

JOINT INVESTIGATION REPORT

INCIDENT NO: 1986887 JIV report S/N: 0945

(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: 1986887 2. Type of incident* OIL SPILL
3. Name of Location 28th NKPOKU - BOMU PIPELINE
4. Name of nearest community ETEO 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 LTD (SPDC) / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 17TH DECEMBER 2017
b. Start date/time of investigation: 19TH DECEMBER 2017/1100HRS
c. Investigation End date: 21ST DECEMBER 2017 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:

NOT APPLICABLE

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 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) _____

*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

WGS84

Northing: LATITUDE	Easting: LONGITUDE
4.75739	7.16635
 	
 	

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 checked="" type="checkbox"/> Farmlands | > 50 ,m] |
| <input type="checkbox"/> Fish Farm/pond | [NIL ,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:

REPAIR BY CLAMPING

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 AREA OF IMPACT</u>					

17. Crops/Economic Trees

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

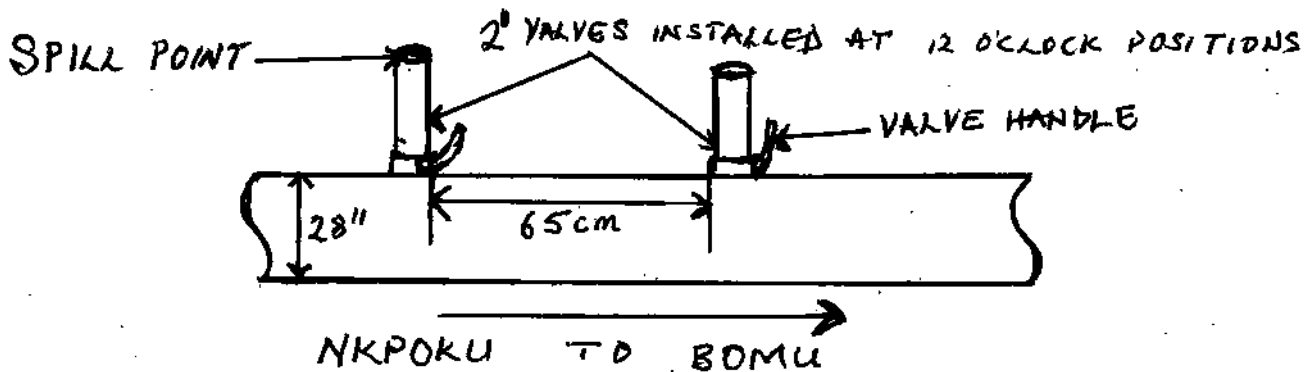
18. Fishing Nets/Fish Ponds

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

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 I)* **A SECTION OF 28" NKPOKU - BOMU PIPELINE AT ETED SHOWING TWO (2) nos 2" VALVES INSTALLED 65cm APART AT 12 O'CLOCK POSITIONS BY UNKNOWN PERSONS**



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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
etc*

APPENDIX A**28" TNP AT ETTEO****INCIDENT NUMBER:1986887****WGS84**

Point	Easting(m)	Northing(m)
SP	7.16635	4.75739
414	7.16638	4.7574
415	7.16634	4.75744
416	7.16634	4.75749
417	7.16629	4.75753
418	7.16626	4.75759
419	7.16629	4.75765
420	7.16625	4.75769
421	7.16619	4.75767
422	7.16618	4.75763
423	7.16618	4.75759
424	7.16613	4.75758
425	7.1661	4.75756
426	7.16607	4.7575
427	7.16598	4.75757
428	7.16599	4.75759
429	7.16585	4.75764
430	7.16572	4.75768
431	7.16549	4.75787
432	7.16542	4.75795
433	7.16538	4.75804
434	7.16539	4.75805
436	7.16533	4.75819
437	7.16538	4.75818
438	7.1654	4.75822
439	7.16529	4.75843
440	7.16532	4.75847
441	7.16535	4.75854
442	7.16536	4.75865
443	7.16532	4.75868
444	7.16529	4.75872
445	7.16524	4.75872
446	7.16524	4.75876
447	7.16521	4.75882
448	7.16519	4.7588
449	7.1652	4.75876
450	7.16522	4.75874
451	7.1652	4.75873
452	7.16518	4.75875
453	7.16518	4.75875
454	7.16524	4.75865
455	7.16527	4.75865
456	7.16531	4.75867
457	7.1653	4.75864

459	7.1653	4.75858
460	7.16526	4.75856
461	7.16523	4.75841
462	7.16518	4.75795
463	7.16506	4.75797
464	7.16487	4.75805
465	7.16486	4.75804
466	7.1649	4.75803
467	7.16498	4.75799
468	7.16503	4.75796
469	7.16487	4.75802
470	7.16487	4.75801
471	7.16503	4.75794
472	7.16509	4.75792
473	7.16508	4.75791
474	7.16523	4.75794
475	7.1653	4.75796
476	7.16552	4.75771
477	7.16564	4.75762
478	7.16571	4.75763
479	7.16577	4.75758
480	7.16592	4.75754
481	7.16591	4.75751
482	7.16606	4.75744
483	7.1662	4.75736
484	7.16628	4.7573
485	7.16628	4.75735
486	7.16624	4.7574
487	7.16624	4.75742
488	7.16633	4.75736
489	7.16645	4.7573
490	7.16646	4.75725
491	7.16642	4.75724
492	7.16642	4.7572
493	7.16646	4.75716
494	7.16648	4.75731
495	7.16646	4.75735
496	7.16637	4.75736
498	7.16524	4.75805
499	7.16526	4.75826
500	7.16515	4.75838
501	7.16515	4.75834
502	7.16507	4.75826
503	7.16496	4.75818
504	7.16493	4.75815
505	7.16484	4.75807
506	7.16476	4.7581
507	7.16471	4.7582
508	7.16471	4.75827
509	7.16465	4.75832

510	7.16459	4.75822
511	7.16441	4.75827
512	7.16424	4.7583
513	7.16415	4.75833
514	7.16416	4.75842
515	7.16417	4.75851
516	7.16432	4.75863
517	7.16443	4.7587
518	7.16454	4.75876
519	7.16456	4.75889
520	7.16465	4.75909
521	7.16478	4.75925
522	7.16484	4.75932
523	7.165	4.75937
524	7.16508	4.75943
525	7.16515	4.75952
526	7.16526	4.75949
527	7.16532	4.75944
528	7.16532	4.75943
529	7.16524	4.75942
530	7.16513	4.75938
531	7.16541	4.75946
532	7.16547	4.75946
533	7.1656	4.75947
534	7.16567	4.7595
535	7.16581	4.75948
536	7.16576	4.75936
537	7.16586	4.75932
538	7.16592	4.7593
539	7.16604	4.75935
540	7.16614	4.75935
541	7.16619	4.75933
542	7.16617	4.75911
543	7.16609	4.759
544	7.16602	4.75903
545	7.16596	4.75894
546	7.16579	4.75887
547	7.16575	4.7589
548	7.16566	4.75895
549	7.1656	4.75887
550	7.16557	4.7589
551	7.1654	4.75893
552	7.16538	4.75889
554	7.16509	4.75875
555	7.16504	4.75868
556	7.16507	4.75863
557	7.16507	4.75854
558	7.16503	4.75854
559	7.16503	4.75848
560	7.16503	4.75845

561	7.16499	4.75848
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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 1.90Ha
- 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>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_{est} (bbls)* =

<u>77.24 BBLs</u>		
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; border-bottom: 1px solid black;">Estimated Reported Volume** V_{rep}(bbls)=</td> <td style="border-bottom: 1px solid black; text-align: center;"><u>78 BARRELS</u></td> </tr> </table>	Estimated Reported Volume** V_{rep}(bbls)=	<u>78 BARRELS</u>
Estimated Reported Volume** V_{rep}(bbls)=	<u>78 BARRELS</u>	

***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 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 6e (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
- ii. Investigation of the incident site showed that there is residual impact on site requiring further works

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

