



No. 00115

**A. GENERAL INFORMATION:**

1. Spill incident Number: 657747
2. Name of Location 10" EKULAMA 1 PIPELINE AT FREE TOWN
3. Name of nearest community FREE TOWN
4. State RIVERS LGA AKUKU-TORU
5. Type of Production facility/Installation PIPELINE Asset owner /District NIG/P/NESP

**B. INCIDENT INFORMATION:**

6. Details of incident

- a. Date of incident 8TH MAY, 2011
- b. Date/Period of investigation, 12TH MAY, 2011
- c. Description of spill point environment

- |  |     |     |
|--|-----|-----|
| <input type="checkbox"/> Firmed soil               | [Y] | [N] |
| <input checked="" type="checkbox"/> Loose soil     | [X] | [N] |
| <input type="checkbox"/> Previously excavated area | [Y] | [X] |
| <input type="checkbox"/> Under water               | [Y] | [X] |
| <input checked="" type="checkbox"/> Swampy         | [X] | [N] |
| <input type="checkbox"/> Exposed pipe surface      | [Y] | [X] |

d. Description of leak point (tick as applicable);

- |  |     |     |
|--|-----|-----|
| <input type="checkbox"/> Drilled hole,                                 | [Y] | [N] |
| <input type="checkbox"/> Hack saw cut,                                 | [Y] | [N] |
| <input type="checkbox"/> Explosive tear,                               | [Y] | [N] |
| <input type="checkbox"/> Complete Rupture                              | [Y] | [N] |
| <input type="checkbox"/> Inward dent,                                  | [Y] | [N] |
| <input type="checkbox"/> Well head tampering                           | [Y] | [N] |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve,         | [Y] | [N] |
| <input type="checkbox"/> Missing pipeline (flowline)                   | [Y] | [N] |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point,    | [Y] | [N] |
| <input type="checkbox"/> Third party tampering with Clamp Bolt/Nut,    | [Y] | [N] |
| <input type="checkbox"/> Third party tampering with valve setting,     | [Y] | [N] |
| <input type="checkbox"/> Third party tampering with flange Nuts/bolts, | [Y] | [N] |
| <input checked="" type="checkbox"/> Corrosion,                         | [X] | [N] |
| Type: <u>EXTERNAL CORROSION</u>  |     |     |
| <input type="checkbox"/> Saver-pit over flow,                          | [Y] | [N] |
| <input type="checkbox"/> Surge vessel overflow,                        | [Y] | [N] |
| <input type="checkbox"/> Outward dent                                  | [Y] | [X] |
| <input type="checkbox"/> Others (specify). _____                       |     |     |

AFTER JOINT INVESTIGATION  
 OF THE INCIDENT,  
 SPILL WAS FOUND  
 TO BE DUE TO  
 OPERATIONAL  
 FAILURE

e. Spill point coordinates (MINNA MID-BELT)

Northing: 517553.89m Easting: 55373.23m



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C. RISK/DAMAGE ASSESSMENT

7. Type of environment of spill site:

- Land
- Swamp
- water

Type of environment of which oil has spread:

- Land
- Swamp
- water

8. Distance from the nearest sensitive habitat

- Government reserved and designated protected areas [ NA ,m]
  - Drinking water source [ 72000 ,m]
  - Built up area [ > 2000 ,m]
  - Farmlands [ NA ,m]
  - Fish Farm/Pond [ NA ,m]
  - Fishing net [ NA ,m]
  - Others (specify). [ NA ,m]
- NOT APPLICABLE

9. Containment measures put in place;

- Booms [X] [N]
- Trench [Y] [X]
- Dyke [Y] [X]
- Others: NOT APPLICABLE

10. Any pictures or video coverage? [X] [N]

11. Was there any disruption to the investigation? [X] [N]

If yes give brief description:

THE COMMUNITY INSISTED THAT IMPACT ASSESSMENT BE DONE BEFORE THE JOINT INVESTIGATION AND TIED PALM FRONT AND FISHING NET AROUND THE SWAMP BUZZY WHICH CAUSED DISRUPTION OF THE INVESTIGATION FOR ONE DAY

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

A. Structures / Properties

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



B. Crops/Economic Trees

S/N	Types of crops	Young	Medium	Matured	Quantity	Comments
	NONE WITHIN AREA OF IMPACT					

C. Fish/Nets/Ponds

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

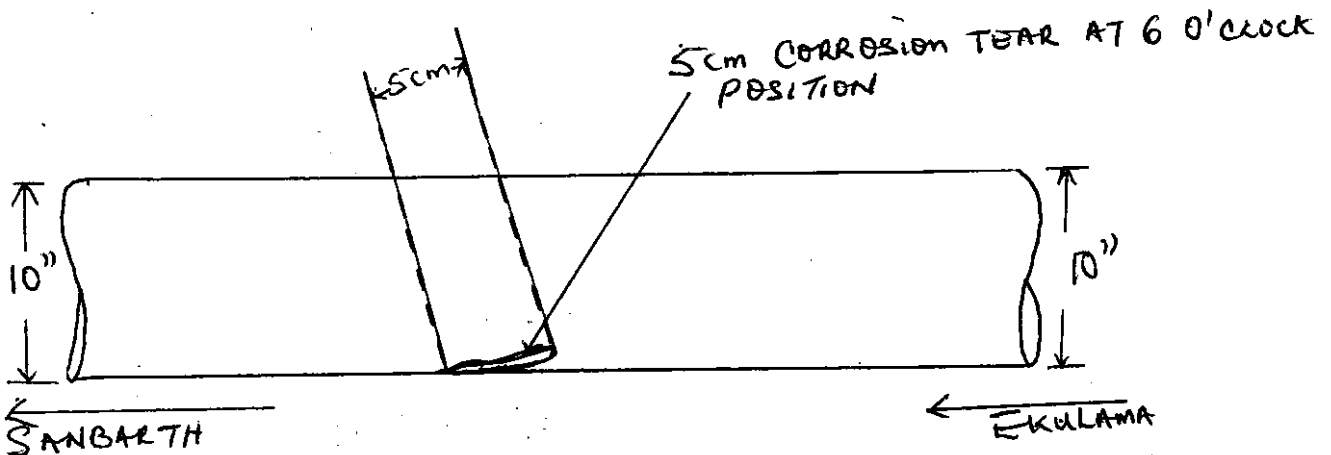
D. Others (Specify) i.e. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

THE IMPACT WAS MAINLY ON WATER WAYS AND SHORELINES

E. GRAPHIC DESCRIPTION OF LEAK POINT (Details should be contained in leak repair report)

A SECTION OF 10" EKULAMA 2 PIPELINE SHOWING TEAR (5cm)  
 AT 6 O' CLOCK POSITION





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

S/N	Northing	Easting
SEE COORDINATES ATTACHED		

POINTS NORTH EAST MINIA MID-BELT  
 0 517553.891 55373.226 SPILL POINT COORDINATES

IMPACTED AREA COORDINATES ON LAND

	NORTH (m)	EAST (m)
1	58892.002	468868.369
2	58890.858	468865.366
3	58927.733	468768.788
4	58938.005	468773.392
5	58937.591	468779.88
6	58937.161	468796.953
7	58936.541	468809.704
8	58935.58	468818.082
9	58934.844	468822.215
10	58933.356	468828.317
11	58931.316	468834.278
12	58929.053	468838.192
13	58924.873	468839.951
14	58922.742	468840.819
15	58919.997	468843.976
16	58917.123	468848.943
17	58914.912	468853.648
18	58910.602	468863.579
19	58907.35	468870.197
20	58904.547	468874.256
21	58901.957	468876.434
22	58898.578	468875.85
23	58894.481	468872.211
24	58892.036	468868.459
25	58892.002	468868.369
26	58947.678	469065.763
27	58944.079	469070.825
28	58941.553	469074.62
29	58939.175	469079.797
30	58936.685	469083.08
31	58929.021	469085.204
32	58928.752	469085.28
33	58926.034	469086.769
34	58906.923	469076.777
35	58899.44	469045.738
36	58904.517	469046.618
37	58912.2	469048.191
38	58918.581	469050.357
39	58919.037	469050.511
40	58923.74	469051.986
41	58923.837	469052.022
42	58931.196	469053.234
43	58938.191	469053.279
44	58938.261	469053.279
45	58942.637	469052.887
46	58945.244	469052.429

47	58945.88	469052.319
48	58945.606	469054.206
49	58945.549	469054.594
50	58947.749	469059.338
51	58948.925	469061.881
52	58947.678	469065.763
53	58933.892	469036.34
54	58928.827	469036.078
55	58918.532	469036.766
56	58912.174	469036.514
57	58912.153	469036.508
58	58900.657	469033.967
59	58896.298	469032.704
60	58869.465	468921.395
61	58880.764	468891.801
62	58882.066	468894.36
63	58882.094	468894.409
64	58886.313	468898.783
65	58886.341	468898.818
66	58890.902	468901.695
67	58896.184	468903.976
68	58896.337	468904.04
69	58904.094	468906.252
70	58907.578	468906.177
71	58909.638	468906.133
72	58932.807	468901.432
73	58932.116	468920.392
74	58932.317	468925.699
75	58933.053	468929.913
76	58934.35	468933.599
77	58934.371	468933.662
78	58943.697	468952.64
79	58949.288	468963.996
80	58951.343	468968.733
81	58952.462	468971.996
82	58954.166	468978.675
83	58956.87	468992.016
84	58956.837	469011.033
85	58956.229	469018.531
86	58955.295	469024.502
87	58952.718	469037.803
88	58949.962	469040.078
89	58949.913	469040.119
90	58949.616	469040.126
91	58946.021	469040.2
92	58945.993	469040.192
93	58942.837	469039.36
94	58937.775	469037.356
95	58933.892	469036.34
96	59146.065	469201.81

97	58945.849	469097.129
98	58947.464	469095.9
99	58949.212	469093.768
100	58951.836	469089.215
101	58953.344	469086.147
102	58955.91	469079.957
103	58958.02	469073.711
104	58961.625	469061.108
105	58964.524	469051.652
106	58965.832	469048.27
107	58968.801	469041.575
108	58970.784	469036.516
109	58971.866	469032.217
110	58972.193	469028.672
111	58972.192	468979.498
112	58970.046	468972.298
113	58963.083	468956.67
114	58954.744	468935.767
115	58950.844	468925.129
116	58948.65	468918.102
117	58948.65	468918.066
118	58947.862	468912.348
119	58947.863	468884.826
120	58958.084	468866.509
121	58971.571	468799.669
122	58973.649	468789.364
123	59153.348	468869.89
124	59222.021	468909.429
125	59343.76	468919.834
126	59541.497	468951.315
127	59492.557	468978.651
128	59481.894	468991.231
129	59462.759	469013.806
130	59413.473	468988.507
131	59388.501	468988.507
132	59369.772	468992.67
133	59347.021	469001.229
134	59319.978	469001.723
135	59297.272	469001.111
136	59274.552	469000.499
137	59253.672	468999.663
138	59236.124	468998.627
139	59227.368	468997.919
140	59226.908	468997.887
141	59226.89	468997.875
142	59129.924	468955.561
143	59128.376	468952.09
144	59112.768	468950.009
145	59091.958	468940.644
146	59069.067	468930.239

147	59047.217	468926.077
148	59033.371	468928.068
149	59022.966	468931.594
150	59033.804	468942.895
151	59040.671	468950.087
152	59046.884	468956.193
153	59050.132	468959.074
154	59056.136	468963.591
155	59059.434	468965.493
156	59064.406	468967.675
157	59070.732	468969.844
158	59078.47	468971.695
159	59083.687	468972.575
160	59094.231	468973.788
161	59108.899	468975.441
162	59116.171	468976.736
163	59123.217	468978.668
164	59126.643	468979.961
165	59201.827	469011.432
166	59202.71	469011.801
167	59212.041	469012.719
168	59225.544	469014.058
169	59234.57	469014.771
170	59252.636	469015.846
171	59272.888	469016.66
172	59309.496	469019.548
173	59327.501	469020.204
174	59345.543	469020.249
175	59367.179	469019.879
176	59388.816	469019.91
177	59409.063	469022.129
178	59429.128	469025.843
179	59460.405	469032.026
180	59463.922	469076.789
181	59490.234	469138.761
182	59540.768	469186.911
183	59557.515	469191.75
184	59146.065	469201.81



IMPACTED AREA COORDINATES ON WATER

POINTS	NORTH	EAST	MINIA MID-BELT	POINTS	NORTH	EAST
1	58958.084	468866.509		369	59409.063	469022.129
2	58947.863	468884.826		370	59388.816	469019.910
3	58947.862	468912.348		371	59367.179	469019.879
4	58948.650	468918.066		372	59345.543	469020.249
5	58948.650	468918.102		373	59327.501	469020.204
6	58950.844	468925.129		374	59309.496	469019.548
7	58954.744	468935.767		375	59272.888	469016.660
8	58963.083	468956.670		376	59252.636	469015.846
9	58970.046	468972.298		377	59234.570	469014.771
10	58972.192	468979.498		378	59225.544	469014.058
11	58972.193	469028.672		379	59212.041	469012.719
12	58971.866	469032.217		380	59202.710	469011.801
13	58970.784	469036.516		381	59201.827	469011.432
14	58968.801	469041.575		382	59126.643	468979.961
15	58965.832	469048.270		383	59123.217	468978.668
16	58964.524	469051.652		384	59116.171	468976.736
17	58961.625	469061.108		385	59108.899	468975.441
18	58958.020	469073.711		386	59094.231	468973.788
19	58955.910	469079.957		387	59083.687	468972.575
20	58953.344	469086.147		388	59078.470	468971.695
21	58951.836	469089.215		389	59070.732	468969.844
22	58949.212	469093.768		390	59064.406	468967.675
23	58947.464	469095.900		391	59059.434	468965.493
24	58945.602	469097.317		392	59056.136	468963.591
25	58942.322	469098.773		393	59050.132	468959.074
26	58942.252	469098.787		394	59046.884	468956.193
27	58937.549	469099.871		395	59040.671	468950.087
28	58929.888	469100.768		396	59033.804	468942.895
29	58926.236	469101.425		397	59022.966	468931.594
30	58914.271	469104.364		398	59033.371	468928.068
31	58908.268	469105.376		399	59047.217	468926.077
32	58903.319	469105.599		400	59069.067	468930.239
33	58903.298	469105.599		401	59091.958	468940.645
34	58898.695	469105.095		402	59112.768	468950.009
35	58898.639	469105.067		403	59128.376	468952.090
36	58895.208	469103.706		404	59129.925	468955.561
37	58891.910	469101.373		405	59226.890	468997.875
38	58891.806	469101.303		406	59226.908	468997.887
39	58891.709	469101.206		407	59227.368	468997.919
40	58887.930	469097.596		408	59236.124	468998.627
41	58882.415	469091.408		409	59253.672	468999.663
42	58879.046	469087.216		410	59274.552	469000.499
43	58876.794	469084.152		411	59297.272	469001.111
44	58861.643	469030.283		412	59319.978	469001.723
45	58861.681	469029.762		413	59347.021	469001.229

46	58861.433	469029.535	414	59369.772	468992.670
47	58859.666	469023.251	415	59388.501	468988.508
48	58859.879	469023.278	416	59413.473	468988.508
49	58869.843	469025.099	417	59462.759	469013.806
50	58870.913	469025.352	418	59481.894	468991.231
51	58879.037	469027.259	419	59492.557	468978.651
52	58884.101	469028.674	420	59547.422	468948.006
53	58895.586	469032.498	421	59614.893	468923.928
54	58900.657	469033.967	422	59704.741	468913.289
55	58912.153	469036.508	423	59834.477	468917.361
56	58912.174	469036.514	424	59852.089	468909.760
57	58918.532	469036.766	425	59852.130	468909.753
58	58928.827	469036.078	426	59899.284	468905.529
59	58933.892	469036.340	427	59902.188	468904.978
60	58937.775	469037.356	428	59905.690	468903.623
61	58942.837	469039.360	429	59909.587	468901.156
62	58945.993	469040.192	430	59912.705	468898.382
63	58946.021	469040.200	431	59916.810	468893.376
64	58949.616	469040.126	432	59919.928	468887.674
65	58949.913	469040.119	433	59921.599	468882.738
66	58949.962	469040.078	434	59922.530	468878.134
67	58952.718	469037.803	435	59923.022	468872.169
68	58955.295	469024.502	436	59922.835	468866.646
69	58956.229	469018.531	437	59922.423	468862.954
70	58956.837	469011.033	438	59920.927	468855.534
71	58956.870	468992.016	439	59919.879	468851.869
72	58954.166	468978.675	440	59917.194	468844.737
73	58952.462	468971.996	441	59913.887	468837.957
74	58951.343	468968.733	442	59910.472	468832.385
75	58949.288	468963.996	443	59908.605	468829.793
76	58943.697	468952.640	444	59905.676	468826.178
77	58934.371	468933.662	445	59895.199	468814.565
78	58934.350	468933.599	446	59889.745	468808.967
79	58933.053	468929.913	447	59881.159	468801.026
80	58932.317	468925.699	448	59870.620	468791.751
81	58932.116	468920.392	449	59865.524	468786.913
82	58932.807	468901.432	450	59860.691	468781.844
83	58909.638	468906.133	451	59858.409	468779.208
84	58907.578	468906.177	452	59854.186	468773.668
85	58904.094	468906.252	453	59852.279	468770.756
86	58896.337	468904.040	454	59849.670	468766.199
87	58896.184	468903.976	455	59848.268	468763.185
88	58890.902	468901.695	456	59845.871	468757.053
89	58886.341	468898.818	457	59842.419	468745.811
90	58886.313	468898.783	458	59836.043	468723.179
91	58882.094	468894.409	459	59830.558	468705.141
92	58882.066	468894.360	460	59827.318	468696.322

93	58880.263	468890.818	461	59823.434	468687.820
94	58868.786	468856.370	462	59821.177	468683.728
95	58853.459	468810.418	463	59777.847	468610.308
96	58852.217	468806.265	464	59747.684	468576.947
97	58850.358	468797.797	465	59850.213	468491.506
98	58847.595	468780.612	466	59852.836	468510.352
99	58845.799	468772.123	467	59868.914	468538.212
100	58842.043	468759.348	468	59894.415	468560.075
101	58839.913	468752.699	469	59887.988	468603.370
102	58853.624	468746.080	470	59895.058	468620.087
103	58855.751	468756.454	471	59915.345	468662.125
104	58858.720	468771.315	472	59918.295	468668.244
105	58860.360	468778.701	473	59978.222	468743.794
106	58863.244	468789.678	474	59987.537	468755.944
107	58864.958	468795.094	475	59992.022	468762.110
108	58868.637	468805.371	476	59998.483	468771.512
109	58873.856	468818.933	477	60004.638	468781.185
110	58876.438	468825.732	478	60007.587	468786.137
111	58881.525	468839.751	479	60013.254	468796.331
112	58888.232	468858.480	480	60015.951	468801.583
113	58892.002	468868.369	481	60019.829	468809.696
114	58892.036	468868.459	482	60021.841	468814.696
115	58894.481	468872.211	483	60023.727	468821.035
116	58898.578	468875.850	484	60025.200	468828.746
117	58901.957	468876.434	485	60025.830	468833.914
118	58904.547	468874.256	486	60026.464	468844.317
119	58907.350	468870.197	487	60026.921	468859.284
120	58910.602	468863.579	488	60026.957	468866.790
121	58914.912	468853.648	489	60026.604	468878.022
122	58917.123	468848.943	490	60025.602	468889.209
123	58919.997	468843.976	491	60024.792	468894.757
124	58922.742	468840.819	492	60022.845	468905.304
125	58924.873	468839.951	493	60021.649	468910.533
126	58929.053	468838.192	494	60018.959	468919.718
127	58931.316	468834.278	495	60017.433	468924.245
128	58933.356	468828.317	496	60014.913	468930.968
129	58934.844	468822.215	497	60010.631	468940.843
130	58935.580	468818.082	498	60007.165	468947.779
131	58936.541	468809.704	499	60006.706	468948.694
132	58937.161	468796.953	500	60002.817	468955.574
133	58937.591	468779.880	501	60000.368	468959.473
134	58938.130	468771.439	502	59995.074	468967.022
135	58939.181	468763.116	503	59992.245	468970.664
136	58939.966	468759.018	504	59986.179	468977.669
137	58941.549	468752.985	505	59981.875	468982.120
138	58946.001	468739.240	506	59978.868	468984.998
139	58948.534	468732.447	507	59972.606	468990.508

140	58951.420	468725.696	508	59965.126	468996.321
141	58953.039	468722.342	509	59961.192	468999.086
142	58957.624	468713.405	510	59953.175	469004.103
143	58960.068	468709.005	511	59944.924	469008.508
144	58963.983	468702.618	512	59939.304	469011.151
145	58968.360	468696.670	513	59935.485	469012.758
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150	58983.688	468684.054	518	59654.645	469007.316
151	58988.283	468681.949	519	59585.582	469032.451
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166	59147.276	468620.339	534	60019.563	469522.153
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171	58999.098	468716.269	539	60137.033	469483.395
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338	60365.714	469280.715	706	60603.045	469455.061
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340	60234.440	469523.430	708	60608.711	469472.359
341	60233.481	469527.979	709	60640.493	469481.042
342	60216.760	469569.336	710	60717.814	469473.410
343	60205.408	469597.419	711	60946.549	469450.812
344	60119.758	469668.594	712	61105.585	469414.595
345	60098.154	469675.068	713	61161.737	469388.877
346	60050.055	469672.179	714	61347.090	469330.161
347	60017.931	469654.609	715	61356.958	469322.853
348	59993.605	469641.290	716	61367.102	469313.576
349	59980.193	469622.807	717	61371.906	469307.781
350	59958.749	469593.222	718	61375.178	469301.593
351	59934.357	469501.251	719	61378.363	469288.448
352	59902.304	469291.452	720	61380.173	469261.285
353	59872.326	469246.899	721	61384.183	469238.970
354	59837.208	469220.413	722	61380.901	469224.767
355	59835.888	469220.153	723	61365.161	469224.788
356	59813.074	469215.642	724	61355.119	469229.774
357	59764.285	469221.396	725	61345.931	469235.357
358	59741.182	469230.641	726	61334.421	469241.661
359	59722.707	469238.032	727	61319.599	469250.081
360	59694.233	469249.408	728	61304.889	469258.730
361	59658.234	469224.578	729	61290.723	469262.469
362	59648.932	469218.165	730	61277.479	469253.819
363	59573.171	469196.274	731	61272.018	469248.553
364	59540.768	469186.911	732	61264.981	469240.357
365	59490.234	469138.761	733	61255.997	469228.588
366	59463.922	469076.789	734	61244.894	469212.847
367	59460.405	469032.026	735	61236.168	469197.063
368	59429.128	469025.843	736	61232.158	469186.383





No. 0115

**G. INCIDENT INFORMATION:**

**17 Impacted Area Details**

- a. Total calculated area of impact 70.7737 Ha (707,737 m<sup>2</sup>)
- Impact within SPDC R.O.W 9.3000 Ha (93,000 m<sup>2</sup>)
  - Impact outside R.O.W 61.4737 Ha (614,737 m<sup>2</sup>)

**18 Volume of oil recovered before completion of JIV (V<sub>recj</sub>):**

Recovered oil V <sub>recj</sub> :	<u>NIL</u>	barrels
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**19. Computation of the residual volume on site**

a. Computation of the volume of pooled free phase oil (on land or confined water body).

- i. Area (m<sup>2</sup>) occupied by pool of free phase oil NOT APPLICABLE
- ii. Average Depth (m) of pool of free phase oil NOT APPLICABLE
- iii.

Volume of pooled of free phase oil. V <sub>pool</sub> :	<u>NIL</u>	barrels
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iv.

b. Computation of volume of infiltrated oil in the soil (V-3).

- i. Area (m<sup>2</sup>) covered by the oil: 158,424
- ii. Average Depth (m) below ground surface of infiltration of oil: 0.0005
- iii. Soil type: CLAY
- iv. p<sub>e</sub> (effective porosity of the soil): 8%
- v.

	<u>39.6</u>	barrels
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**20. Computation of volume of oil on open water based on standard coloration.**

	Thickness (mm)	Percentage coverage	Volume (m3)
Barely Visible	0.00004		
Silvery	0.00008		
Slight Colour	0.00015	<u>79%</u>	<u>0.0651 m<sup>3</sup></u>
Bright Colour	0.0003		
Dull	0.001		
Dark	0.002		
Black oil	0.1	<u>20%</u>	<u>10.986 m<sup>3</sup></u>
Emulsion (30% Oil)	1	<u>1%</u>	<u>5.493 m<sup>3</sup></u>
	Percent Total	100%	Total Volume

AREA OF IMPACT ON OPEN WATER IS 549,313 m<sup>2</sup>

104.1 bbl

Spill Factors from USCG FOG (2000 Edition)



**THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED**  
 JOINT INVESTIGATION REPORT FOR INCIDENT NO: 057747

No. 0115

Volume of oil on open water $V_{wat}$	104.1	barrels
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21. Calculation of evaporated volume:

- i. Oil type: RONNY LIGHT
- ii. E-Factor: 25%
- iii.

Volume of evaporated oil $V_{vap}$	47.9	barrels
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Oil Type		Bonny Light	Bonny Medium
		E-Factor	E-Factor
Period Since Oil Spill	<1 day	10%	5%
	1-7 days	25%	15%
	>7 days	40%	25%

9. Gross Total Estimated Spilled Volume  $V_{Est}(bbls) = V_{vap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recj}(bbls)$   
 $= 47.9 + 104.1 + 39.6 + Nil + Nil$

$V_{Est}(bbls) = 191.6$  BBLs

10. Net Total Estimated Spilled Volume  $VEst(bbls) = V_{vap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recj}(bbls)$   
 $= 47.9 + 0.6 * 104.1 + 39.6 + Nil + Nil$

$VEst(bbls) = 150$  BBLs

- \*Calculation of the respective estimated volume is to done using the new spill estimation software on site
- \*Conversion of m3 to barrel is Total volume VT (m3) x6.29
- \*Emulsification factor for spill on water to consider is 60% of volume of oil.

This report was filled and signed on the 12 / 05 / 20 11 at incident site by joint investigation representative from

- Host Community
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Nigeria Police Force [NPF]:
- Shell Petroleum Development Company [SPDC]:

*Tick as applicable*