

JOINT INVESTIGATION REPORT

INCIDENT NO: 2624706 JIV report S/N: 0474

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

A. GENERAL INFORMATION:

1. Fountain Incident Number: 2624706 2. Type of incident* OIL SPILL
3. Name of Location OLD 20" KOLOUREEK - RUMUEKPE PIPELINE
4. Name of nearest community ODAU (KPG) 5. State: RIVERS 6. LGA ABUA ODUAL
7. Production Facility/Installation OIL PIPELINE
8. Asset Owner/Hub THE SHELL PETROLEUM DEVELOPMENT COMPANY
OF NIGERIA LIMITED / PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident

- a. Date Reported: 21ST MARCH 2020
b. Start date/time of Investigation: 21ST MARCH, 2020 / 10:39 HRS
c. Investigation End date: 21ST MARCH 2020 Day(s) on site: 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 | <input type="checkbox"/> Sand bag(s) |

Additional observations around the spill point:

THE LEAK WAS OBSERVED FROM EARLIER REPORTED NON LEAKING CRUDE OIL THEFT POINT WITH INCIDENT NUMBER 2534727.

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

- | | | |
|--|---|--|
| <input type="checkbox"/> Smooth round-edge hole | <input type="checkbox"/> Rough-edge hole | <input type="checkbox"/> Hack saw cut |
| <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"/> Tear (_____) | | |
| <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) Water Leak (e) Fire (f) Non-leaking theft point removal

Version 2020/01

Distribution of copies: White (Asset Owner); Pink (DPR); Green (NOSDRA); Yellow (State Ministry of Environment); Blue (Host Community)

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g. Spill Point Coordinates (*Incidents $\leq 100m$ apart to be aggregated into one Joint Investigation Report)

h. Measuring unit

WGS 84

| Northing: | Easting: |
|-----------------|-----------------|
| <u>4.928287</u> | <u>6.437204</u> |
| <u>4.928524</u> | <u>6.437092</u> |

C. RISK ASSESSMENT

10. Details of Environment

i. Type of environment where spill occurred (select one):

- Land
 Swamp
 Water
 Seasonal swamp
 Shoreline/Waterfront

ii. Type of environment to which oil has spread:

- Land
 SEASONAL Swamp
 Waterbody (specify) _____

iii. Weather condition

- Dry
 Wet
 Windy
 Hot

11. Distance to Sensitive habitat within 100m radius

- Government reserved and designated protected area [,m]
- Drinking water source [,m]
 - Surface water
 - Borehole
- Built up Area [,m]
 - Residential Area
 - Commercial/Industrial Area
- Farmlands [,m]
- Fish Farm/Pond [,m]
- Fishing net [,m]
- Others (specify) _____ [,m]

NONE SEEN
WITHIN THE
VICINITY

12. Containment measures put in place:

- Booms
 Trench
 Dyke
 Pit
 Natural depression
 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:

REPAIR WORK ONGOING.

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15. Was there any disruption to the investigation? [Y] [N]

If yes to item 15 give brief description:

NOT APPLICABLE

16. Was JIV delayed? [Y] [N]

Reason(s):

- Delayed Community Access Approval
 Security Challenges
 Access constraint due to terrain
 Others (specify) 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 |
|----------------------------|---------------|-------|--------|---------|----------|----------|
| NONE WITHIN AREA OF IMPACT | | | | | | |

19. Fish/Nets/Ponds

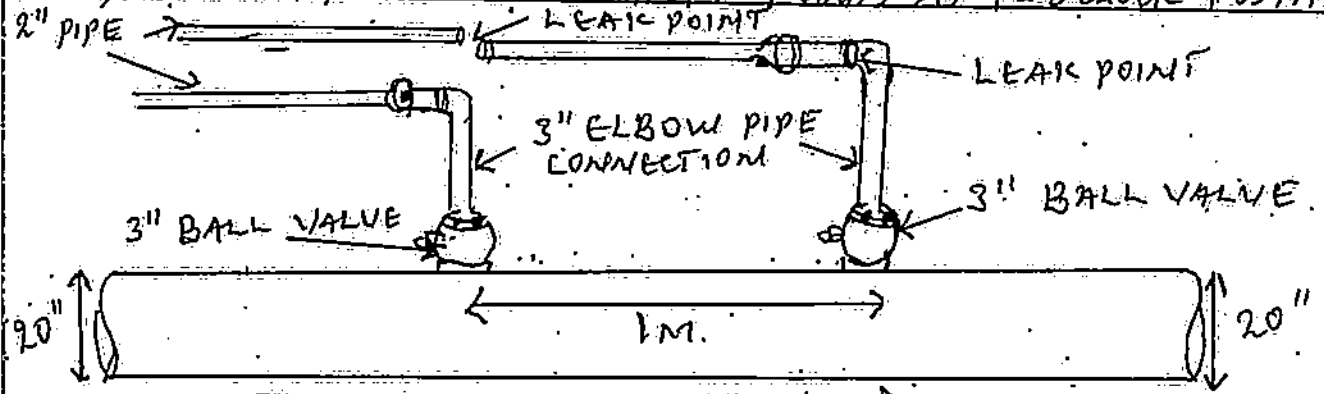
| S/N | Fish/Nets/Ponds | Description | Quantity/Size | Comments |
|----------------------------|-----------------|-------------|---------------|----------|
| NONE WITHIN AREA OF IMPACT | | | | |

20. Others (Specify) e.g. Animal Traps

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

E. GRAPHIC DESCRIPTION OF LEAK POINT (while detailed description of the leak point should be contained in the leak report, overview sketch of the site should be added as appendix 1)

SECTION OF OLD 20" KOLOCREEK - RUMUKEPE PIPELINE AT ODAU (KP 9) SHOWING CRUDE OIL TEE POINTS AT 12 O'CLOCK POSITIONS.



FROM KOLOCREEK TO RUMUKEPE

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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 Appendix)

| S/N | Northing | Easting |
|-----|----------|---------|
| | | |
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| | | |

JIV_2624706_ODAU

| PT_ID | LONG_X | LAT_Y |
|-------|----------|----------|
| BP | 6.437204 | 4.928287 |
| SP | 6.437092 | 4.928524 |
| 1 | 6.438205 | 4.928594 |
| 2 | 6.438183 | 4.928622 |
| 3 | 6.4379 | 4.928533 |
| 4 | 6.437288 | 4.928439 |
| 6 | 6.437187 | 4.928386 |
| 7 | 6.436956 | 4.928399 |
| 8 | 6.436859 | 4.928401 |
| 9 | 6.436858 | 4.928449 |
| 10 | 6.436946 | 4.928468 |
| 11 | 6.436949 | 4.928506 |
| 12 | 6.436964 | 4.928515 |
| 12 | 6.436987 | 4.928475 |
| 13 | 6.437065 | 4.928492 |
| 15 | 6.437039 | 4.928579 |
| 16 | 6.437019 | 4.928591 |
| 17 | 6.437014 | 4.928612 |
| 18 | 6.437019 | 4.928628 |
| 19 | 6.436981 | 4.928658 |
| 20 | 6.436964 | 4.928678 |
| 21 | 6.43696 | 4.928701 |
| 22 | 6.436968 | 4.928716 |
| 23 | 6.436944 | 4.928729 |
| 24 | 6.436924 | 4.928709 |
| 25 | 6.436892 | 4.928758 |
| 26 | 6.436882 | 4.928748 |
| 27 | 6.43688 | 4.928732 |
| 28 | 6.436849 | 4.92874 |
| 29 | 6.436845 | 4.928764 |
| 30 | 6.436867 | 4.928762 |
| 31 | 6.43687 | 4.928774 |
| 32 | 6.436855 | 4.928793 |
| 33 | 6.436861 | 4.928818 |
| 34 | 6.436884 | 4.928839 |
| 35 | 6.436885 | 4.928864 |
| 36 | 6.436922 | 4.928824 |
| 37 | 6.436945 | 4.928797 |
| 38 | 6.436981 | 4.928717 |
| 39 | 6.437036 | 4.928714 |
| 40 | 6.437098 | 4.928719 |
| 41 | 6.437115 | 4.928738 |
| 42 | 6.437089 | 4.928799 |

| PT_ID | LONG_X | LAT_Y |
|-------|----------|----------|
| 43 | 6.437118 | 4.928793 |
| 44 | 6.437203 | 4.928745 |
| 45 | 6.437232 | 4.928624 |
| 46 | 6.437271 | 4.928603 |
| 47 | 6.437302 | 4.92859 |
| 48 | 6.437325 | 4.928558 |
| 49 | 6.437325 | 4.928539 |
| 50 | 6.437116 | 4.928503 |
| 51 | 6.437158 | 4.928503 |
| 52 | 6.437196 | 4.928293 |
| 53 | 6.437212 | 4.928293 |
| 54 | 6.437197 | 4.928281 |
| 55 | 6.437212 | 4.928281 |

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G. INCIDENT INFORMATION:

a. Impacted Area Details *

- Total calculated area of impact (H_a) 0.21 HA
- Impact within SPDC R.O.W YES
- Impact outside SPDC R.O.W YES

* Round off to 2 decimal places if area is $\geq 100 \text{ m}^2$ or to 4 decimal places if area is $< 100 \text{ m}^2$ (e.g. 14.55, 0.0051, 0.0009)

* Express in Hectares (Ha)

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

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

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

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

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

214.50 BARRELS

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

215 BARRELS

*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:

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 $\text{Volume (m}^3) \times 6.29$; **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]:
- The Shell Petroleum Development Company [SPDC]:
- *Separate DPR form has been filled out with same findings*
- *Separate NOSDRA form has been filled out with same findings*
- *Separate SME form has been filled out with same findings*

Tick as applicable

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f. Appendix 1: Overview sketch of the site

