JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1286302 JIV report S/N: 00772 (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: 1286302 2. Type of incident\* OIL SPILL 3. Name of Location ObiGBO (AGG) PROCESS DRAIN VESSEL 2" DRAIN LINE 4. Name of nearest community UMUEBULY 5. State: RNECS 6. LGA ETette 7. Type of Production facility/Installation DRAIN LINE 8. Asset owner/District PNEL **B. INCIDENT INFORMATION:** 9. Details of incident a. Date of incident: 12 Th No Vernees, 2514 b. Start date/time of investigation: 14 TH November, 2014 c. Investigation End date: 14 TH NOVEMBERCHART investigation duration, days: ONE DAT d. Description of spill point environment Firmed soil Recently excavated area Loose soil Under water Exposed pipe surface ☐ Swampy Drill Rig ☐Well Platform (on Water) Additional observations around the spill point: THE TEAM OBSERVED OIL STAIN ON THE CONCRATE BASE BY THE SALL DOINT e. Description of leak point (tick as applicable); Tear ( ), Drilled hole ☐ Hack saw cut ☐Inward dent, Complete Rupture ☐Well head tampering ☐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 valve setting, ☐Third party tampering with flange, **□**Corrosión ☐Saver-pit over flow, ☐Surge vessel overflow, Flare System/Bund wall failure Accidental 3rd party equipment ☐Bulging Outward Com unit failure Cold vent impact ☐ Valve Failure Relief valve failure ☐Others (specify)\_ f. Incident caused by: ☐ Third party interference (Sabotage☐; crude theft☐; Line theft☐; Accidental 3<sup>rd</sup> party damage☐) Operational Others (including Mystery spills)

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

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g. Spill point coo	rdinates ng unit METE	R (MIN	NA N	110-BELT		
Northing:				Easting:		
9	8793.8	2m		51749	18.17r	n
					<del></del>	
	<b></b> _					
C. RISK ASSESSM						
10. Typ	e of environment:					
Land	☐Swamp	□Water	□Sea	asonal swamp S	horeline/Waterf	ront
і. Туре	of environment to	which oil has sp	read:			
Land	□ Swamp	☐ Water	□Riv	ver (identify)		
ii. Weat	her condition					
☐Rain 11. Distance from	Sunny the nearest sensiti		□Wet	□Windy		□cool
☐ Drinking ☐ Built up a ☐ Farmland ☐ Fish Farm ☐ Fishing n ☐ Others (s	s n/Pond et		ed area	[m, ] [m, ] [m, ] [m, ] [m, ]	MONE WITH SF U VICIN	N AREA 1PAETOR. 119-1.
□Booms □Others:_	☐Trench	Dykc	□Na	atural depression	□Pit	□None
13. Any pictures	or video coverage?	ı		[Y] /[N]		
14. Further resp	onse/repair initiate	d as at the time o	f JIV?	[Y] [N]		
If yes to item 14, give bri	ef description:	REPA	R	WORK	<u> </u>	mplek
BY SEC	TIONAL	Repl	ACEN	nenit.		
15. Was there any	y disruption to the	investigation?		[Y] [N]	<b>/</b>	
If yes to item 15 give b	orief description:					
	TOT	APPI	10	ABL		

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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 Structures	Description	Size	Number	Cor	nments
NONE K	litte	1	REA	C	(MPAC
17. Crops/Economic Trees		<u> </u>	l		
S/N Type of crops Young	<u> </u>	Medium	Matured	Quantity	Comments

S/N Type of crops	Young	Medium	Matured	Quantity	Comments
MONE	MITHIN	A	CA	of IM	PACI

18. Fish/Nets/Ponds

S/N Fish/Nets/Ponds	Description	Quantity/Size   Comments	
NONE M	THIN A	REA OF IMPACT	

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

S/N Others	Description	Quantity/Size	Comments	
NONE	Willer	ARCA	10	MPACT

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)

(AGG) ASCOCIATED CAS GATHERING PROGES OBIGBO , Demin

AT UMURBULY SHOWING

LEAK DUE TO JOHN CORRODED

PESITION/ON 2" DRAIN LINE AT UMURBULE.

<del></del>	. ✓	
2" 1 6		) I 2'

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# F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION 20. Impacted area boundary Coordinates (If more, Print and attach as an appendix)

	MINNA MID-BEL	
S/N	MINNA MID-BEL Northing (METER)	Easting (METER)
1	98793.93	517497.49
2	98793 30	517498.21
3	98794.23	517499.41
4.	98794 82	517497.49 517498.21 517499.41 517498.64
	· · ·	
	-	
<b></b>	· · · · · · · · · · · · · · · · · · ·	
·		-
<u></u>		
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-		
		-
	1	

#### **ESTIMATION OF OIL SPILL VOLUME**

A

FID =1286302 AT 2" OBIGBO ASSOCIATED GAS GATHERING PROCESS DRAIN LINE AT UMUEBULU JIV VOLUME CALCULATION REPORT

IL SPILLED ONSHORE	OFFSHORE (Leak stopped at	t source)		
pacted Area Details				
Total Calculated Area of	lmpact			1.40 m²
i Impact within SPDC R.O.V	V			m²
ii Impact outside SPDC R.O	W			m <sup>2</sup>
dume of oil recovered befor	e completion of JIV (V)			
i Estimated Recovered oil (	Net)			bbls
Estimated Recovered oil	(Net) V <sub>red.1</sub>			0.00 bbls
emputation of estimated res	····			
•	of free phase oil (on land or confine	d water body)		
i Total area occupied by po	•			m <sup>2</sup>
ii Average depth of pool of fi	•			m
iii Emulsification factor	(If applicable, else 0%)			0 %
Estimated Volume of poo	oi of free phase oil, V <sub>pool</sub>			0.00 m <sup>s</sup>
Estimated Volume of po-	of free phase oil, V <sub>pool</sub>			0.00 bbls
-	d volume of infiltrated oil in the soil	(V <sub>int</sub> )		
<ul> <li>Volume of Infiltrated oil a i Total area covered by the</li> </ul>				1.40 m²
•		utino		0.100 m
iii Soil type	n above leaking facility i.e. pipeline/flor	Willie		<u> </u>
iv P. (effective porosity of the	soil)			20 %
v Cause of spill				Operational
ui Calculation of door fo	infiltration below the leaking point on	ninalina or flowlina	Ī	
Vi Calculation of days for Incident Date	JIV Date	Days on Site		
11/12/2014 13:40	11/14/2014 14:45	2		
	rational, use 1 week as worst case	<del></del>		
	here 'davs on site' exceeds 7	7		
	Infiltration of oil types in various soil	types vs time.		٦
Soil type	Approximate time to reac		nd level	
Oil type	Sand	Loam	Clay	7
Bonny Medium	3 weeks	3 years	> 10 years	7
Bonny Light	2 days	2 months	> 10 years	
				I
vli Oil type	A . I			Bonny Medium   One of the second of the seco
All Average depth of infittation	n below leaking facility i.e. pipeline/flor	wille		0.002 m
ix Total depth below ground	surface of infiltration of oil			0.102 m
ix Total depart below ground	Surface of Hillingatori of Oil			0.102
Estimated Volume of Inf	Iltrated oil V			0.03 m <sup>3</sup>
Estimated Volume of Inf				0.18 bbis
				<del>- · · · · · · · · · · · · · · · · · · ·</del>
2 Volume of infiltrated oil	at second spill point [if applicable] (	V <sub>inf b</sub> )		
i Total area covered by the				m²
ii Average depth of infiltration	n above leaking facility i.e. pipeline/flo	wline		m.
iii <u>Soil type</u>				Laterite
iv P. (effective porosity of th	e soit)			20 %
v Average depth of infiltration	n below teaking facility i.e. pipeline/flo	wline		0.006 m
ui Total doubt halans and said	nuclana of infiltration of all			0.006 m
vi Total depth below ground	Surface of influencing of oil			0.000
Estimated Volume of int				0.00 m <sup>3</sup>
Estimated Volume of inf	Htrated off, V <sub>Inf b</sub>			0.00 bbls
3 Volume of infiltrated oil	outside immediate spill point(s) reg	ion (V <sub>iefe</sub> )		
i Total Area covered by the				m <sup>2</sup>
<del>-</del>	ree phase oil in touch with soil			m <sup>2</sup>
•	•			<del> </del>

i Soil type  Pe (effective porosity of the soil)				Laterite ▼
,				
Average depth below ground su				0.002 m
Estimated Volume of infiltrate	d oil, V <sub>info</sub>	_		0.00 m <sup>3</sup>
Estimated Volume of infitrate	d oil, V <sub>int c</sub>			0.00 bbis
Volume of infiltrated oil outsic	de immediate spili point(s) regio	on (superficial impaci	t. V <sub>isto</sub> )	
i Total Area covered by the oil (in	filtration)			m <sup>2</sup>
Total Area of the pool of free ph	ase oil in touch with soil			m <sup>2</sup>
Average depth below ground su	rface of infiltration of oil			0.001 m
Estimated Volume of Infiltrate	đioli, V <sub>lota</sub>			0.00 m <sup>3</sup>
Estimated Volume of infiltrate	d oil, V <sub>int d</sub>			0.00 bbis
Estimated Tatal Values of Jul			<u> </u>	- 3
Estimated Total Volume of infi Estimated Total Volume of infi	Iterated oil, V		_	0.03 m <sup>3</sup> 0.18 bbls
Total area of oil on open water Table of average depth of oil on	water based on coloration	Link to Coverage Visual		m²
•		Link to Coverage Visual Aid Parcentage coverage	·	m²
Table of average depth of oil on Spill Factors from USCG FOG (2000)	Edition) Thickness (mmj	Ald	Volume (m3)	m²
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible	Edition) Thickness (mm) 0.00004	Ald Percentage coverage	Volume (m3) 0.0000	m²
Table of average depth of oil on  Spät Factors from USCG FOG (2000)  Barely Visible  Silvery	Edition)  Thickness (mm)  0.00004  0.00008	Ald Percentage coverage	Volume (m3) 0.0000 0.0000	m²
Table of average depth of oil on  Späl Factors from USCG FOG (2000)  Barely Visible  Silvery  Slight Color	Edition) Thickness (mm) 0.00004 0.00008 0.00015	Ald Percentage coverage	Volume (m3) 0.0000 0.0000 0.0000	m²
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible  Silvery  Siight Color  Bright Color	Thickness (mm)  0.00004 0.00008 0.00015 0.0003	Ald Percentage coverage	Volume (m3) 0.0000 0.0000 0.0000	m²
Table of average depth of oil on  Späl Factors from USCG FOG (2000)  Barely Visible  Silvery  Slight Color	Thickness (mm)  0.00004 0.00005 0.0003 0.0001	Ald Percentage coverage	Volume (m3) 0.0000 0.0000 0.0000 0.0000	m²
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible  Silvery  Silvint Color  Bright Color  Dull	Thickness (mm)  0.00004 0.00005 0.00015 0.0001 0.0001	Ald Percentage coverage	Volume (m3) 0.0000 0.0000 0.0000 0.0000 0.0000	m²
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siloht Color Bright Color Dull Dark	Thickness (mm)  0.00004 0.00005 0.0003 0.0001	Ald Percentage coverage	Volume (m3) 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	m²
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible  Silvery Slight Color Bright Color Dull Dark Black oil	Thickness (mm)  0.00004 0.00005 0.00015 0.0001 0.0001 0.0002 0.01	Ald Percentage coverage	Volume (m3) 0.0000 0.0000 0.0000 0.0000 0.0000	m²
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siloht Color Bright Color Dull Dark Black oil Emulsion (30% Oil)	Edition) Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.0002 0.001 0.002 Forcent Total:	Aid Percentage coverage (%)	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	
Table of average depth of oil on  Spill Factors from USCG FOG (2000 I  Barely Visible  Silvery  Slight Color  Bright Color  Dull  Dark  Black oil  Emulsion (30% Oil)  Estimated Volume of oil on op	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.0002 0.01 1 Percent Total:	Aid Percentage coverage (%)	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siloht Color Bright Color Dull Dark Black oil Emulsion (30% Oil)	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.0002 0.01 1 Percent Total:	Aid Percentage coverage (%)	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siloht Color Bright Color Dull Dark Black oil Emulsion (30% Oil)  Estimated Volume of oil on op Estimated Volume of oil on op	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.0002 0.1 1 Percent Total: en water, V <sub>wat</sub>	Aid Percentage coverage (%)	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siloht Color Bright Color Dull Dark Black oil Emulsion (30% Oil)  Estimated Volume of oil on op Estimated Volume of oil on op	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.0002 0.01 1 Percent Total:	Aid Percentage coverage (%)  0%	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³
Table of average depth of oil on  Spill Factors from USCG FOG (2000 i  Barely Visible  Silvery  Siloht Color  Bright Color  Dull  Dark  Black oil  Emulsion (30% Oil)  Estimated Volume of oil on op  Estimated Volume of oil on op	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.002 0.1 1 Percent Total: en water, V <sub>wat</sub> en water, V <sub>wat</sub> oration Factors (E-Factor) for S  illed oil (days on site)	Aid Percentage coverage (%)  0%  PDC Crude oil Oil ty	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siight Color Bright Color Dull Dark Black oil Emulsion (30% Oil)  Estimated Volume of oil on op Estimated Volume of oil on op  Estimated Volume of oil on op  Residence time of sp	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.002 0.1 1 Percent Total: en water, V <sub>wat</sub> en water, V <sub>wat</sub> oration Factors (E-Factor) for S  illed oil (days on site)	Aid Percentage coverage (%)  0%  PDC Crude oil Oil ty	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siight Color Bright Color Dull Dark Black oil Emulsion (30% Oil)  Estimated Volume of oil on op Estimated Volume of oil on op  Residence time of sp	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.001 0.002 0.1 1 Percent Total: en water, V <sub>wat</sub> en water, V <sub>wat</sub> oration Factors (E-Factor) for S  illed oil (days on site)	Aid Percentage coverage (%)  6%  PDC Crude oil  Oil ty  Bonny Light	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³
Table of average depth of oil on  Spill Factors from USCG FOG (2000)  Barely Visible Silvery Siight Color Bright Color Dull Dark Black oil Emulsion (30% Oil)  Estimated Volume of oil on op  Estimated Volume of oil on op  Residence time of sp  <1 1-7	Thickness (mm)  0.00004 0.00008 0.00015 0.0003 0.0001 0.0002 0.1 1 Percent Total:  en water, V <sub>wat</sub> en water, V <sub>wat</sub> oration Factors (E-Factor) for S  iilled oil (days on site)	Aid Percentage coverage (%)  6%  PDC Crude oil Oil ty Bonny Light 10%	Volume (m3)  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.00 m³

15 %

0.03 bbis

0.21 bbls

iii *E-factor* 

Estimated Volume of evaporated oil, V<sub>evap</sub>

Net Total Estimated Spilled Volume, V<sub>Est</sub>

TINVESTIGATION REPORT FOR INCIDENT NO: 128 (302 JIV report S/N: 00772  G. INCIDENT INFORMATION:  20. Impacted Area Details  Total calculated area of impact O.00014Ha (1.4 m²)  Impact within SPDC R.O.W O.00014 Ha (1.4 m²)  Impact outside SPDC R.O.W N.L  21. Volume of oil recovered before completion of JIV (V <sub>rest</sub> ):  Recovered oil V <sub>rest</sub> NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22! Net Estimated Spilled Volume V <sub>ER</sub> (bbls)* =  Stimated Reported Volume** V <sub>res</sub> (bbls) 0 · 3 BARRE!  *Notes:  *Volume estimation was done using an excel based tool (see attached for details on the calculation)  *Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	Polume estimation was done using an excel based tool. (see antached for details on the calculation)  Polume estimation was done using an excel based tool. (see antached for details on the calculation)  Polume of the relevant notes taken into consideration for estimating the spilled in the box below:  O. 000/4 Ha (1.4 m²)  Factorial spilled (1.4 m²)  Note:  O. 000/4 Ha (1.4 m²)  Barrels  Barrels  On the calculation of the	S. INCIDENT INFORMATION:  20. Impacted Area Details  • Total calculated area of impact O.00014Ha (1.4 m²) • Impact within SPDC R.O.W O.00014 Ha (1.4 m²) • Impact outside SPDC R.O.W N.L  21. Volume of oil recovered before completion of JIV (V <sub>rec</sub> ):  Recovered oil V <sub>rec</sub> : N.L Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22! Net Estimated Spilled Volume V <sub>Fij</sub> (bbls)* =  O21 Specific Spilled Volume V <sub>Fij</sub> (bbls)* =  *Notes: • Volume estimation was done using an excel based tool. (see attached for details on the calculation) • Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLI CABLE	G. INCIDENT INFORMATION:  20. Impacted Area Details  Total calculated area of impact Impact within SPDC R.O.W Impact within SPDC R.O.W Impact outside SPDC R.O.W  21. Volume of oil recovered before completion of JIV (V <sub>recl</sub> ):  Recovered oil V <sub>recl</sub> :  NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22! Net Estimated Spilled Volume V <sub>rec</sub> (bbls)* =  O 21  *Notes:  *Volume estimation was done using an excel based tool. (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:		,, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>				
Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)  Polume estimation was done using an excel based tool. (see attached for details on the calculation)	Polume estimation was done using an excel based tool. (see antached for details on the calculation)  Polume estimation was done using an excel based tool. (see antached for details on the calculation)  Polume of the relevant notes taken into consideration for estimating the spilled in the box below:  O. 000/4 Ha (1.4 m²)  Factorial spilled (1.4 m²)  Note:  O. 000/4 Ha (1.4 m²)  Barrels  Barrels  On the calculation of the	O O O 14 Ha (1.4 m²) Impact within SPDC R.O.W Impact within SPDC R.O.W Impact outside SPDC R.O.W  Impact outside SPDC R.O.W  21. Volume of oil recovered before completion of JIV (V <sub>recl</sub> ):  Recovered oil V <sub>recl</sub> Recovered oil V <sub>recl</sub> NIL  Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL  Barrels  221 Net Estimated Spilled Volume V <sub>Ed</sub> (bbls)* =  O 21  Sheeref  Estimated Reported Volume** V <sub>cos</sub> (bbls)= 0 3 Breref  *Notes:  Volume estimation was done using an excel based tool. (see catached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	20. Impacted Area Details  Total calculated area of impact Impact within SPDC R.O.W Impact outside SPDC R.O.W Impact outside SPDC R.O.W  N.L  21. Volume of oil recovered before completion of JIV (V <sub>red</sub> ):  Recovered oil V <sub>red</sub> :  NIL  Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL  Barrels  22. Net Estimated Spilled Volume V <sub>EN</sub> (bbls)*  Estimated Reported Volume** V <sub>CN</sub> (bbls)*  Notes:  Yohane estimation was done using an excel based tool. (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLI CABLE	T INVESTIGA	TION REPORT FO	R INCIDENT NO	1286302	JIV report S/N:	00772
Total calculated area of impact  Impact within SPDC R.O.W  Impact outside SPDC R.O.W  Impact outside SPDC R.O.W  N.L  21. Volume of oil recovered before completion of JIV (Vred):  Recovered oil Vred:  NIL  Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL  Barrels  22! Net Estimated Spilled Volume Ver(bbls)*  Estimated Reported Volume** Vren(bbls)*  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	Total calculated area of impact  Impact within SPDC R.O.W  Impact outside SPDC R.O.W  Impact outside SPDC R.O.W  NiL  21. Volume of oil recovered before completion of JIV (Vred):  Recovered oil Vred:  NIL  Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL  Barrels  22! Net Estimated Spilled Volume Ven(bbls)* =  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	Total calculated area of impact Impact within SPDC R.O.W Impact outside SPDC R.O.W Impact outside SPDC R.O.W Impact outside SPDC R.O.W  21. Volume of oil recovered before completion of JIV (V <sub>recl</sub> ):  Recovered oil V <sub>recl</sub> :  Recovered oil V <sub>recl</sub> :  NIL Barrels  22.! Net Estimated Spilled Volume V <sub>ER</sub> (bbls)* =  O 21  Shorted  *Notes:  Volume estimation was done using an excel based tool. (see attached for idealits on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT  APPLICABLE	Total calculated area of impact Impact within SPDC R.O.W Impact outside SPDC R.O.W  Recovered oil V <sub>red</sub> :  Recovered oil V <sub>red</sub> :  NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  Barrels  10 21  Barrels  224 Net Estimated Spilled Volume V <sub>ER</sub> (bbls)*  Estimated Reported Volume** V <sub>reg</sub> (bbls)*  Notes:  Volume estimation was done using an excel based tool. (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLI CA BLE  NOT APPLI CA BLE	G. INCIDENT	INFORMATION:				
Notes:  Volume estimation was done using an excel based tool. (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	Impact outside SPDC R.O.W  21. Volume of oil recovered before completion of JIV (Vred):  Recovered oil Vred:  NIL  Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL  Barrels  22. Net Estimated Spilled Volume Vred(bbls)* =    Stimated Reported Volume** Vrep(bbls)	Impact outside SPDC R.O.W  21. Volume of oil recovered before completion of JIV (V <sub>red</sub> ):  Recovered oil V <sub>red</sub> :  NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22! Net Estimated Spilled Volume V <sub>Est</sub> (bbls)* =  CO2! Severed  *Notes:  Volume estimation was done using an excel based tool. (see attached for details on the calculation)  Reported spilled volume is on estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	Impact outside SPDC R.O.W  21. Volume of oil recovered before completion of JIV (Vred):  Recovered oil Vred:  Recovered oil Vred:  NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22. Net Estimated Spilled Volume Vra(bbls)*  Estimated Reported Volume** Vra(bbls) 0 · 3 BARREL  *Notes:  * Volume estimation was done using an excel based sool (see attached for details on the calculation)  * Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	20. Impacte	d Area Details				`
Controlled recovery/evacuation from source with no impact to environment:    N L   Barrels	Recovered oil V <sub>red</sub> : NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22! Net Estimated Spilled Volume V <sub>red</sub> (bbls)* =  Column Estimated Reported Volume** V <sub>red</sub> (bbls) O·3 Barrels  *Notes:  *Notes:  *Volume estimation was done using an excel based tool. (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	Recovered oil V <sub>red</sub> : N1L Barrels  Controlled recovery/evacuation from source with no impact to environment:  N1L Barrels  22! Net Estimated Spilled Volume V <sub>sit</sub> (bbls)* =	Recovered oil Vred:  NIL Barrels  Controlled recovery/evacuation from source with no impact to environment:  NIL Barrels  22 Net Estimated Spilled Volume VER (bbls)* =  O 21 Sheers  Estimated Reported Volume** V rep(bbls) = 0 · 3 Brees  *Notes:  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLICA BLE	•	Impact within SPE	OC R.O.W	0.00014 0.00014 N.C	4Ha (1.4 m² Ha (1.4 m²	<u>'</u> )
Controlled recovery/evacuation from source with no impact to environment:    N L   Barrels	Controlled recovery/evacuation from source with no impact to environment:    N L   Barrels	Controlled recovery/evacuation from source with no impact to environment:    Nil_   Barrels	Controlled recovery/evacuation from source with no impact to environment:    Nil_   Barrels	21. <u>Volume</u>	of oil recovered be				
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22! Net Estimated Spilled Volume V <sub>ER</sub> (bbls)* =  O 21	22! Net Estimated Spilled Volume V <sub>Ed</sub> (bbls)* =  O 2   Sheeper    Estimated Reported Volume** V <sub>rep</sub> (bbls)= 0 · 3   Brefel    *Notes:  • Volume estimation was done using an excel based tool (see attached for details on the calculation)  • Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	22. Net Estimated Spilled Volume V <sub>res</sub> (bbls)* =  O 21  Brees  Estimated Reported Volume** V <sub>res</sub> (bbls)= 0 · 3 Brees  *Notes:  • Volume estimation was done using an excel based tool. (see attached for details on the calculation)  - Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	22! Net Estimated Spilled Volume V <sub>Est</sub> (bbls)* =    Colored Spilled Volume ** V <sub>rep</sub> (bbls) =   O · 3   BARREL  *Notes:  • Volume estimation was done using an excel based tool (see attached for details on the calculation)  • Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:    Volume to the relevant notes taken into consideration for estimating the spilled in the box below:    Volume to the relevant notes taken into consideration for estimating the spilled in the box below:    Volume to the relevant notes taken into consideration for estimating the spilled in the box below:    Volume to the relevant notes taken into consideration for estimating the spilled in the box below:	Controlle	d recovery/evacuati			nvironment:	
*Notes:  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	*Notes:  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	*Notes:  *Volume estimation was done using an excel based tool (see attached for details on the calculation)  *Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	*Notes:  *Volume estimation was done using an excel based tool (see attached for details on the calculation)  *Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  **Notes:  *Notes:  *Notes:  *Notes:  **Notes:  **Notes:			<u></u>	Dellera		
*Notes:  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	*Notes:  Volume estimation was done using an excel based tool (see attached for details on the calculation)  Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	*Notes:  *Volume estimation was done using an excel based tool (see attached for details on the calculation)  *Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:	*Notes:  *Volume estimation was done using an excel based tool (see attached for details on the calculation)  *Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  **Notes:  *Notes:  *Notes:  *Notes:  **Notes:  **Notes:						
<ul> <li>Reported spilled volume is an estimate</li> <li>Write other relevant notes taken into consideration for estimating the spilled in the box below:</li> </ul>	<ul> <li>Reported spilled volume is an estimate</li> <li>Write other relevant notes taken into consideration for estimating the spilled in the box below:</li> </ul>	Reported spilled volume is an estimate Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLICABLE	Reported spilled volume is an estimate  Write other relevant notes taken into consideration for estimating the spilled in the box below:  APPLICABLE  Consideration for estimating the spilled in the box below:	*Notae:	<del></del>			n the calculation)	
Write other relevant notes taken into consideration for estimating the spilled in the box below:	Write other relevant notes taken into consideration for estimating the spilled in the box below:	Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLICABLE	Write other relevant notes taken into consideration for estimating the spilled in the box below:  NOT APPLICABLE  Consideration softwar as practicable using the new spill volume estimation softwar.	- Report	od enilled valume is an est	imate			
NOT APPLICABLE	NOT APPLICABLE		Color of the constituted values is to be done an site as far as macticable using the new spill values estimation softwar	Write other	relevant notes taken into co	onsideration for estima	ting the spilled in the box	below:	
		A land on nite or far or province his using the new spill values estimation software	Calculation of the respective estimated volume is to be done on site as far as practicable using the new spill volume estimation softwar Conversion of $m^2$ to harrely is Volume (m3) x 6.29: **Round up estimated volume to next whole number using the following rules:		NoT	APP	LI CA	BLE	

Any spill volume in less than I bbl is rounded up to the next 0.1 bbl.

Calculated volume = 15.3 bbl ----- Reported volume = 16 bbl Calculated volume = 0.35 bbl ----- Reported volume = 0.4 bbl Examples: 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.

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## 23. GENERAL STATUS OF THE SITE

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

#### 24. REPRESENTATIVES

This re	eport was filled, agreed and signed by the following joint investigation representatives:
	· ·
•	Host Community:
	D
•	Department of Petroleum Resources [DPR]:
	National Oil Spill Detection and Response Agency [NOSDRA]:
•	Madullal Oli Spill Delection and Response Agency [NOSDRA].
	State Ministry of Environment [SME]:
_	:
•	Nigeria Police Force [NPF]:
•	Shell Petroleum Development Company [SPDC]:
	_/
•	Signatories agree with reported findings:
	Constant to the second second
•	Separate DPR form has been filled out with same findings \(\Pi\)
	Tick as applicable
	Total and appropriately

JOINT INVESTIGATION REPORT FOR INCIDENT NO: 1286802 JIV report S/N: 00772

25. Appendix 1: Overview sketch of the site

