JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1307952 JIV report S/N: 00819 (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: 1307952 2. Type of incident\* OIL SPIL L 3. Name of Location 28" MKPOKY - BOMY PIPELINE 4. Name of nearest community K-DERE 5. State: RIVERS 6. LGA GOKAMA-7. Type of Production facility/Installation OL PIPELINE 8. Asset owner/District PIPELINE B. INCIDENT INFORMATION: 9. Details of incident
a. Date of incident: 22<sup>NJ</sup> JECEMBER, 2014
b. Start date/time of investigation: 5<sup>TM</sup> JANUARY, 2015/15.11pm. c. Investigation End date: 6 TH JANUARY 20 Ketual investigation duration, days: TWO 2 1 1 AY 1. d. Description of spill point environment Loose soil Recently excavated area Firmed soil Exposed pipe surface Under water Swampy ☐ Well Platform (on Water) □Drill Rig Additional observations around the spill point: AS THE TIME OF JOINT THUSSIGHTION ISST THE CRUBE OIL THEFT POINT WAS OBSERVED AND LEAKING FREE PHASE OIL IN THE ENVIRONMENT WAS UBSERVED TO FARM SUSPECTED CRUDE OIL THEFT ACTIVITIES. ON THE SECOND OF INVESTIGATION THE VALVE HANDLE WAS OBSERVED I CONNECTED BY UNKNOWN PERSON. e. Description of leak point (tick as applicable); ☐ Tear ( Hack saw cut ☐Drilled hole ☐Well head tampering Inward dent, Complete Rupture Failed Weld-on illegal hot tap valve, Failed Clamp Missing Pipeline/Flowline Third party tampering with Clamp Crude oil theft (illegal bunkering) point, Third party tampering with flange, Third party tampering with valve setting, ☐Surge vesse! overflow, ☐Saver-pit over flow, ☐Corrosión □Flare System/Bund wall failure □Accidental 3<sup>rd</sup> party equipment ☐Bulging Outward Com unit failure Cold vent □Valve Failure impact Relief valve failure ☐Others (specify)\_ f. Incident caused by: Third party interference (Sabotage□; crude theft ; Line theft□; Accidental 3rd party damage□) Others (including Mystery spills) ☐ Operational

<sup>\*</sup>This can be: a) Oil Spill b) Drilling fluid/Chemical c) Siltation d) construction e) Encroachment f) Fire,

DINT INVEST	IGATION RE	EPORT FOR INC	IDENT NO:	13079	<u>52</u> JIV rep	ort S/N:	0081	9
g. Sp	ill point coor		Mi	ma W	lid be	<b>H</b> .		_
	Northing:	<u> </u>	* 14.		Easting:			
	7	2593	03		5349	18.05	5	
			7	7.7		7	<i>a</i> 0.	
							-	
C. RISK	\SSESSME	NT						
10.	Туре	of environment:						
	Land	☐Swamp	□Water	<b>□</b> Sea	sonal swamp□S	horeline/Wa	terfront	
	i. Type o	of environment to s		spread:				
אי	<b>Z</b> Land	Swamp	□Water	□Ris	er (identify)			
	ii. Weath	er condition						
	Rain stance from t	Sunny he nearest sensitiv	Dry e habitat	□Wet	□Windy	□Hot	Cool	
. <b>1</b> 20 C	Government Drinking w Built up and Farmlands Fish Farm/ Fishing net Others (spe	Pond	signated prote	cted area	[ MIL, m] [ MIL, m] [ MIL, m] [ 10, m] [ MIL, m] [ MIL, m]			
12. Co	ontainment m	easures put in plac	e;					
_	Booms Others:	Trench	□Dyke	☑Na	tural depression	<b>⊠</b> Pit	□None	
13. Aı	ny pictures or	video coverage?			[N]			
14. F	urther respor	se/repair initiated	as at the time	of JIV?	[N]			
If yes to iten	n 14, give brief	description: Re	C DU & R.Y.	l Acī	นก์เรร	സ്കാരം	in 15, THE	REYA
(A) 910 15. W	46 TH € as there any	CRMA+ Oldisruption to the in	vestigation?	POINT	74.7 (Y) [Y]	COMMITE	SECTION BY	MALYA
		ief description:						
<u> </u>	1	11-001	0.0.1	<u></u>				
<i>j</i> (	ላ ሀገ	APPLIC	レグシレ	Ĺ				

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

16. Structures / Properties

S/N	Type of Structu	res	Description	Size	Numbe	r		Comments	
N	ont	hol	THW	ARt	A	OF	D	OPACT	_
L	7. Crops/Economic	c Trees			<u> </u>				_

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
	PARM TIXTE				3	INTOMIT ED
2_	RAPMA PALM		<i></i>	1	Few	BY SYILL.
3.	BAMBIN				2501	7 7 2 2
	T			<del></del>		

#### 18. Fish/Nets/Ponds

NOME WITHIN AREA OF IMPACT	S/N	Fish/Nets/Ponds	Description		Quantit	ty/Size	Comments	
	A	one 1	WITHIAL	AR	CA	0	FIR	PACT

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

NONE WITHIN AREA OF THE	Quantity/Size Comments	Description	S/N Others
The state Maritimes Many	AREA OF IMPACT	ATTHAI	VIONE

E. GRAPHIC DESCRIPTION OF LEAK POINT (while detail report of the leak point shot ld be contained in the

SECTION OF 28" NKPOKN - BONNU PIPELINE AT K-DEZE SHOWING
POSITION OF 4" CRYDE DIL THEFT POINT AT 12 0' CLOCK POSITION.

VALVE HANDLE

4" BALL VALVE

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FROM BORN FROM NKPOKU TO BOMU

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1307952 JIV report S/N: 00819

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

S/N	Northing (m)	Easting (M)
	72604.73	534 917-82
	72604.71	534930.15
	72598.56	534-933-22
	72573.98	534939-34
	72546.34	534936.21
	72534.06	534933.11
	72500 - 27	534 933 05
	72491.07	534926.87
	72494.15	534920.71
	72512.58	534917-66
	72.524.85	534930.01
	72537.13	534930 · 03
	72558.64	534926.99
	72.552 · 54	534902.32
	72567-89	534 905. 43
	72570 · 94	534920.85
	72580.16	534917.78
	72.577 · 11	534905.45
	72567.90	534899.27
. <b></b>	72.558.71	534 890 · 01
·· <del>-</del>	72580-18	534908. 54
	<del>-</del>	<del></del>
<b>-</b> . <b>-</b>		1/12
		900
		06/01/2015

# ESTIMATION OF OIL SPILL VOLUME

OIL SPILLED ONSHOR	E/OFFSHORE (Leak stopped at	source)		
mpacted Area Details				
Total Calculated Area	of Impact			1,700.00 m²
i Impact within SPDC R.C	m²			
ii Impact outside SPDC R	O.W			m²
/olume of oil recovered bel	ore completion of JIV (V <sub>rec.</sub> )			
i Estimated Recovered oi	(Net)			bbls
Estimated Recovered	oil (Net) V <sub>rsc.)</sub>			0.00 hbis
Computation of estimated r	esidual volume on site			
•	e of free phase oil (on land or confined	i water body)		
i Total area occupied by p	200.00 m²			
ii Average depth of pool o	free phase oil			0.014 m
iii Emulsification factor	(If applicable, else 0%)			0 %
Estimated Volume of p	ool of free phase oil, V <sub>pool</sub>			2.80 m <sup>3</sup>
Estimated Volume of p	ool of free phase oil, V <sub>pool</sub>			17,61 bbis
Computation of estima	ted volume of infiltrated oil in the soil	(V)		
1 Volume of infiltrated o				
i Total area covered by th	• • • • • • •			1.00 m²
	ion above leaking facility i.e. pipeline/flov	vline		1.000 m
iii Soil type	- , , ,			Slity or sandy day
iv Pe (effective porosity of	he soil)			12 %
v Cause of spill				Third party interference
vi Calculation of days	for infiltration below the leaking point on p	rineline or flowline	1	
Incident Date	JIV Date	Days on Site	1	
12/22/2014 12:30	1/5/2015 13:15	14	1	
	erational, use 1 week as worst case		1	
	where 'days on site' exceeds 7.	7	ļ	
	Infiltration of oil types in various soil	ypes vs time.		
Sail typ	Approximate time to reach	1m depth below grou	nd level	
Oil type	Sand	Loem	Clay	7
Bonny Medium	3 weeks	3 years	> 10 years	7
Bonny Light	2 days	2 months	> 10 years	]
vii Oil type				Bonny Medium
viii Average depth of infiltra	tion below leaking facility i.e. pipeline/flow	/line		0.004 m
ix Total depth below groun	d surface of infiltration of oil			1.004 m
Estimated Volume of it		<u> </u>		0.12 m³
Estimated Volume of it	rifitrated oil, V <sub>lof s</sub>			0.76 bbls
n Mahama astasibuahad a	to a a a a a a de la culta			
	l at second spiil point [if applicable] (\	(efb)		m <sup>2</sup>
i Total area covered by the	e on (immration) tion above leaking facility i.e. pipeline/flov	ulia a		
• '	jm_			
ili Soil type iv P <sub>e</sub> (effective porosity of	- Select			
M . B (amount a paramy a.	,			
v Average depth of infiltra	tion below leaking facility i.e. pipeline/flow	dine		0.000 m
vi Total depth below groun	d surface of infiltration of oil			0.000 <sub>m</sub>
				<u> </u>
Estimated Volume of I				0.00 m³
	nfiltrated oil, V <sub>lef b</sub>			0.00 bbis

Total Area of the pool of free phase oil in touch with soil oils hose and the pool of free phase oil in touch with soil oil hose are depth below ground surface of infiltration of oil 0.0004 m  Setimated Volume of Infiltrated oil, V <sub>Mr</sub> . 0.74 m²  Setimated Volume of Infiltrated oil, V <sub>Mr</sub> . 4.83 bbls  Folume oil infiltrated oil outside immediate spill point(s) region (superficial impact, V <sub>Mrd</sub> )  oital Area covered by the oil (infiltration)  oital Area of the pool of free phase oil in touch with soil  oital Area of the pool of free phase oil in touch with soil  instimated Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.000 m²  Setimated Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.000 m²  Setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.88 m²  setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.88 m²  setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.88 m²  setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.89 m²  setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.99 m²  setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.99 m²  setimated Total Volume of Infiltrated oil, V <sub>Mrd</sub> . 0.99 m²  setimated Volume oil on open water based on coloration  like to Coverses Yasual  Alex Overses Yas		outside immediate spill point(s) regio	on (V <sub>irte</sub> )		1,449.00 m²
Sile for Service (a feel cheep parasity of the soil)  (a feel cheep parasity of the soil of infiltrated oil, V <sub>M'd</sub> (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of free phase oil in touch with soil  (bill Area of the pool of the pool of the phase of the	•	•			
verage depth below ground surface of infiltration of oil  O.004 m  Internated Volume of Infiltrated oil, V <sub>Mx</sub> Setimated Volume of Infiltrated oil, V <sub>Mx</sub> Setimated Volume of Infiltrated oil, V <sub>Mx</sub> Setimated Volume of Infiltrated oil (Infiltration)  Ooth Area covered by the oil (Infiltration)  Ooth Area covered by the oil (Infiltration)  Ooth Area of the pool of free phase oil in buch with soil  Intil out Area of the pool of free phase oil in buch with soil  Intil out Area of the pool of free phase oil in buch with soil  Intil out Area of the pool of free phase oil in buch with soil  Intil out Area of the pool of free phase oil in buch with soil  Intil out Area of the pool of free phase oil oil buch with soil  Intil out Area of the pool of free phase of Infiltrated oil, V <sub>Mx</sub> Setimated Volume of Infiltrated oil, V <sub>Mx</sub> Setimated Total Volume of oil on water based on standard coloration  Intil to Coverses Visual  All All All All All All All All All A	•	ee priase on in todah with son			<del></del>
testimated Volume of Infiltrated oil, V <sub>MY</sub> 4.85 bble  rolume of Infiltrated oil outside immediate spill point(a) region (superficial impact, V <sub>MY</sub> )  rolume of Infiltrated oil outside immediate spill point(a) region (superficial impact, V <sub>MY</sub> )  rolal Area of the pool of free phase oil in touch with soil  verspe depth below ground surface of infiltration of oil  O.004 m  **Total Area of the pool of free phase oil in touch with soil  verspe depth below ground surface of infiltrated oil, V <sub>MY</sub> O.00 m <sup>3</sup> **Statimated Volume of infiltrated oil, V <sub>MY</sub> **Statimated Total Volume of oil on water based on coloration  Total area of oil on open water  **Total area of oil on open water  **Dull 0.0001  **Dull 0.0001  **Dull 0.0001  **Dull 0.0001  **Dull 0.0001  **Percent Total 0.0000  **Entitiated Volume of oil on open water, V <sub>wat</sub> **O.00 bbls  **Statimated Volume of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area over pefore JIV completion done before JIV date?  **Total Borny Medium  **Frequent Total Oil on Open water, V <sub>wat</sub> **O.00 bbls  **Statimated Volume of evaporated oil, V <sub>wate</sub> **O.00 bbls  **Statimated Volume of evaporated oil, V <sub>wate</sub> **Total Completion of one before JIV date?  **Total Completion of one before JIV date?  **Total Completion of oil		e soil)			
testimated Volume of Infiltrated oil, V <sub>MY</sub> 4.85 bble  rolume of Infiltrated oil outside immediate spill point(a) region (superficial impact, V <sub>MY</sub> )  rolume of Infiltrated oil outside immediate spill point(a) region (superficial impact, V <sub>MY</sub> )  rolal Area of the pool of free phase oil in touch with soil  verspe depth below ground surface of infiltration of oil  O.004 m  **Total Area of the pool of free phase oil in touch with soil  verspe depth below ground surface of infiltrated oil, V <sub>MY</sub> O.00 m <sup>3</sup> **Statimated Volume of infiltrated oil, V <sub>MY</sub> **Statimated Total Volume of oil on water based on coloration  Total area of oil on open water  **Total area of oil on open water  **Dull 0.0001  **Dull 0.0001  **Dull 0.0001  **Dull 0.0001  **Dull 0.0001  **Percent Total 0.0000  **Entitiated Volume of oil on open water, V <sub>wat</sub> **O.00 bbls  **Statimated Volume of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area of oil on open water, V <sub>wat</sub> **O.00 bbls  **Total area over pefore JIV completion done before JIV date?  **Total Borny Medium  **Frequent Total Oil on Open water, V <sub>wat</sub> **O.00 bbls  **Statimated Volume of evaporated oil, V <sub>wate</sub> **O.00 bbls  **Statimated Volume of evaporated oil, V <sub>wate</sub> **Total Completion of one before JIV date?  **Total Completion of one before JIV date?  **Total Completion of oil	Average depth below grou	and surface of infiltration of oil			0.004m
A					
folume of inflitrated oil outside immediate spill point(s) region (euperficial impact, V <sub>ext d</sub> )  otal Area of the pool of free phase oil in touch with soil  m²  werage depth below ground surface of inflitration of oil  O.004 m  1.000 m²  satimated Volume of inflitrated oil, V <sub>ext d</sub> O.00 bble  satimated Volume of inflitrated oil, V <sub>ext d</sub> O.00 bble  satimated Total Volume of inflitrated oil, V <sub>ext d</sub> O.00 bble  satimated Total Volume of inflitrated oil, V <sub>ext d</sub> O.00 bble  satimated Total Volume of inflitrated oil, V <sub>ext d</sub> O.00 bble  satimated Total Volume of inflitrated oil, V <sub>ext d</sub> O.00 bble  computation of volume of all on open water based on standard coloration  colal area of oil on open water  (bel of average depth of oil on water based on coloration  Inflit to Coverage Volume (m3)  Black Visible  O.0000 Sibint Color  Silvery  O.0000 Sibint Color  O.0000  Dull  O.001  Dull  O.001  Emission (30% Qii)  1 0.0000  Emission (30% Qii)  1 0.0000  Parcent Total  Department of oil on open water, V <sub>ext d</sub> O.00 m²  satimated Volume of oil on open water, V <sub>ext d</sub> O.00 m²  satimated Volume of oil on open water, V <sub>ext d</sub> O.00 m²  satimated Volume of oil on open water, V <sub>ext d</sub> O.00 m²  sation of evaporation Factors (E-Factor) for SPDC Crude oil  Presidence time of spilled oil (days on site)  Fessidence time of spilled oil (days on site)					·
Total Area of the pool of free phase oil in touch with soil  verage depth below ground surface of infiltration of oil  astimated Volume of infiltrated oil, V <sub>erd</sub> 0.00 m²  astimated Volume of infiltrated oil, V <sub>erd</sub> 0.00 bble  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.00 bble  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.86 m²  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.85 m²  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.85 m²  stimated Total Volume of oil on open water based on standard coforation  computation of volume of oil on open water based on standard coforation  colai area of oil on open water  able of average depth of oil on water based on coloration  pail Factors from USCO FOG (2000 Edision)  Birph Color  Silvery  0.00000  Silvery  0.00000  Silvery  0.00000  Datis  0.0000  Datis  0.0000  Datis  0.0000  Emission (30% Oil)  1 0.0000  Percent Total  0/4 0.0000  Fercent Total  0/4 0.0	Estimated Volume of inf	iltrated oil, V <sub>MC</sub>			4.63 bbls
Total Area of the pool of free phase oil in touch with soil  verage depth below ground surface of infiltration of oil  astimated Volume of infiltrated oil, V <sub>erd</sub> 0.00 m²  astimated Volume of infiltrated oil, V <sub>erd</sub> 0.00 bble  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.00 bble  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.86 m²  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.85 m²  stimated Total Volume of infiltrated oil, V <sub>erd</sub> 0.85 m²  stimated Total Volume of oil on open water based on standard coforation  computation of volume of oil on open water based on standard coforation  colai area of oil on open water  able of average depth of oil on water based on coloration  pail Factors from USCO FOG (2000 Edision)  Birph Color  Silvery  0.00000  Silvery  0.00000  Silvery  0.00000  Datis  0.0000  Datis  0.0000  Datis  0.0000  Emission (30% Oil)  1 0.0000  Percent Total  0/4 0.0000  Fercent Total  0/4 0.0	Volume of inflitrated oil	outside immediate spill point(s) regk	on (superficial impac	L Veren)	
Estimated Volume of Inflitrated oil, V <sub>bet d</sub> Setimated Total Volume of Inflitrated oil, V <sub>bet d</sub> Setimated Total Volume of Inflitrated oil, V <sub>bet d</sub> Somputation of volume of all on open water based on standard coforation oil on open water (able of average depth of oil on water based on coloration (all area of oil on open water (able of average depth of oil on water based on coloration (bit to Covercus Visual Add Add Add Add Add Add Add Add Add Ad	Total Area covered by the	oil (infiltration)			m²
State   Stat	Total Area of the pool of fi	ee phase oil in touch with soil			m²
State   Stat	Average denth helow gros	and surface of infiltration of oil			0.0041m
Settmated Volume of infiltrated oil, V <sub>lot</sub>		in our record of in in a calour of our			0.007
Stimated Total Volume of Infiltrated oil, V <sub>tot</sub>					0.00 m³
Sample   S	Estimated Volume of inf	iltrated oil, V <sub>infel</sub>			0.00 bbls
Sample   S	Cailan aine Tainl Male	ما الماسمونية			a == <b>3</b>
Computation of volume of oil on open water   Image: Computation of volume of oil on open water   Image: Computation of volume of oil on open water   Image: Coverage   Image: Image: Coverage   Image: Coverage   Image: Coverage   Image: Coverage   Image: Coverage   Image: Image: Coverage   Image: Coverage   Image: Coverage   Image: Coverage   Image: Coverage   Image: Imag					
Total area of oil on open water   Table of average depth of oil on water based on coloration   Link to Coverage Visual	Ladineved Total Toldine	Or arminated on, The	_ · ·		5.39 pars
Thickness (mm)	- ,				
Barely Visible   0.00004   0.00006   0.00000	SPRI PRODUSTIONI DOCO POC	(2000 Edition)			1
Silvery   0.00008   0.00008   0.00008   Siloht Color   0.00015   0.00008					
Silaht Calor					
Bright Color	<del></del>				
Dull   0.001   0.0000     Dark   0.0002   0.0000     Black oil   0.1   0.0000     Emulsion (30% Qii)   1   0.0000     Percent Total: 0%   0.0000     Stimated Volume of oil on open water, V <sub>rest</sub>   0.00 m³     Stimated Volume of oil on open water, V <sub>rest</sub>   0.00 bbls     Stimated Volume of oil on open water, V <sub>rest</sub>   0.00 bbls     Stimated Volume of oil on open water, V <sub>rest</sub>   0.00 bbls     Stimated Volume of splited oil (days on site)   Oil type   Bonny Light   Bonny Medium     < 1 day   10%   5%     1.7 days   25%   15%     > 7 days   40%   25%     Vas oil recovery before JIV completion done before JIV date?   No   23.00 bbls     Stimated Volume of evaporated oil, V <sub>evap</sub>   7.67 bbls					•
Dark   0.002   0.0000			_		
Black oil 0.1 0.0000 Emulsion (30% Qil) 1 0.0000  Percent Total: 0% 0.0000  Estimated Volume of oil on open water, V <sub>rest</sub> 0.00 m³ Estimated Volume of oil on open water, V <sub>rest</sub> 0.00 bbls  Estimated Volume of oil on open water, V <sub>rest</sub> 0.00 bbls  Evaporation Factors (E-Factor) for SPDC Crude oil  Residence time of spilled oil (days on site) 0il type Bonny Light Bonny Medium  < 1 day 10% 5% 1.7 days 25% 15% > 7 days 40% 25%  Was oil recovery before JIV completion done before JIV date? Estimated volume available for evaporation 23.00 bbls  Fractor 25 %  Estimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbls					
Residence time of spilled oil (days on site)    Stimated Volume of I on open water, V   100   10	Black oil				
Estimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of evaporated volume  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.00 bbls  Stimated Volume of oil on open water, V <sub>wet</sub> O.01 bbls  Stimated Volume of oil oil on open water, V <sub>wet</sub> O.01 bbls  Stimated Volume of oil oil o	Emulsion (30% Oil)	1		0.0000	
Stimated Volume of oil on open water, V   Stimated Volume of evaporated volume	•	Percent Total:	0%	0.0000	
Stimated Volume of oil on open water, V   Stimated Volume of evaporated volume	Fatimated Volume of all	on open water V			o oo m <sup>3</sup>
Evaporation Factors (E-Factor) for SPBC Crude oil				_	
Residence time of spilled oil (days on site)   Oil type   Bonny Light   Bonny Medium					***************************************
Residence time of spilled oil (days on site)   Oil type   Bonny Light   Bonny Medium	liation of evaporated yo	lume			
Residence time of spilled oil (days on site)    Dil type		·		<u> </u>	
Residence time of splited on (days of site)    Bonny Light   Bonny Medium		Evaporation Factors (E-Factor) for S			
< 1 day 1.7 days 25% 1.5% > 7 days Vas oil recovery before JIV completion done before JIV date? Stimated volume available for evaporation Settimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbts	Residence time	a of spilled oil (days on site)		· · · · · · · · · · · · · · · · · · ·	
>7 days 40% 25%  Vas oil recovery before JIV completion done before JIV date?  Estimated volume available for evaporation 23.00 bbls  Estimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbts		< 1 day	<del></del>		
Vas oil recovery before JIV completion done before JIV date?  Stimated volume available for evaporation  23.00 bbls  Stimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbts		1-7 days	25%	15%	
stimated volume available for evaporation 23.00 bbls  -factor 25 %  stimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbts		> 7 days	40%	25%	
stimated volume available for evaporation 23.00 bbls  -factor 25 %  stimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbts	Was oil recovery before 1	IV completion done before IIV date?		1	No. 5
stimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbls	-	•			-2i-
stimated Volume of evaporated oil, V <sub>evap</sub> 7.67 bbis		<del></del>			
	E-factor				25 %
	Estimated Volume of evi	aporated oil, V <sub>even</sub>	-		7.67 bbis
iet Total Estimated Spilled Volume, V., 20 A7 hNe					
	Net Total Estimated	Spilled Volume, V			30.67 bbis

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1307952 JIV report S/N: 00819 G. INCIDENT INFORMATION:

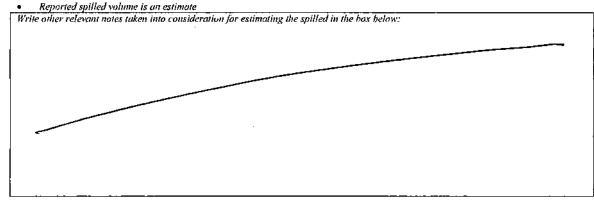
20.	Impacted	Area	Details

•	Tota	al calcula	ted area o	of impact	0	·17ha			
•	Imp	act within	n SPDC I	R.O.W	_	िद			
•	Imp	act outsic	le SPDC	R.O.W_		tês_			_
21. Volume	of oi	recover	ed befor	re comple	etion	of JIV (Vn	<sub>ec1</sub> ):		
				^ Rec	ove	red oil V <sub>recJ</sub> :	RETOVERY	and Going Ba	rrels
Controlled	reco	very/eva	cuation				act to environme		
			Λ	114		Barrels			

22. Net Estimated Spilled Volume VEst	bbls)* =	· · · · · · · · · · · · · · · · · · ·
30.	67	BARRELS
Estimated Reported Volume** V <sub>ren</sub> (bbls)=	31	BARRELS

\*Notes:

Volume estimation was done using an excel based tool (see attached for details on the calculation)



Colculation 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  $n^3$  to barrels is Volume (m3) x 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.

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1307-952 JIV report S/N: 00819

# 23. GENERAL STATUS OF THE SITE

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

#### 24. REPRESENTATIVES

This report was filled, agreed and signed by the following joint investigation represents	atives:
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- 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]:
- Signatories agree with reported findings:
- Separate DPR form has been filled out with same findings

Tick as applicable

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1307952 JIV report S/N: 00819

25. Appendix 1: Overview sketch of the site

