

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0133/794459

(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: 794459 2. Type of incident* OIL SPILL
 3. Name of Location UBIE WELL 9S FLOWLINE
 4. Name of nearest community IDU - EKPEYS 5. State: RIVERS 6. LGA AHODDA - WEST
 7. Type of Production facility/Installation FLOWLINE 8. Asset owner/District NEL 2 / KOLD CREEK

B. INCIDENT INFORMATION:

9. Details of incident

a. Date of incident: 27TH MARCH, 2012

b. Date/Period of investigation: 4TH APRIL, 2012

c. Description of spill point environment

- Firmed soil Loose soil Previously excavated area
 Under water Swampy Exposed pipe surface
 Well Platform (on Water) Rig

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

- Drilled hole Hack saw cut Explosive tear,
 Complete Rupture Inward dent, Well head tampering
 Failed Weld-on illegal hot tap valve, Missing Pipeline/Flowline)
 Crude oil theft (illegal bunkering) point, Third party tampering with Clamp
 Third party tampering with valve setting, Third party tampering with flange,
 External Corrosion Internal Corrosion
 Saver-pit over flow, Surge vessel overflow, Outward dent
 Flare System/Bund wall Failure Valve Failure com unit failure
 Cold vent Relief valve failure Others (specify) _____

e. Incident due to:

- Third party interference Operational Others (specify) _____

f. Spill point coordinates

Measuring unit (<u>METER</u>)		(<u>MINNA MID-BELT</u>)
	Northing:	Easting:
SP1	123201.13	453378.85
SP2	123240.88	453443.67

*This can be: a) Oil Spill b) Drilling fluid/Chemical c) Siltation d) construction e) Encroachment f) Fire.

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C. RISK ASSESSMENT

10. Type of environment:

- Land Swamp Water Seasonal swamp

i. Type of environment to which oil has spread:

- Land Swamp Water River (identify) _____

ii. Weather condition

- Raining Sunny

11. Distance from the nearest sensitive habitat

- Government reserved and designated protected area [,m]
 Drinking water source [,m]
 Built up area [,m]
 Farmlands [,m]
 Fish Farm/Pond [,m]
 Fishing net [,m]
 Others (specify). [,m]

} NOT APPLICABLE

12. Containment measures put in place;

- Booms Trench Dyke

Others: NOT APPLICABLE

13. Any pictures or video coverage? [Y] [N]

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

If yes give brief description:

NOT APPLICABLE

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

15. Structures / Properties

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

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16. Crops/Economic Trees

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

17. Fish/Nets/Ponds

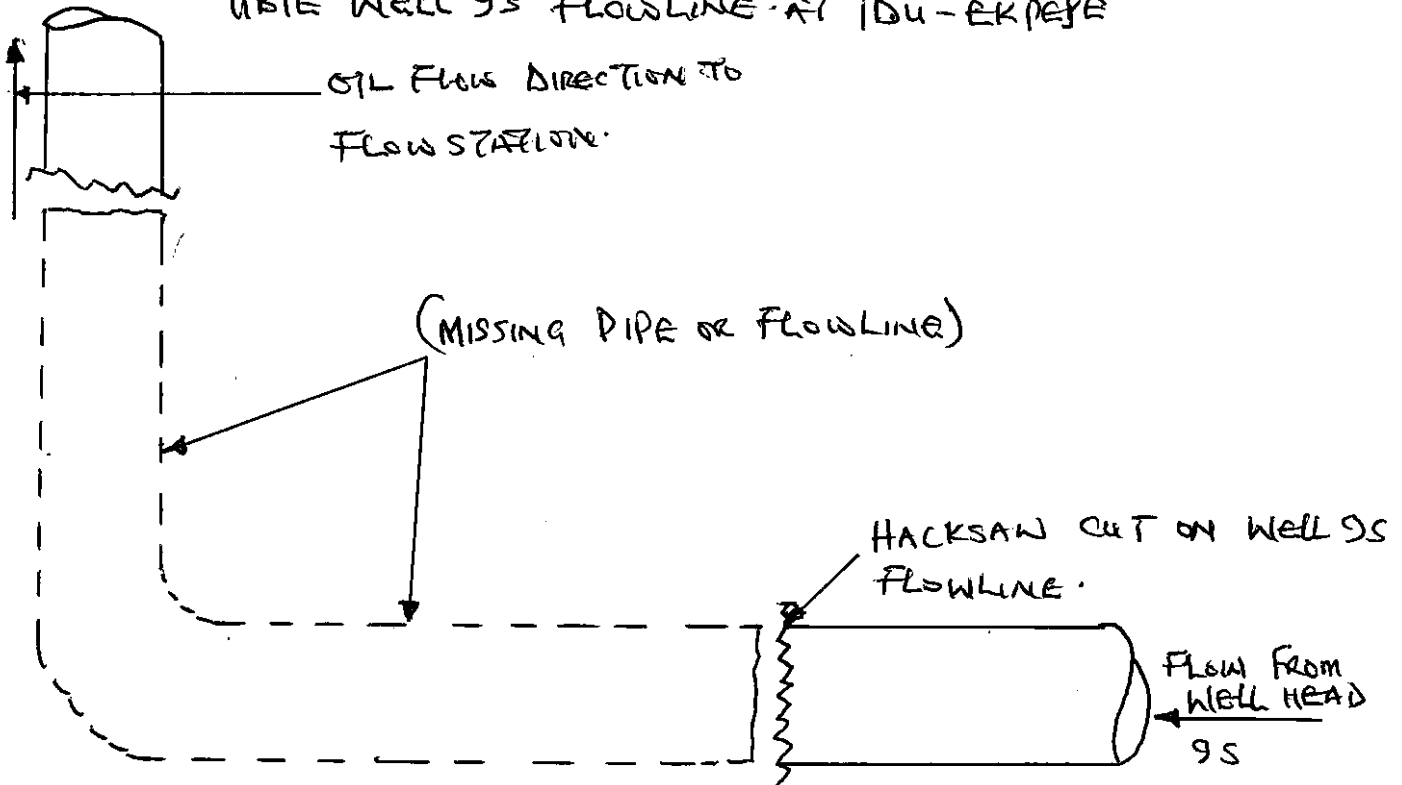
S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	NONE WITHIN AREA OF IMPACT			

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

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

E. GRAPHIC DESCRIPTION OF LEAK POINT (Overview sketch of the site should be added as an appendix)

UBIR WELL 9S FLOWLINE AT IDU-EKPEYE



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b. Computation of volume of infiltrated oil in the soil (V_{inf}).

- i. Area (m^2) covered by the oil: 40 m^2
- ii. Area of the pool of free phase oil in touch with soil: 0.01 m
- iii. Average Depth (m) below ground surface of infiltration of oil: 0.01 m
- iv. Soil type: SAND MEDIUM
- v. P_e (effective porosity of the soil): 25%

iv. Volume of infiltrated oil. V_{inf}	<u>0.63</u>	barrels
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21. Computation of volume of oil on open water based on standard coloration.

- i. Total area of oil on open water: NOT APPLICABLE.
- ii. Table of average depth of oil on water based on coloration *

	Thickness (mm)	Percentage coverage	Volume (m^3)
Barely Visible	0.00004	NOT APPLICABLE	
Silvery	0.00008		
Slight Color	0.00015		
Bright Color	0.0003		
Dull	0.001		
Dark	0.002		
Black oil	0.1		
Emulsion (30% Oil)	1		
Percent Total		100%	Total Volume <u>NIL</u> bbl

iii. Volume of oil on open water. V_{wat} :	<u>NOT APPLICABLE.</u>	barrels
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22. Calculation of evaporated volume:

- i. Oil type: BONNY MEDIUM
- ii. E-Factor: 25%

iii. Volume of evaporated oil. V_{evap} :	<u>0.25</u>	barrels
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Evaporation Factors (E-Factor) for SPDC Crude oil			
Oil Type	Days on site	Bonny Light	Bonny Medium
Period Since Oil Spill	< 1 day	10%	5%
	1-7 days	25%	15%
	> 7 days	40%	25%

<p>23. Gross Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{rec}(bbls)$ $= 1.0064$ Barrel.</p>

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$V_{Est}(bbls) = 0.25 + NIL + 0.63 + 0.13 + NIL = 1.0064 \text{ BARREL}$
24. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
$V_{Est}(bbls) = 1 \text{ BARREL}$

*Calculation of the respective estimated volume is to be done using the new spill estimation software on site
 *Conversion of m3 to barrels is Total volume VT (m3) x 6.29
 *Emulsification factor for spill on water to consider is 60% of volume of oil.

25. GENERAL STATUS OF THE SITE

<p>A. Joint investigation of the incident site found that there is no residual impact After the initial response and therefore recommend that the site be closed out <input type="checkbox"/></p>
<p>B. Investigation of the incident site showed that there is residual impact on site requiring further works <input checked="" type="checkbox"/></p>

26 Signatories

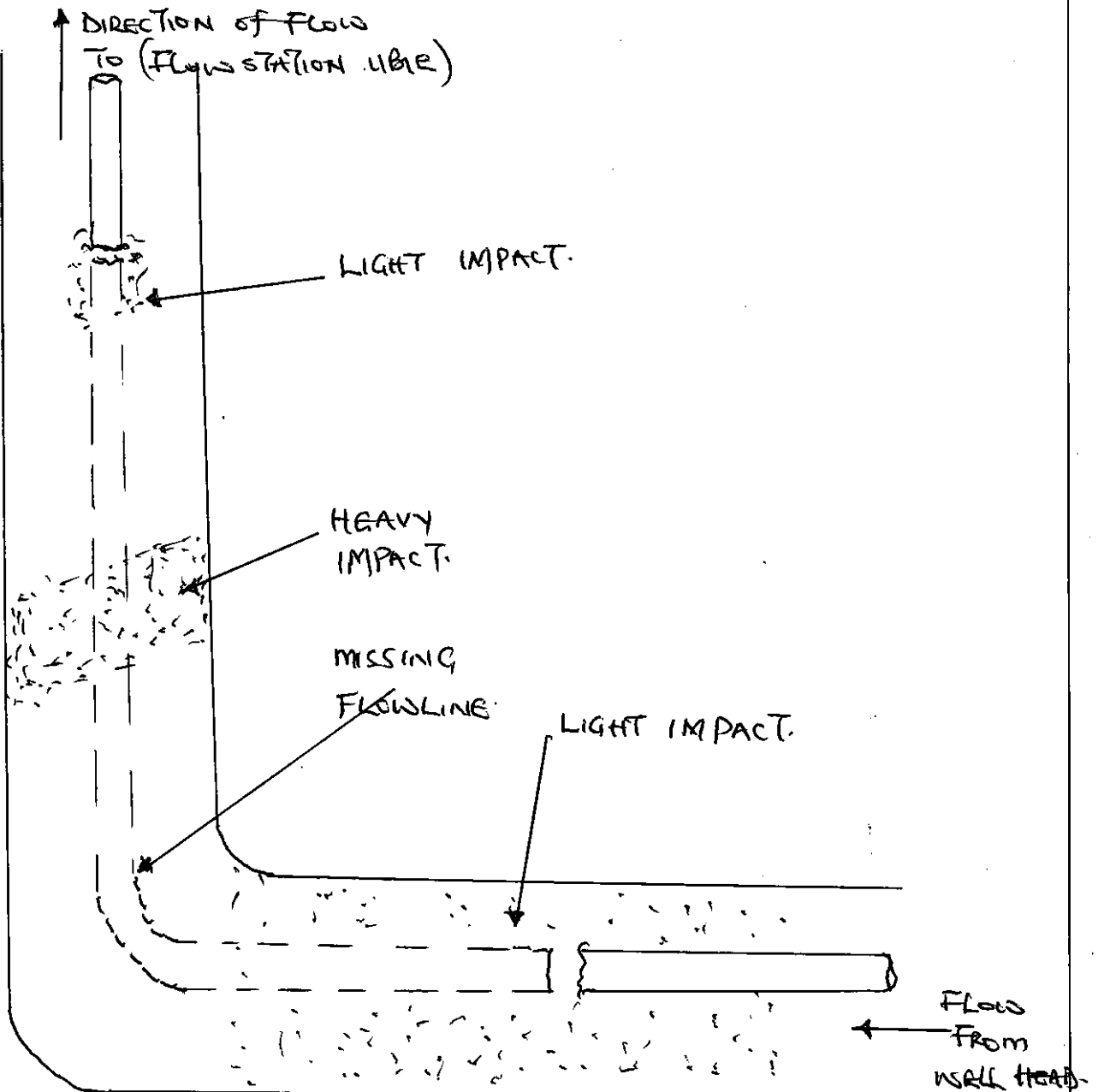
This report was filled and signed on the 06/04/2012 at incident site by joint investigation representatives from

- 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

20. Appendix 1: Overview sketch of the site

Location : UBIE WELL SS FLOWLINE AT IDU-EKPEYE.



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21. Appendix 2: TABLE SHOWING ADDITIONAL COORDINATES TAKEN DURING JIV FOR AREA CALCULATION

MINNA MID-BELT

S/N	Northing (METER)	Easting (METER)	
P.1	123201.12	453378.84	} Loop 1
P.2	123201.17	453378.43	
P.3	123234.97	453375.85	
P.4	123234.97	453376.38	
P.5	123241.06	453397.44	} Loop 2
P.6	123241.03	453403.60	
P.7	123234.87	453397.41	
P.8	123234.92	453394.32	
Total Area Impacted = 42 m ²			