

JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N: Nº 0000390

(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: 1905913 2. Type of incident* OIL SPILL
3. Name of Location FORCADOS KTI EMULSION HEATER TREATMENT UNIT
4. Name of nearest community O'GILLAGHA 5. State: DELTA 6. LGA BURUTU
7. Type of Production facility/Installation CRUDE OIL TERMINAL
8. Asset owner/District SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA SWAMP WEST.

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date of incident: AUGUST 7TH 2017
b. Start date/time of investigation: AUGUST 10TH 2017 AT 13:14 HRS.
c. Investigation End date: AUGUST 10TH 2017 Actual investigation duration, days: ONE DAY
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: ON ASSESSMENT THE JOINT INVESTIGATION TEAM OBSERVED THAT, LEAK WAS RESULT FROM BACK FLOW FROM CONTINUOUS OIL CONTAMINATION KTI EMULSION HEATER UNIT DRAIN.

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 |

Others (specify) BACK FLOW FROM CONTINUOUS OIL CONTAMINATION DRAIN PIT.

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) Situation d) construction e) Encroachment f) Fire.

JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N: Nº 0000390

g. Spill point coordinates

h. Measuring unit WGS 84 (DECIMAL-DEGREE)

POINT 1

POINT 2

Northing: (LATITUDE)	Easting: (LONGITUDE)
5.33518	5.3489
5.33518	5.34905

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
- Drinking water source
- Built up area
- Farmlands
- Fish Farm/Pond
- Fishing net
- Others (specify): _____

[,m] NONE
[,m] WITHIN
[,m] VICINITY
[,m]
[,m]

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:

NOT APPLICABLE

15. Was there any disruption to the investigation?

[Y] [N]

JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N: Nº 0000390

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
	NONE WITHIN AREA OF IMPACT					

18. Fishing Nets/Fish Ponds

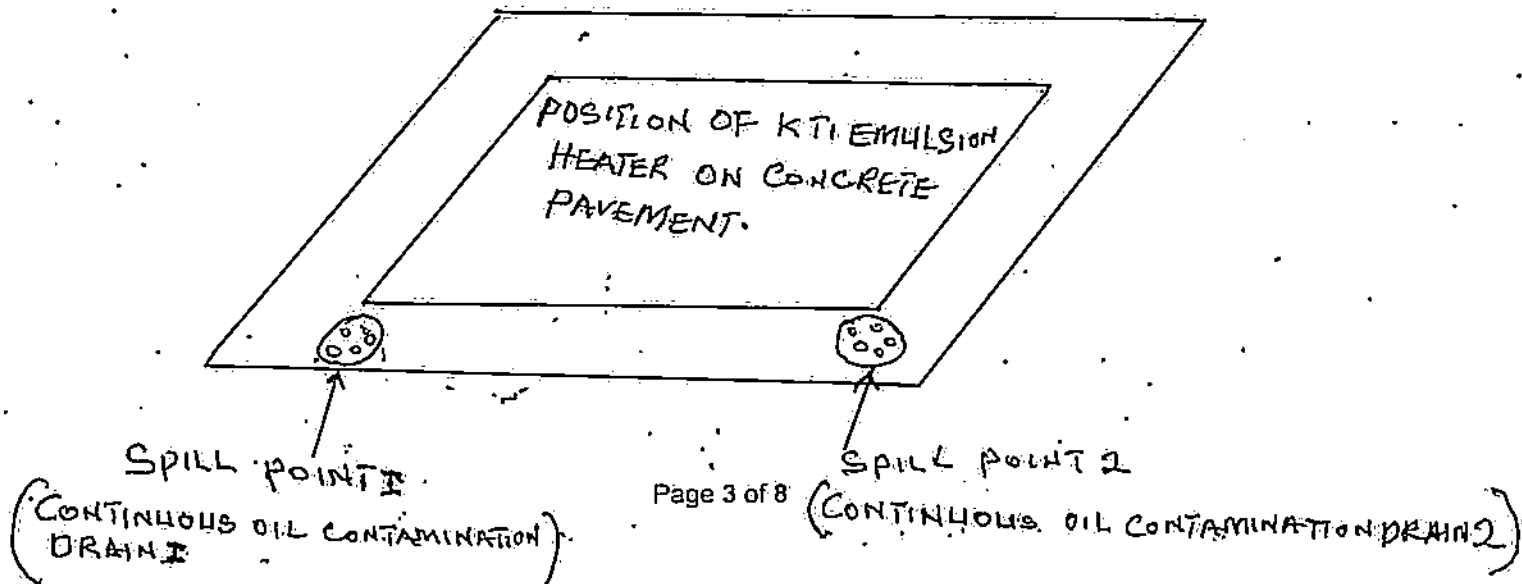
S/N	Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

19. 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 ECARDOS TERMINAL KTI EMULSION UNIT AREA SHOWING POSITION OF CRUDE OIL BACK FLOW FROM THE CONTINUOUS OIL CONTAMINATION DRAIN PLT.



JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N: Nº 0000390.

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)*
 WGS 84 (DECIMAL - DEGREE)

S/N	Northing	Easting
274	5.33516	5.34882
276	5.33528	5.34895
277	5.33532	5.34905
278	5.33533	5.34913
279	5.33517	5.34927
280	5.33514	5.34925
281	5.33517	5.34917
282	5.33522	5.34912
283	5.33522	5.34911
284	5.33513	5.34912
285	5.33509	5.34904
286	5.33512	5.34898
287	5.33517	5.34906
288	5.3325	5.34902
289	5.33526	5.34899
290	5.33526	5.3492

JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N:

Nº 0000390

G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 0.04699 Ha
- Impact within R.O.W YES
- Impact outside R.O.W NO

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

Recovered oil V_{rec} :	<u>0.9</u>	Barrels
---------------------------	------------	---------

Controlled recovery/evacuation from source with no impact to environment:

<u>NIL</u>	Barrels
------------	---------

c. Net Estimated Spilled Volume V_{Est} (bbls)* = 2.81 BBLS

Estimated Reported Volume** V_{rep} (bbls) = 3 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 m³ to barrels is Volume (m³) 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.

JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N: N° 0000390

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

JOINT INVESTIGATION REPORT

INCIDENT NO: 1905913 JIV report S/N: Nº 0000390

f. Appendix I: Overview sketch of the site

