

JOINT INVESTIGATION REPORT

INCIDENT NO: 2428590 JIV report S/N: 1030106

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

A. GENERAL INFORMATION:

1. Fountain Incident Number: 2428590 2. Type of incident* OIL SPILL
3. Name of Location 16" EGBEMA - ASSA PIPELINE
4. Name of nearest community OBILE 5. State: IMD 6. LGA OHAFI / EGBEMA
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY
OF NIGERIA LIMITED / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date Reported: 16TH AUGUST 2019
b. Start date/time of investigation: 18TH AUGUST 2019 / 10:22 HRS
c. Investigation End date: 18TH AUGUST 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:

SAND BAGS WERE OBSERVED 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"/> 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, g) non leaking Theft point removal
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g. Spill point coordinates

h. Measuring unit

(WGS 84)

Northing: <u>LATITUDE</u> <u>5.41140°N</u>	Easting: <u>LONGITUDE</u> <u>6.78297°E</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 to Sensitive habitat within 100m radius

- | | |
|--|-----------|
| <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 | [30 ,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?

[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 COMPLETED.

15. Was there any disruption to the investigation?

[Y] [N]

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If yes to item 15 give brief description:

NOT APPLICABLE

16. Was JIV delayed? [X] ~~NY~~

If yes to item 16 give brief description:

NOT APPLICABLE

D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL

17. Structures / Properties

S/N	Type of Structures	Description	Size	Number	Comments
NONE WITHIN AREA OF IMPACT					

18. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
1	CASSAVA	✓	✓		13	IMPACTED BY SPILL

19. Fish/Nets/Ponds

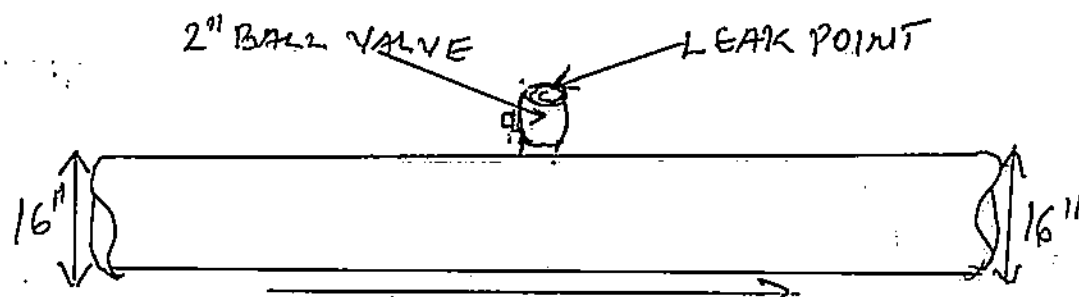
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

20. 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 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 16" EGBEMA - ASSA PIPELINE AT OBILE SHOWING CRUDE OIL THEFT POINT INSTALLED AT 12 O'CLOCK POSITION.



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F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION

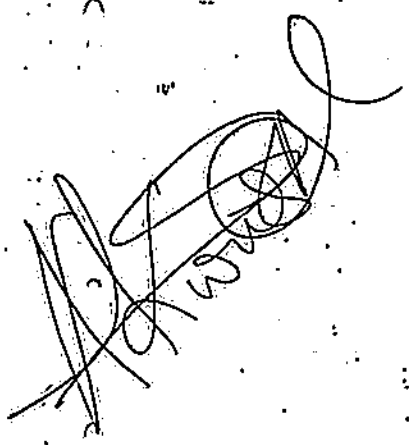
21. Impacted area boundary Coordinates *(If more, Print and attach as an appendix)*

S/N	Northing	Easting

SEE ATTACHED

**LIST OF COORDINATES FOR INC.
NO. 2428590 (WGS 84)**

PT ID	LAT.	LONG.
SPILL POINT	5.4114	6.78297
823	5.4113	6.78299
824	5.41128	6.78286
825	5.41138	6.7829
826	5.41141	6.78294
827	5.41175	6.78281
828	5.41173	6.7828
829	5.41176	6.78275
830	5.41192	6.78271
831	5.41196	6.78274
832	5.41225	6.78259
833	5.41227	6.78261
834	5.41207	6.7827
835	5.41197	6.78276
836	5.412	6.78279
837	5.41192	6.78286
838	5.41182	6.78288
839	5.4118	6.78282
840	5.41167	6.78288
841	5.41169	6.78293
842	5.41163	6.78297
843	5.41163	6.78303
844	5.41155	6.78305
845	5.41138	6.78308
846	5.4114	6.78311
847	5.41137	6.78313
848	5.41131	6.78312
849	5.41128	6.78313
850	5.41133	6.78315
851	5.4115	6.78326
852	5.41174	6.78341
853	5.4119	6.78352
854	5.41189	6.78353
855	5.41201	6.78355
856	5.412	6.78359
857	5.41173	6.78342
858	5.41149	6.78327
859	5.41146	6.78333
860	5.41145	6.78332
861	5.41147	6.78327
862	5.41134	6.78318
863	5.41123	6.78316
864	5.41118	6.78309
		6.78311
		6.78312
		6.78313



865	5.41109	6.78313
866	5.41107	6.78311
867	5.4111	6.78307
868	5.41113	6.78306
869	5.41107	6.78302
870	5.41096	6.78295
871	5.411	6.78292
872	5.41102	6.78293
873	5.41101	6.78296
874	5.41108	6.78297
875	5.4112	6.78307
876	5.41122	6.78305
877	5.41123	6.78306
878	5.41126	6.78306
879	5.41134	6.78305

A large, illegible handwritten scribble or signature in black ink, located to the right of the first table. It consists of several overlapping loops and lines, possibly representing a name or initials.

	5.41113	6.78306
	5.41111	6.78307
	5.41107	6.78302
	5.41109	6.78313
	5.41102	6.78293
	5.41101	6.78296
	5.41108	6.78297
	5.4112	6.78307
	5.41122	6.78305
	5.41123	6.78306
	5.41126	6.78306
	5.41134	6.78305

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.1728 HA
- Impact within SPDC R.O.W. YES
- Impact outside SPDC R.O.W. YES

b. Volume of oil recovered before completion of JIV (V_{rec}):

Recovered oil V_{rec} :	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

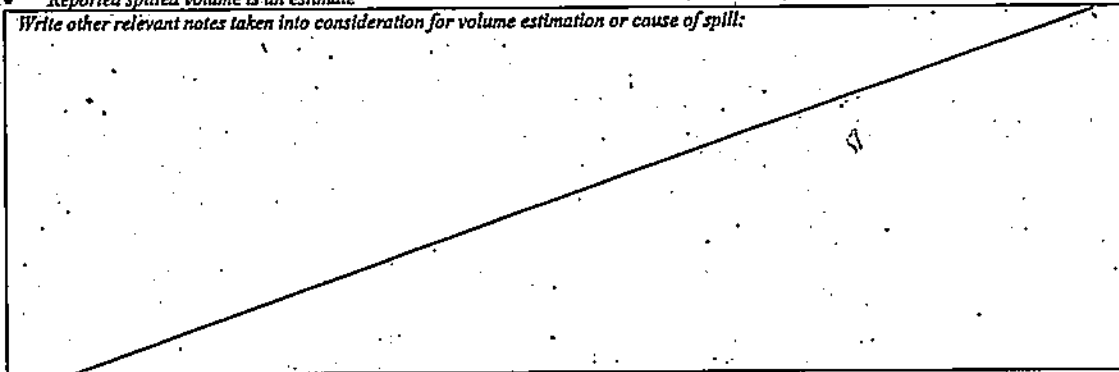
<u>NIL</u>	Barrels
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c. Net Estimated Spilled Volume V_{Est} (bbls)* =	<u>9.32 BARRELS</u>
Estimated Reported Volume** V_{rep} (bbls) =	<u>10 BARRELS</u>

***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 volume estimation or cause of spill:



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 column 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]:
- Shell Petroleum Development Company [SPDC]:
- Separate DPR form has been filled out with same findings

Tick as applicable

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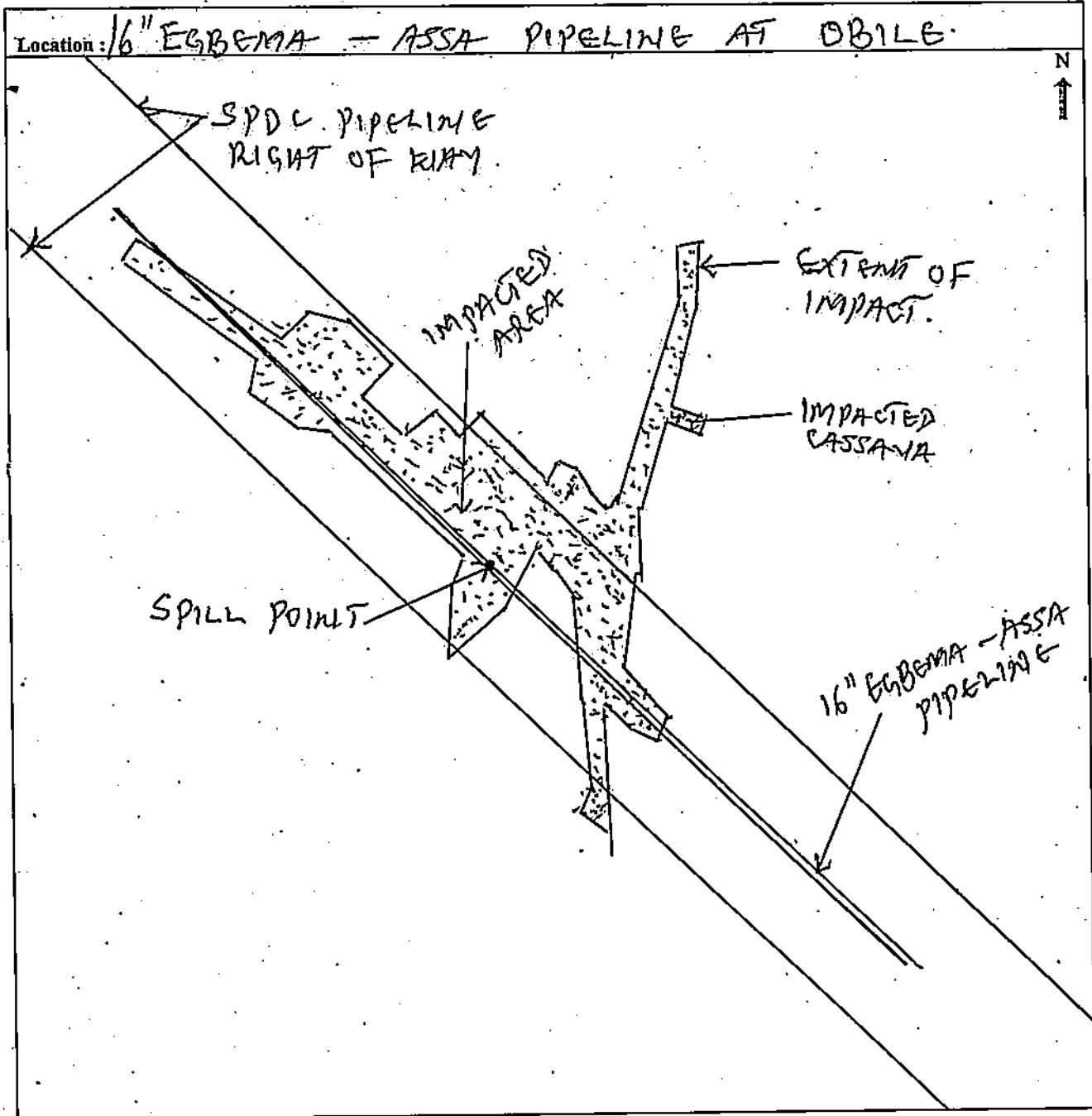
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f. Appendix 1: Overview sketch of the site



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