THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED 0390 867128 JOINT INVESTIGATION REPORT FOR INCIDENT NO: (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: 867128 2.Type of incident * 3. Name of Location CANTHORNS CHANNEL 1 WELL _ 5. State: LWERS 4. Name of nearest community 7. Type of Production facility/Installation FLOW LINE 8. Asset owner/ District \(\sumset \) **B. INCIDENT INFORMATION:** a. Date of incident: 147# SEPTEMBER 2012 b. Start date/time of investigation: 191# SEPTEMBER 2012 9. Details of incident c. Investigation End date: 1970 d. Description of spill point environment Previously excavated area Loose soil Firmed soil Swampy Under water Exposed pipe surface \square_{Rig} ☐ Well Plateform (on Water) e. Description of leak point (tick as applicable); Hack saw cut ☐Explosive tear, Drilled hole ☐ Inward dent, ☐ Well head tampering ☐Complete Rupture ☐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 flange, ☐ Third party tampering with valve setting, ☐ Surge vessel overflow □ Corrosion ☐ Saver-pit over flow, ☐ Flare System/Bund wall failure Outward dent Cold vent □Valve Failure Com unit failure Relief valve failure Others (specify) f. Incident caused by: Third party interference ☐Mystery ☐ Operational g. Sp

Measuring unit	MINNA	MI	D BE	<u> </u>	_
Northing: 61685.8	9m	! :	Easting: 50	8219,2	tm
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THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

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						<u> </u>		
C.	RISK ASSESSMEN	IT						
	10. Type o	of environment:						
	□ Land	Swamp	□ Water	: 1	☐ Seasonal swa	ump		
	i. Type of	environment to	which oil h	as spread:				
	□ Land	™ Swamp	□ Wateı	٠ ا	☐ River (identii	fy)		
	ii. Weather	condition						
	Raining 11. Distance from the	□Sunny e nearest sensitiv	ve habitat					
	☐ Government ☐ Drinking wa ☐ Built up area ☐ Farmlands ☐ Fish Farm/Pc ☐ Fishing net ☐ Others (spec	ter source ond ify).	PPLIC	ntected are	ea [Na [Nh [Nh [Nh [Nh [Nh	,m] ,m] ,m] -,m] -,m] _,m]	•	
	□ Booms	☐ Trench	□ Dyke					
	Others:N	ATURAL	DEP	RESSI	8N			
	13. Any pictures or v	ideo coverage?			M	[N]		
	14. Was there any dis	sruption to the in	vestigation'	?	[Y]	W		
If ye	s give brief descriptio	n:						
	NOT	A	PPL	1 C1	ABLE			
D. T	YPE/NUMBERS O		 S, IF ANY.	FOUND	WITHIN THE	AREA OF	SPREAD OF	— വ
	15. Structures / Prop		•					~
S/N	Type of Structure	s Descrip	tion Size	;	Number		Comments	
					•			

S/N	Type of Structures	Description	Size	Number	Comments
<u> </u>		<u> </u>	<u> </u>		
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L			<u> </u>		<u> </u>

16. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
	$\Lambda / \Lambda \Lambda / -$	1) FT10. (1	A A I	JA AT	1000	NOT
	HVUIVE	WITHIN	71770	N UT	AINLA	10
	1	<u> </u>				

17. Fish/Nets/Ponds

S/N	Fish/Nets/Ponds	Description	Quantity/Size	Comments
	t			-
	1/2/2	LITHEN	ALEA OF	MOACT
	VOIVC /	MIMIL	4)/00/1	Trip it or
<u> </u>	,			

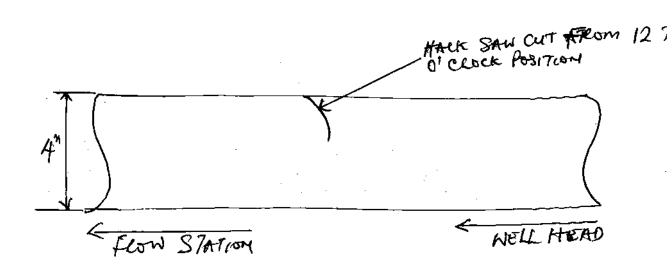
18. Others (Specify) i.e. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
			, -x	24 - 8
	MAL	- 11 THIAI	ADEA SI	MARACT
	AOLAC	MILLIA	YINCK -1	1 1
	<u> </u>			

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)

A SECTION OF 4" CANTHRONE CHANNEL 1 NELL 49L FLOWLAND.

HACK SAW CUT FROM 12 TO 3 0 CLOCK POSITION.



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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)

	ain Annin	BELT
S/N	Northing	Easting
1.	61738.15m	508200.88m
2.	61716.60m	508222.42m
3	61728.88m	508228.61m
4.	61750.20m	508318.05m
5.	61700.98m	508351.86m
6.	61667.49m	508200.74m
7.	61716.68m	508182.34m
8.	61735.09m	508194.7/m
		P 19/09/201
		7-7-
G INCH	DENT INFORMATION:	
	Impacted Area Details	•
	_	n it.
	• Total calculated area of impact 0.8	2119
•	Impact within SPDC R.O.W	<u> </u>

Recovered oil Vm.;

a. Computation of volume of pool of free phase oil (on land or confined water body).

i Area (m²) occupied by pool of free phase oil _____ | 00 m²

ii. Average Depth (m) of pool of free phase oil .

Impact outside R.O.W

20. Computation of the residual volume on site

21. Volume of oil recovered before completion of IIV (V_{recI}):

NUL

barrels.

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED 0390 JOINT INVESTIGATION REPORT FOR INCIDENT NO: iii, Emulsification factor: iv, Volume of pool of free place on v 6-24 Volume of INFUTRATED OIL Computation of volume of infiltrated oil in the soil (Vinf). Area *(m2) covered by the oil:__ AT SPILL POINT. 100 Area of the pool of free phase oil in touch with soil: AROX - 3 m2 Average Depth (m) below ground surface of infiltration of oil: 0.007 AVERAGE BEPTO . 1.5m iii poul type = clay iv $P_{\rm e}$ (effective porosity of the soil) 341.5 XD-08 = 2.26 Volume of infiltrated oil sv. 12+226=6.38 226 BALLES 21. Computation of volume of oil on open water based on standard coloration. Total area of oil on open water: Table of average depth of oil on water based on cotoration • • Thickness Percentage (mm) coverage Volume (m3) **Barely Visible** 0.00004 Silvery 80000.0 Slight Color 0.00015 **Bright Color** 0.0003 Dull 0.001 Dark 0.002 Black oil 0.1 Emulsion (30% Oil) MM Percent Total 100% Total Volume ЫЫ iii. Volume of all on open waters 22. Calculation of evaporated volume:

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%		

BONNY LIGHT

Notume of evaporated oils

Oil type:

E-Factor:

ii.

iii.

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^{*}If area is not same as the total area of impact, please indicate in the overview sketch

** Spill Factor from USCG FOG (2000 Edition)

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23. <u>G</u> r	oss Total Estimated Spilled Volume
V Est (bb	$ls) = V_{evap}(bbls) + V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recl}(bbls)$
$Y_{Est}(bbls)=$	4.22+ Nut 6.38+ 6.29+ NIL = 16.89 BARRETS
24. <u>N</u> i	et Total Estimated Spilled Volume
	$O(s) = V_{evap}(bbls) + 0.6*V_{wat}(bbls) + V_{inf}(bbls) + V_{pool}(bbls) + V_{recJ}(bbls)$
	= 4.22+ Nu+6.38+6.29+NU= 16.89BALLERS
*Calculation of estimation sof	of the respective estimated volume is to be done on site as far as practicable using the new spill volume tware on site
*Conversion	of m3 to barrels is Total volume VT (m3) x 6.29
	on factor for spill on water to consider is 60% of volume of oil. NERAL STATUS OF THE SITE
25. GE	TEXAL STATUS OF THE SITE
	investigation of the incident site found that there is no residual impact after the
initia	I response and therefore recommend that the site be closed out
B. Inves	stigation of the incident site showed that there is residual impact on site requirir
furth	er works 🔽
This rep	PRESENTATIVES ort was filled and signed on the /9/89/20/2 at incident site by joint tion representatives from
• Host	Community
• Depa	artment of Petroleum Resources [DPR]:
• Natio	onal Oil Spill Detection and Response Agency [NOSDRA]:
	Ministry of Environment [SME]:
• Nige	ría Police Force [NPF]:□
• Shell	Petroleum Development Company [SPDC]:
	· · · · · · · · · · · · · · · · · · ·
	Tick as applicable
	•

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27. Appendix 1: Overview sketch of the site

CONTROPUE CHANGE MANGROVE FOREST WELL 494 FLOWLINE MANGROVE FOREST WELL 494 FLOWLINE SWAMOLINE Location: CANTHORNS CHANNEL 1 WELL 49L FLOWLING AT ENTERNY ST SPILL POINT LIGHT CRUBE IMPACT SPDC ROV SPEC ROW

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

Northing	Easting
	
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