

JOINT INVESTIGATION REPORT

INCIDENT NO: 1574386 JIV report S/N: Nº 0000397

(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: 1574386 2. Type of incident* OIL SPILL
3. Name of Location 6" SEIBOU BULKLINE - 2
4. Name of nearest community AZAGBENE 5. State: BAYELSA 6. LGA EKEREMOR
7. Type of Production facility/Installation FLOWLINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED / SWAMP WEST

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: 12TH FEBRUARY, 2016
b. Start date/time of investigation: 23RD FEBRUARY, 2016 AT 1413 HRS
c. Investigation End date: 24TH FEBRUARY, 2016 Actual investigation duration, days: TWO 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 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: INCIDENT CAUSE WAS CONFIRMED AS EQUIPMENT FAILURE BY THE JOINT INVESTIGATION TEAM, BASED ON THE OBSERVATION OF A 3mm HOLE AT 5 O'CLOCK POSITION ON THE 6" SEIBOU BULKLINE - 2 AT AZAGBENE AXIS.

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>EQUIPMENT FAILURE</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:	Easting:
04.86571	005.87637

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 [0 .m]
- Built up area [.m]
- Farmlands [.m]
- Fish Farm/Pond [.m]
- Fishing net [0 .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?

[Y] []

If yes to item 14, give brief description:

NOT APPLICABLE

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
NONE WITHIN AREA OF IMPACT					

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1.	MANGROVES	FEW	FEW	FEW	FEW	STAINED WITH CRUDE OIL
2.	RAFFIA PALM	LOT	LOT	LOT	LOT	STAINED WITH CRUDE OIL
3.	BAMBOO TREES	FEW	FEW	FEW	FEW	STAINED WITH CRUDE OIL
4.	PLANTAIN	—	8	6	14	STAINED WITH CRUDE OIL

18. Fishing Nets/Fish Ponds

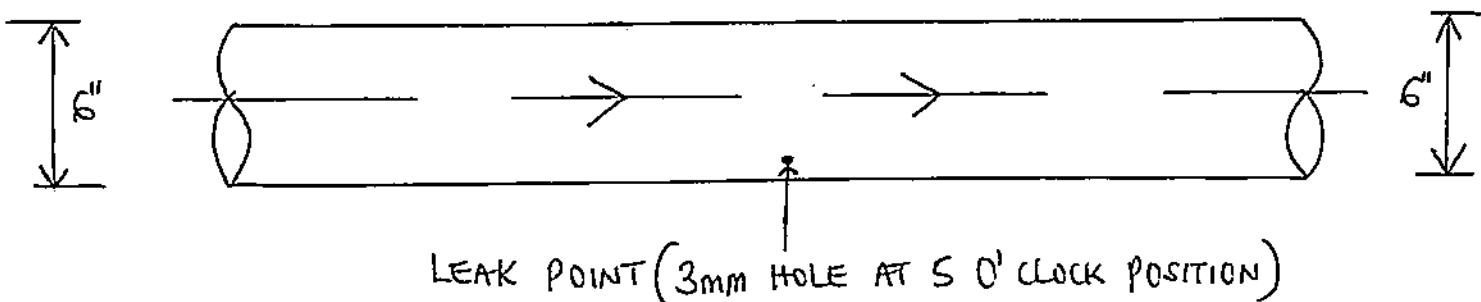
S/N	Nets/Ponds	Description	Quantity/Size	Comments
1.	FISHING NETS	CRUDE OIL STAINED NETS	23	OIL STAINED FISHING NETS
/				

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

S/N	Others	Description	Quantity/Size	Comments
1.	FISHING TRAPS	OIL STAINED TRAPS	28	OIL STAINED FISHING TRAPS
2.	CRAY FISH TRAPS	OIL STAINED TRAPS	13	OIL STAINED CRAY FISH TRAPS
/				

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)

SECTION OF 6" SEIBOU BULKLINE - 2 AT AZAGIBENE AXIS, SHOWING POSITION OF LEAK (3mm HOLE AT 5 O' CLOCK POSITION)



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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 2.48HA
- 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)* =

49.81 BBLS

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

50 BBLS

*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:

NOT APPLICABLE

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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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:

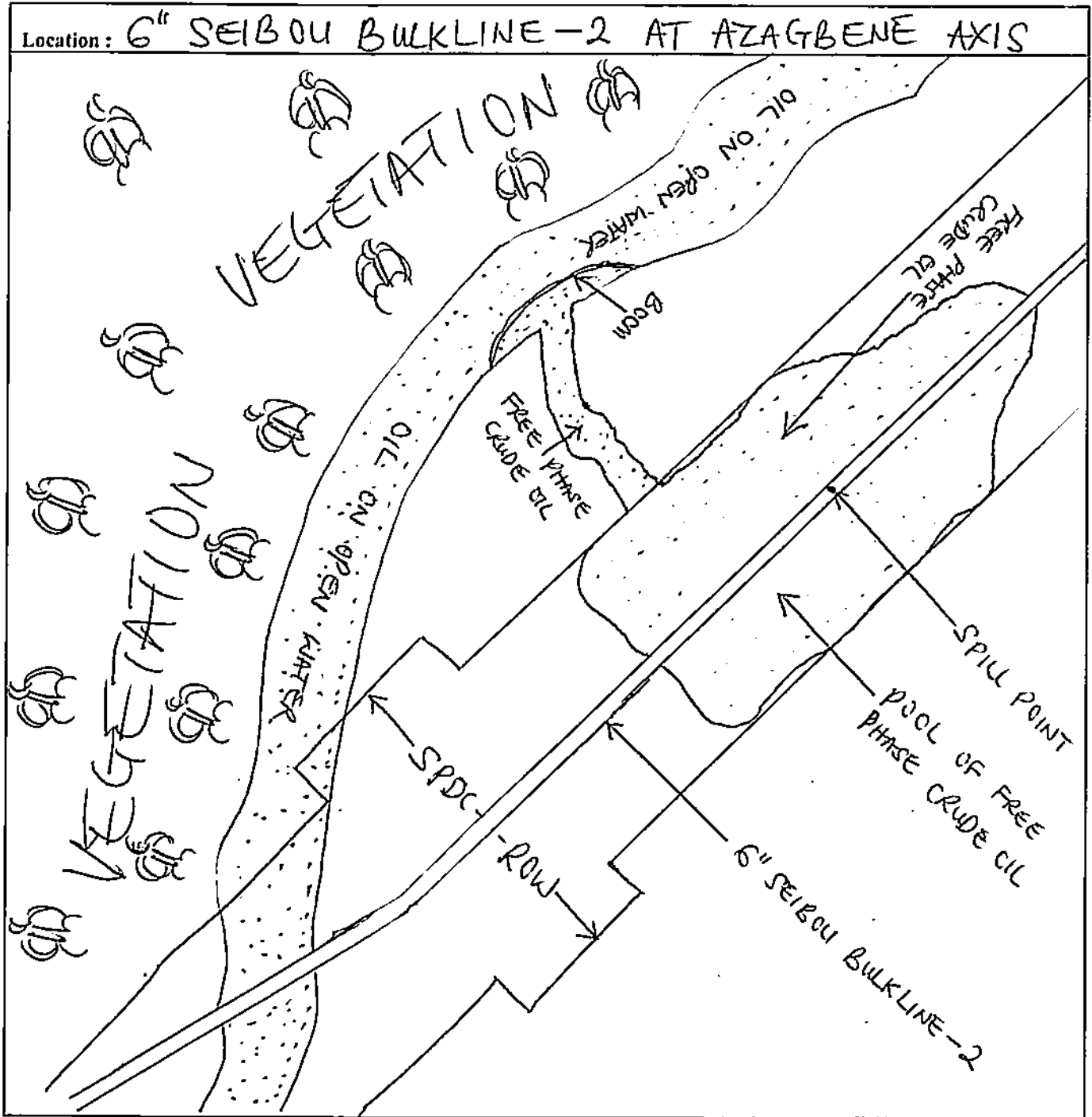
- Host Community:
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Asset Owner:
- Signatories agree with reported findings:
- Separate DPR form has been filled out with same findings:

Tick as applicable

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f. Appendix I: Overview sketch of the site



APPENDIX 1

	INC.NO:1574386			
	6" SEIBOU BULKLINE-2 @ AZAGBENE			
	WGS 84			
PTS	EASTINGS	NORTHING	REMARKS	
305	5.87637	4.86571	LEAK POINT	
311	5.87559	4.86646	FREE PHASE OIL ON WATER	
310	5.87574	4.86638	FREE PHASE OIL ON WATER	
3090	5.87624	4.865992	FREE PHASE OIL ON WATER	
308	5.876465	4.865785	FREE PHASE OIL ON WATER	
315	5.87676	4.86551	FREE PHASE OIL ON WATER	
314	5.87683	4.86562	FREE PHASE OIL ON WATER	
313	5.876784	4.865489	FREE PHASE OIL ON WATER	
3160	5.876915	4.865356	FREE PHASE OIL ON WATER	
3170	5.877193	4.865092	FREE PHASE OIL ON WATER	
317	5.87707	4.86495	FREE PHASE OIL ON WATER	
316	5.87685	4.86527	FREE PHASE OIL ON WATER	
3120	5.87664	4.865426	FREE PHASE OIL ON WATER	
312	5.8766	4.86548	FREE PHASE OIL ON WATER	
307	5.8764	4.86561	FREE PHASE OIL ON WATER	
306	5.87631	4.86567	FREE PHASE OIL ON WATER	
309	5.87616	4.86594	FREE PHASE OIL ON WATER	
356	5.87083	4.86707	OIL ON WATER	
353	5.87344	4.86593	OIL ON WATER	
349	5.87523	4.86496	OIL ON WATER	
348	5.8757	4.86477	OIL ON WATER	
346	5.87627	4.8645	OIL ON WATER	
3180	5.876501	4.864437	OIL ON WATER	
320	5.8767	4.86466	OIL ON WATER	
322	5.87663	4.86496	OIL ON WATER	
312	5.8766	4.86548	OIL ON WATER	
3120	5.87664	4.865426	OIL ON WATER	
3220	5.876722	4.864976	OIL ON WATER	
3200	5.876761	4.864662	OIL ON WATER	
318	5.87662	4.86443	OIL ON WATER	
324	5.87662	4.86439	OIL ON WATER	
327	5.87755	4.86417	OIL ON WATER	
330	5.87933	4.86391	OIL ON WATER	
332	5.88103	4.86347	OIL ON WATER	
336	5.88298	4.86287	OIL ON WATER	
335	5.88252	4.86296	OIL ON WATER	
334	5.88212	4.86304	OIL ON WATER	
333	5.88127	4.86328	OIL ON WATER	
331	5.88035	4.86353	OIL ON WATER	
329	5.87876	4.86382	OIL ON WATER	
328	5.87825	4.86391	OIL ON WATER	
326	5.87726	4.86406	OIL ON WATER	
325	5.87656	4.86418	OIL ON WATER	
347	5.87596	4.86452	OIL ON WATER	
350	5.87514	4.8649	OIL ON WATER	
351	5.87442	4.86515	OIL ON WATER	
352	5.87388	4.86556	OIL ON WATER	
354	5.8727	4.86621	OIL ON WATER	
355	5.87092	4.86679	OIL ON WATER	

339	5.881829	4.86318	FISH NET			
340	5.881962	4.863138	FISH NET			
341	5.8817	4.8632	FISH NET			
342	5.87809	4.86406	FISH TRAP			
343	5.87702	4.86421	BOOM POSITION			
344	5.87682	4.8642	BOOM POSITION			
345	5.8765	4.86434	BOOM POSITION			
346	5.87627	4.8645	BOOM POSITION			
319	5.87665	4.86455	FISH TRAP			
321	5.87667	4.86488	FISH TRAP			
323	5.8766	4.86451	FISH TRAP			