

JOINT INVESTIGATION REPORT

INCIDENT NO: 1494903 JIV report S/N: Nº 0000070

(Note: As practicable as possible the JIT report is to be signed in the field by all the participating parties)

A. GENERAL INFORMATION:

1. Spill incident Number: 1494903 2. Type of incident* OIL SPILL
3. Name of Location 24" BOMU - BONNY PIPELINE
4. Name of nearest community OWOKIRI 5. State: RIVERS 6. LGA ANDONI
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA (SPDC)
PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 28TH SEPTEMBER, 2015
b. Start date/time of investigation: 07TH OCTOBER, 2015/11:00HRS
c. Investigation End date: 7TH OCTOBER 2015 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 type="checkbox"/> Recently excavated area |
| <input type="checkbox"/> Under water | <input checked="" 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 (JIT) OBSERVED EVIDENCE OF CORROSION AROUND THE SPILL POINT. THE ULTRASONIC TEST (U.T) INDICATED SOME WALL LOSS ALSO, 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 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 checked="" type="checkbox"/> Others(specify) <u>CORROSION</u> | | |

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) <div style="font-size: 1.2em; text-align: center;">04-54148</div>	Easting: (LONGITUDE) <div style="font-size: 1.2em; text-align: center;">007-24700</div>

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 [,m]
- Drinking water source NONE OBSERVED [,m]
- Built up area WITHIN THE AREA OF [,m]
- Farmlands IMPACT AS AT THE [,m]
- Fish Farm/Pond TIME OF JOINT INVESTIGATION [,m]
- Fishing net VISIT. [,m]
- 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:

REPAIR COMMENCED

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

17. Crops/Economic Trees

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

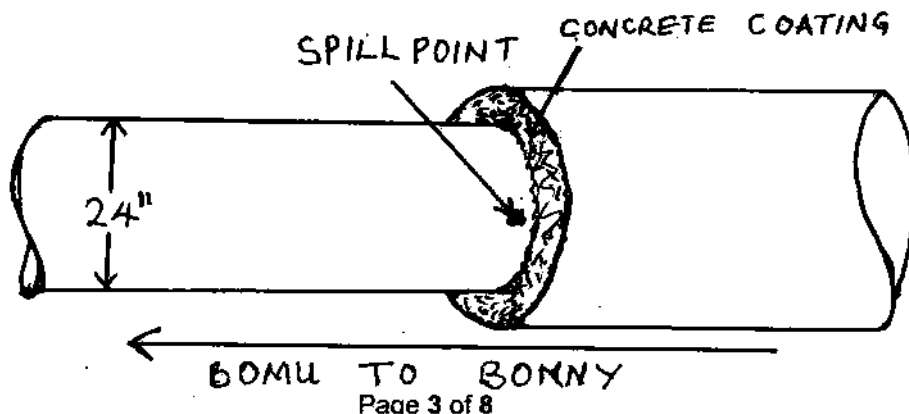
18. Fishing Nets/Fish Ponds

S/N	Nets/Ponds	Description	Quantity/Size	Comments
<u>NONE WITHIN THE AREA OF IMPACT</u>				

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

S/N	Others	Description	Quantity/Size	Comments
1.	<u>NYPA PALM</u>	<u>MATURE</u>	<u>MANY</u>	<u>IMPACTED</u>
2.	<u>MANGROVE</u>	<u>MATURE</u>	<u>MANY</u>	<u>IMPACTED</u>
3.	<u>WATER SURFACE</u>			<u>IMPACTED</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 24" BOMU - BONNY PIPELINE AT OWOKIRI SHOWING SPILL POINT DUE TO CORROSION BETWEEN 9 AND 10 O'CLOCK POSITIONS.**



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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
TOP COORDINATE LISTINGS
07-10-2015

24" BOMU-BONNY TNP @ OWOKIRI**1INC.NO: 1494903****INC.DATE: 28/09/2015****INV.DATE: 07/10/2015**

POINT	LATITUDE	LONGITUDE
SP	7.247	4.54148
197	7.24746	4.54212
198	7.24671	4.54174
199	7.2442	4.54327
200	7.2433	4.54112
201	7.24718	4.54131
202	7.24343	4.5448
203	7.2449	4.54229
204	7.24584	4.54281
205	7.24723	4.54148
206	7.24563	4.54261
207	7.24737	4.54066
208	7.24665	4.54191
209	7.24637	4.54136
210	7.74626	4.54162
211	7.24621	4.5414
212	7.24622	4.54118
213	7.24601	4.54124
214	7.24617	4.54165
215	7.24646	4.54203
216	7.24663	4.54225
217	7.24693	4.54223
218	7.24717	4.54217
219	7.24558	4.54267
220	7.24494	4.5424
221	7.24466	4.54236
222	7.24469	4.54221
223	7.24462	4.54235
224	7.2446	4.54289
225	7.24443	4.54342
226	7.24418	4.54396
227	7.24424	4.54398
228	7.2445	4.54343
229	7.24467	4.54294
230	7.24336	4.54478
231	7.24329	4.54476
232	7.2435	4.54445
233	7.24371	4.54413
234	7.24375	4.54361
235	7.24411	4.54287
236	7.24429	4.54237
237	7.24439	4.54281
238	7.24434	4.54203

24" BOMU-BONNY TNP @ OWOKIRI		
INC.NO: 1494903	INC.DATE: 28/09/2015	
INV.DATE: 07/10/2015		
POINT	LATITUDE	LONGITUDE
239	7.2445	4.54207
240	7.2446	4.5415
241	7.24461	4.54084
242	7.24438	4.54069
243	7.24391	4.54097
244	7.24341	4.54123
245	7.24335	4.54088
246	7.24388	4.54042
247	7.24417	4.54021
248	7.24484	4.54034
249	7.24583	4.54037
250	7.24677	4.54053

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 9.25Ha
- 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} :	<u>NIL</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_{esp} (bbls)* =

96.96 BARRELS

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

97 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:

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 m³ 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

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

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f. Appendix 1: Overview sketch of the site

