The Shell Petroleum Development Company of Nigeria Limited

Internal Investment Proposal

Summary Information

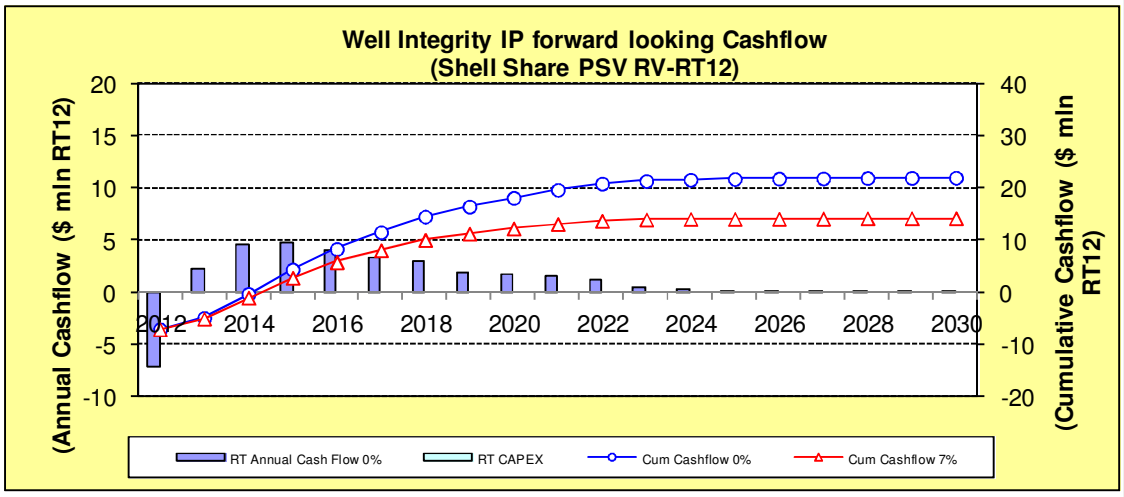
Directorate	Development
Group equity interest	100% in SPDC, whereas SPDC is the Joint Venture (JV) operator of an unincorporated JV with a 30% interest.
Other shareholders /partners	Nigeria National Petroleum Corporation (NNPC: 55%), Total Exploration & Production Nigeria Limited (TEPNL: 10%), Nigeria Agip Oil Company (NAOC: 5%) in SPDC-JV
Amount	USD 10.07 mln Shell Share, MOD, 50/50 (USD 33.60 mln 100% JV)
Project	2012 Rig Well Integrity Workover

Main commitments

Cost (Well Integrity)	**100%JV (USD Mln MOD)**	**Shell Share (USD Mln MOD)**
Access / Location Preparation	5.05	1.52
Workover Operations	26.37	7.91
SCD	0.58	0.17
Contingency	1.57	0.47
Sub-total Well Integrity	**33.57**	**10.07**

Source and form of financing	This investment will be financed with JV funding and Shell share capital expenditure will be met by SPDC's own cash flow. Formal JV partners' approval will therefore be obtained.

Summary cash flow



Summary economics

Summary economics	NPV7% (USD mln)	RTEP (%)	VIR7%
Base case	14.1	46.0	NA
High OPEX	12.4	37.6	NA

Section 1: The proposal

Management Summary

This investment proposal seeks support/organizational approval for US$ 10.07 million Opex (Shell share, P50, MOD) to enable SPDC fund the execution of 3 Well Integrity activities (make well safe to secure NFA gas production) planned for Q1 to Q3 2012. One of the wells is in Ughelli East while the other two are in Utorogu field. The project driver is well integrity and as such the value is in maintaining our License to Operate and to safeguard production and reserves from these wells.

The main risks to this project are technical and community disturbances, for which mitigation measures have been put in place. Experiences from recent drilling and workover operations in the area indicate that reasonable understanding exists with the host communities. Community relation issues are not expected to arise during the execution of this project, however contingent provisions are made in this proposal to cater for community relation issues that may arise. This is to assure freedom to operate. Compliance with SPDC approved HSE standards can be assured and are within the WELLS execution capacity. A portfolio of back-up wells with integrity issues exist to replace those planned activities that might be affected by technical complications or community disturbances. The Budget as proposed has been included in the BP11 and is supported by Joint Venture partners.

Background

In 2009, a Well and Reservoir Management (WRM) review in the Land West Asset team revealed a list of wells with well integrity and attendant HSE exposures. This review was in line with the overall strategy to improve the well integrity in SPDC and thus maintain our license to operate. The wells were ranked in order of risks for inclusion in the Short Term Drilling & Workover Sequence (STDWS), targeting first the high-high exposure wells. A total of 14 wells were identified for the safety workover which has been phased over 4 years. The four highest ranked wells from the list are in Utorogu and Ughelli East fields as UTOR-27, 26 & UGHE-31, 32 and have been planned and approved for workover in Q4 2011. The current three wells, one in Ughelli East (UGHE-18) and two in Utorogu field (UTOR-28 & 29) are the next in the ranked order of the wells and form the phase 2 of the workover project.

Well Name	Integrity issue	Ultimate Recovery (Bscf)	Potential (MMscf/d)	Planned Cost (Shell Share) (US$ Mln)
UGHE-18T	The well was initially completed in June 1970 as a single string commingled dual oil producer on the M1.000X and M1.200X reservoirs. In June 1973 the well was re-entered and both intervals were abandoned. The well was converted into a single string gas producer on M7.0 X sand. During the aborted well test planned in this well in 2009, it was discovered this well had an annular pressure of 2250 psi. Further investigations carried shows that the hanger seals are leaking (source of the Annulus Communication). The Hanger type is very old SRT type (LDO) and so	97.1	30	3.96

	seals are not readily available. It was also observed that the control line is not holding pressure indicating that there is a leak path in the control line This HCHP makes the well non-integral and hence it is proposed to work over this well to eliminate the annular pressure			
UTOR -28T	The well was initially completed on the E1.200X sand in August 1988 and brought on stream in January 1989. In Dec. 2009, some leaks were detected at the casing NRV at the wellhead. During the repairs, a HCHP of 3100psi was observed, The HCHP of 3100psi observed is suspected to be due to tubing leaks, most probably from the side pocket mandrels at 9681 and 9760 ftah above the top packer. These mandrels have injection valves for chemical injection, which could be in an open position. The resultant continuous casing pressure build up led to the leaks in the casing valve. During this workover, the E1.200 reservoir which has watered out will be abandoned and the well will be completed on the D9.000X reservoir with the D6.100 reservoir placed behind sleeve	52.5	30	3.04
UTOR-29T	The well was initially completed in August 1988 with Carbon Steel tubing on the F7.100 reservoir. During the MRT carried out in this well in 2009, it was discovered this well had an annular pressure of 1313 psi which increased to 1459 psi A tubing annulus investigation was carried out in November 2010 to ascertain the source of the high annulus pressure. The result of the investigation indicated that the leak is not through the tubing The possible source of leak is the packer, casing liner hanger or casing. Workover is required to change out leaking packer and restore well integrity.	37.53	20	3.07

Section 2: Value proposition and strategic and financial context

The project driver is to safeguard production and reserves by making the wells safe for routine operations.

The execution of well integrity repairs will minimize risk of loss of containment and associated environmental and health impact. This operation also enables the sustenance of gas production to satisfy current commitments to PHCN. Not executing this workover project possesses a significant HSE danger as the current integrity problems could result in well failure with catastrophic consequence including loss of containment, fire and environmental pollution. In addition, the current situation in which the wells are closed-in compromises production availability and jeopardizes the company's ability to meet increasing domestic gas demands and customer commitments. A do-nothing scenario on this project has huge HSE, contractual and reputational implications.

Summary Economics

The Well integrity IP was evaluated on a forward looking basis using the 50/50 level III cost estimate and the expectation production forecast. The project value is driver is well integrity restoration thus realize production volumes (11.1 mln boe, Shell share) from these wells (Ughe-18T, Utor-28T and Utor-29T) that would otherwise remain shut-in.

Sensitivities carried out on the base case include:

- High Opex
- High and Low Reserves
- 1 Year schedule delay
- Project with ring fencing
- 1.5% cost mark up due to NNPC cost disputes on BVA (Bench-marked Verified Approved)
- Petroleum Industry Bill (PIB) House Version 12.0

Table 1: Economics Grid (Shell Share)

PV Reference Date: 1/7/2012	**NPV (S/S $ mln)**		**VIR**	**RTEP**	**UTC (RT $/boe)**		**Payout-Time (RT)**	**Maximum Exposure (RT)**
Cash flow forward from: 1/1/2012	**0%**	**7%**	**7%**	**%**	**0%**	**7%**	**yyyy**	**mln**
Base Case								
SV-RT ($50/bbl RT11)	12.9	**7.6**						
RV-RT ($70/bbl RT11)	21.9	**14.1**	NA	46.0	2.11	2.46	2015	US$ 7.12 mln (2012)
HV-RT ($90/bbl RT11)	44.5	**30.5**						
Sensitivities (on base case)								
High OPEX (+ 15%)		12.4	NA				2015	US$ 8.19 mln (2012)
High Reserves		15.0	NA				2014	US$ 5.31 mln (2012)
Low Reserves		8.7	NA				2016	US$ 6.74 mln (2012)
1 Year schedule delay		15.3	NA				2015	US$ 6.98 mln (2013)
Project with ring fencing		13.9	NA				2015	US$ 10.17 mln (2012)
1.5% cost mark up due to BVA		13.3	NA				NA	
PIB (House Version 12.0)		12.0	NA				NA	

Note: VIR not applicable (NA) in this evaluation due to the fact that, the well integrity activities are OPEX with no CAPEX investment.

Table 2: Key Project Parameter Data (Shell Share)

	Unit	Bus Plan BP11	Low	Mid	High	Comments
Capex (MOD)	US$ mln	NA	NA	NA	NA	
Opex (MOD)	US$ mln	10.1	9.1	10.1	11.6	Cost treated as OPEX
Production volume	Mmboe	11.1	7.6	11.1	11.2	Based on High and Low realisations
On-stream Date	mm/yyyy	Jun-12	NA	Jun-12	NA	

Note: VIR not applicable (NA) to this evaluation the Well integrity activity has only OPEX with nil CAPEX investment.

Economics Assumptions:

- Oil PSV of $70/bbl RT11.
- NGMP (Nigerian Gas Master Plan) domestic gas Price profile RT11.
- 31/12/2010 ARPR variable OPEX and SPDC generic fixed OPEX were used.
- SPDC generic fixed OPEX:
- o Oil fixed OPEX: 3% of cum. oil CAPEX , Gas fixed OPEX: 3.5% of cum. gas CAPEX
- Condensate treated as Oil and taxed under PPT.
- Gas taxed under CITA with Associated Gas Framework Agreement (AGFA) incentive.
- Flare Penalty of US $3.5/mscf non-tax deductible.
- GHV of 1000Btu/scf.
- SCD Opex provided by the project team.
- NDDC levy 3% of total expenditure.
- Education tax of 2% assessable profit.

PIB (House Version 12.0) Assumptions

- Oil price of US$70/bbl RT11.
- NGMP (Nigerian Gas Master Plan) domestic gas Price profile RT11.
- CIT is 30% of taxable income.
- NHT depreciation schedule is 4x20%, 19% for qualifying expenditure.
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- Flare Penalty of US $3.5/mscf non-tax deductible.
- GHV of 1000Btu/scf.
- SCD Opex provided by the project team.
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Section 3: Risks, opportunities and alternatives

Risks and Mitigation

The key risks and mitigation factors for the project are discussed in the table below.

Risk		**Mitigation**
Technical / rig execution capacity	Rig delay	Adequate forward planning by Well Engineering to ensure rig availability as planned with the project currently on a firm rig sequence – December 2011 signed-off STDWS.
Community	Delay in project	Application of the existing Global Memorandum of

disturbances	execution	Understanding (GMoU) for continuous engagement of the communities, including resolution of any legacy issues in line with the new GMOU interface model and SCD principles/rules-to guarantee Freedom To Operate (FTO).
Health, Safety & Environment	Damage to the environment Damage to Equipment Loss of life Reputation exposure for SPDC	Strict compliance with all SPDC & Group HSE policies and procedures and adherence to WIMS.
Community Interface	Legacy issues	There are no legacy community relation issues in the project area. However, it is envisaged based on prevailing experience that the current activity in the area will elicit CD interest which may threaten our operation and pose a "show –stopper" to the current project, hence the need to make some budget provision for the three wells for any CD issues as may arise and to support the existing GMOU .
HSE management	Compliance	The HSE management of the project shall be coordinated by the Well Engineering department with implementation actions agreed by key stakeholders. All activities are to be planned and delivered under the current drive to achieve **'Goal Zero'**. Controls will be put in place to mitigate the identified hazards and effects, subjected to continual supervisory oversight to ascertain their adequacy and effectiveness throughout the execution phase. Recent experience has shown that, poor attitude and non-compliance with procedures remain the main root causes in most of the HSE incidents recorded in SPDC. On a company-wide scale, huge exposures have also been identified in non-core drilling contractors and secondary logistics activities. These areas require closer supervision. Learning from incidents is important to bring about the desired improvements in HSE practice during repair and restoration of the wells. The learning will be disseminated to all the staff involved in the project, including contractors and their sub-contractors to avoid incidents.
General		As per SPDC procedures the contractor handling the project will develop a security plan, agreed to by the Contract Holder, and then sent to the Area Security Adviser for review. Thereafter, the reviewed plan is sent to the Security Coordinator/Asset Manager for approval. It is only then that the contractor mobilizes to site to commence well operations.

Section 4: Carbon Management

The wells for the workover are all in fields with existing or planned Associated Gas Gathering (AGG) solutions to ensure that there will not be any increase in flared gas as a result of production from these wells. However, since these are gas wells, AGG solution is not applicable.

Section 5: Corporate Structure and Governance

Existing corporate structure and arrangements of SPDC-JV with SPDC as operator will be used as the vehicle for the investment and operations. This proposal is within the SPDC corporate structure and governance framework.

Section 6: Functional Support and Consistency with Group and Business Standards

This proposal complies with Group Business Principles, policies and standards. This project operates in line with SPDC processes and is supported by the relevant functions: Business Finance, Tax, Sustainable Development, Development, Well Engineering and Legal.

It is SPDC's policy that "all wells shall be designed, constructed, operated, maintained and abandoned in a manner that safeguards their integrity, minimize HSE risks and ensure their planned availability throughout their life-cycle". As such, this well integrity (WI) project is in line with SPDC's business strategy.

Section 7: Project Management, Monitoring and Review

The Land West Asset Development team is to manage the implementation of this IP. The team is the single point accountable party for driving execution, managing the budget and monitoring performance for this IP. The team reports directly to the SPDC Asset Development Manager in the Development directorate. Strong operational ties exist with the Completion & Well Intervention team. The Sustainable Development and Community Relations directorate is instrumental in creating the community relations that allow the team to operate. Weekly progress reporting is done to a wide audience inside SPDC and EPG.

Section 8: Budget provision

The wells are fully funded in the SPDC JV 2012 Budget and Programme.

The agreed budget will not be exceeded.

Section 9: Group financial reporting impact

The financial impact of this proposal on Shell Group financial is as outlined in the table below:

Year	2012	2013	2014	2015	2016	Post 2016
Total Commitment	**10.07**					
Cash Flow						
SCD Expenditure	0.17					
Pre-FID Expenditure						
Commitment Opex Expenditure	9.90					
Operating Expenditure		1.78	1.88	1.92	1.58	5.39
Cash flow From Operations	-9.06	2.79	4.3	4.92	4.53	17.46
Cash Surplus/(Deficit)	-9.06	2.79	4.3	4.92	4.53	17.46
Profit and Loss						
NIBIAT +/-	-7.12	2.23	4.76	4.97	4.27	15.84
Balance Sheet						
Avg Capital Employed	0.97	1.66	1.61	1.87	1.76	0.16

Section 10: SCD

It is mandatory to make a provision for SCD as part of any WELLS drilling or workover project for use in securing Freedom to Operate (FTO) as may arise. In this project a 2.2% of the WELLS cost (workoover operation cost) is provided for SCD. There are no legacy issues in the area. The SCD budget in this proposal is therefore in compliance with the mandatory requirement and not targeted at any specific tangible project (such as road or water provision). The SCD budget is to be set aside in support of the existing GMOU and deployed to secure FTO including settlement of such issues as courtesy calls, youth settlement or any issues from past projects in the area as may arise to hamper the execution of the proposed project. An effective GMOU exists for the project area.

Section 11: Disclosure

Material disclosures, if any, will be done in line with the Group and SPDC Disclosure policies and guidelines.

Section 12: Financing

The project will be funded from SPDC's own generation of funds and existing shareholder facility assuming the balance of the shareholder facility remains above zero, otherwise it will be subject to a separate Group Financing Proposal.

Section 13: Taxation

There are no unusual Taxation features.

Section 14: Key Parameters

This proposal seeks organizational support and approval to carry out:

- SPDC's Rig Well Integrity Project for three wells in 2012 for a total amount of USD10.07 million (MOD, Shell share) to execute 3 activities (SCD, location preparation and well integrity restoration)

Section 15: Signatures

This Proposal is submitted to UIG VP Technical for approval.

Supported by:	For Business approval:
.....	.....
Bos, Bernardus	*Lismont,Bart*
VP Finance	*VP Technical*
FUI-F	*UIG-T*
Date ..../..../....	Date ..../..../.....

Initiator: _____

Elias Arochukwu

(UIG/T/DSLW)

Date …/…. /….