

JOINT INVESTIGATION REPORT

INCIDENT NO 2614095 JIV report S/N 0478

(Note: As practical as possible the JIV report is to be signed in the field by all the participants, save for

A. GENERAL INFORMATION.

1. Fountain Incident Number 2614095 2. Type of incident* OIL SPILL
 3. Name of location NUM RIVER WELL 13E WELL HEAD
 4. Name of nearest community ANGIANA State BAYELSA Local Government Area SOUTHERN ISLAND
 7. Production Facility Installation WELL HEAD
 8. Asset Owner Hub THE SHELL PETROLEUM DEVELOPMENT (NIGERIA) LIMITED / CENTRAL HUBS OF NIGERIA LIMITED / CENTRAL HUBS

B. INCIDENT INFORMATION

9. Details of incident
 a. Date Reported 27TH MARCH 2020
 b. Start date/time of investigation 28TH MARCH 2020 / 14:30 HRS
 c. Investigation End date 28TH MARCH 2020 Day(s) on site ONE (1) DAY
 d. Description of spill point environment
 Firm soil Loose soil Recently excavated area
 Under water Swampy Exposed pipe surface
 Well Platform (on water) Drill Rig Sand bank(s)

Additional observations around the spill point
NOT APPLICABLE

- 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 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 C-Trap |
| <input type="checkbox"/> Third party tampering with valve setting | <input type="checkbox"/> Bulging Outward | <input type="checkbox"/> Third party tampering with Bypass |
| <input type="checkbox"/> Flare System Blind wall failure | <input type="checkbox"/> Cold sight | <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 |

Tear (_____)
 Others (specify) EROSION OF BEAN BOX

- f. Incident caused by
 Third party interference (Sabotage crude theft Line theft Accidental 3rd party damage
 Operational Others (including Mystery spills) _____

*This can be due to (a) drilling fluid removal (b) Silica sand H₂S gas leak (c) Line (d) Non-leaking shell point removal
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g. Spill Point Coordinates (*Incidents $\geq 100m$ apart to be aggregated into one Joint Investigation Report)

h. Measuring unit: WGS 84

Northing	Easting
LATITUDE	LONGITUDE
<u>4.816565</u>	<u>6.111461</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 Swamp Waterbody (specify) CREEK

iii. Weather condition

Dry Wet Windy Hot

11. Distance to Sensitive habitat within 100m radius

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

12. Containment measures put in place

Booms French Dyke Pit Natural depression None
 Others _____

13. Any pictures or video coverage?

[Y]

14. Further response repair initiated as at the time of JIV?

[Y]

If yes to item 14, give brief description

NOT APPLICABLE

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15. Was there any disruption to the investigation? (Y) NO

If yes to item 15 give brief description

NOT APPLICABLE

16. Was JIV delayed? (Y) NO

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

SN	Type of Structures	Description	Size	Number	Comments
<u>NONE WITHIN AREA OF IMPACT</u>					

18. Crops / economic trees

SN	Type of crops	Young	Medium	Matured	Quantity	Comments	
1	PLANTAIN	✓	✓	✓	3	<u>IMPACTED BY THE SPILL</u>	
2	PALM TREE	✓	✓	✓	many		
3	CASSAVA	✓	✓	✓	few		
4	SUGAR CANE	✓	✓	✓	1		
5	MANGO TREE	✓	✓	✓			
6	19 FISH/Net/Ponds						

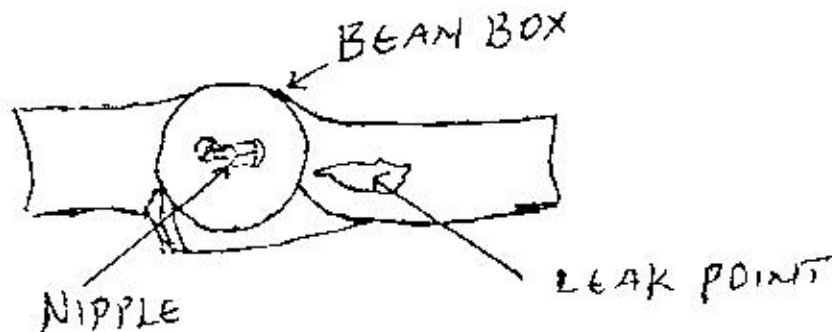
SN	Fish/Net/Ponds	Description	Quantity/Size	Comments
<u>NONE WITHIN AREA OF IMPACT</u>				

20. Others (Specify) Animal Traps

SN	Others	Description	Quantity/Size	Comments
<u>NONE WITHIN AREA OF IMPACT</u>				

F. GRAPHIC DESCRIPTION OF LEAK POINT (while details of description of the leak point should be contained in the leak report, an overview sketch of the site should be added as appropriate.)

SECTION OF NUN RIVER WELL 137 WELL HEAD AT ANGIAMA SHOWING POSITION OF EROSION OF BEAM BOX.



JIV AROUND NUN RIVER WELL 13T WELL HEAD AT ANGIAMA

INCIDENT ID: 2020_2614095

JIV DATE: 28/03/2020

BOUNDARY COORDINATES OF IMPACTED AREA (WGS 84)

PT_ID	LONGITUDE	LATITUDE
PL1	6.112460	4 816810
PL2	6 112515	4 816760
PL3	6 112206	4 816613
PL4	6.112060	4 816568
PL5	6.111948	4.816437
PL6	6 111892	4 816389
PL7	6 111491	4 816495
PL8	6 111221	4 816561
PL9	6.111268	4 816663
PL10	6.111350	4 816856
PL11	6.111967	4 816600
PL12	6 112172	4 816687
PL13	6 111221	4 816561
PL14	6 111491	4 816495
PL15	6 111887	4 816387
PL16	6 111713	4 816245
PL17	6 111631	4 816179
PL18	6 111444	4 816273
PL19	6.111183	4 816390
PL20	6 111221	4 816561
PL21	6 111001	4 816671
PL22	6 110870	4 816807
PL23	6 111037	4.816995
PL24	6 111202	4 817163
PL25	6.111470	4.817079
PL26	6 111350	4.816856
PL27	6 111268	4 816663
PL28	6.108200	4 822270
PL29	6.108238	4 822307
PL30	6.110185	4 820911
PL31	6.110848	4.820764
PL32	6 112056	4 820276
PL33	6.113084	4 818609
PL34	6 112515	4.816760
PL35	6.112460	4.816810
PL36	6 113047	4 818606
PL37	6 112033	4 820252

PL38	6.110817	4.820719
PL39	6.110160	4.820879



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G. INCIDENT INFORMATION

a. Impacted Area Details *

- Total calculated area of impact (Ha) 1.12 Ha
- Impact within SUDC ROW 45%
- Impact outside SUDC ROW NIL

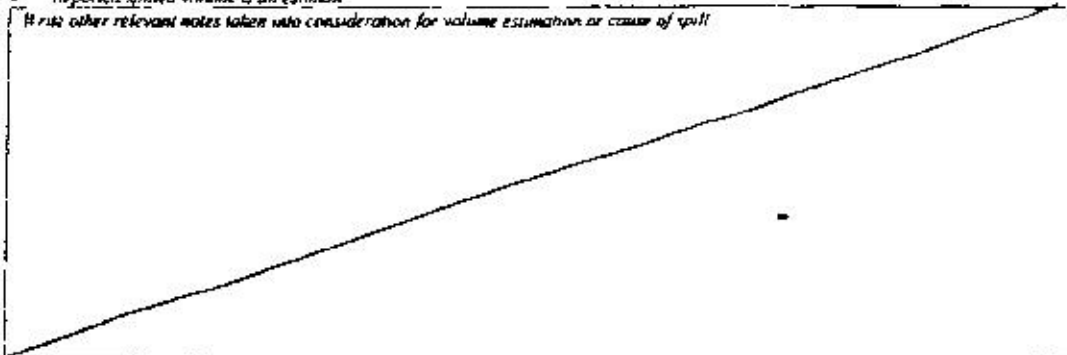
* Area affected by impact is based on a 100m radius from the point of discharge. If the impact is outside the SUDC ROW, the area affected is based on the SUDC ROW.

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

Recovered oil V _{rec}	NIL	Barrels
Controlled recovery, evacuation from source with no impact to environment		
NIL	Barrels	

c. Net Estimated Spilled Volume V_{sp}(bbls)* = 42.35 BARRELS
Estimated Reported Volume** V_{rep}(bbls) = 43 BARRELS

- *Notes
- Volume estimation was done using an excel based tool (see attached for details on the calculation)
 - Reported spilled volume is an estimate



(Calculation of the respective estimated volume is to be done on site as far as practicable using the same spill volume estimation software on site. Conversion of m³ to barrels at 1 volume (m³) = 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 (11) (iv) 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.

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d. General Status of the site

I	Joint investigation of the incident site found that there is no residual in fact after the initial response and JIV 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 work <input checked="" type="checkbox"/>

e. Representatives

This report was filed, 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

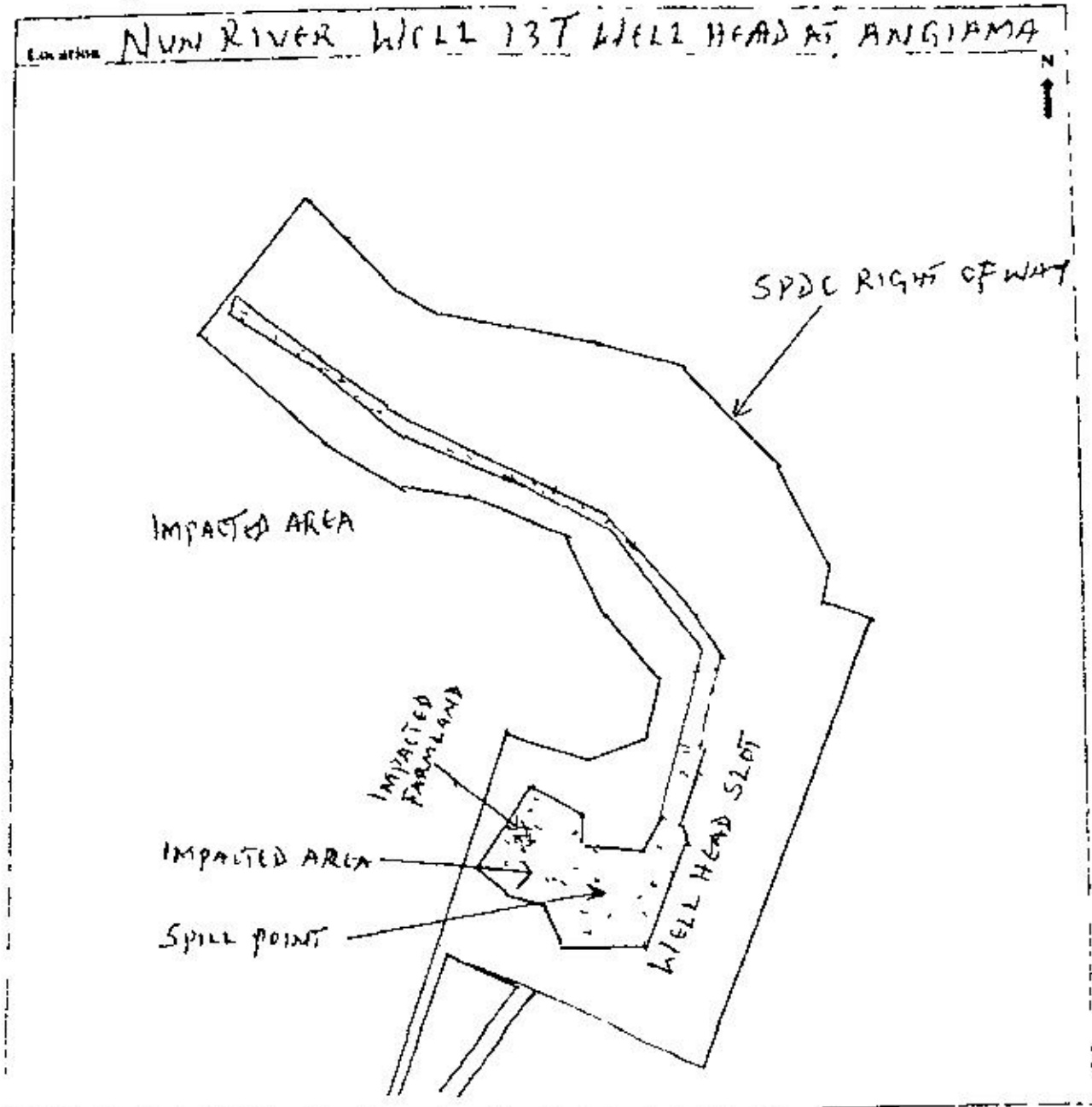
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1 Appendix 1: Overview sketch of the site



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