

JOINT INVESTIGATION REPORT

INCIDENT NO: 2531864 JIV report S/N: 1030192

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

A. GENERAL INFORMATION:

1. Fountain Incident Number: 2531864 2. Type of incident* OIL SPILL
3. Name of Location 1.8" ASSA-RUMU EKPE TRUNKLINE
4. Name of nearest community ASSA 5. State: IMO 6. LGA HAJI ESSEMA
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

B. INCIDENT INFORMATION:

9. Details of incident
a. Date Reported: 18TH DECEMBER, 2019
b. Start date/time of investigation: 19TH DECEMBER, 2019 / 15:10 HRS
c. Investigation End date: 20TH DECEMBER, 2019 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:

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"/> 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

204584

Northing: <u>LATITUDE</u>	Easting: <u>LONGITUDE</u>
<u>5.33869</u>	<u>6.79297</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

- Government reserved and designated protected area [,m]
- Drinking water source [,m]
- Built up area [,m]
- Farmlands PALM TREES/ CASSAVA [15 ,m]
- Fish Farm/Pond [,m]
- Fishing net [,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:

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? [Y] [N]

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	PALM TREES	YES	—	—	13	IMPACTED
2	CASSAVA	YES	—	—	14	IMPACTED

19. Fish/Nets/Ponds

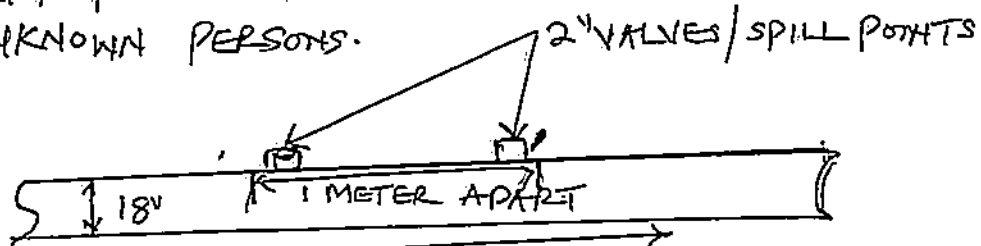
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

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)

A SECTION OF 18" ASSA - RUMUEKPE TRUNK LINE AT ANARA SHOWING 2 NUMBERS 2" VALVES CRUDE THEFT POINTS INSTALLED AT 12 O'CLOCK POSITIONS 1 METER APART BY UNKNOWN PERSONS.



ASSA TO RUMUEKPE

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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

PLEASE SEE ATTACHED
DPR
19/12/2014

18" ASA - RUMUEKPE PIPE SPILL AT AWARRA

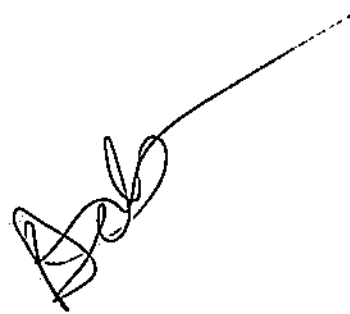
INCIDENT NUMBER:2531864		
Point	Longitude	Latitude
SP	6.79297	5.33869
1	6.79318	5.33949
2	6.79288	5.33884
3	6.79269	5.33874
4	6.79255	5.33857
5	6.79261	5.33809
6	6.79272	5.33769
7	6.79263	5.33749
8	6.7926	5.33749
9	6.7926	5.33746
10	6.79265	5.33746
11	6.79265	5.33738
12	6.79262	5.33737
13	6.79263	5.33735
14	6.79265	5.33736
15	6.79248	5.33654
16	6.79248	5.33644
17	6.79245	5.33636
18	6.7924	5.33614
19	6.79153	5.33647
20	6.79132	5.33648
21	6.79054	5.3364
22	6.79019	5.33641
23	6.79002	5.33634
24	6.78937	5.33633
25	6.78829	5.33683
26	6.78827	5.33681
27	6.78935	5.33631
28	6.78948	5.33627
29	6.79005	5.33632
30	6.79021	5.33636
31	6.79058	5.33636
32	6.79058	5.33632
33	6.79061	5.33631
34	6.79061	5.33638
35	6.79087	5.33641
36	6.79135	5.33645
37	6.79133	5.33621
38	6.79134	5.3362
39	6.79137	5.33645
40	6.79241	5.33609
41	6.79235	5.33593

Das

42	6.79232	5.33595
43	6.79232	5.33593
44	6.79234	5.33588
45	6.7923	5.33576
46	6.79228	5.33567
47	6.79225	5.33542
48	6.79218	5.33522
49	6.79217	5.33526
50	6.79211	5.33502
51	6.79215	5.33499
52	6.79204	5.33449
53	6.79203	5.33459
54	6.792	5.3346
55	6.79195	5.33429
56	6.7918	5.33397
57	6.7918	5.33387
58	6.79186	5.33386
59	6.79188	5.33384
60	6.79182	5.33375
61	6.79179	5.33377
62	6.79179	5.33375
63	6.79176	5.33367
64	6.79181	5.33364
65	6.79179	5.33357
66	6.79171	5.3332
67	6.79173	5.33317
68	6.79164	5.33289
69	6.79166	5.33285
70	6.79156	5.33255
71	6.79144	5.33192
72	6.79127	5.33138
73	6.79122	5.33111
74	6.79125	5.33107
75	6.79093	5.3297
76	6.79076	5.32903
77	6.79048	5.32765
78	6.79022	5.32692
79	6.79019	5.32685
80	6.79016	5.32676
81	6.79013	5.32665
82	6.79011	5.32655
83	6.79013	5.32647
84	6.79003	5.32614
85	6.79003	5.32603
86	6.7901	5.32614
87	6.7901	5.32619
88	6.79011	5.32624



89	6.79032	5.32615
90	6.79052	5.32605
91	6.79052	5.32607
92	6.79036	5.32617
93	6.79033	5.32626
94	6.79028	5.32629
95	6.7902	5.32629
96	6.79023	5.32631
97	6.79026	5.32657
98	6.79022	5.32659
99	6.79026	5.32678
100	6.79026	5.3269
101	6.7905	5.32676
102	6.79104	5.32634
103	6.79106	5.32636
104	6.79066	5.32665
105	6.79026	5.32694
106	6.79052	5.32764
107	6.79113	5.33036
108	6.7921	5.33455
109	6.79214	5.33454
110	6.79217	5.33464
111	6.79212	5.33468
112	6.79214	5.33479
113	6.79217	5.33479
114	6.79223	5.33503
115	6.79223	5.33516
116	6.79226	5.33528
117	6.79229	5.33532
118	6.79227	5.33535
119	6.79236	5.33559
120	6.79246	5.33598
121	6.79248	5.33603
122	6.79245	5.33607
123	6.79335	5.33561
124	6.79336	5.33564
125	6.79246	5.33613
126	6.79265	5.33698
127	6.79271	5.33702
128	6.79297	5.33816
129	6.79314	5.33873
130	6.79328	5.33913
131	6.79323	5.33923
132	6.79322	5.33945



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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 2.074
- 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} :	<u>1.716</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>484.87 BARRELS</u>
Estimated Reported Volume** V_{rep} (bbls) =
<u>485 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 <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:

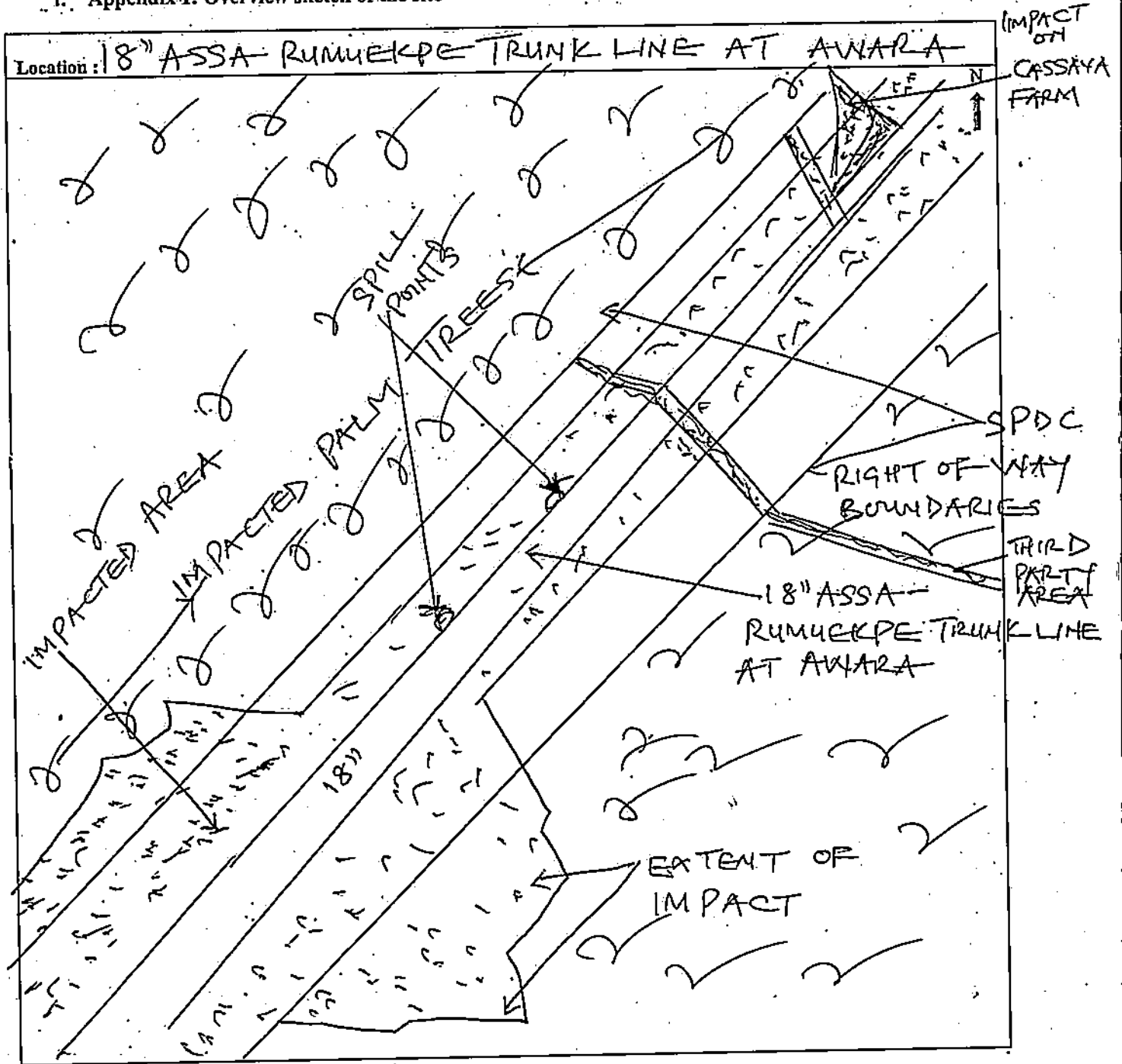
- Host Community:
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Shell Petroleum Development Company [SPDC]:
- *Separate DPR form has been filled out with same findings*

Tick as applicable

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f. Appendix I: Overview sketch of the site



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