BALL VALVES INSTALLED AT 12 O'CLOCK POSITIONS BY UNKNOWN PERSONS.



JIV ON 28" NKPOKU-BOMU TRUNKLINE AT ALETO
COORDINATES IN WGS 84

PNT_ID	LAT	LONG
SPIILL POIN	4.809025	7.103891
1071	4.808917	7.103751
1072	4.808978	7.103686
1073	4.809028	7.10372
1074	4.809055	7.103756
1075	4.809045	7.1038
1076	4.809062	7.103839
1077	4.809117	7.103846
1078	4.809142	7.103846
1079	4.809205	7.103826
1080	4.809254	7.103816
1081	4.809169	7.10384
1082	4.809122	7.103913
1083	4.80906	7.103984
1084	4.809014	7.104012
1085	4.808871	7.104073
1086	4.808817	7.104141
1087	4.808789	7.104095
1088	4.808754	7.104062
1089	4.808782	7.10402
1090	4.808812	7.103962
1091	4.808755	7.103946
1092	4.80874	7.103947
1093	4.808715	7.103965
1094	4.808687	7.10401
1095	4.80869	7.104041
1096	4.808647	7.104234
1097	4.808574	7.104317
1098	4.808515	7.104344
1099	4.80849	7.104311
1100	4.80867	7.104017
1101	4.80865	7.104002
1102	4.80864	7.103983
1103	4.808641	7.103952
1104	4.80865	7.103925
1105	4.808671	7.103915
1106	4.808712	7.103951
1107	4.808764	7.103871
1108	4.808794	7.103855
1109	4.808802	7.103844
1110	4.808775	7.103482
1111	4.808792	7.103496
1112	4.808797	7.103542
1113	4.808807	7.103554
1114	4.808822	7.103811

JOINT INVESTIGATION REPORT

INCIDENT NO: 22 85934 JIV report S/N: 0248

G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.159891 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} :	244	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} (bbbls)* =	312.70 BARRELS
Estimated Reported Volume** V_{rep} (bbbls) =	313 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) 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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JOINT INVESTIGATION REPORT

INCIDENT NO: 2265934 JIV report S/N: 0248

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

This report was filled, agreed and signed by the following joint investigation team representatives:

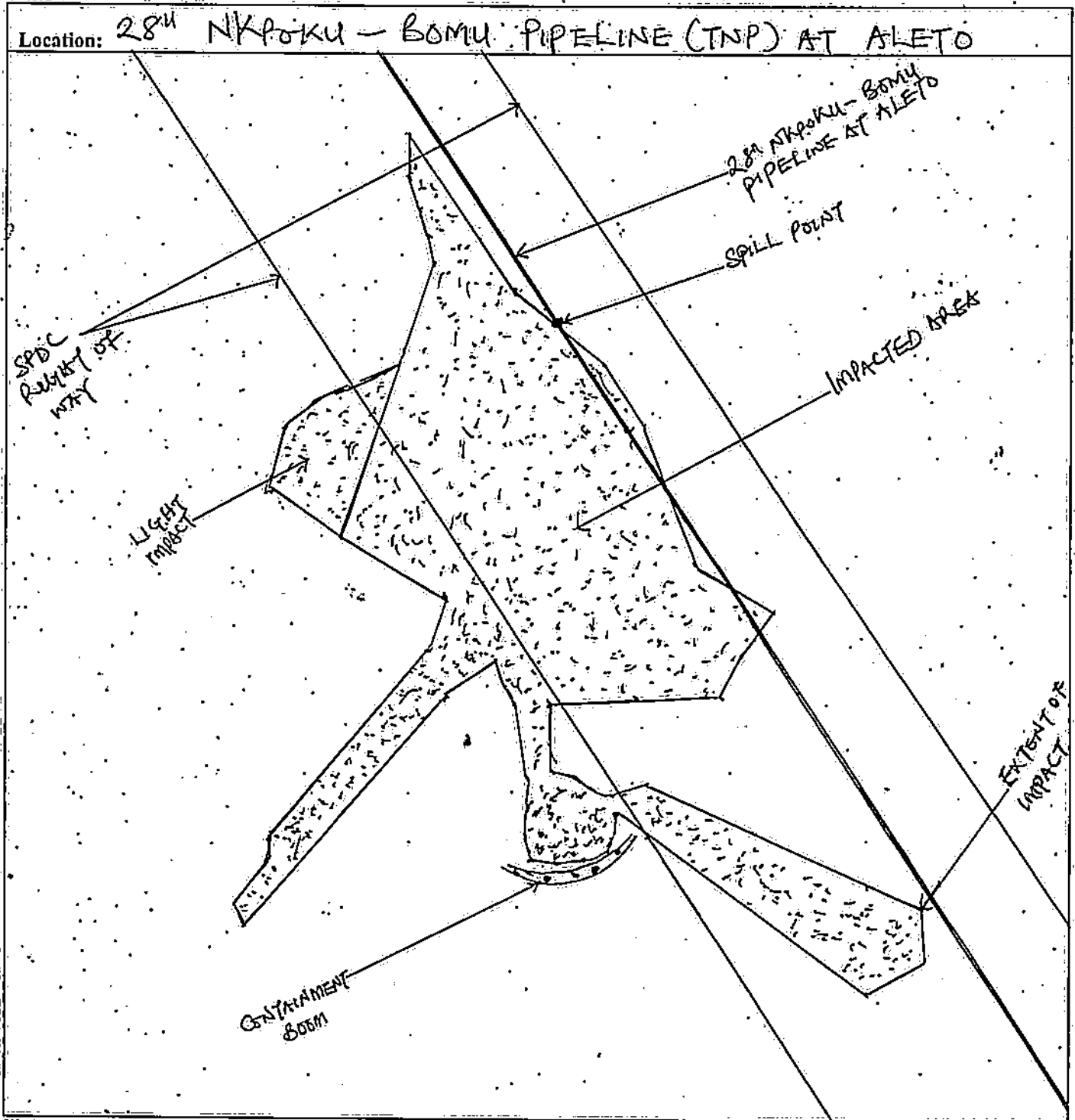
- Host Community:
- Department of Petroleum Resources (DPR):
- National Oil Spill Detection and Response Agency (NOSDRA):
- State Ministry of Environment (SME):
- Asset Owner:
- Signatories agree with reported findings:
- Separate DPR form has been filled out with same findings

Tick as applicable

JOINT INVESTIGATION REPORT

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f. Appendix 1: Overview sketch of the site



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