

JOINT INVESTIGATION REPORT

INCIDENT NO: 1671534 JIV report S/N: N^o 0000163

(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: 1671534 2. Type of incident* OIL SPILL
3. Name of Location 28" NKPOKU - BOMU PIPELINE
4. Name of nearest community GIO/KPORGHOR 5. State: RIVERS 6. LGA TAI
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: 11TH JULY 2016
b. Start date/time of investigation: 12TH JULY 2016 / 1200 HRS
c. Investigation End date: 01ST AUGUST 2016 Actual investigation duration, days: FIVE (5) DAYS
d. Description of spill point environment

- | | | |
|---|-------------------------------------|--|
| <input type="checkbox"/> Firm soil | <input type="checkbox"/> Loose soil | <input type="checkbox"/> Recently excavated area |
| <input type="checkbox"/> Under water | <input type="checkbox"/> Swampy | <input checked="" 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 SAW AN INWARD DENT AND A TEAR AT 6 O'CLOCK POSITION.

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

- | | | |
|---|--|--|
| <input type="checkbox"/> Drilled hole | <input type="checkbox"/> Hack saw cut | <input checked="" type="checkbox"/> Tear (<u>EXPLOSIVE TEAR</u>). |
| <input type="checkbox"/> Complete Rupture | <input checked="" 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"/> Others(specify) _____ | | |

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,

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g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: LATITUDE (N)	Easting: LONGITUDE (E)
4.71017	7.23426

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 checked="" type="checkbox"/> Drinking water source | [<50 ,m] |
| <input checked="" type="checkbox"/> Built up area | [<50 ,m] |
| <input checked="" type="checkbox"/> Farmlands | [<50 ,m] |
| <input checked="" type="checkbox"/> Fish Farm/Pond | [<50 ,m] |
| <input type="checkbox"/> Fishing net | [NIL ,m] |
| <input type="checkbox"/> Others (specify): | |

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:

SECTIONAL REPLACEMENT

15. Was there any disruption to the investigation?

[Y]

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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
	Bk	<u>NONE WITHIN AREA OF IMPACT</u>			

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1	COCONUT	MANY	MANY	MANY	MANY	IMPACT/BURNED

18. Fishing Nets/Fish Ponds

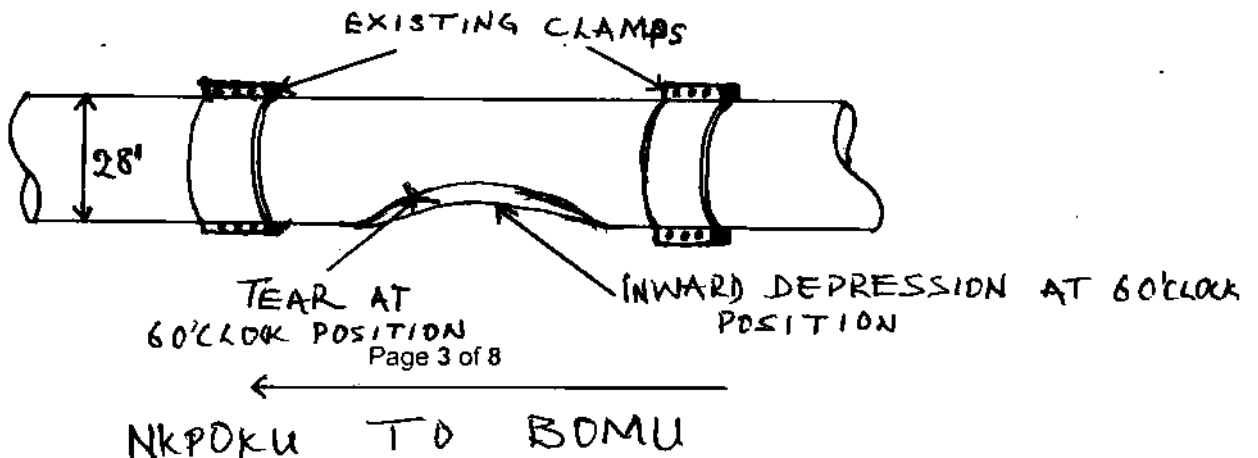
S/N	Nets/Ponds	Description	Quantity/Size	Comments
1	FISH PONDS	SQUARE SHAPE	2	IMPACTED

19. Others (Specify) i.e. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
	<u>NONE WITHIN AREA OF IMPACT</u>			

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)

A SECTION OF 28" NKPOKU - BOMU PIPELINE AT GID/KPORGHOR SHOWING INWARD BENT AND TEAR AT 6 O'CLOCK POSITION IN BETWEEN TWO EXISTING CLAMPS.



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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

SEE ATTACHED APPENDIX A

[Handwritten Signature]

APPENDIX: A
 28"NKPOKU-BOMU TRUNKLINE SPILL IMPACT AT GIO/KPORGHOR
 INCIDENT NO. 1671534

WGS84

POINT	LONGITUDE(E)	LATITUDE(N)
Spill point	7.23426	4.71017
1	7.23425	4.71021
2	7.2342	4.71015
3	7.23426	4.71006
4	7.23423	4.71005
5	7.23412	4.70997
6	7.23393	4.70983
7	7.23386	4.70973
8	7.23434	4.71009
9	7.23434	4.70995
10	7.2343	4.7099
11	7.23422	4.70949
12	7.234	4.70933
13	7.23383	4.70931
14	7.23366	4.70924
15	7.23352	4.70907
16	7.23339	4.709
17	7.23336	4.7088
18	7.23363	4.70878
19	7.23357	4.70874
20	7.23348	4.70862
21	7.23338	4.70874
22	7.23334	4.7087
23	7.23311	4.70856
24	7.23348	4.70877
25	7.23301	4.70834
26	7.23305	4.70805
27	7.23302	4.70788
28	7.23297	4.70785
29	7.23291	4.70774
30	7.23288	4.70772
31	7.23276	4.70766
32	7.23253	4.70731
33	7.23243	4.70696
34	7.23237	4.70691
35	7.23245	4.70675
36	7.23247	4.70653
37	7.23243	4.70631
38	7.23243	4.70612
39	7.23316	4.70411
40	7.23296	4.70413
41	7.23406	4.70232
42	7.23389	4.70217
43	7.23397	4.70177
44	7.23398	4.70146

28"NKPOKU-BOMU TRUNKLINE SPILL IMPACT AT GIO/KPORGHOR
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WGS84

POINT	LONGITUDE(E)	LATITUDE(N)
45	7.23296	4.70779
46	7.23427	4.70991
47	7.23363	4.70929
48	7.23377	4.7094
49	7.23385	4.70952
50	7.23349	4.70911
51	7.23405	4.70942
52	7.23419	4.70961
53	7.2341	4.70978
54	7.23397	4.70961
55	7.23393	4.70953
56	7.23381	4.70937
57	7.23336	4.70903
58	7.23331	4.70882
59	7.23323	4.70873
60	7.2332	4.70866
61	7.23308	4.70863
62	7.23296	4.70837
63	7.23296	4.70808
64	7.23278	4.7079
65	7.23256	4.70751
66	7.23245	4.7073
67	7.23239	4.70708
68	7.23231	4.70695
69	7.23246	4.70598
70	7.23255	4.70581
71	7.23259	4.70563
72	7.23259	4.70548
73	7.23255	4.70517
74	7.23253	4.70488
75	7.23256	4.70473
76	7.23279	4.70449
77	7.23357	4.70079
78	7.23368	4.70304
79	7.23347	4.70332
80	7.23333	4.70355
81	7.23329	4.70392
82	7.23302	4.70429
83	7.23271	4.70769
84	7.23336	4.70041
85	7.23376	4.70141
86	7.23375	4.70223
87	7.23352	4.70304
88	7.23245	4.70468
89	7.23237	4.70508
90	7.23248	4.70564

Done

28"NKPOKU-BOMU TRUNKLINE SPILL IMPACT AT GIO/KPORGHOR
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WGS84

POINT	LONGITUDE(E)	LATITUDE(N)
91	7.23237	4.706
92	7.23219	4.70604
93	7.2322	4.70619
94	7.23236	4.70632
95	7.2324	4.70653
96	7.23238	4.70675
97	7.23352	4.70871
98	7.23346	4.70869
99	7.23402	4.70133
100	7.23393	4.70111
101	7.23403	4.70073
102	7.23431	4.7006
103	7.23448	4.70062
104	7.2346	4.7006
105	7.23472	4.70056
106	7.2347	4.70049
107	7.23479	4.70051
108	7.23491	4.70052
109	7.23505	4.70057
110	7.23525	4.70059
111	7.23559	4.7006
112	7.23563	4.7005
113	7.23545	4.70043
114	7.23524	4.70035
115	7.23513	4.70032
116	7.23507	4.70025
117	7.23496	4.70015
118	7.23467	4.70014
119	7.23385	4.70037
120	7.23376	4.70017
121	7.23676	4.69719

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 2.84 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} :	<u>25 BBLs</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)* =

293.61 BARRELS

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

294 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 in the box below:

Nil

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 6. (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

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 finding

Tick as applicable

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f. Appendix 1: Overview sketch of the site

