Projects & Technology SCiN Design Office (SCiN-DO)

CTR Catalogue

Project FEED for EPU Phase 2

Originating Company SCiN Engineering Design Office

Document Title CTR Catalogue

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Document Status Issued for Review

Originator / Author Abraham Imarhiagbe

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Issue Date 24-Dec-19

Revision History is shown next page

Rev Status	Date	Desscription	Originator	Checker	Approver
R01	24-Dec-19	Issued for Review	Abraham Imarhiagbe	Olukayode Akinyemi	Jide Odunlami

Restricted

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	ADDITIONAL AGREEMENT/APPROVAL RECORD							
Party	Ref Indicator	Name	Sign	Date				
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Guidelines:

- 1. Please consider using hyperlink rather than embedding large documents.
- 2. Fonts must not be altered from the standard styles- (see SEDO Word Document Template).
- 3. Graphs to be without borders.
- 4. Use non-breaking spaces between numbers and units Ctrl+Shift+Space
- 5. Special Characters such as degree (°C) refer to: http://www.alt-codes.net/
- 6. Maps to follow Shell mapping standards.
- 7. Figures & tables to be incorporated in the text, with attachments if a larger figure will benefit
- 8. Units are Oil field Metric. If Oil field standard units are used (e.g. ft and psi, then the metric
- 9. Use m3 rather than bbl/ft3

Revision Philosophy:

- a. All FEED documents for review shall be issued at R01, with subsequent R02, R03, etc as
- b. All documents approved for issue, or approved for design shall be issued at A01with subsequent A02, A03, etc as required. (Management of Change is required for A02, A03, etc).
- c. All Detailed Design documents for review shall be issued at D01, with subsequent D02, D03, etc as required.
- d. All documents approved for construction shall be issued at C01with subsequent C02, C03, etc as required. (Management of Change is required for C02, C03, etc).
- e. All approved "As Built" documents shall be issued at Z01, with subsequent Z02, Z03, etc as required. (Use versions Z01.1, Z01.2, Z01.3, etc to review "As Built" document to Z02).

Revision History

Rev No	Date of issue	Reason for / Change

^{*}Note that your document, the document title shall substitute the title of this document which is-"SEDO Excel Document Template/Cover Page" wherever it exists.

SORTED BY DISCIPLINE

Discipline	CODE
Business Support	YA
Civil Structural	CX
Electrical	EA
HSE	HX
Instruments	IN
Information Management (inc DCC)	JA
Leadership Team	AA
Materials / Corrosion	RA
Mechanical (Static, Rotating & Piping)	MX
Pipelines	LA
Planning Engineer	FA
Process	PX
Project Engineer	AA
Project Leader	AA
Quality Assurance	QA
User Defined	Х

SORTED BY CODE

Discipline	CODE
Change Control Manager	AA
Leadership Team	AA
Project Engineer	AA
Project Leader	AA
Civil Structural	CX
Electrical	EA
Planning Engineer	FA
HSE	HX
Instruments	IN
Pipelines	LA
Mechanical (Static, Rotating & Piping)	MX
Process	PX
Quality Assurance	QA
Materials / Corrosion	RA
User Defined	X
Business Support	YA

FEED for EPU Phase 2						
DISCIPLINES					TOTAL	
	<u>Engineer</u> <u>Hours</u>	<u>Designer</u> <u>Hours</u>	<u>Total Hours</u>	<u>Manhours</u>	Amount (NGR)	Amount (USD)
<u>Process</u>	<u>1800</u>	<u>774</u>	<u>2574</u>	2,574	28,246,877	
<u>Technical Safety</u>	<u>882</u>	<u>72</u>	<u>954</u>	954	10,665,150	
<u>Mechanical</u>	<u>1064</u>	<u>752</u>	<u>1816</u>	1,816	19,740,770	
<u>PACO</u>	<u>1277</u>	<u>90</u>	<u>1367</u>	1,367	15,294,258	
<u>Telecoms</u>	<u>750</u>	<u>364</u>	<u>1114</u>	1,114	12,198,473	5,000
<u>MCI</u>	<u>917</u>	<u>0</u>	<u>917</u>	917	10,314,651	
<u>Electrical</u>	<u>481</u>	<u>86</u>	<u>567</u>	567	6,299,302	
<u>Civil</u>	<u>1741</u>	<u>1552</u>	<u>3293</u>	3,293	35,624,589	
<u>Pipeline</u>	<u>653</u>	<u>260</u>	<u>913</u>	913	10,035,194	
<u>Project Engineering</u>	<u>459</u>	<u>o</u>	<u>459</u>	459	5,164,327	
<u>Planning</u>	<u>482</u>	<u>o</u>	<u>482</u>	482	5,421,660	
<u>QA</u>	<u>297</u>	<u>o</u>	<u>297</u>	297	3,340,732	
<u>DCC</u>	<u>616</u>	<u>o</u>	<u>616</u>	616	5,815,136	
<u>DIRECT TOTAL BUDGET</u>	11,419	3,950	<i>15,369</i>	<i>15,369</i>	168,161,118	5,000
PROJECT SUPPORT SERVICES				1,076	9,178,175	
PROJECT MANAGEMENT				538	4,589,087	
IN, PDMS Adminstrator, REPRODUCTION, STATIONARIES ETC				538	4,589,087	
DIRECT + SUPPORT CHARGES 177,339,292 10% OVERHEAD 17,733,929						
3RD PARTY COST				1	-	5,000
TOTAL COST ESTIMATE					195,073,222	5,000

Discipline Summary FEED for EPU Phase 2

	Engineer Hours	<u>Designer</u> <u>Hours</u>	<u>Total Hours</u>	3rd Party	<u>T&Es</u>
PROCESS	1800	774	<u>2574</u>	\$ -	\$ -
TECHNICAL SAFETY	<u>882</u>	<u>72</u>	<u>954</u>	<u>\$</u> -	<u>\$</u> -
<u>MECHANICAL</u>	<u>1064</u>	<u>752</u>	<u> 1816</u>	<u>\$</u>	<u>\$</u> -
MATERIALS \$ CORROSSION	<u>917</u>	<u>o</u>	<u>917</u>	<u>\$</u>	<u>\$</u> -
<u>PACO</u>	<u>1277</u>	<u>90</u>	<u>1367</u>	<u>\$</u>	<u>\$</u> -
<u>TELECOMS</u>	<u>750</u>	<u>364</u>	<u>1114</u>	<u>\$ 5,000</u>	<u>\$</u> -
<u>ELECTRICAL</u>	<u>481</u>	<u>86</u>	<u>567</u>	<u>\$</u> -	<u>\$</u> -
<u>CIVIL</u>	<u>1741</u>	<u>1552</u>	<u>3293</u>	<u>\$</u> -	<u>\$</u> -
<u>PIPELINE</u>	<u>653</u>	<u>260</u>	<u>913</u>	<u>\$</u> _	<u>\$</u> -
PROJECT ENGINEERING	<u>459</u>	<u>o</u>	<u>459</u>	<u>\$</u>	<u>\$</u> _
<u>PLANNING</u>	<u>482</u>	<u>o</u>	<u>482</u>	<u>\$</u> -	<u>\$</u> _
<u>DCC</u>	<u>616</u>	<u></u>	<u>616</u>	<u>\$</u>	<u>\$</u>
<u>QA</u>	<u>297</u>	<u>o</u>	<u>297</u>	<u>\$</u>	<u>\$</u> _
	<u>11419</u>	<u>3950</u>	<u>15369</u>	<u>\$ 5,000</u>	<u>\$ -</u>

FEED for EPU Phase 2 : PROJECT MANAGEMENT

		<u> Hours</u>	<u>Hours</u>	<u>3rd F</u>	Party	<u>T&/</u>	E' <u>s</u>
AA001 Project End	<u>gineering</u>	<u>459</u>	<u>o</u>	<u>\$</u>		<u>\$</u>	<u> </u>
FA001 Project Pla	nning Control & Reporting	<u>482</u>	<u></u>	<u>\$</u>		<u>\$</u>	<u>_</u>
JA001 Project IM	and DCC Support Services	<u>616</u>	<u></u>	<u>\$</u>	<u>_</u>	<u>\$</u>	<u>_</u>
QA001 Project Qu	ality Support Services	<u>297</u>	<u>o</u>	<u>\$</u>		<u>\$</u>	
		1854	0	\$	_	\$	- 2

SEDO	COS	Γ - TIME - I	RESOUR	RCE (C	TR) SI	HEET	
Client OU	Shell Petroleum Dev	velopment Company	(SPDC)		CTR No.		AA 001
Project Title	FEED for EPU Phas	e 2	, ,	Pro	ject No.		XX
Sub-Project/Phase	FEED			Discipline	PROJECT	MANAGEN	MENT
CTR Title	Project Engineer	ing					
Schedule Start		Schedule Finish		Duration	n Wooks		
(Monday)		(Friday)		Duradoi	i weeks		
INPUTS / DEP							
Source / Discipline	Description BfD						
	Contracting Strategy						
	Time Writing Reports Document Status Report	4					
	Pre-FEED Deliverables	l .					
	PCAP						
	nc. input to other disc	ipline's deliverables)		MAN-H			S (\$-USD)
Description Project Leadership Scop	20			Eng 80	Design	3rd P	T&E
Review & Comment on				1			
	/Scope Clarifications Me	eeting		2			
Site Visit Data Gathering				24 8			
Input to CTR Catalogue				8			
Challenge Session				2			
Inputs Deliverables Rev Input to Deliverables Re				8			
Input to Project Schedu	le			8			
Attend Weekly Project I				40			
Inputs to Weekly Progre General Discipline Adm				20 8			
Conduct Inter Discipline	e Checks (IDCs)			16			
Attend Health Checks & Attend HAZID Worksho				8			
Process Design Review -				8			
Attend Bow-Tie				8			
Attend HAZOP Worksho Peer Review	op			24 8			
Attend SIL Workshop				16			
Attend SAFOP Worksho				8			
Site Selection workshop Constructability review v				8			
PDMS Model Review W				8			
Attend Independent Des				16			
Interfaces with third part	ty and stakeholders ver Documentation & Clo	se-Out Report		8 4.0			
pulo to 1 10 journalius	TOT DOGGING MALION & OIG	- Carrioport		,,,,			
DELIVERABLI	ES (that are your dis	einline's responsibili	tw)	MAN-H	HOURS	COSTS	S (\$-USD)
Deliverable No.	Description	cipilite s responsibili	(y)	Eng	Design	3rd P	T&E
AA001 - 01	BDP/BDEP (Technical S	Scope)		40		_	
AA001 - 02	Project close-out report			20			
AA001 - 03	Holds Register	Typeuto		16			
AA001 - 04	Action List for Phase 4 B	LAGULIE		16			
NOTES / ASSU	MPTIONS	OVERAL	L TOTALS	459.0	0.0	\$ -	\$ -
HOTES / ASSU	WII 110113						
DECDUNCIDI	E DADTIES						
RESPONSIBLE		Discipline					
Prepared by Olukayode A	kinyemi	Discipline Check Jide Odunlar	ni	Date :	24 Dec 19	Revision:	Ro1

SEDO	COST	Γ - TIME - RESOUI	RCE (C	TR) SE	(EE)	[
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		FA 001	
Project Title	FEED for EPU Phas	se 2	Pro	Project No. XXX			
Sub-Project/Phase	FEED		Discipline	PROJECT I	MANAGE	MENT	
CTR Title	Project Planning	Control & Reporting					
Schedule Start (Monday)		Schedule Finish (Friday)	Duratio	n Weeks		0	
	PENDENCIES	(Friday)					
Source / Discipline							
-	BfD						
	Contracting Strategy						
	Time Writing Reports Document Status Repo						
	Pre-FEED Deliverables						
	Project Plan & Manning	Profiles					
ACTIVITIES (inc. input to other dis	scipline's deliverables)	MAN-	HOURS	COST	S (\$-USD)	
Description	<u> </u>	•	Eng	Design	3rd P	T&E	
	ff /Scope Clarifications N	Neeting	2				
Challenge Session			2				
Inputs Deliverables R			16				
Input to Deliverables I Attend Weekly Projec			16 32				
Inputs to Weekly Prog	ress Update		24				
General Discipline Ad	ministration		40				
	& Project Internal Audit		20				
Weekly Progress Upd Monthly Progress Hig	late		56 10				
Weekly Project Sched			56				
Trockly 1 Tojoct Conce	idio opudio						
DEI IVERARI	FS (that one your d	iscipline's responsibility)	MANT	HOURS	COCT	S (\$-USD)	
Deliverable No.	Description	iscipinie's responsibility)	Eng	Design	3rd P	T&E	
FA001 - 01	CTR Catalogue		40	2 00.8.1	Jiui	Tue	
FA001 - 02	Project Schedule		72				
FA001 - 03	Project FEED MOMs(W		24.0				
FA001 - 04 FA001 - 05	Project FEED Report (V Project FEED Report (N		48.0 24.0				
FA001 - 05	Froject i LLD Neport (N	nontriny)	24.0				
		OVERALL TOTAL	S 482	0	\$ -	\$ -	
NOTES / ASS	UMPTIONS		<u></u>				
RESPONSIBI	E PARTIES						
		Discipline Lide Odordoni	ъ.	0.4 D	D	D - :	
Prepared by Abraham I	marmague	Check Jide Odunlami	Date :	24 Dec 19	Revision:	Ro1	

SEDO	COS	Γ - TIME - RESOUR	CE (C	CTR) SF	HEET	
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		JA 001
Project Title	FEED for EPU Phas	se 2	Pro	oject No.	XX	X
Sub-Project/Phase	FEED		Discipline	PROJECT	MANAGE	MENT
CTR Title	Project IM and I	OCC Support Services	_			
Schedule Start	_	Schedule Finish	Duratio	on Weeks	0	
(Monday) INPUTS / D	EPENDENCIES	(Friday)				
Source /	Description	9				
PMT	Basis for Design					
PMT PS15/PG15	Contract Information Sp	pecification (CIS) ation Management Guide & Standard				
r515/rG15	Capital Floject Illioitii	ation Management Guide & Standard				
ACTIVITIES	(inc. input to other	discipline's deliverables)	MAN-	HOURS	COSTS (S	\$-USD)
Description	<-off /Scope Clarification	- Ma-akin	Eng	Design	3rd P	T&E
Input to CTR Catalo		is ineeting	2 16			
Challenge Session	-		2			
	ect Progress Meeting		32			
Inputs to Weekly P General Discipline			24 40			
	cks & Project Internal Au	ıdit	16			
Document Circulati			200			
Document Reposito	ory & Archiving ation Reproduction		120 84			
Update of deliverab			24			
	<u> </u>					
DELIVERAI	BLES (that are you	r discipline's responsibility)	MAN-	HOURS	COSTS (8	\$-USD)
	Description		Eng	Design	3rd P	T&E
JA001 - 01 JA001 - 02	Deliverable Register Deliverable Review Ma	triv	32 24			
011001 02	Donvorable Heviow Wa	unx				
NOTEC / AC	CHMPTIONS	OVERALL TOTALS	616	0.0	\$ -	\$ -
NOTES / AS	SUMPTIONS		15.			
RESPONSII	BLE PARTIES					
Prepared by Irikefe o	onojaife	Discipline Check Mfon Usanga	Date :	24 Dec 19	Revision:	Ro1
		CHECK				

SEDO	COS	Γ - TIME - RESOU	JRCE (CTR) S	HEET	
Client OU	Shell Petroleum Dev	velopment Company (SPDC)		CTR No.		ZA 003
Project Title	FEED for EPU Phas		Pro	ject No.	XX	XX
Sub-Project/Phase	FEED		Discipline	PROJECT	MANAGE	MENT
CTR Title	Project Quality S	upport Services				
Schedule Start		Schedule Finish	Duratio	n Weeks	()
(Monday)	ENDENGLEG	(Friday)				
Source / Discipline	Description Description					
SPDC-PMT	Concept work					
ACTIVITIES (in	e input to other disc	cipline's deliverables)	MAN-I	HOURS	COSTS	(d_IISD)
Description (III	ic. input to other disc	ipinie's denverables)	Eng	Design	3rd P	T&E
Review & Comment on			1.0			
Attend Project Kick-off Input to CTR Catalogue	/Scope Clarifications Me	eeting	2.0 16.0			
Challenge Session			2.0			
Inputs Deliverables Rev			16.0			
Input to Deliverables Re Attend Weekly Project F			16.0 24.0			
Inputs to Weekly Progre			24.0			
	Clarifications, Peer Assis		16.0			
Attend & Monitor Project Document Review	t Intergrity Assurance R	eviews (IDR, Hazop, etc)	16.0 10.0			
Project Health Checks			16.0			
Audits (Internal/External			8.0			
Quality Assurance Action Project IDR Action Trace			8.0 8.0			
Management of Change			8.0			
Participate in Inter Disci			16.0			
Inputs to Project Close- Lesson Learnt Worksho			2.0 8.0			
2000011 2001111 11 0110110	<u> </u>		0.0			
DEL DÆD A DI I	20					
	Description	cipline's responsibility)	MAN-I Eng	HOURS Design	COSTS ((\$-USD) T&E
ZA003 - 01	Project Quality Plan		16.0	Design	Jiui	TGE
ZA003 - 02	Project Audit Schedule		16.0			
ZA003 - 03 ZA003 - 04	Project Health Check R Audit Reports (internal /		16.0 8.0			
ZA003 - 05	Management of Change	,	4.0			
ZA003 - 06	Lessons Learnt Report		12.0			
ZA003 - 07	Project IDR Action Trac	king Register/ Report	8.0			
			_			
NOTES / ASSU	MPTIONS	VERALL TOTAL	S 297.0	0.0	\$ -	\$ -
1.0110/1000	110110					
DECDOMOIDI	DADTIES					
RESPONSIBLE		Discipline				
Prepared by Nwanchukwi	ı Iwe	Discipline Check Jide Odunlami	Date :	24 Dec 19	Revision:	Ro1

<u>FEI</u>	D for L	PU Pha	ase 2 : F	Process
	<u>Engineer</u> <u>Hours</u>	<u>Designer</u> <u>Hours</u>	3rd Party	<u>T&E's</u>
PX001 Discipline Project Management	<u>302</u>	<u>o</u>	<u>\$ -</u>	<u>\$</u> -
PX002 Process Reports	<u>360</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
PX003 Process/Utility Flow Schemes/PSFS (PFS)	<u>178</u>	<u>222</u>	<u>\$ -</u>	<u>\$ -</u>
PX004 Process Engineering Flow Scheme (PEFS)	<u>368</u>	<u>552</u>	<u>\$ -</u>	<u>\$ -</u>
PX005 Process/Utility Flow Schemes/PSFS (PFS)	<u>400</u>	<u></u>	<u>\$ -</u>	<u>\$ -</u>
PX006 Inputs to Data Sheets	<u>64</u>	<u></u>	<u>\$ -</u>	<u>\$ -</u>
PX007 Process data from PMT	<u>48</u>	<u></u>	<u>\$ -</u>	<u>\$ -</u>
PX008 Process Studies - Other	<u>80</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
	<u>1800</u>	<u>774</u>	<u>\$ -</u>	<u>\$ -</u>

SEDO	COST - TIME - RESOURCE (C	$_{\mathrm{TR})}\mathrm{SH}$				
Client OU	Shell Petroleum Development Company (SPDC)			CTR No.		PX 001
Project Title	FEED for EPU Phase 2		Pro	ject No.		XX
Sub-Project/Phase	FEED		Discipline	Process		
	Discipline Project Management		-			
Schedule Start	Cahadula Finish		- ·	*** 1		
(Monday)	00 Jan 1900 Schedule Finish (Friday)		Duratio	n Weeks		0
INPUTS / DEP	ENDENCIES Description					
Source / Discipline	BfD BfD					
	Contracting Strategy					
	Time Writing Reports Document Status Report					
	Pre-FEED Deliverables PCAP					
	nc. input to other discipline's deliverables)		MAN-	HOURS	COSTS	(\$-USD)
Description Review and Comment o	n Work Soone		Eng 12	Design	3rd P	T&E
Attend Project Kick-off	n work Scope		2			
Scope Clarifications Me	etings		2			
Site Visit Data Gathering			32 4			
CTR Catalogue developi	nent		4			
Inputs Deliverables Rev Input to Deliverables Re			4			
Input to Project Schedu	le		8			
Inputs to Weekly Progre Attend Weekly Project I			16 32			
Discipline Meetings, Hu			8			
Conduct Inter Discipline	e Checks (IDCs)		20			
General Discipline Adm Project Internal Audit	inistration		12 4			
	@25% and 75% completion)		4			
HAZID Workshop			4			
PEFS Review - Roundta Bow-Tie Workshop	ble		4			
HAZOP Workshop			16			
HAZOP Closeout Peer Review, Assist			8			
SIL Workshop			16			
SAFOP Workshop			8			
PDMS Model Review & Constructability review			<u>8</u> 8			
Independent Design Re	view/PEER Review		24			
Interfaces with third par	rty and stakeholders		0			
Risk Based Assessment Lesson Learnt (Pr- and	Post project)		2			
Equipment Criticality In	ntervention and Assessment		0			
Input to ITT Technical Bid Evaluatio	n		0			
Basic Design Engineeri	ng Package (BDEP)		24			
Inputs to Project Hando	ver Documentation & Close-Out Report		4			
DELIVEDADI			27.127.1	TOTING	a a a ma	(+ TIOD)
Deliverable No.	ES (that are your discipline's responsibility) Description		Eng	HOURS Design	3rd P	(\$-USD) T&E
			Ling	Design	Jiui	1413
	OVERALL T	ГОТАLS	302.0	0.0	\$ -	\$
NOTES / ASSU	MPTIONS	-1				
RESPONSIBLE	PARTIES					
Prepared by Harold Brow	Discipline Chiroma Barka		Date :	24 Dec 19	Revision:	Ro1
	Check Chroma Barka)		

SEDO	COST	- TIME -	RESOUR	CE _(CTR) SH	IEET			
Client OU	Shell Petroleum Deve	lopment Compar	ny (SPDC)			CTR No.		PX 002
Project Title	FEED for EPU Phase	2			Pro	oject No.	X	XX
Sub-Project/Phase					Discipline	Process		
CTR Title	Process Reports							
Schedule Start (Monday)		Schedule Finis (Frida			Duratio	on Weeks		0
INPUTS / DEP		(55					
Source / Discipline	Description							
	Process Data from PMT Basis for Design (BfD)							
	Dadio for Design (DID)							
ACTIVITIES (i	nc. input to other discip	oline's deliverable	es)			HOURS		(\$-USD)
Description					Eng	Design	3rd P	T&E
DELINED A DI	EC al.				25127	TIGUEDO	ao ama	(+ TTOP)
Deliverable No.	ES (that are your disci Description	pline's responsib	ility)		Eng	HOURS Design	3rd P	(\$-USD) T&E
	Process Design Philosoph				40			
	Operating and Control Ph Shutdown Philosophy (Ad		n)		40 40			
	Drainage Philosophy (Add	dendum)			40			
	NAG Allocation and Mete Isolation Philosophy (Add		dendum)		40			
	Process and Utility System	ms Design Report			40			
	Process Safeguarding Me Green House Gas & Ener				40 40			
	Green House Gas & Ener	gy Efficiency Repor	t (Update/Addendum)		40			
-								
			07.75	DALL MODAL C				
NOTES / ASSU	JMPTIONS		OVE	RALL TOTALS	360.0	0.0	\$ -	\$
,								
RESPONSIBL	E PARTIES							
	Harold Brown	Discipline Check Chiroma B	Barka		Date :	24 Dec 19	Revision:	Ro1
F		Check				,)		

SEDO	COS	Γ - TIME - RESO	URCE (CTR) SH	(E)ET			
Client OU	Shell Petroleum De	velopment Company (SPDC)			CTR No.		PX 003
Project Title	FEED for EPU Phas	e 2		Pro	oject No.	X	XX
Sub-Project/Phase	FEED			Discipline	Process		
		low Schemes/PSFS (PFS/U	FS/PSFS)				
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	on Weeks		0
INPUTS / DEP							
Source / Discipline	Description Basis for Design (BfD)						
	As-built Drawings						
ACTIVITIES (in Description	nc. input to other disc	ipline's deliverables)			HOURS		S (\$-USD)
Description				Eng	Design	3rd P	T&E
		cipline's responsibility)			HOURS		(\$-USD)
Deliverable No. PX003 - 01	Description Overall Process Schema	tic - 1 nos		Eng 16	Design 24	3rd P	T&E
PX003 - 02	Process Flow Scheme (I	PFS) - 3 nos		54	66		
PX003 - 03 PX003 - 04	Utility Flow Scheme (U: Process Safeguarding Fl	ow Scheme (PSFS) - 3 nos		54 54	66 66		
NOTES / ASST	MADELONG		OVERALL TOTALS	178.0	222.0	\$ -	\$ -
NOTES / ASSU	MPHONS						
RESPONSIBLE	E PARTIES						
Prepared by Harold Brow	n	Discipline Check Chiroma Barka		Date :	24 Dec 19	Revision:	Ro1
		CHCCK					

SEDO	COST - TIME - RESOURCE (CTR) SH	IEET			
Client OU	Shell Petroleum Development Company (SPDC)		CTR No.		PX 004
Project Title	FEED for EPU Phase 2	Pro	ject No.	X	XX
Sub-Project/Phase	FEED	Discipline	Process		
CTR Title	Process Engineering Flow Scheme (PEFS) - Tie-in/Demolition Dra				
Schedule Start (Monday)	Schedule Finish (Friday)	Duratio	n Weeks)
INPUTS / DEF					
Source / Discipline	Description As-Built PEFS				
ACTIVITIES (nc. input to other discipline's deliverables)	MAN	HOURS	COSTS	(\$-USD)
Description	ic. input to other discipline's deriverables)	Eng	Design	3rd P	T&E
Deliverable No.	ES (that are your discipline's responsibility) Description	Eng	HOURS Design	COSTS 3rd P	(\$-USD) T&E
PX004 - 01 PX004 - 02	Process Engineering Flow Scheme (PEFS) Tie-in - 10 nos Process Engineering Flow Scheme (PEFS) Demolition - 5 nos	160 80	240.0 120.0		
PX004 - 03 PX004 - 04	Utility Engineering Flow Scheme (UEFS) Tie-in - 5 nos Utility Engineering Flow Scheme (UEFS) Demolition - 3 nos	80 48	120.0 72.0		
NOTES / ASSU	OVERALL TOTALS	368.0	552.0	\$ -	\$
NOTES / ASSU	OVERALL TOTALS	368.0	552.0	\$ -	\$
NOTES / ASSU	MPTIONS	368.0	552.0	\$ -	\$

		'- TIME - RES	OURCE (CTR) SE	IEET		
	Shell Petroleum Deve	elopment Company (SPDC)	СТЕ	R No.	PX 005
Sub-Project/Phase	FEED for EPU Phase	2		Projec	t No.	XXX
	FEED			Discipline Pro	ocess	
CTR Title	Process Simulation	n Studies				
Schedule Start (Monday)		Schedule Finish (Friday)		Duration We	eeks	0
INPUTS / DEPI	ENDENCIES	(Filday)				
Source / Discipline	Description					
	Basis for Design (BfD) As-built Drawings					
	nc. input to other discip	pline's deliverables)		MAN-HOU		COSTS (\$-USD)
Description	eady State Unisim Model			Eng D	esign	3rd P T&E
Relief, Blowdown and Fl				120		
					-	
		ipline's responsibility)		MAN-HOU		COSTS (\$-USD)
	Description Process Simulation Report	rt		Eng D	esign	3rd P T&E
	Heat and Mass Balance R	eport		40		
]	Relief, Blowdown and Fla	ring Report		60		
					-	
NOTES / ASSY	MDTTONE		OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	MPTIONS		OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	MPTIONS		OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	MPTIONS		OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	MPTIONS		OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	MPTIONS		OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	MPTIONS		OVERALL TOTALS	400.0	0.0	\$ - \$
			OVERALL TOTALS	400.0	0.0	\$ - \$
NOTES / ASSU	E PARTIES	Discipline Check Chiroma Barka	OVERALL TOTALS		0.0 Dec 19	\$ - \$

SEDO	COS	Γ - TIME - RESOURCE (CTI	_{R)} SHE	ET			
Client OU	Shell Petroleum De	velopment Company (SPDC)			CTR No.		PX 006
	FEED for EPU Phas			Pro	ject No.		XX
Sub-Project/Phase	FEED		Dis	cipline	Process		
CTR Title		neets					
Schedule Start (Monday)		Schedule Finish (Friday)	1	Duratio	n Weeks		0
INPUTS / DEP		(Filiday)					
Source / Discipline	Description Process data from PMT						
	Flocess data from FW1						
ACTIVITIES (in	nc. input to other disc	cipline's deliverables)			HOURS		(\$-USD)
Description Input to Instrument data	a sheets			Eng 40	Design	3rd P	T&E
Input to Cause & Effect				24			
		cipline's responsibility)			HOURS		(\$-USD)
Deliverable No.	Description			Eng	Design	3rd P	T&E
		OVERALL TO	TALS	64.0	0.0	\$ -	\$
NOTES / ASSU	MPTIONS		_ [
RESPONSIBL	E PARTIES						
Prepared by Harold Brow		Discipline Check Chiroma Barka	I	Date :	24 Dec 19	Revision:	Ro1
		Спеск					

SEDO	COST	- TIME - RESOURCE $_{(CTR)}$ SH	EET			
Client OU	Shell Petroleum Deve	elopment Company (SPDC)		CTR No.		PX 007
Project Title	FEED for EPU Phase	2	Pro	oject No.	X	XX
Sub-Project/Phase	FEED		Discipline	Process		
CTR Title						
Schedule Start (Monday)		Schedule Finish (Friday)	Duratio	on Weeks		0
INPUTS / DEP		(
Source / Discipline	Description Process data from PMT					
	Flocess data from FMT					
ACTIVITIES C		diada I diamathan	MAN	HOURE	COSTS	(# HGD)
Description Description	nc. input to other disci	bline's deliverables)	Eng	HOURS Design	3rd P	(\$-USD) T&E
Line Sizing			16			
Vessel Sizing			32			
	ES (that are your disc	pline's responsibility)		HOURS		(\$-USD)
Deliverable No.	Description		Eng	Design	3rd P	T&E
NOTES / ASSI	IMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU	JMPTIONS	OVERALL TOTALS	48.0	0.0	\$ -	\$
NOTES / ASSU			48.0	0.0	\$ -	\$
	E PARTIES	OVERALL TOTALS Discipline Chiroma Barka	48.d	0.0 O.0	\$ -	\$ R01

SEDO	COST	Γ - TIME -	RESOUR	CE (CTR) SE	ŒET			
Client OU	Shell Petroleum De	velopment Compa	ny (SPDC)			CTR No.		PX 008
Project Title	FEED for EPU Phas	e 2			Pro	oject No.	X	XX
Sub-Project/Phase	FEED				Discipline	Process		
CTR Title								
Schedule Start (Monday)		Schedule Finis (Frida			Duratio	on Weeks		0
INPUTS / DEP					•			
Source / Discipline	Description Process data from PMT							
ACTIVITIES (nc. input to other disc	inlina's dalivarable	ae)		MAN-	HOURS	COSTS	(\$-USD)
Description					Eng	Design	3rd P	T&E
Hydrate/Corrossion Inh	ibition system study, eva	luation and designfor	mation inhibition		80			
DELIVEDARI	FC (that are more dia	aiulin ala nasu an aib	:11:3		MAN	HOURS	COSTS	(\$-USD)
Deliverable No.	ES (that are your dis	cipiine's responsib	ointy)		Eng	Design	3rd P	T&E
			OXZET	ALL TOTALS	0			6
NOTES / ASSU	JMPTIONS		OVER	RALL TOTALS	80.0	0.0	\$ -	\$
RESPONSIBL	E PARTIES							
Prepared by Harold Brow	vn	Discipline Check Chiroma F	Barka		Date :	24 Dec 19	Revision:	Ro1

FEED for EPU Phase 2 : To	echnica	al Safet	¥		
	<u>Engineer</u> <u>Hours</u>	<u>vesigner</u> <u>Hours</u>	3rd Party	<u> T&E's</u>	
HX001 Discipline Project Management	<u>262</u>	<u></u>	<u>\$ -</u>	<u>\$ -</u>	
HX002 HEMP Activities & Deliverables	<u>620</u>	<u>72</u>	<u>\$ -</u>	<u>\$ -</u>	_
	<u>882</u>	<u>72</u>	<u>\$ -</u>	<u>\$ -</u>	

SEDO COS	${f T}$ - ${f TIME}$ - ${f RESOURCE}$ $_{{f (CTR)}}$ ${f S}$	HEET			
Client OU Shell Petroleum D	evelopment Company (SPDC)		CTR No.		HX 001
Project Title FEED for EPU Ph	ase 2	Pr	oject No.	X	XX
Sub-Project/Phase FEED		Discipline	Technica	l Safety	
CTR Title Discipline Proje					
Schedule Start (Monday) 00 Jan 1900	Schedule Finish (Friday)	Durati	on Weeks		0
INPUTS / DEPENDENCIES		•			
Source / Discipline Description BfD					
Contracting Strategy Time Writing Reports					
Document Status Rep Pre-FEED Deliverable					
PCAP					
ACTIVITIES (inc. input to other di	scipline's deliverables)		-HOURS		S (\$-USD)
Description Review and Comment on Work Scope		Eng 24	Design	3rd P	T&E
Attend Project Kick-off Scope Clarifications Meetings		2 2			
Site Visit Data Gathering		16			
CTR Catalogue development		4			
Inputs Deliverables Review Matrix Input to Deliverables Register		4			
Input to Project Schedule Inputs to Weekly Progress Update		8 16			
Attend Weekly Project Progress Meeting Discipline Meetings, Huddle		32 8			
Conduct Inter Discipline Checks (IDCs) General Discipline Administration		20			
Project Internal Audit Attend Health Checks (@25% and 75% comple	ation)	4			
HAZID Workshop	2001)	4			
PEFS Review - Roundtable Bow-Tie Workshop					
HAZOP Workshop HAZOP Closeout					
Peer Review, Assist SIL Workshop		4 16			
SAFOP Workshop PDMS Model Review & constructability		8			
Constructability review workshop		8			
Independent Design Review/PEER Review Interfaces with third party and stakeholders		0			
Risk Based Assessment Lesson Learnt (Pr- and Post project)		0 2			
Equipment Criticality Intervention and Assess Input to ITT	ment	0			
Technical Bid Evaluation Basic Design Engineering Package (BDEP)		0 24			
Inputs to Project Handover Documentation &	Close-Out Report	4			
DELIVERABLES (that are your d	iscipline's responsibility)	MAN	-HOURS	COSTS	(\$-USD)
Deliverable No. Description		Eng	Design	3rd P	T&E
NOTES / ASSUMPTIONS	OVERALL TOTAL	S 262.	0.0	\$ -	\$ -
RESPONSIBLE PARTIES	Discipline			n	
Prepared by John Obidi	Discipline Check Uchechi Nwankwo	Date :	24 Dec 19	Revision :	Ro1

Project Title FEED FEED Discipline TeED Discipline Dis	t No. 2 Chnical Safety	O STS (\$-USI T8
Sub-Project/Phase CTR Title Schedule Start (Monday) Schedule Finish (Priday) Duration We Schedule Start (Monday) Schedule Finish (Priday) Duration We NPUTS / DEPENDENCIES Source / Discipline Description PDC-TEF PESS/PEF PDC-TEF Peps/PEF PDC-TEF Poject Philosophies	chnical Safety eeks RS COST	0
CTR Title Schedule Start (Monday) Schedule Finish (Priday) DIPPENDENCIES Source / Discipline Description SPIDC-TEF PERS/PEF SPIDC-TEF Project Philosophies SPI	RS COST	TS (\$-USI
CTR Title Schedule Start (Monday) Schedule Finish (Priday) DIPPENDENCIES Source / Discipline Description SPIDC-TEF PERS/PEF SPIDC-TEF Project Philosophies SPI	RS COST	TS (\$-USI
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INPUTS / DEPENDENCIES Source / Discipline Description SPDC-TEF PESS/PEF SPDC-TEF PESS/PEF SPDC-TEF Project Philosophies SPDC-T	RS COST:	TS (\$-USI
Description		
SPIC-TEF QAE SPIC-TEF CAE SPIC-TEF CAE SPIC-TEF Polect Philosophies SPIC-TEF Polect Philosophies SPIC-TEF Equipment Datasheets SPIC-TEF Equipment Datasheets SPIC-TEF Heat and Mass balance MAN-HOUI Secription		
SPOC-TEF Project Philosophies SPOC-TEF Equipment Datasheets SPOC-TEF Equipment Datasheets SPOC-TEF Priot plans SPO		
SPOC-TEF Project Philosophies SPOC-TEF Equipment Datasheets SPOC-TEF Plot plans SPOC-T		
ACTIVITIES (inc. input to other discipline's deliverables) Description AZOP Workshop: Third party HAZOP Facilitator involvement AZOP Action Response Sheet: Close out of action items AZOE Workshop: Third party HAZOP Facilitator involvement AZOE Workshop: Third party HAZOP Facilitator involvement 24.0 30w-Tie Workshop: Third party HAZOP Facilitator involvement 24.0 30w-Tie Workshop: Third party HAZOP Facilitator involvement 16.0 DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description Eng DexX HX002 - 01 AZOE Workshop: Third party Bow-Tie Facilitator involvement Eng DexX HX002 - 02 PActivity Plan Eng DexX HX002 - 01 AZOE Workshop: Third party Bow-Tie Facilitator involvement Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL MAN-HOUL Eng DexX HX002 - 01 AZOE Workshop: Third party HAZOP Facilitator involvement Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility) MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility MAN-HOUL Eng DexX HX002 - 02 PACTIVITIES (that are your discipline's responsibility MAN-HOUL MAN-HOUL MAN-HOUL MAN-HOUL MAN-HOUL MAN-HOUL MAN-HOUL AXA HX002 - 02 PACTIVITIES (that are your discipline's responsibility and the second responsible to the second responsible that are your devaluation in the second respons		
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ACTIVITES (inc. input to other discipline's deliverables) Description HAZOP Workshop: Third party HAZOP Facilitator involvement HAZOP Action Response Sheet: Close out of action items HAZID Workshop: Third party HAZID Facilitator involvement 24.0 HAZID Workshop: Third party HAZID Facilitator involvement 24.0 Bow-Tie Workshop: Third party HAZID Facilitator involvement 16.0 DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description Eng De XXX HAZOP Activity Plan Report XXX HAZOP OP PACTIVITY Plan Report XXX HAZOP OF HAZID TOR		
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HAZOP Workshop: Third party HAZOP Facilitator involvement AZ-10 HAZID Workshop: Third party HAZID Facilitator involvement 24.0 HAZID Workshop: Third party HAZID Facilitator involvement 24.0 Bow-Tie Workshop: Third party Bow-Tie Facilitator involvement 16.0 Description DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description Description Description Description Eng Descr	esgii şiur	
HAZDP Action Response Sheet: Close out of action items		
DELIVERABLES (that are your discipline's responsibility)		
DELIVERABLES (that are your discipline's responsibility) MAN-HOUL		
Deliverable No. Description Eng Description Eng Description 24		
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Deliverable No. Description Eng Description Eng Description StX HX002 - 01 & SP Activity Plan 24		
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XXX HX002 - 03 HSSE & SP Design Premise & Philosophy 24 XXX HX002 - 04 Performance Standards & Assurance Tasks for Safety Critical Elements Report 24 XXX HX002 - 05 HAZID ToR 8 XXX HX002 - 06 HAZID Report 24 XXX HX002 - 07 HSSE & SP HAZARDS & EFFECTS REGISTER 24 XXX HX002 - 08 Bow Tie ToR 8 XXX HX002 - 09 Bow Tie Report 24 XXX HX002 - 10 HAZOP ToR 8 XXX HX002 - 11 HAZOP Report 24 XXX HX002 - 12 HAZOP Actions Close-out Report 24 XXX HX002 - 13 FHA/ FERA/QRA RISK ASSESSMENT REPORT 80 XXX HX002 - 14 DESIGN ALARP DEMONSTRATION REPORT (HSSE-SP CASE) 24 XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		-
XXX HX002 - 04		
XXX HX002 - 05		
XXX HX002 - 07		
XXX HX002 - 08 Bow Tie ToR 8 XXX HX002 - 09 Bow Tie Report 24 XXX HX002 - 10 HAZOP ToR 8 XXX HX002 - 11 HAZOP Report 24 XXX HX002 - 12 HAZOP Actions Close-out Report 24 XXX HX002 - 13 FHA/ FERA/QRA RISK ASSESSMENT REPORT 80 XXX HX002 - 14 DESIGN ALARP DEMONSTRATION REPORT (HSSE-SP CASE) 24 XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		
XXX HX002 - 09 Bow Tie Report 24 XXX HX002 - 10 HAZOP ToR 8 XXX HX002 - 11 HAZOP Report 24 XXX HX002 - 12 HAZOP Actions Close-out Report 24 XXX HX002 - 13 FHA/ FERA/QRA RISK ASSESSMENT REPORT 80 XXX HX002 - 14 DESIGN ALARP DEMONSTRATION REPORT (HSSE-SP CASE) 24 XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		-
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XXX HX002 - 11 HAZOP Report 24 XXX HX002 - 12 HAZOP Actions Close-out Report 24 XXX HX002 - 13 FHA/ FERA/QRA RISK ASSESSMENT REPORT 80 XXX HX002 - 14 DESIGN ALARP DEMONSTRATION REPORT (HSSE-SP CASE) 24 XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		
XXX HX002 - 13 FHA/ FERA/QRA RISK ASSESSMENT REPORT 80 XXX HX002 - 14 DESIGN ALARP DEMONSTRATION REPORT (HSSE-SP CASE) 24 XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		
XXX HX002 - 14 DESIGN ALARP DEMONSTRATION REPORT (HSSE-SP CASE) 24 XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		
XXX HX002 - 15 Escape Routes Layouts 8 XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		
XXX HX002 - 16 Fire Fighting and Life Saving Equipment Layouts 8 XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8		
XXX HX002 - 17 Hazardous Area Classification (HAC) SCHEDULE 32 XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8	24.0	-
XXX HX002 - 18 Hazardous Area Classification (HAC) DRAWING 8	24.0	
	24.0	
XXX HX002 - 20 HEMP Activities Close Out Tracking Register 40		
XXX HX002 - 21 FirePRAN TOR 8		
XXX HX002 - 22 FirePRAN Report 24		
NOTES / ASSUMPTIONS OVERALL TOTALS 620.0	72.0 \$ -	- \$
NOTES / ASSUMITIONS		
RESPONSIBLE PARTIES		
Prepared by John Obidi Discipline Check Uchechi Nwankwo Date: 24 I		

FEED for EPU Phase 2 : Mechanical								
	<u>Engineer</u> <u>Hours</u>	<u>vesigner</u> <u>Hours</u>	3rd Party	<u>T&E's</u>				
MX001 Discipline Project Management	<u>528</u>	<u>8</u>	<u>\$</u> -	<u>\$ -</u>				
MX002 Specifications/Datasheets/Calculation	<u>280</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>				
MX003 Piping	<u>256</u>	<u>744</u>	<u>\$ -</u>	<u>\$ -</u>				
	<u>1064</u>	<u>752</u>	<u>\$ -</u>	<u>\$ -</u>				

SEDO	COST - TIME - RESOURCE _(CTR) SH	IEIEIL			
Client OU	Shell Petroleum Development Company (SPDC)	(CTR No.		MX 001
Project Title	FEED for EPU Phase 2	Pro	ject No.	X	XX
Sub-Project/Phase	FEED	Discipline	Mechanic	al	
CTR Title	Discipline Project Management		1		
Schedule Start (Monday)		Duratio	n Weeks		0
INPUTS / DEP					
Source / Discipline	Description BfD				
	Contracting Strategy				
	Time Writing Reports Document Status Report				
	Pre-FEED Deliverables				
	PCAP				
	nc. input to other discipline's deliverables)		HOURS		(\$-USD)
Description Review and Comment of		Eng 2	Design	3rd P	T&E
Attend Project Kick-off Scope Clarifications Me		2			
Site Visit	cting5	48			
Data Gathering CTR Catalogue develop	ment	4			
Inputs Deliverables Rev	riew Matrix	4			
Input to Deliverables R Input to Project Schedu	ıle	8			
Inputs to Weekly Progr Attend Weekly Project		16 32			
Discipline Meetings, Hu	ıddle	8			
Conduct Inter Disciplin General Discipline Adm		20 48			
Project Internal Audit		8			
Attend Health Checks (HAZID Workshop	@25% and 75% completion)	8			
PEFS Review - Roundta	ible	8			
Bow-Tie Workshop HAZOP Workshop		8			
HAZOP Closeout		4			
SIL Workshop		8			
SAFOP Workshop PDMS Model Review &	constructability	8 24	8.0		
			5.10		
Independent Design Re Interfaces with third pa		48 8			
Risk Based Assessment Lesson Learnt (Pr- and		0			
Equipment Criticality I	ntervention and Assessment	0			
Input to ITT Technical Bid Evaluation		0			
Basic Design Engineer	ing Package (BDEP)	24			
Inputs to Project Hando Project Leadership	over Documentation & Close-Out Report	4 60			
DELIVERABLE Deliverable No.	ES (that are your discipline's responsibility) Description	MAN-l Eng	HOURS Design	COSTS 3rd P	(\$-USD) T&E
MX001 - 01	BDEP	80	Design	J. C. I	1413
NOTES / ASSU	UMPTIONS OVERALL TOTALS	528.0	8.0	\$ -	\$
, ====					
RESPONSIBL	E PARTIES				
Prepared by Mohd Jibril	Discipline O Akinyami	Date :	24 Dec 19	Revision :	Ro1
	Check Check				-

SEDO	COS	Γ - TIME - RESOU	RCE (C'	\overline{SH}	IEET	
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		MX oo
Project Title	FEED for EPU Phas	se 2	Pro	ject No.	XX	ΚX
Sub-Project/Phas	e FEED		Discipline	Mechanie	cal	
CTR Title	Specifications/D	atasheets/Calculation reports	S/SDRLs			
Schedule Sta		Schedule Finish	Duration	n Weeks	()
(Monda	PENDENCIES	(Friday)				
Source / Discipline						
Client OU	Basis for Design (BfD)					
SEDO Drawing Office SEDO Process	As-builts drawings PEFS/UEFS					
JEDO I locess	I LI b) CLI b					
ACTIVITIES	(inc. input to other disc	sinling's deliverables)	MANII	IOLIDE	COSTS	(† HGD)
Description	inc. input to other disc	ipline's deliverables)	MAN-F Eng	Design	COSTS (T&E
Sescription			Ling	Design	Jiui	TGE
DELIVERAB	LES (that are your dis	scipline's responsibility)	MAN-I	HOURS	COSTS (\$-USD)
Deliverable No.	Description		Eng	Design	3rd P	T&E
MX002 - 01	SPECIFICATIONS	1 1122 p. 1				
MX002 - 02 MX002 - 03	Specification for Corros Specification for Chemi	non innibition Package	24.0 24.0			
MX002 - 03	opecinication for chemi	car biorage r ackage	24.0			
MX002 - 01	Specification for Chemi	cal Storage Systems	24.0			
MX002 - 02	Specification for Piping		24.0			
MX002 - 07	DATASHEETS					
MX002 - 07 MX002 - 08	Datasheet for Corrosion	n Inhibition Package	48.0			
			10.0			
MX002 - 09	Datasheet for Chemical	atomogo Tonly Doolsogo			1	
		Storage Talik Package	48.0	_		
MY000 10		вогаде тапк Раскаде	48.0			
MX002 - 10 MX002 - 11	SDRLs					
MX002 - 10 MX002 - 11			12.0			
	SDRLs	nibition Package				
MX002 - 11 MX002 - 12	SDRLs SDRL for Corrosion Inh SDRLfor Chemical stor	nibition Package age Tank Package	12.0			
MX002 - 11 MX002 - 12 MX002 - 13	SDRLs SDRL for Corrosion Inh SDRLfor Chemical stor	nibition Package age Tank Package	12.0			
MX002 - 11 MX002 - 12 MX002 - 13 MX002 - 14	SDRLs SDRL for Corrosion Inl SDRLfor Chemical stor CALCULATION REP Calculation Report for C	nibition Package age Tank Package	12.0			
MX002 - 11 MX002 - 12 MX002 - 13 MX002 - 14	SDRLs SDRL for Corrosion Inl SDRLfor Chemical stor CALCULATION REP Calculation Report for C	nibition Package age Tank Package PORTS Chemical Storage Tank Corrosion Inhibition Package	12.0 12.0 32.0 32.0			
MX002 - 11 MX002 - 12 MX002 - 13 MX002 - 14	SDRLs SDRL for Corrosion Inf SDRL for Chemical stor CALCULATION REP Calculation Report for C Calculation report for C	nibition Package age Tank Package PORTS Chemical Storage Tank	12.0 12.0 32.0 32.0	0.0	\$ -	\$
MX002 - 11 MX002 - 12 MX002 - 13 MX002 - 14 MX002 - 15	SDRLs SDRL for Corrosion Inf SDRL for Chemical stor CALCULATION REP Calculation Report for C Calculation report for C	nibition Package age Tank Package PORTS Chemical Storage Tank Corrosion Inhibition Package	12.0 12.0 32.0 32.0	0.0	\$ -	\$
MX002 - 11 MX002 - 12 MX002 - 13 MX002 - 14 MX002 - 15 NOTES / ASS	SDRLs SDRL for Corrosion Inl SDRLfor Chemical stor CALCULATION REP Calculation Report for C Calculation report for C	nibition Package age Tank Package PORTS Chemical Storage Tank Corrosion Inhibition Package	12.0 12.0 32.0 32.0	0.0	\$ -	\$
MX002 - 11 MX002 - 12 MX002 - 13 MX002 - 14 MX002 - 15 NOTES / ASS	SDRLs SDRL for Corrosion Inf SDRL for Chemical stor CALCULATION REP Calculation Report for C Calculation report for C	nibition Package age Tank Package PORTS Chemical Storage Tank Corrosion Inhibition Package	12.0 12.0 32.0 32.0	0.0	\$ -	\$

SEDO	COS	Γ - TIME - 1	RESOU	JRCE	(CTR)	SHEE	\mathbf{T}
Client OU	Shell Petroleum Dev	velopment Company	(SPDC)	(CTR No.		MX 003
Project Title	FEED for EPU Phas	e 2		Pro	ject No.	X	XX
Sub-Project/Phase	FEED			Discipline	Mechanic	al	
CTR Title	Piping						
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks		0
INPUTS / DEP	ENDENCIES	(Friday)					
Source / Discipline	Description						
	Basis for Design (BfD)						
SEDO Drawing Office SEDO Process	As-builts drawings PEFS/UEFS						
02001100033	TETO, CETO						
ACTIVITIES (in	nc. input to other disc	ipline's deliverables))	MAN-I	HOURS	COSTS	S (\$-USD)
Description	,	<u>,</u>		Eng	Design	3rd P	T&E
PDMS Modelling				48	220		
AS Built verification					48		
	ES (that are your dis	cipline's responsibili	ity)		HOURS		S (\$-USD)
Deliverable No. MX003 - 01	Description Overall Plant Layout			Eng 24.0	Design 48.0	3rd P	T&E
MX003 - 01 MX003 - 02	Plot Plan			16.0	64.0		
MX003 - 03	Piping General Arrange			32.0	160.0		
MX003 - 04	Piping Demolition Drawi	ng		32.0	140.0		
MX003 - 05 MX003 - 06	Tie - in schedule Constructability ToR			24.0 16.0	8.0 0.0		
MX003 - 07	PDMS Model review & 0	Constructability Report		48.0	8.0		
MX003 - 08	Key Plan			16.0	48.0		
		EDATI	TOTALS	0=(-		ф	¢
NOTES / ASSU	MPTIONS	EKALL	IUIALS	256.0	744.0	\$ -	\$ -
RESPONSIBLE	E PARTIES						
Prepared by Mohd Jibril		Discipline Check O. Akinyemi		Date :	24 Dec 19	Revision:	Ro1

FEED for EPU Phase 2 : Materials & Corrossion								
	<u>Engineer</u> <u>Hours</u>	<u>Designer</u> <u>Hours</u>	3rd Party	<u>T&E's</u>				
RA001 Discipline Project Management	<u>293</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>				
RA002 Material Assessment and Selection Report	<u>56</u>	<u>o</u>	<u>\$ -</u>	<u>s -</u>				
RA003 Corrosion Management Framework	<u>224</u>	<u>o</u>	<u>\$ -</u>	<u>s -</u>				
RA004 Specifications	<u>312</u>	<u>o</u>	<u>\$ -</u>	<u>s -</u>				
RA005 Datasheet	<u>32</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>				
	<u>917</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>				

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SEDO	SEDO COST - TIME - RESOURCE (CTR) SHEET							
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		RA 001		
Project Title	FEED for EPU Phas	e 2	Pı	oject No.		XXX		
Sub-Project/Phase	FEED		Disciplin	e Materia	ls & Corr	rossion		
CTR Title	Discipline Projec	t Management						
Schedule Start (Monday)		Schedule Finish (Friday)	Durat	ion Weeks		0		
INPUTS / DEP		(Friday)						
Source / Discipline	Description BfD							
	Contracting Strategy							
	Time Writing Reports Document Status Reports	t						
	Pre-FEED Deliverables PCAP							
	. 5/4							
ACTIVITIES (in Description	nc. input to other disc	ipline's deliverables)	MAN Eng	N-HOURS		OSTS (\$-USD) T&E		
Review and Comment of			1	Design	3rd P	182		
Attend Project Kick-off Scope Clarifications Me			2					
Site Visit Data Gathering			48					
CTR Catalogue develop			4					
Inputs Deliverables Rev Input to Deliverables R			4					
Input to Project Schedu Inputs to Weekly Progr	ıle		8 16					
Attend Weekly Project	Progress Meeting		32					
Discipline Meetings, Hi Conduct Inter Disciplin	e Checks (IDCs)		8 20					
General Discipline Adm Project Internal Audit			12 4					
Attend Health Checks (@25% and 75% completi	on)	4					
HAZID Workshop PEFS Review - Roundta	ible		4					
Bow-Tie Workshop HAZOP Workshop			8					
HAZOP Closeout			2					
Peer Review, Assist SIL Workshop			8					
SAFOP Workshop PDMS Model Review &	constructability		8 12					
Constructability review Independent Design Re	workshop		12 24					
Interfaces with third pa	rty and stakeholders		0					
Risk Based Assessment Lesson Learnt (Pr- and			2					
Equipment Criticality I Input to ITT	ntervention and Assessm	ent	0					
Technical Bid Evaluation			0					
Basic Design Engineeri Inputs to Project Hando	ing Package (BDEP) over Documentation & Clo	ose-Out Report	24					
		cipline's responsibility)		V-HOURS		OSTS (\$-USD)		
Deliverable No.	Description		Eng	Design	3rd P	T&E		
-								
		OVERALL TOTAL	S 293	.0 0.0	\$ -	\$		
NOTES / ASSU	JMPTIONS	OVERNE TOTAL	293	.0.0	Ψ	Ψ		
RESPONSIBL	E PARTIES	Disainline						
Prepared by Nwosu JTO		Discipline Check O. K. Ibanichuka	Date :	24 Dec 19	Revision:	Ro1		

Client OU Shell Petroleum Development Company (SPDC) CTR No. RA 002	SEDO	COS	Γ - TIME - RESOUF	RCE (C	CTR) SI	HEET	1
Sub-Project/Phase FEED CIR Title Schedule State (Monday) INPURS / DEPENDENCIES Source / Discipline BFD_MORK Request ACTIVITIES (inc. input to other discipline's deliverables) Description ACTIVITES (inc. input to other discipline's responsibility) Deliverable No. Description DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description MAN-HOURS COSTS (\$-USD) TRE RADOQ - 01 Material Assessment and Selection Report NOTES / ASSUMPTIONS WERALL TOTALS BOD - S \$ NOTES / ASSUMPTIONS	Client OU	Shell Petroleum Dev	velopment Company (SPDC)		CTR No.		RA 002
Schedule Start Schedule Start Schedule Finish	Project Title	FEED for EPU Phas	se 2	Pro	ject No.		XXX
Schedule Start (Notation Weeks Duration Weeks O INPUTS / DEPENDENCIES Source Discipling Description BFD, Work Request ACTIVITIES (inc. input to other discipline's deliverables) MAN-HOURS COSTS (\$-USD) Beerption Bog Design 3rd P TRE Description Description Description BD Description Descr	Sub-Project/Phase	FEED		Discipline	Material	ls & Corr	ossion
Coloniday Crisiday	CTR Title	Material Assessn	nent and Selection Report				
INPUTS / DEPENDENCIES Source / Discipline SPD, Work Request ACTIVITIES (inc. input to other discipline's deliverables) Description BELIVERABLES (that are your discipline's responsibility) Deliverable No. Description Desc				Duration	n Weeks		0
BFD, Work Request ACTIVITIES (inc. input to other discipline's deliverables) Description ACTIVITIES (inc. input to other discipline's deliverables) Description Eng. Design 3rd P 188 Eng. Design 3rd P 188 Description Description Description DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description RA002 - 01 Material Assessment and Selection Report DESCRIPTIONS NOTES / ASSUMPTIONS Discipline as a regulation of the part of the par	•		(Triday)				
ACTIVITIES (inc. input to other discipline's deliverables) Second Seco	Source / Discipline						
DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description RA002 - 01 Material Assessment and Selection Report NOTES / ASSUMPTIONS Eng Design 3rd P T&E	DFD, Work Request						
DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description RA002 - 01 Material Assessment and Selection Report NOTES / ASSUMPTIONS Eng Design 3rd P T&E	ACTIVITIES a					0.00	10 (+ Y70P)
DELIVERABLES (that are your discipline's responsibility) MAN-HOURS COSTS (\$-USD) Deliverable No. Description RA002 - 01 Material Assessment and Selection Report S6.0 NOTES / ASSUMPTIONS WERALL TOTALS 56.0 O.0 \$ - \$ RESPONSIBLE PARTIES		nc. input to other disc	ipline's deliverables)				
RESPONSIBLE PARTIES Discipline O & Hanishake Date of	Deliverable No.	Description		Eng			
RESPONSIBLE PARTIES Discipline O & Hanishake Date of							
Proposed by New TFO Discipline O V Besidents Detail of Page 1 Pag	NOTES / ASSU	UMPTIONS)VERALL TOTALS	56.0	0.0	\$ -	\$
Proposed by New TFO Discipline O V Besidents Detail of Page 1 Pag	RESPONSIBIL	E PARTIES					
			Discipline Check O. K. Ibanichuka	Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - TIME - RESOUR	RCE (CTR) SI	HEET
Client OU	Shell Petroleum De	velopment Company (SPDC)	CTR No.	RA 003
Project Title	FEED for EPU Pha	se 2	Project No.	XXX
Sub-Project/Phase	FEED		Discipline Materia	ls & Corrossion
CTR Title		gement Framework		
Schedule Start (Monday)		Schedule Finish (Friday)	Duration Weeks	0
	EPENDENCIE	8		
Source / PMT	Description Work Request			
A CONTRACTOR	~			
Description	S (inc. input to other	discipline's deliverables)	MAN-HOURS Eng Design	COSTS (\$-USD) 3rd P T&E
		r discipline's responsibility)	MAN-HOURS	COSTS (\$-USD)
Deliverable No. RA003 - 01	Description Corrosion Managemen	t Framework - Addendum	Eng Design	3rd P T&E
	J			
		OVERALL TOTALS	224.0	\$ - \$
NOTES / AS	SSUMPTIONS		- 1	
RESPONSI	BLE PARTIES			
Prepared by Nwosu		Discipline Check O. K. Ibanichuka	Date : 24 Dec 19	Revision: R01
· ·		Check	<u> </u>	

SEDO	COST - TIME - RESOURCE (C	TR) SI			
Client OU	Shell Petroleum Development Company (SPDC)	(CTR No.		RA oo
Project Title	FEED for EPU Phase 2	Pro	ject No.	XX	XX
Sub-Project/Phase	FEED	Discipline	Material	s & Corr	ossion
CTR Title	Specifications				
Schedule Star (Monday		Duratio	n Weeks	C)
INPUTS / DEI		l			
Source / Discipline	Description				
	nc. input to other discipline's deliverables)		HOURS	COSTS (
Description		Eng	Design	3rd P	T&E
DELIVERARI	ES (that are your discipline's responsibility)	MAN-1	HOURS	COSTS (¢-116D)
Deliverable No.	Description	Eng	Design	3rd P	T&F
RA004 - 01	Specification for Painting	32.0			
RA004 - 02 RA004 - 03	Specification for line pipe coating Specification for External Field Joint Coating	32.0 28.0			
RA004 - 04	Specification for cathodic protection	40.0			
RA004 - 05	Specification for CS line pipe	28.0			
RA004 - 06 RA004 - 07	Specification for DSS Line pipe Specification for Induction Bends	28.0 28.0			
	Specification for Isolation Joint and Isolation Flange				
RA004 - 08	Specification for isolation Joint and isolation Flange	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09					
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support	28.0			
RA004 - 09	Specification for Pipe Support Specification for corrosion inhibition	28.0 40.0			
RA004 - 09 RA004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
RA004 - 09 RA004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
RA004 - 09	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
RA004 - 09 RA004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
RA004 - 09 RA004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
RA004 - 09 RA004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
RA004 - 09 RA004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS	28.0 40.0		\$ -	\$
NOTES / ASSI	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS JMPTIONS	28.0 40.0		\$ -	\$
A004 - 09 A004 - 10	Specification for Pipe Support Specification for corrosion inhibition OVERALL TOTALS JMPTIONS	28.0 40.0		\$ -	\$

SED	SEDO COST - TIME - RESOURCE (CTR) SHEET								
C	lient OU	Shell Petroleum De	velopment Compar	y (SPDC)	(CTR No.		RA 004	
Proj	ect Title	FEED for EPU Phas	se 2		Pro	ject No.	XX	X	
Sub-Proj	ject/Phase	FEED			Discipline	Materia	ls & Corre	ossion	
		Datasheet							
Scl	hedule Start (Monday)		Schedule Finis (Frida		Duratio	n Weeks	О		
INPUT	S / DEP	ENDENCIES		*					
Source /	Discipline	Description							
ACTIV	ACTIVITIES (inc. input to other discipline's deliverables) MAN-HOURS COSTS (\$-USD)								
Description				,	Eng	Design	3rd P	T&E	
DELIV	ERABL	ES (that are your dis	scipline's responsib	ility)	MAN-I	HOURS	COSTS (\$-USD)	
Deliver	able No.	Description		•	Eng	Design	3rd P	T&E	
RA004 RA004	- 01 - 02	Datasheet for Cathodic Datasheet for Cathodic			16.00 16.0				
	-								
<u> </u>									
-									
						_			
[OVERALL TOTALS	32.0		\$ -	\$ -	
NOTES	S / ASSU	MPTIONS		C. LIMILLI TOTALIS			T		
RESPO	NSIBLI	E PARTIES							
	NSIBLI Nwosu JTO	E PARTIES	Discipline Check	chuka	Date :	24 Dec 19	Revision:	Ro1	

SEDO	COST - TIME - RESOURCE (C	TR) SHEE	Т	
Client OU	Shell Petroleum Development Company (SPDC)	CTR No). I	RA 004
Project Title	FEED for EPU Phase 2	Project No	o. XXX	X
Sub-Project/Phase		Discipline Mater	ials & Corro	ssion
	Data Sheets			
Schedule Start (Monday)	(Friday)	Duration Weeks	0	
INPUTS / DEP Source / Discipline	ENDENCIES Description			
ACTIVITIES (in Description	nc. input to other discipline's deliverables)	MAN-HOURS Eng Design	COSTS (\$	-USD) T&E
DELIVERABL Deliverable No. RA004 - 01	ES (that are your discipline's responsibility) Description Data Sheet for Sacrificial Anode	MAN-HOURS Eng Design	COSTS (\$	-USD) T&E
RA004 - 02	Data Sheet for Isolation Joint	16.0		
NOTES / ASSU	UMPTIONS OVERALL TOTALS	32.0	\$ -	\$
RESPONSIBL				

FEED for EPU Phase 2 : PACO							
	<u>Engineer</u> <u>Hours</u>	<u>vesigner</u> <u>Hours</u>	3rd Party	<u>T&E's</u>			
IN001 Discipline Project Management	<u>293</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>			
<u>IN002</u> <u>Philosophies</u>	<u>200</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>			
IN003 Specifications	<u>350</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>			
IN004 Drawing, Report and Others	<u>434</u>	<u>90</u>	<u>\$ -</u>	<u>\$ -</u>			
	<u>1277</u>	<u>90</u>	<u>\$ -</u>	<u>\$ -</u>			

SEDO	COST - TIME - RESOURCE _(CTR) SH	191911			
Client OU	Shell Petroleum Development Company (SPDC)		CTR No.		IN 001
Project Title	FEED for EPU Phase 2	Pro	ject No.	X	XX
Sub-Project/Phase	FEED	Discipline	PACO		
CTR Title	Discipline Project Management				
Schedule Start	Schedule Finish	Duratio	n Weeks		0
(Monday)	(Finasy)	Duratio	ii weeks		U
INPUTS / DEP Source / Discipline	Description Description				
Source / Discipline	BfD				
	Contracting Strategy				
	Time Writing Reports Document Status Report				
	Pre-FEED Deliverables PCAP				
	ACTIVITIES (inc. input to other discipline's deliverables) MAN-HOURS			COSTS (\$-USD)	
Description Review and Comment o	n Work Soons	Eng 1	Design	3rd P	T&E
Attend Project Kick-off	n work Scope	2			
Scope Clarifications Me	etings	2			
Site Visit Data Gathering		48			
CTR Catalogue developi	nent	4			
Input to Deliverables Rev		4			
Input to Deliverables Re Input to Project Schedu		8			
Inputs to Weekly Progre	ess Update	16			
Attend Weekly Project I Discipline Meetings, Hu		32 8			
Conduct Inter Discipline		20			
General Discipline Adm		12			
Project Internal Audit	@25% and 75% completion)	4			
HAZID Workshop	25% and 75% completion)	4			
PEFS Review - Roundta	ble	4			
Bow-Tie Workshop HAZOP Workshop		8			
HAZOP Closeout		2			
Peer Review, Assist		4			
SIL Workshop SAFOP Workshop		8			
PDMS Model Review &	constructability	12			
Constructability review		12			
Independent Design Ret Interfaces with third par		0			
Risk Based Assessment		0			
Lesson Learnt (Pr- and		0			
Input to ITT	ntervention and Assessment	0			
Technical Bid Evaluatio		0			
Basic Design Engineeri	ng Package (BDEP) ver Documentation & Close-Out Report	24 4			
inputs to Froject Hando	ver bodumentation & close-out Report				
DELIVERABLI	ES (that are your discipline's responsibility)	MAN-	HOURS	COSTS	(\$-USD)
Deliverable No.	Description Description	Eng	Design	3rd P	T&E
NOTES / ASSUMPTIONS OVERALL TOTALS			0.0	\$ -	\$
,					
RESPONSIBLE			-		
Prepared by Orodu Mercy	Discipline Check Asiegbu Nnamdi	Date :	24 Dec 19	Revision:	Ro1

SEDO	COST	Γ - TIME - RESOU	JRCE (CTR)	SHEET				
Client OU	Shell Petroleum Dev	velopment Company (SPDC)	CTR No.	IN 002				
Project Title	FEED for EPU Phas	e 2	Project No.	XXX				
Sub-Project/Phase	FEED		Discipline PACO					
CTR Title	Philosophies							
Schedule Start (Monday)	00 Jan 1900	Schedule Finish (Friday)	Duration Weeks	0				
INPUTS / DEP	ENDENCIES	(Finaly)						
Source / Discipline	Description							
PMT	Basis For Design							
PMT	Existing Facility Docume	entations						
Technical	TAMAP, EFA							
Vendor	Vendor							
ACTIVITIES (in	ıc. input to other disc	inline's deliverables)	MAN-HOURS	COSTS (\$-USD)				
Description (II	ic. input to other tise	ipmie s denverables)	Eng Design	3rd P T&E				
Input to PEFS developn	nent		40					
Input to Mechanical Lay			20					
Input to Civil Deliverable	es		20					
	ES (that are your dis	cipline's responsibility)	MAN-HOURS	COSTS (\$-USD)				
Deliverable No.	Description		Eng Design	3rd P T&E				
IN002 - 01		and Automation Philosophy	20.0					
IN002 - 02 IN002 - 03	Safety Instrumented Sys Fire and Gas System Pl	stem Philosophy	20.0					
IN002 - 03 IN002 - 04	Surveilance, Metering a		20.0					
IN002 - 05	Discipline Delivery Plan	na / modulon Oracogy	20.0					
IN002 - 06	Alarm Philosophy		20.0					
		mp mom:						
NOTES / ASSU	MPTIONS	ERALL TOTALS	200.0 0.0	\$ - \$ -				
Taking learning from Abasere brought down the cost of								
g .ca.riiig iiciii Ab								
RESPONSIBLE	E PARTIES							
		Discipline Check	Date : 0 : D- :-	Davision . Dos				
Prepared by Orodu Mercy	,	Check Assegnd Maintai	Date : 24 Dec 19	Revision: R01				

SEDO	COS	Γ - TIME - RESOU	URCE	(CTR)	SHEE	T
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		IN 003
Project Title	FEED for EPU Phas	se 2	Pro	ject No.	X	XX
Sub-Project/Phase	FEED		Discipline	PACO		
CTR Title	Specifications					
Schedule Start (Monday)		Schedule Finish (Friday)	Duration	n Weeks		0
INPUTS / DEP		(Filday)				
Source / Discipline	Description					
Vendor	Vendor's Catalog/Interra	action				
Process	PEFS					
ACTIVITIES (:	a a innut to other disc	ripline's deliverables)	MAN-H	IOTIDE	СОСТС	(\$-USD)
Description Description	ic. input to other disc	apime's deliverables)	Eng	Design	3rd P	T&E
P			6	8-	J	
DELIVERABLI Deliverable No.		scipline's responsibility)	MAN-I			(\$-USD)
IN003 - 01	Description General Specification for	or Instruments	Eng 20	Design	3rd P	T&E
IN003 - 02	SIS Specification		20			
IN003 - 03	F&G Specification		20			
IN003 - 04 IN003 - 05	Pressure Instruments S Temperature Instrument		20			
IN003 - 06	F&G Field Equipment S		20			
IN003 - 07	Control Valve Specifica		20			
IN003 - 08 IN003 - 09	Choke Valve Specificat Relief Valve Specification		20			
IN003 - 10	Blowdown and Shutdov		20			
IN003 - 11	Instrument Cable Speci		20			
IN003 - 12 IN003 - 13	Instrumentation for Pac Sand Detector Specification	kaged Equipment Specification	20			
IN003 - 13 IN003 - 14	Level Instrumentation S		20			
IN003 - 15	Allocation Metering Spe		20			
IN003 - 16 IN003 - 17	PAS Specification		20			
IN003 - 17 IN003 - 18	PIG Signaller Specificat HIPPS Specification	IOTI	10 20			
	'					
NOTES / ASST	TA A DOTTION TO	ERALL TOTALS	350.0	0.0	\$ -	\$ -
NOTES / ASSU						
raking learning from Ab	pasere brought down the	COST OT				
DECDONGIBLE	E DADWIEC					
RESPONSIBLI		Dicaiplina				
Prepared by Orodu Mercy	y	Discipline Check Asiegbu Nnamdi	Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - TIME - 1	RESOUR	CE (C	TR) SH	EET	
Client OU	Shell Petroleum De	velopment Compan	y (SPDC)		CTR No.		IN 003
Project Title	FEED for EPU Phas	se 2		Pro	ject No.	XX	X
Sub-Project/Phase	FEED			Discipline	PACO		
CTR Title	Drawing, Report	and Others					
Schedule Start	00 Jan 1900	Schedule Finish		Duratio	n Weeks	C)
(Monday) INPUTS / DEP	-	(Friday)				
Source / Discipline	Description						
Process Mechanica	PEFS, Heat and Mass I Layout and GA.	Balance					
IVIECTIATIICA	Layout and GA.						
ACTIVITIES (in Description	nc. input to other dis	cipline's deliverable	s)		HOURS	COSTS (3rd P	\$-USD) T&E
PCD Architecture works SIL Workshop	shop			Eng 40	Design	314 F	IXE
SIL Workshop	•			24			
DELIVERABL	ES (that are your di	scipline's responsibi	lity)	MAN-	HOURS	COSTS (
Deliverable No.	Description	~		Eng 20	Design 40	3rd P	T&E
IN003 - 01 IN003 - 02	PAS Arhitecture Drawin Instrument Index	9		100	40		
IN003 - 03	Hook-up (instrument ins			20	20		
IN003 - 04	Preliminary control & Re	elief valve Sizing Calcul	ation	20	40		
IN003 - 05 IN003 - 06	Far Layout SIL Report			20	10		
IN003 - 07	Control Narrative			20			
IN003 - 08	Safeguarding Narrative			20			
IN003 - 09 IN003 - 10	SIF Classification TOR Process Cause and Eff	ect Matrix		20 20			
IN003 - 11	Fire and Gas cause and			20			
IN003 - 12	Preliminary Alarm data			20.0			
IN003 - 13 IN003 - 14	Preliminary calculation s PCD Architecture works			10.0 20.0			
IN003 - 14 IN003 - 15	Preliminary Fire and Ga			20.0			
		WEDA	LL TOTALS	494.0	90.0	\$0.00	\$0.00
NOTES / ASSU	IMPTIONS	JVEKA	LL IOIALS	434.0	90.0	\$0.00	φ0.00
Taking learning from Ab	pasere brought down the	cost of Enwhe					
1 Fire and Gas Mannin	g cost is not part of this (TR It is PMT enoneous	ad activity				
I IIO GITO GOS IVIAPPITI	5 COOL TO HOL PAIR OF HIS C	Z	- a donvity				
RESPONSIBL	E PARTIES						
Prepared by Orodu Merc	y	Discipline Check Asiegbu Nn	amdi	Date :	24 Dec 19	Revision:	Ro1
		CHECK					

FEED for EPU Phase 2 : Telecoms & PCD -IT

	<u>Engineer</u> <u>Hours</u>	<u>Designer</u> <u>Hours</u>	3rd Party	<u>T&E's</u>
TA001 Discipline Project Management	<u>261</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
TA002 <u>Design Philosophy</u>	<u>30</u>	<u>120</u>	<u>\$ -</u>	<u>\$ -</u>
TA003 Systems Specification	<u>281</u>	<u>o</u>	<u>\$ 5,000</u>	<u>\$</u>
TA004 Drawings	<u>114</u>	<u>124</u>	<u>\$ -</u>	<u>\$</u>
TA005 MTO/Data Sheet	<u>64</u>	<u>120</u>	<u>\$ -</u>	<u>\$ -</u>
	<u>750</u>	<u>364</u>	<u>\$ 5,000</u>	<u>\$</u> -

SEDO	COS	Γ - TIME -	- RESO	URCE (CTR) S	HEET			
Client OU	Shell Petroleum De	velopment Compa	any (SPDC)			CTR No.		TA 001
Project Title	FEED for EPU Phas	se 2	•		Pro	ject No.	X	XX
Sub-Project/Phase						Telecoms	& DCD -F	г
	Discipline Project	t Management			Discipline	Telecoms	8 & FCD -1	1
Schedule Start	Discipline 110jec	Schedule Fini			Duratio	n Weeks		
(Monday)	ENDENCIES	(Frida	lay)		Duracio	II WCCR3		
NPUTS / DEP Source / Discipline	Description Description							
	BfD Contracting Strategy							
	Time Writing Reports							
	Document Status Repo Pre-FEED Deliverables							
	PCAP							
ACTIVITIES (in	nc. input to other disc	cipline's deliverable	les)		MAN-	HOURS	COSTS	(\$-USD)
escription		•			Eng	Design	3rd P	T&E
eview and Comment o ttend Project Kick-off	n Work Scope				2			
cope Clarifications Me	etings				2			
ite Visit Oata Gathering					16 4			
TR Catalogue develop nputs Deliverables Rev					4			
nputs Deliverables Rev nput to Deliverables Re					4			
nput to Project Schedu nputs to Weekly Progre					8			
ttend Weekly Project I					16 32			
Discipline Meetings, Hu Conduct Inter Disciplin					8 20			
eneral Discipline Adm					12			
roject Internal Audit	@25% and 75% completi	on)			4			
IAZID Workshop					4			
EFS Review - Roundta ow-Tie Workshop	ble				4			
IAZOP Workshop					8			
IAZOP Closeout eer Review, Assist					4			
IL Workshop					8			
AFOP Workshop DMS Model Review &	constructability				8 12			
onstructability review	workshop				12			
ndependent Design Re nterfaces with third pa					0			
isk Based Assessment					0			
esson Learnt (Pr- and quipment Criticality I	ntervention and Assessm	ent			0			
put to ITT					0			
echnical Bid Evaluation easic Design Engineeri					0 24			
	over Documentation & Cl	ose-Out Report			4			
NEI IVEDADI I	F C (1)		L TITLE A		NAME OF THE PERSON OF THE PERS	HOUDE	COOTTO	(# HGD)
Deliverable No.	ES (that are your dis Description	scipline's responsi	Dility)		Eng	HOURS Design	3rd P	(\$-USD) T&E
	•							
NOTES / ASSU	MPTIONS			OVERALL TOTAL	S 261.0	0.0	\$ -	\$
TOPOTTOTT -	DADETES							
RESPONSIBLI	2 PARTIES	Discipline Mfon Usa						
repared by koko Bassey		Mfon Usa	anga		Date :	24 Dec 10	Revision ·	Ro1

SEDO	COS	Γ - TIME - RESO	IRCE SHE	FT			
			CRCE (CTR) STIE				
		velopment Company (SPDC)			CTR No.		TA 002
Project Title	FEED for EPU Phas	e 2		Pro	oject No.	X	XX
Sub-Project/Phase	FEED			Discipline	Telecoms	8 & PCD -	IT
CTR Title	Design Philosop	•					
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP							
Source / Discipline PMT	Description Project IT Strategy						
	Preliminary Scope docu		for bonion de Armi				
PMT	Telecommunication Sys	stems and PCD-IT Overview Drawing o-Systems Block Diagrams tunu for b	enisede /tunu				
PACO Civil/Mechanical	IC&A philosophy Civil and Mechanical Pl	ot plan					
Civil/iviechanical	CIVII and Mechanical Fi	от ріан					
	nc. input to other disc	ripline's deliverables)			HOURS		(\$-USD)
Description input into processes, s	tandards and principles	to be followed		Eng 2	Design	3rd P	T&E
review of Preliminary	Scope			1			
	a and design considerati ssioning and hnadover d			2			
Input into Execution a	nd Handover Strategy			8			
DELIVERABL	ES (that are your dis	cipline's responsibility)		MAN-	HOURS	COSTS	(\$-USD)
Deliverable No.	Description	• •		Eng	Design	3rd P	T&E
TA002 - 01	Design Philosophy			16.0	120		
			OVEDALI TOTALO	20.7	400 -	φ.	ė
NOTES / ASSU	MPTIONS		OVERALL TOTALS	30.0	120.0	\$ -	\$ -
RESPONSIBLI	E DARTIES						
	LIARIES	Discipline Check Mfon Usanga		Date :	24 Dec 19	Revision :	Ro1
Prepared by koko Bassey		Check Mion Usanga		Date:	24 Dec 19	Aevision:	K01

SEDO	COS	Γ - TIME - RESOURCE (CTR) SHE	ŒT			
Client OU		velopment Company (SPDC)		CTR No.		TA 003
	FEED for EPU Pha	* * * * * * * * * * * * * * * * * * * *		ject No.	X	XX
Sub-Project/Phase	FEED		Discipline	Telecoms	8 PCD -1	T
CTR Title	Systems Specific	eation				
Schedule Start (Monday)		Schedule Finish (Friday)	Duratio	n Weeks		
INPUTS / DEP		(riiday)				
Source / Discipline	Description					
PMT	Existing PAS Architecti Existing Telecoms Net Existing PCD/IT Securit	vork Documents and drawings				
ACTIVITIES (in	nc. input to other dis	cipline's deliverables)	MAN-I	HOURS Design	COSTS 3rd P	(\$-USD) T&E
input into systems engi	neering mobile radio Lin	ks Report	8	- ,,		
Mobile radio Network p Mobile radio License F	Request					
	asibility link engineering with each data tranmisi		8			
Verification of Coordina	tes and desktop analysi	s of link profiles,clearance ,etc.	4.0			
input intpo Installation Review and Input into I	Details C&A Delibverables and	architectures	1.0 8.0			
		scipline's responsibility)		HOURS		(\$-USD)
Deliverable No. TA003 - 01	Description Preliminary Fibre Link I	Budget/loss Analysis	Eng 24.0	Design	3rd P \$ 2,000	T&E
TA003 - 01	Structured Cabling Sy		32.0		£ 1,000	
TA003 - 01 TA003 - 01	Mobile radio propagati Mobile radio system sp		24.0 16.0		\$ 1,000	
TA003 - 01	Security Systems Spec	ification	24.0			
TA003 - 01 TA003 - 01	IP Data Network Speci Construction Site Telec		16.0 16.0			
TA003 - 01	PCD/IT Security CMC/	A Workshop and Report	8.0		\$ 1,000	
TA003 - 01 TA003 - 01	PCD/IT Security Design PCD Control Network		16.0 16.0		\$ 1,000	
TA003 - 01		ocess Control Network (PCN) Integration Specification	16			
TA003 - 01 TA003 - 01	PCD Control Network	ain (PCD) Network Design Specification Specification	16 16			
NOTES / ASSU	MPTIONS	OVERALL TOTALS	281.0	0.0	\$ 5,000	\$ -
RESPONSIBLI	E PARTIES					
Prepared by koko Bassey		Discipline Check Mfon Usanga	Date :	24 Dec 19	Revision:	Ro1
		* ***	-			

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SEDO	COST	r - TIME - RESO	OURCE (CTR) SHE	ET			
Client OU	Shell Petroleum Dev	velopment Company (SPDC)			CTR No.		TA 004
Project Title	FEED for EPU Phas	e 2		Pro	ject No.	Х	XX
Sub-Project/Phase	FEED			Discipline	Telecoms	s & PCD -1	T
CTR Title	Drawings						
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP	ENDENCIES	(Filday)					
Source / Discipline	Description						
PMT	Project IT Strategy Preliminary Scope docu	ment or PEDD					
		tems and PCD-IT Overview Drawin	g for benisede /tunu				
PMT		-Systems Block Diagrams tunu for	benisede /tunu				
PACO Civil/Mechanical	IC&A philosophy Civil and Mechanical Plo	ot plan					
	nc. input to other disc	cipline's deliverables)			HOURS		S (\$-USD)
Description				Eng	Design	3rd P	T&E
DELTERADI	50						
DELIVERABLI Deliverable No.	LS (that are your dis Description	cipline's responsibility)		MAN-	HOURS Design	3rd P	T&E
TA004 - 01	Mobile Radio link/Integr	ration Drawing		16.0	10	Jiui	TGE
TA004 - 01 TA004 - 01	Structured Cabling Syst LAN/WAN Systems Dra			16.0 16.0			
TA004 - 01		am(Access Control and CCTV)		16.0			
TA004 - 01	Room layout & General			10.0			
TA004 - 01 TA004 - 01	PCD/IT Security logical PCD/IT Security integra			16.0 24.0			
	, , , , , , , , , , , , , , , , , , ,						
			OVED ALL TOTAL O				
NOTES / ASSU	MPTIONS		OVERALL TOTALS	114.0	124.0	\$ -	\$
RESPONSIBLI	E PARTIES						
Prepared by koko Bassey		Discipline Check Mfon Usanga		Date :	24 Dec 19	Revision:	Ro1
Toparea by Roko Bassey		Check Milon Osanga		Date.	Dec 19		101

SEDO	CUS	Γ - TIME - RESOU	JRCE (CTR) SHE	КI			
Client OU	Shell Petroleum De	velopment Company (SPDC)		(CTR No.		TA 005
Project Title	FEED for EPU Phas	e 2		Pro	ject No.	X	XX
Sub-Project/Phase	FEED			Discipline	Telecoms	s & PCD -I	Т
	MTO/Data Sheet						
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP Source / Discipline	PENDENCIES Description						
bource / Discipline	Description						
ACTIVITIES (ii	nc. input to other disc	ipline's deliverables)		MAN-	HOURS	COSTS	(\$-USD)
Description nput into IT Scope of V		•		Eng	Design	3rd P	T&E
nput into IT Scope of v				8			
		cipline's responsibility)			HOURS		(\$-USD)
Deliverable No. ΓΑοο5 - 01	Description MTO			Eng 24.0		3rd P	T&E
TA005 - 01	Data Sheets			24.0			
NOTES / ASSU	MPTIONS		OVERALL TOTALS	64.0	120.0	\$ -	\$
RESPONSIBL	E PARTIES	Disamlina					
Prepared by koko Bassey		Discipline Check Mfon Usanga		Date:	24 Dec 19	Revision:	Ro1

FEED for EPU Phase 2 : Electrical

		<u>Engineer</u> <u>Hours</u>	<u>Designer</u> <u>Hours</u>	3rd Party	<u>T&E's</u>
<u>EA001</u>	Discipline Project Management	<u>285</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
<u>EA002</u>	Equipment Layout and Details	<u>20</u>	<u>40</u>	<u>\$ -</u>	<u>\$ -</u>
<u>EA003</u>	System Desciption including Power General	<u>88</u>	<u>40</u>	<u>\$ -</u>	<u>\$ -</u>
<u>EA005</u>	Equipment Specifications	<u>24</u>	<u></u>	<u>\$ -</u>	<u>\$ -</u>
<u>EA006</u>	Equipment Datasheet	<u>8</u>	<u></u>	<u>\$ -</u>	<u>\$ -</u>
<u>EA007</u>	SAFOP/PEER Review	<u>40</u>	<u>6</u>	<u>\$ -</u>	<u>\$ -</u>
<u>EA008</u>	Electrical Material Take-off (MTO)	<u>16</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
		<u>481</u>	<u>86</u>	<u>\$ -</u>	<u>\$ -</u>

SEDO	COST	Γ - TIME - RES	OURCE (CTR) SH	IEET			
Client OU		velopment Company (SPDC			CTR No.		EA 001
	FEED for EPU Phas		,		oject No.	X	XX
					-		
Sub-Project/Phase CTR Title	Discipline Projec	t Management		Discipline	Electrica		
Schedule Start		Schedule Finish		Duratio	on Weeks		
INPUTS / DEP		(Friday)		Duraci	on weeks		
Source / Discipline	Description						
	BfD Contracting Strategy						
	Time Writing Reports						
	Document Status Repo Pre-FEED Deliverables						
	PCAP						
	nc. input to other disc	ipline's deliverables)			HOURS		(\$-USD)
Description Review and Comment of	on Work Scope			Eng 1	Design	3rd P	T&E
Attend Project Kick-off Scope Clarifications Me	etings			2			
Scope Clarifications Me Site Visit Data Gathering				40			
CTR Catalogue develop	ment			4			
Inputs Deliverables Rev Input to Deliverables Re	riew Matrix egister			4			
Input to Deliverables Re Input to Project Schedu Inputs to Weekly Progra	ile ess Undate			8			
Inputs to Weekly Progre Attend Weekly Project I Discipline Meetings, Hu	Progress Meeting			32			
Conduct Inter Disciplin	e Checks (IDCs)			8 20			
General Discipline Adm Project Internal Audit	inistration			12 4			
Attend Health Checks (HAZID Workshop	@25% and 75% completi	on)		4			
PEFS Review - Roundta	ible			4			
Bow-Tie Workshop HAZOP Workshop				8			
HAZOP Closeout Peer Review, Assist				2 4			
SIL Workshop				8			
SAFOP Workshop PDMS Model Review &				8 12			
Constructability review Independent Design Re				12 24			
Interfaces with third pa Risk Based Assessment	rty and stakeholders			0			
Lesson Learnt (Pr- and	Post project)			2			
Input to ITT Technical Bid Evaluation	ntervention and Assessm	ent		0			
Technical Bid Evaluation Basic Design Engineeri	on ing Package (BDEP)			0 24			
	over Documentation & Cl	ose-Out Report		4			
DELINEDADI I	FC (1)	-1-111		MAN	HOUDE	COCTO	(\$ HOD)
Deliverable No.		cipline's responsibility)			HOURS Design	3rd P	(\$-USD) T&E
NOTES / ASSU	MPTIONS		OVERALL TOTALS	285.0	0.0	\$ -	\$
, , , ,							
RESPONSIBLI	E PARTIES						
Prepared by Dele Kolajo		Discipline Check Seun Durojaiye		Date :	24 Dec 19	Revision:	Roı

SEDO	COS'	Γ - TIME - RESO	OLIDCE SH				
			JUNCE (CTR) SI				
		velopment Company (SPDC)			CTR No.		EA 002
Project Title	FEED for EPU Phas	se 2		Pro	ject No.	X	XX
Sub-Project/Phase				Discipline	Electrica	l	
CTR Title	Equipment Layo						
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP Source / Discipline	ENDENCIES Description						
Mechanica Mechanica	Plot Plan.						
ACTIVITIES C		dalla da dalla andrea	-	MANU	HOLIBE	COSTS	(\$-USD)
Description Description	nc. input to other dis	cipline's deliverables)		Eng	HOURS Design	3rd P	T&E
		scipline's responsibility)			HOURS		(\$-USD)
Deliverable No. EA002 - 01	Description Cable route layout			Eng 12	Design 24	3rd P	T&E
EA002 - 02	Electrical Cable Tray D	etails		8	16		
			OVERALL TOTALS	20.0	40.0	\$ -	\$ -
NOTES / ASSU	MPTIONS		OVERALL IUIALS	20.0	40.0	\$ -	φ -
RESPONSIBLI	E PARTIES						
Prepared by Dele Kolajo		Discipline Check Seun Durojaiye		Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - ΤΙΙ	ME - RES	OURCE (CTR) SH	IEET			
Client OU	Shell Petroleum De	velopment	Company (SPDC	C)	(CTR No.		EA 003
Project Title	FEED for EPU Phas	e 2			Pro	ject No.	X	XX
Sub-Project/Phase	FEED				Discipline	Electrical	1	
CTR Title	System Desciptio	n includi	ng Power Gen	eration and Distribution				
Schedule Start (Monday)		Sche	dule Finish (Friday)		Duration	n Weeks		
INPUTS / DEP	ENDENCIES		(
Source / Discipline	Description							
PMT PMT	Work Request Basis for Design							
ACTIVITIES (i	nc. input to other disc	inline's de	liverables)		MAN-I	HOURS	COSTS	(\$-USD)
Description	ic. input to other disc	ipinie s de	iiverables)		Eng	Design	3rd P	T&E
	ES (that are your dis	cipline's re	esponsibility)		MAN-I			(\$-USD)
Deliverable No. EA003 - 01	Description Utility Datasheet				Eng 16	Design	3rd P	T&E
EA003 - 02	Single Line Diagrams				16	24		
EA003 - 03	Update Key Single Line Power Transmission an		Otrodo Donosto		8	16		
EA003 - 04 EA003 - 05	Equipment Sizing calcu		1 Study Reports		16 16			
EA003 - 06	Short Circuit & Load Flo		port		16			
NOTES / ASSU	MPTIONS			OVERALL TOTALS	88.0	40.0	\$ -	\$ -
RESPONSIBLI	E PARTIFS							
	LIMNIES	Discipline	Coun Dunoi-i		Dot-	04 D	Donie!	De:
Prepared by Dele Kolajo		Check	Seun Durojaiye		Date :	24 Dec 19	Revision:	Ro1

SEDO	COST	Γ - ΤΙΙ	ME - RES	OURCE (CTR) SH	IEET			
Client OU	Shell Petroleum Dev	velopment	Company (SPDC)			CTR No.	XXX	EA 004
Project Title	FEED for EPU Phas	e 2			Pro	oject No.	X	XX
Sub-Project/Phase	FEED				Discipline	Electrica	ı	
CTR Title	Equipment Speci	fications						
Schedule Start		Scheo	lule Finish		Duratio	n Weeks		
(Monday)	ENDENGIEG		(Friday)					
INPUTS / DEP Source / Discipline	Description Description							
PMT	Basis for Design							
Mechanical	Overall Equipment List							
Process	PEFS							
PACO	Equipment datasheet							
ACTIVITIES (in	nc. input to other disc	ipline's del	liverables)		MAN-	HOURS	COSTS	(\$-USD)
Description					Eng	Design	3rd P	T&E
DELIVERABLI	ES (that are your dis	cipline's re	sponsibility)		MAN-	HOURS	COSTS	(\$-USD)
Deliverable No.	Description				Eng	Design	3rd P	T&E
XXX EA004 - 01	Specification for Cable				8			
XXX EA004 - 02 XXX EA004 - 03	Specification for Bulk Ma Specification for UPS	aterials			8			
AAA EA004 - 03	Specification for UPS				0			
				OVERALL TOTALS	24.0	0.0	\$ -	\$ -
NOTES / ASSU	MPTIONS							
RESPONSIBLI	E PARTIES							
Prepared by Dele Kolajo		Discipline Check	Seun Durojaiye		Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - TIN	IE - RES	OURCE (CTR) SH	IEET			
Client OU	Shell Petroleum Dev	elopment (Company (SPDC)			CTR No.		EA 005
Project Title	FEED for EPU Phas	e 2			Pro	ject No.	X	XX
Sub-Project/Phase	FEED				Discipline	Electrica	l	
CTR Title	Equipment Datas	heet						
Schedule Start (Monday)		Sched	ule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP Source / Discipline			(Friday)					
PMT	Description Basis for Design							
Mechanica	Overall Equipment List							
ACTIVITIES (in	nc. input to other disc	ipline's deli	iverables)		MAN-	HOURS	COSTS	S (\$-USD)
Description	•				Eng	Design	3rd P	T&E
DEL WED ART								
DELIVERABLI Deliverable No.	ES (that are your dis Description	cipline's res	sponsibility)		MAN-	HOURS Design	3rd P	T&E
EA005 - 01	Requisition for AC UPS				8.0		Jiu i	TGE
NOTES / ASSU	MPTIONS			OVERALL TOTALS	8.0	0.0	\$ -	\$ -
NOTES / ASSC	MIFITONS							
RESPONSIBLI	E PARTIES							
	1 AKIIES	Discipline	eun Durojaiye		Deta	04 Doo 15	Posicion :	Por
Prepared by Dele Kolajo		Check	eun Durojaiye		Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - ΤΙΙ	ME - RES	OURCE (CTR) SH	IEET			
Client OU	Shell Petroleum Dev	velopment	Company (SPDC)			CTR No.		EA 006
Project Title	FEED for EPU Phas	e 2			Pro	oject No.	X	XX
Sub-Project/Phase	FEED				Discipline	Electrica	1	
CTR Title	SAFOP/PEER Re	view						
Schedule Start (Monday)		Schee	dule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP Source / Discipline			(Friday)					
Electrical	Description Electrical Design Delive	rables						
	nc. input to other disc	ipline's de	liverables)			HOURS		(\$-USD)
Description Prepare SAFOP ToR &	Issue pre-read materials				Eng 4	Design	3rd P	T&E
Organise /Coordinate S					4			
Partipate in SAFOP Close out action points					8	2.0 4.0		
	no.							
DELIVERABLI Deliverable No.	ES (that are your dis Description	cipline's re	esponsibility)		MAN- Eng	HOURS Design	3rd P	T&E
EA006 - 01	SAFOP report				8		0	
EA006 - 02	SAFOP close out regis	ter			8			
NOTES / ASSI	IMPTIONS			OVERALL TOTALS	40.0	6.0	\$ -	\$ -
NOTES / ASSU	MPHONS			•	-			
RESPONSIBLI	E PARTIES							
Prepared by Dele Kolajo		Discipline Check	Seun Durojaiye		Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - TIME - RES	OURCE (CTR) SH	EET			
Client OU		velopment Company (SPDC			CTR No.		EA 007
	FEED for EPU Phas			Pro	ject No.		XX
Sub-Project/Phase	FEED			Discipline	Electrical	1	
CTR Title	Electrical Materi	al Take-off (MTO)					
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks		
INPUTS / DEP		(Filday)					
Source / Discipline	Description						
PMT Electrical	Work Request Electrical Design Delive	rables					
	nc. input to other disc	cipline's deliverables)		MAN-	HOURS	COSTS	(\$-USD)
Description Prepare SAFOP ToR 8	k Issue pre-read materials	<u> </u>		Eng 4	Design	3rd P	T&E
Organise /Coordinate S				4			
Partipate in SAFOP Close out action points				8	2.0 4.0		
·							
		cipline's responsibility)			HOURS		(\$-USD)
Deliverable No. EA007 - 01	Description SAFOP report			Eng 8	Design	3rd P	T&E
EA007 - 02	SAFOP close out regis	ter		8			
NOTES / ASSU	IMPTIONS		OVERALL TOTALS	40.0	6.0	\$ -	\$ -
1.012.5 / 11.000							
Property							
RESPONSIBL	E PARTIES	Discipline Court Duraising			1		
Prepared by Dele Kolajo		Check Seun Durojaiye		Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	r - TIME - DES	OURCE (CTR) SH							
		velopment Company (SPDC)		CTR No.		EA 008			
Project Title	FEED for EPU Phas	se 2		Pro	ject No.	X	XX			
Sub-Project/Phase				Discipline	Electrica	l				
CTR Title	Electrical Materi	al Take-off (MTO)								
Schedule Start (Monday)		Schedule Finish (Friday)		Duratio	n Weeks					
INPUTS / DEP										
Source / Discipline PMT	Description Work Request									
Electrical	Electrical Design Delive	erables								
A company to the control of the cont										
ACTIVITIES (inc. input to other discipline's deliverables) MAN-HOURS Description Eng Design 3							(\$-USD) T&E			
F										
DELIVERABLI	ES (that are your dis	scipline's responsibility)		MAN-I	HOURS	COSTS	(\$-USD)			
Deliverable No. EAoo8 - 01	Description Material Take Off			Eng 16.0	Design	3rd P	T&E			
	material raile on									
			0							
NOTES / ASSU	MPTIONS		OVERALL TOTALS	16.0	0.0	\$ -	\$ -			
RESPONSIBLI	E PARTIES									
Prepared by Dele Kolajo		Discipline Check Seun Durojaiye		Date :	24 Dec 19	Revision:	Ro1			
		Circui								

FEED for EPU Phase 2 : Civil/Structural

		<u>Engineer</u> <u>Hours</u>	<u>Designer</u> <u>Hours</u>	3rd Party	<u>T&E's</u>
<u>CX001</u>	Discipline Project Management	<u>261</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
<u>CX002</u>	Civil/Structural Engineering Design Philosophy & Specifications	<u>112</u>	<u>•</u>	<u>\$</u> -	<u>\$</u> -
<u>CX003</u>	Civil Engineering Design	<u>84</u>	<u>232</u>	<u>\$ -</u>	<u>\$ -</u>
<u>CX004</u>	Structural Engineering Design/1	<u>948</u>	<u>640</u>	<u>\$ -</u>	<u>\$ -</u>
<u>CX005</u>	Structural Engineering Design/2	<u>336</u>	<u>680</u>	<u>\$ -</u>	<u>\$ -</u>
		<u>1741</u>	<u>1552</u>	<u>\$</u> -	<u>\$ -</u>

COST - TIME - RESOURCE (CTR) SHEET **SEDO** Client OU | Shell Petroleum Development Company (SPDC) CTR No. CX 001 **Project Title** FEED for EPU Phase 2 Project No. XXXSub-Project/Phase FEED Discipline Civil/Structural CTR Title Discipline Project Management Schedule Start Schedule Finish 00 Jan 1900 Duration Weeks o (Monday) INPUTS / DEPENDENCIES Source / Discipline | Description BfD Contracting Strategy Time Writing Reports Document Status Report FEED Deliverables Project Plan & Manning Profiles ACTIVITIES (inc. input to other discipline's deliverables) MAN-HOURS COSTS (\$-USD) Description Review and Comment on Work Scope Eng Design 3rd P Attend Project Kick-off Scope Clarifications Meetings Data Gathering CTR Catalogue development Inputs Deliverables Review Matrix Input to Deliverables Register Input to Project Schedule Inputs to Weekly Progress Update Attend Weekly Project Progress Meeting 16 32 Discipline Meetings, Huddle Conduct Inter Discipline Checks (IDCs) General Discipline Administration Project Internal Audit 8 20 Attend Health Checks (@25% and 75% completion) HAZID Workshop PEFS Review - Roundtable Bow-Tie Workshop HAZOP Workshop HAZOP Closeout Peer Review, Assist SIL Workshop SAFOP Workshop PDMS Model Review & constructability Constructability review workshop Independent Design Review/PEER Review Interfaces with third party and stakeholders 24 Risk Based Assessment Lesson Learnt (Pr- and Post project) Equipment Criticality Intervention and Assessment Basic Design Engineering Package (BDEP) 24 Inputs to Project Handover Documentation & Close-Out Report 4 $\begin{picture}(100,0) \put(0,0){$DELIVE$RABLES} \put(0,0){C} \put(0,0){$ MAN-HOURS COSTS (\$-USD) Description Eng Design 3rd P OVERALL TOTALS 0.0 \$ NOTES / ASSUMPTIONS RESPONSIBLE PARTIES Discipline Check Freedom Imala Prepared by Oludare Sunday Revision:

SEDO	COS	Γ - TIME - RESOURC	EE (CTR)	SHE	ET	
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		CX 002
	FEED for EPU Phas			oject No.	Х	XX
Sub-Project/Phase	FEED			Civil/Stru	ictural	
CTR Title		Engineering Design Philosophy &			actur ar	
Schedule Start		Schedule Finish	ī	on Weeks		
(Monday) INPUTS / DEP		(Friday)				
Source / Discipline	Description					
	Basis for Design (BfD)					
ACTIVITIES (i	nc. input to other dis	cipline's deliverables)	MAN-	HOURS	COSTS	S (\$-USD)
Description			Eng	Design	3rd P	T&E
		scipline's responsibility)	_	HOURS		S (\$-USD)
Deliverable No. CX002 - 01	Description Civil Engineering Desig	2 Philosophy	Eng 16	Design	3rd P	T&E
CX002 - 01 CX002 - 02	Site Preparation Specific		16			
CX002 - 03	Earthworks Specificatio	n	16			
CX002 - 04 CX002 - 05	Concrete Specification Foundation Specificatio	<u> </u>	16 16	_		
CX002 - 06	Structural Steel Specific		16			
CX002 - 07	Drainage Philosophy &	Specification	16			
				_		
NOTES / ASSU	IMPTIONS	OVERALL TOTA	L 112.0	0.0	\$ -	\$ -
MOLES / ASSI	ZHII IIUNS					
RESPONSIBL	E PARTIES					
Prepared by Oludare S	unday	Discipline Freedom Imala	Date :	#VALUE!	Revision :	#VALUE!

SEDO COST - TIME - RESOURCE (CTR) SHEET											
Client OU	Shell Petroleum De	velopment Company (SPDC)		CTR No.		CX 003					
Project Title	FEED for EPU Phas	se 2	Pro	ject No.	X	XX					
Sub-Project/Phase	FEED		Discipline	Civil/Stru	ıctural						
CTR Title	Civil Engineering	g Design									
Schedule Start (Monday)	00 Jan 1900	Schedule Finish (Friday)	Duratio	n Weeks		0					
INPUTS / DEP	ENDENCIES										
Source / Discipline	Description										
	Site Topographical Map Civil Scope of Work										
	Geotechnical / Soil Surv Site Selection Studies	ey Report									
		entation Wellhead and Manifold Locations									
	Geomatic										
ACTIVITIES (in	ac. input to other disc	ipline's deliverables)	MAN-I	HOURS	COSTS	(\$-USD)					
Description	•		Eng	Design	3rd P	T&E					
Conduct Site Visit to the Carry out layout study of		project site and the proposed locations									
Prepare Plot Plans for v	arious facilities such as \	Wellheads Extension and Manifold Locations									
Prepare Onshore Site M Prepare drawings for W	laster Plan ellheads and Manifold Lo	cations									
Review of As-built Docu	mentation		16.0								
DEL TERRAPE											
DELIVERABL	\mathbf{ES} (that are your dis	scipline's responsibility)	MAN-I	HOURS	COSTS	(\$-USD)					
Deliverable No.	Description		Eng	Design	COSTS 3rd P	(\$-USD) T&E					
Deliverable No. CX003 - 01 CX003 - 02	Description EPU Location Site Mast Civil Plot Plan for EPU N	er Plan NAG Wellheads Location Extension									
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation Is	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext	Eng 16 4 8	Design 40 24 24							
Deliverable No. CX003 - 01 CX003 - 02	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU S	er Plan NAG Wellheads Location Extension	Eng 16 4	Design 40 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU S Equipment Foundation I Site Preparation Drawin	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext B NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location	Eng 16 4 8 4 8	Design 40 24 24 24 24 24 24 24							
Deliverable No.	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I. Civil Plot Plan for EPU 3 Equipment Foundation I. Site Preparation Drawin Site Preparation Drawin	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location	Eng 16 4 8 4 8	Design 40 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan AG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin EPU NAG Wellhead Loc	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24							
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09 NOTES / ASSU	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					
Deliverable No. CX003 - 01 CX003 - 02 CX003 - 03 CX003 - 04 CX003 - 05 CX003 - 06 CX003 - 07 CX003 - 08 CX003 - 09	Description EPU Location Site Mast Civil Plot Plan for EPU N Equipment Foundation I Civil Plot Plan for EPU 3 Equipment Foundation I Site Preparation Drawin Site Preparation Drawin EPU NAG Wellhead Loc Existing EPU 03/04/05 f	er Plan NAG Wellheads Location Extension ayout for EPU NAG Wellheads Location Ext NAG Manifold Location ayout for EPU 3 NAG Manifold Location gs for EPU 3 NAG Manifold Location gs for EPU NAG Wellheads Location Extens cation Access Road Extension alignments Plot Plan update and Fence demolition drawi	Eng 16 4 8 4 8 8 8 8 8 4	Design 40 24 24 24 24 24 24 24 24 24	3rd P	T&E					

SEDO	COST - TIME - RESOUR	CE (C	TR) SH	IEET	
Client OU	Shell Petroleum Development Company (SPDC)		CTR No.		CX 004
Project Title	FEED for EPU Phase 2	Pro	ject No.	X	XX
Sub-Project/Phase	FEED	Discipline	Civil/Stru	ıctural	
CTR Title	Structural Engineering Design/1				
Schedule Start (Monday)	Schedule Finish (Friday)	Duration	n Weeks		
INPUTS / DEP	, ,,				
Source / Discipline	Description				
Mechanical Process	Equipment Data Sheet Equipment List				
Flocess	Equipment List				
	nc. input to other discipline's deliverables)	MAN-I			(\$-USD)
Description Review the Project Con	cept/BFD	Eng 8.0	Design	3rd P	T&E
	al investigation for the proposed locations	16.0			
	ing and Review of Equipment Data Sheet/Layout	24.0			
	Foundations/Structures@ NAG Wellhead Location: ab extension and Foundation Analysis & Design	80.0			
	oundation Analysis & Design (Pump, Mud tank, Gen bay, Cement at	80.0			
Access road pavement		32.0			
Pipe Supports structure		32.0			
Drainage and Culvert S	Structural Design 3/04/05 NAG Wellhead location extention	32.0 16.0	80.0		
	6/04/05 NAG Wellnead location extention Foundations/Structures@ NAG Wellhead Location:	16.0	80.0		
Manifold skid foundation	n & associated pipe support design	32.0			
	upports and foundation analysis & design	80.0			
Pig launcher foundation Mono rail lifting system		32.0 32.0			
	steel framing design	24.0			
Equipment support platt	form & foundation analysis & design	24.0			
	foundation analysis & design	0.0			
Metering shed/foundation	on analysis & design dation analysis & design	0.0			
	and foundation analysis & design	32.0			
In-plot drainage system		32.0			
	and foundation structure analysis & design ed structure analysis & design	32.0 24.0			
	d foundation analysis & design	24.0			
Gate house and founda	tion analysis & design	0.0			
	e tank support structure and foundationanalysis & design	0.0			
Open drain pit analysis Close drain pit analysis		24.0 24.0			
Vent stack foundation a		0.0			
PDMS Model for EPU03	3 Manifold Location	24.0	160.0		
	ES (that are your discipline's responsibility)		HOURS		(\$-USD)
Deliverable No.	Description New NAG wellhead location extension :	Eng	Design	3rd P	T&E
CX004 - 01	NAG Well Rig Cellar slab extension plan and sections drawings	8	32		
CX004 - 02	NAG Well Rig Cellar slab extension reinforcements details drawing	8	48		
CX004 - 03	NAG Well Rig Cellar pile foundation layout, sections and elevations	8	16 16		
CX004 - 04 CX004 - 05	NAG Well Rig Cellar pile foundation reinforcements details drawing NAG Well Equipment Foundation Drawings plan, sections and elevations are sections.	8	16 32		
CX004 - 06	NAG Well Equipment Foundation reinforcements details drawings	8	48		
CX004 - 07	In-plot drainage system and culvert, layout plan and sections drawi	8	24		
CX004 - 08	In-plot drainage system and culverts reinforcements details drawing Access road pavement and alignment drawings layout plan and sec	8 8	32 32		
xxx CX004 - 01	Pipe Supports structure & foundation plan, elevation and sections of	8	32 32		
CX004 - 02	Pipe Supports foundation reinforcements details drawings	8	40		
xxx CX005 - 03	Perimeter Fencing, Gate and Foundation Drawings	8	16		
CX004 - 04 xxx CX006 - 05	Perimeter Fencing foundation reinforcements detail drawings Compilation of all equipment/Structural Reports at NAG Wellhead	8 48	32 0		
CX004 - 06	NAG wellhead location bulk MTO	40	0		
	Ī				_
NOTES / ASSU	OVERALL TOTALS	948.0	640.0	\$ -	\$
	222 22010				
RESPONSIBLI	F PARTIES				
RESPONSIBLI Prepared by Oludare Sun	Dicaiplino	Date :	#VALUE!	Revision :	#VALUI

58 of 65

C	lient OU	Shell Petroleum Dev	velopment Company (SPDC)	1 (CTR No.		CX 005
		FEED for EPU Phas	1 1 1		ject No.	v	XX
			nc 2				
	ect/Phase			Discipline	Civil/Stru	ctural	
	TR Title	Structural Engin	<u> </u>				
Sch	nedule Start (Monday)		Schedule Finish (Friday)	Duratio	n Weeks		
		ENDENCIES		•			
Source /	Discipline	Description Equipment Data Sheet					
rocess		Equipment List					
ACTIV	ITIES (:.	a innut to other disc	ipline's deliverables)	MANI	HOURS	СОСТС	(\$-USD)
escription		ic. input to other disc	apinie's denverables)	Eng	Design	3rd P	T&E
) ET	ED ARY	FC					
DELIVERABLES (that are your discipline's responsibility) Deliverable No. Description					HOURS Design	COSTS 3rd P	(\$-USD) T&E
	110.	EPU 3 NAG Manifold		Eng	Design	1 بان	IXE
CX005	- 01		ceiver foundation design, plan, sections and		16		
CX005 CX005	- 02 - 03		eiver foundation reinforcement drawings steel framing design, plan,sections and ele	8	24 16		
CX005	- 04		foundation reinforcement drawings	8	24		
CX005	- 05		& associated pipe support design, plan,se		16		
CX005	- 06		a & associated pipe support reinforcement of	8	24		
CX005 CX005	- 07 - 08	Fencing & gate foundation reinf	on design, plan,sections and elevations dra	8 8	16 16		
CX005	- 09		steel framing design, plan, sections and ele		16		
CX005	- 10	Valves Access platform	foundation reinforcement drawings	8	24		
CX005	- 11		orm & foundation design, plan,sections and		32		
CX005 CX005	- 12 - 13		orm details & foundation reinforcement dra foundation design, plan, sections and eleva		24 0		
CX005	- 14		foundationreinforcement drawings	0	0		
CX005	- 15		n design, plan,sections and elevations dra	0	0		
CX005	- 16		n reinforcement drawings	8	0		
CX005 CX005	- 17 - 18		layout and sections (drawings) reinforcement drawings	8	16 16		
CX005	- 19		dation (architectural, structural & foundation		0		
CX005	- 20		indation reinforcement drawings	0	0		
CX005 CX005	- 21 - 22		ard stand areas layout and sections drawin design, layout and sections drawings	8	32 16		
CX005	- 22	In-plot drainage system		8	24		
CX005	- 24	Chemical storage shed	and foundation structure design, plan,section		40		
CX005	- 25		dtails and foundation reinforcement drawing		24		
CX005 CX005	- 26 - 27		foundation & shed structure design, plan,s foundation reinforcement drawings	8 8	40 24		
CX005	- 28		tion design, plan,sections and elevations dr		0		
CX005	- 29		tion reinforcement drawings	0	0		
CX005 CX005	- 30 - 31		e tank support structure and foundation des e tank support structure foundation reinforce		0		
CX005	- 31		lan,sections and elevations drawings	8	16		
CX005	- 33	Open drain pit reinforce	ment drawings	8	16		
CX005	- 34		lan,sections and elevations drawings	8	16 16		
CX005 CX005	- 35 - 36	Close drain pit reinforce Vent stack foundation de	ment drawings esign, plan,sections and elevations drawing		16 0		
CX005	- 37	Vent stack foundation re	einforcement drawings	0	ő		
CX005	- 38		upports and foundation design, plan,section		32		
CX005 CX005	- 39 - 40		upports and foundation reinforcement draw sign, plan,sections and elevations drawings		40 40		
CX005	- 41	Shelter foundation reinfo		8	24		
CX005	- 42	Compilation of All Equip	ment/Str Design Report	96			
	~ ===		OVERALL TOTALS	336.0	680.0	\$ -	\$
NOTES	6 / ASSU	MPTIONS		<u></u>			
FSDC	NSIRI	E PARTIES					
LUSEU	TIDIO	LANILES					

FEED for EPU Phase 2 : Pipeline

<u>Engineer</u> <u>Designer</u>

		<u>Hours</u>	<u>Hours</u>	3rd Party	<u>T&E's</u>
<i>LA001</i>	Discipline Project Management	<u>285</u>	Q	<u>\$ -</u>	<u>\$ -</u>
<u>LA002</u>	<u>Pipeline Studies & Philosophy reports</u>	<u>160</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
<u>LA003</u>	Pipeline Mechanical Design	<u>160</u>	<u>o</u>	<u>\$ -</u>	<u>\$ -</u>
<u>LA004</u>	Pipeline Route & Layout Drawings	<u>48</u>	<u>260</u>	<u>\$ -</u>	<u>\$ -</u>
		<u>653</u>	<u>260</u>	<u>\$ -</u>	<u>\$ -</u>

SEDO	COST	T - TIME -	RESO	URCE (CTR) SH	IEET			
Client OU	Shell Petroleum Dev	elopment Compa	ny (SPDC)		(CTR No.		LA 001
Project Title	FEED for EPU Phas	e 2	-		Pro	ject No.	X	XX
Sub-Project/Phase	FEED				Discipline	Pipeline		
CTR Title	Discipline Project	t Management			-	r.		
Schedule Start		Schedule Fini			Duratio	n Weeks		
INPUTS / DEP	ENDENCIES	(Frida	iy)					
Source / Discipline	Description							
	BfD Contracting Strategy							
	Time Writing Reports Document Status Repor	•						
	FEED Deliverables							
	Project Plan & Manning	Profiles						
ACTIVITIES (in	nc. input to other disc	ipline's deliverable	es)		MAN-I Eng	HOURS Design	COSTS 3rd P	(\$-USD) T&E
Review and Comment of	on Work Scope				1	Design	310 F	T&E
Attend Project Kick-off Scope Clarifications Me	etings				2			
Site Visit					40			
Data Gathering CTR Catalogue develop	ment				4			
Inputs Deliverables Rev	riew Matrix				4			
Input to Deliverables Re Input to Project Schedu Inputs to Weekly Progre	le				8			
Attend Weekly Project I Discipline Meetings, Hu	Progress Meeting				16 32			
Discipline Meetings, Hu	iddle e Checks (IDCs)				8 20			
Conduct Inter Discipline General Discipline Adm	inistration				12			
Project Internal Audit Attend Health Checks (@25% and 75% completion	on)			4			
HAZID Workshop PEFS Review - Roundta					4			
Bow-Tie Workshop					4			
HAZOP Workshop HAZOP Closeout					8 2			
Peer Review, Assist SIL Workshop					8			
SAFOP Workshop					8			
PDMS Model Review & Constructability review	workshop				12 12			
Independent Design Re Interfaces with third pa	view/PEER Review				24 0			
Risk Based Assessment					0			
Lesson Learnt (Pr- and Equipment Criticality In	Post project) ntervention and Assessme	ent			0			
Input to ITT	ın				0			
Basic Design Engineeri	n ing Package (BDEP) over Documentation & Clo	0.15			24			
Inputs to Project Hando	over Documentation & Cid	ose-Out Report			4			
	ES (that are your dis	cipline's responsib	oility)		MAN-I	HOURS		(\$-USD)
Deliverable No.	Description				Eng	Design	3rd P	T&E
NOTES / ASSU	MPTIONS		(OVERALL TOTALS	285.0	0.0	\$ -	\$
RESPONSIBLI	E PARTIES							
Prepared by Aghadiuno, I	Unyimeabasi	Discipline Check Aghadiun	o, Unyimeabasi		Date :	24 Dec 19	Revision:	Ro1

SEDO	COS	Γ - TIME - RESOURO	CE (CTR	SHE	ET		
Client OU				CTR No.		LA 002	
			oject No.	XXX			
Sub-Project/Phase	FEED		Discipline	Pipeline			
CTR Title		& Philosophy reports	F	- I ipellite			
Schedule Start	_	Schedule Finish	Durati	on Weeks		0	
(Monday) INPUTS / DEP		(Friday)		on weeks		•	
Source / Discipline	Description						
	Basis for Design (BfD)	PDC, Shell and international standards					
	DG3 Deliverables	FDC, Shell and international standards					
ACTIVITIES 6	ne input to other dis	cipline's deliverables)	MAN-HOURS			COSTS (\$-USD)	
escription		cipinie's denverables)	Eng	Design	3rd P T&E		
Pipeline Steady State H	Hydraulics Simulation		24				
DELIVERABL Deliverable No.	ES (that are your dis Description	scipline's responsibility)	MAN Eng	-HOURS Design	COSTS 3rd P	(\$-USD) T&E	
LA002 - 01	Pipeline Design Philoso		32	0	310 1	TOL	
LA002 - 02 LA002 - 03	Pipeline Routing Report Pipeline Pigging Require		32 24	0 0			
LA002 - 04	Specification for Pipelin	e Construction	24	0			
LA002 - 05	Specification Hydrostati	c Testing and Pre-commissioning	24	0			
		OVER ALL MORE	160.	0.0	\$ -	\$	
NOTES / ASSU	JMPTIONS	OVERALL TOTA	100.0	0.0	φ -	Ψ	
RESPONSIBL	E PARTIES						
TOT OTISIDE		Discipline Aghadiuna Unvimashasi		_			
Prepared by Aghadiun	o. Unvimeahasi	Check Aghadiuno, Unyimeabasi	Date :	24 Dec 19	Revision:	Ro1	

SEDO COST - TIME - RESOURCE (CTR) SHEET							
Client OU	Shell Petroleum Development Company (SPDC)			CTR No.		LA 003	
Project Title	FEED for EPU Phase 2			ject No.	X	XX	
Sub-Project/Phase	FEED		Discipline	Pipeline			
	Pipeline Mechan						
Schedule Start (Monday)		Schedule Finish (Friday)	Duratio	n Weeks		0	
INPUTS / DEP		(111111)					
	Description						
	Basis for Design (BfD) National Regulations, S	PDC, Shell and international standards					
	-						
ACTIVITIES (:-	a innut to other disc	ninline's deliverables)	MANI	HOURS	COSTS	(¢ HcD)	
Description Description	ic. input to other disc	cipline's deliverables)	Eng	Design	COSTS (\$-USD) 3rd P T&E		
Mechanical design Rep	oort activities: erial Grade Determinatio						
Pipeline Expansion Ana	alvsis	ori					
Pipeline Stability Analys Installation Stress Analys	sis						
Upheaval Buckling Ana							
DELIVERABLI	ES (that are your dis	scipline's responsibility)	MAN-	HOURS	COSTS	(\$-USD)	
Deliverable No.	Description		Eng 24	Design 0	3rd P	T&E	
LA003 - 01 LA003 - 02	Pipeline On-bottom Sta		24	0			
LA003 - 03 LA003 - 04	Pipeline Expansion Ana Upheaval Buckling Ana	llysis Report	24 24	0			
LA003 - 05	Pipeline Equipment Spe	ecification and Data Sheets	40	0			
LA003 - 06	Pipeline Crossing Design	gn Report	24	0			
NOTES / ASSU	MDTIONS	OVERALL TOTALS	160.0	0.0	\$ -	\$ -	
MOTES / ASSU	MII 110113						

RESPONSIBLE PARTIES						
Prepared by Aghadiuno, Unyimeabasi	Discipline Check Aghadiuno, Unyimeabasi	Date :	24 Dec 19	Revision:	Ro1	

SEDO	COS	Γ - TIME - RESOU	RCE (C	TR) SH	HEET	
Client OU	Shell Petroleum De	velopment Company (SPDC)	CTR No.		LA 004	
Project Title	FEED for EPU Phas	se 2	Project No. XXX			XXX
Sub-Project/Phase	FEED		Discipline	Pipeline		
CTR Title	Pipeline Route &	Layout Drawings		-		
Schedule Start (Monday)		Schedule Finish (Friday)	Duratio	n Weeks		
INPUTS / DEP		(Friday)				
Source / Discipline	Description					
	Basis for Design (BfD) National Regulations, S	PDC, Shell and international standards				
ACTIVITIES (i)	nc. input to other disc	ipline's deliverables)	MAN-	HOURS	COSTS	S (\$-USD)
Description	ner input to outer uist	ipinie s deliverasies)	Eng	Design	3rd P	T&E
PDMS Modelling			16.0	80.0		
DELIVERABLE Deliverable No.	ES (that are your dis	scipline's responsibility)	_	HOURS		S (\$-USD)
LA004 - 01	Manifold/Facility approa	ches drawings	Eng 8	Design 24	3rd P	T&E
LA004 - 02 LA004 - 03	Overall field layout/Rout Typical Construction dra		4	20 24		
LA004 - 04	Pipeline Alignment Shee	ets	8	56		
LA004 - 05	General Arrangment Dr	awings	8	56		
- 01						
NOTES / ASSU	IMPTIONS	OVERALL TOTALS	48.0	260.0	\$ -	\$
1.012.0 / 11000						
DECRONCIPI	E DADWIEG					
RESPONSIBL		Discipline Aghadiumo Unvirnoshaci	D :	a. D	D ' '	D -
Prepared by Aghadiuno,	Unyimeabasi	Check Aghadiuno, Unyimeabasi	Date :	24 Dec 19	Revision:	Ro1