

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 0133|787065

(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: 787065 2. Type of incident* OIL SPILL
 3. Name of Location 24" NKPOKY - BOMU PIPELINE
 4. Name of nearest community EGBALLOR 5. State: RIVERS 6. LGA ELEME
 7. Type of Production facility/Installation PIPELINE 8. Asset owner/District NPE|PH1

B. INCIDENT INFORMATION:

9. Details of incident
 a. Date of incident: 8TH MARCH, 2012.
 b. Date/Period of investigation 9TH - 10TH MARCH, 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 - BEIT</u>)	
Northing: <u>87467.21</u>	Easting: <u>524054.16</u>

*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: _____

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
	NONE WITHIN AREA OF IMPACT				

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16. Crops/Economic Trees

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

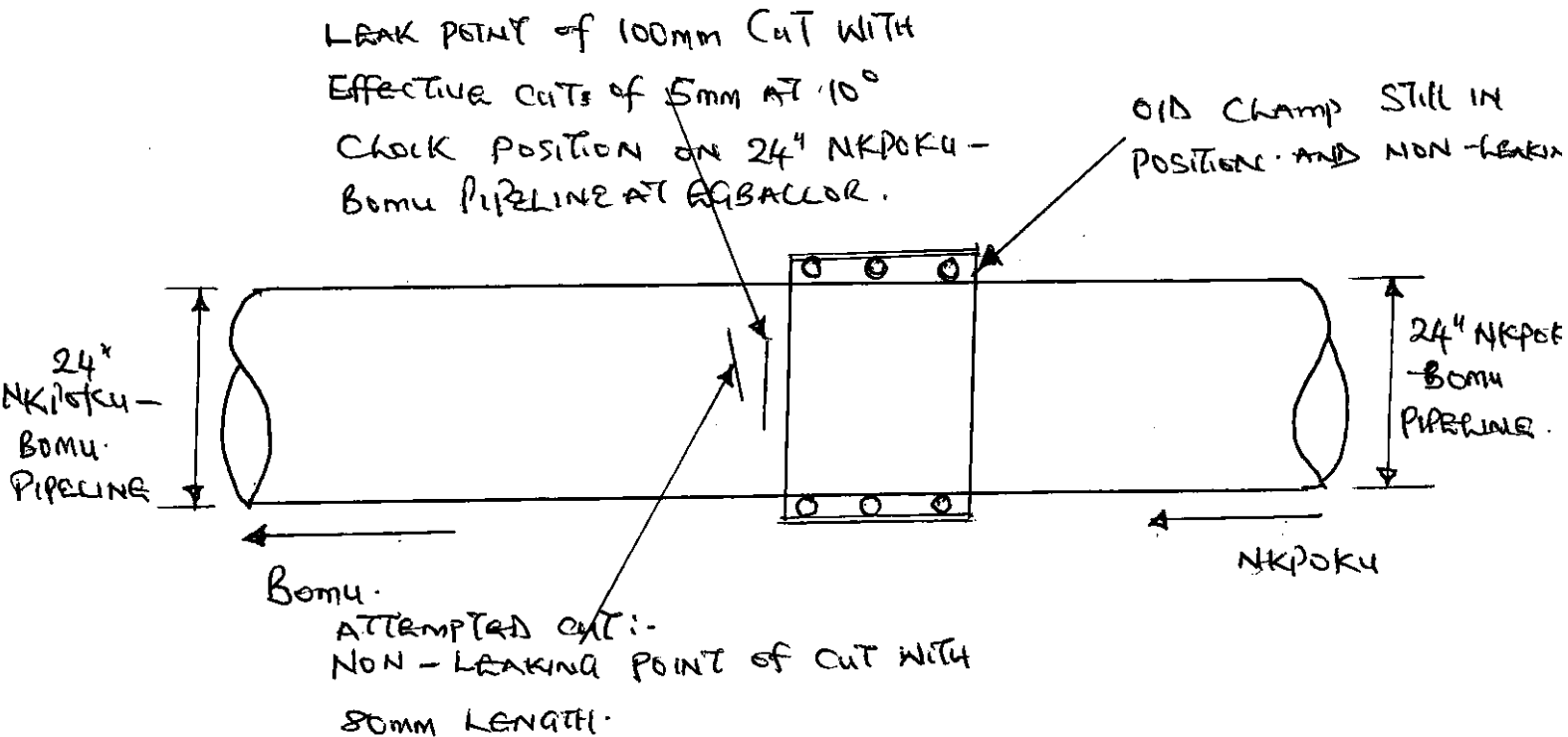
17. Fish/Nets/Ponds

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)



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

19. Impacted area boundary Coordinates (If more than 12 points, Attach as an appendix 2)

MINNA MID-BELT

S/N	Northing (METER)	Easting (METER)
WP433	87473.35	524054.18
WP437	87470.27	524057.26
WP435	87467.21	524054.17
WP434	87464.14	524051.08
WP439	87467.21	524057.09

G. INCIDENT INFORMATION:

20. Impacted Area Details

- Total calculated area of impact 0.0024 Ha.
- Impact within SPDC R.O.W YES
- Impact outside R.O.W NO

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

Recovered oil V_{rec} :	NIL	barrels
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20. Computation of the residual volume on site

- a. Computation of volume of pool of free phase oil (on land or confined water body).
 - i. Area (m^2) occupied by pool of free phase oil NOT
 - ii. Average Depth (m) of pool of free phase oil NOT
 - iii. Emulsification factor: APPLICABLE.

iv. Volume of pool of free phase oil. V_{pool} :	NIL	barrels
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b. Computation of volume of infiltrated oil in the soil (V_{inf}).

- i. Area (m^2) covered by the oil: (24m²)
- ii. Area of the pool of free phase oil in touch with soil: NIL
- iii. Average Depth (m) below ground surface of infiltration of oil: 0.005m
- iv. Soil type: (LATERITE SAND)
- v. P_e (effective porosity of the soil): 20%

iv. Volume of infiltrated oil. V_{inf}	<u>0.151</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 (m3)
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>NIL</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>0.05</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%

23. Gross Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{rec}(bbls)$
 $0.05 + NIL + 0.151 + NIL + NIL = 0.201 bbls$

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$V_{Est}(bbls) = 0.05 + NIL + 0.151 + NIL + NIL = 0.20 \text{ Barrel}$

24. Net Total Estimated Spilled Volume $V_{Est}(bbls) = V_{evap}(bbls) + 0.6 * V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{rej}(bbls)$

$V_{Est}(bbls) = 0.20 \text{ BARRELS.}$

*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

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

B. Investigation of the incident site showed that there is residual impact on site requiring further works

26 Signatories

This report was filled and signed on the 10/03/2012 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

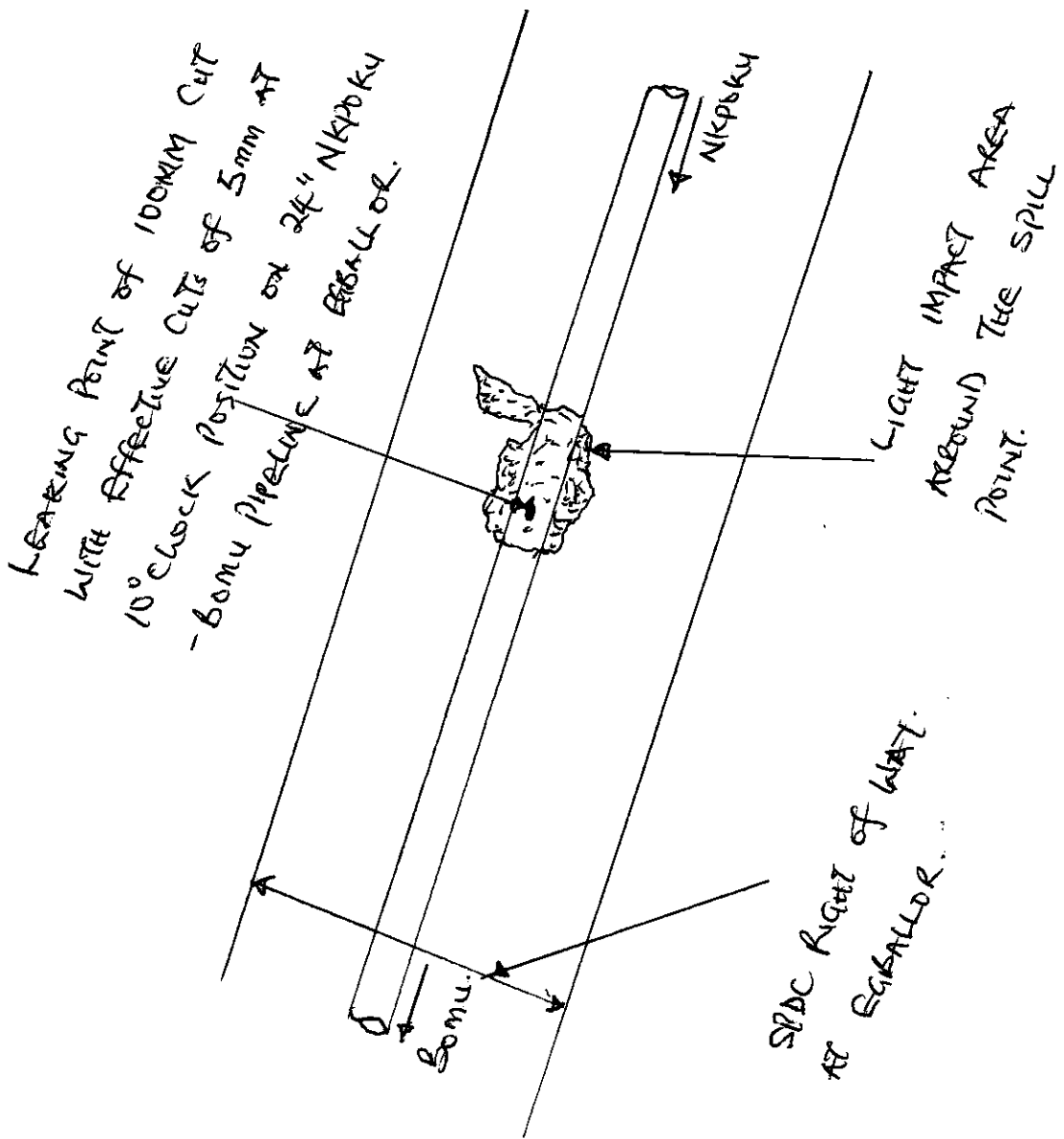
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20. Appendix 1: Overview sketch of the site

Location: 24" NKPOKU - BOMU PIPELINE AT EQBALLOR SECTIONAL VIEW.



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

S/N	Northing	Easting



DEPARTMENT OF PETROLEUM RESOURCES
FIELD JOINT INVESTIGATION REPORT

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

1. Company..... SPNC
 2. Incident Serial Number..... 787065
 3. Name of Location/Facility..... 24" NKPOKO - BOMU PIPELINE @
EGBALLOR, ELEME L.G.A, RIVERS STATE

4. Type of Incident: *(Indicate ✓ where appropriate and X where not applicable)*
- Crude Oil Spill
 - Product Spill (Specify)
 - Drilling Mud/Chemicals Spill
 - Fire
 - Others (specify)

5. Details of Incident

- i. Date of Incident: 08/03/2012
- ii. Date Reported to the DPR:
- iii. Date/Period of First Investigation: 10/03/2012
- iv. Date/Period of Second/Subsequent Investigation:
- v. Cause of Incident *(Indicate ✓ where appropriate and X where not applicable)*
 - Corrosion
 - Equipment Failure
 - Human Error (Production/Maintenance)
 - Third Party Interference (HACKSAW CUT)
 - Mystery Spill
 - Others (Specify)

Additional description of cause of incident (if any): Two hacksaw cut were
sighted: 100mm cuts with effective cut of 5mm at
10 D'c well position.

6. Coordinates of Spill Point/Location(s): 87467-21Nm AND 524054-16 Em.

7. Brief Description of Circumstances Around Spill Point(s) *(Please indicate containment measures put in place, point of breach along pipeline and any necessary details observed at site. Attach additional sheets if necessary)*

8. Delineation of Impacted Area: (Indicate ✓ where appropriate and X where not applicable)

- a) Within company's facilities/ROW
- b) Outside company's facilities/ROW

9. Description of Environment Around Spill Point/Location(s): (Indicate ✓ where appropriate and X where not applicable)

- Land
- Seasonal Swamp
- Swamp
- Coastland
- Inland waters
- Near shore
- Offshore

Please provide a graphic sketch of spill site/leak point (Detailed sketches and maps can be attached where necessary)

Table of Key Coordinates of Mapped Area

S/N	Eastings	Northings

S/N	Eastings	Northings

10. Property Impacted (Provide details)

11. Communities Impacted

a)

b)

c)

d)

e)

f)

12. **Estimated Quantity Spilled (bbls):** 0.2 BBLs
(Please provide below, the methodology used, standards adopted and any assumptions made in the estimate. Where relevant, make brief comments on quantities unaccounted for. Attach and endorse additional sheets if necessary)

13. **Quantity Recovered** *(As at time of the investigation):* N/A

14. **Any Photograph or Video Recording?** *(Provide details):*

15. **Additional Comments/Remarks, if any:**

The Spill occurred as a result of Sabotage.
Surveillance activities should be effectively
stepped-up to prevent a re-occurrence.

16. **Participants**