The Shell Petroleum Development Company of Nigeria Limited

Internal Investment Proposal

Summary Information

<table>
<tr><td>Directorate</td><td>Development</td></tr>
<tr><td>Group equity interest</td><td>100% in SPDC, whereas SPDC is the Joint Venture (JV) operator of an unincorporated JV with a 30% interest.</td></tr>
<tr><td>Other shareholders /partners</td><td>Nigeria National Petroleum Corporation (NNPC: 55%), Total Exploration & Production Nigeria Limited (TEPNL: 10%), Nigeria Agip Oil Company (NAOC: 5%) in SPDC-JV</td></tr>
<tr><td>Amount</td><td>USD 13.9 mln Shell Share, MOD, 50/50 (USD 46.5 mln 100% JV)</td></tr>
<tr><td>Project</td><td>2011 Rig Well Integrity Workover</td></tr>
<tr><td>Main commitments</td><td>
<table>
<tr><th>Cost (Well Integrity)</th><th>100%JV (USD Mln)</th><th>Shell Share (USD Mln)</th></tr>
<tr><td>Access / Location Preparation</td><td>3.2</td><td>1.0</td></tr>
<tr><td>Workover Operations</td><td>38.7</td><td>11.6</td></tr>
<tr><td>SCD OPEX</td><td>0.6</td><td>0.2</td></tr>
<tr><td>Contingency</td><td>3.9</td><td>1.2</td></tr>
<tr><td>Sub-total Well Integrity</td><td>46.5</td><td>13.9</td></tr>
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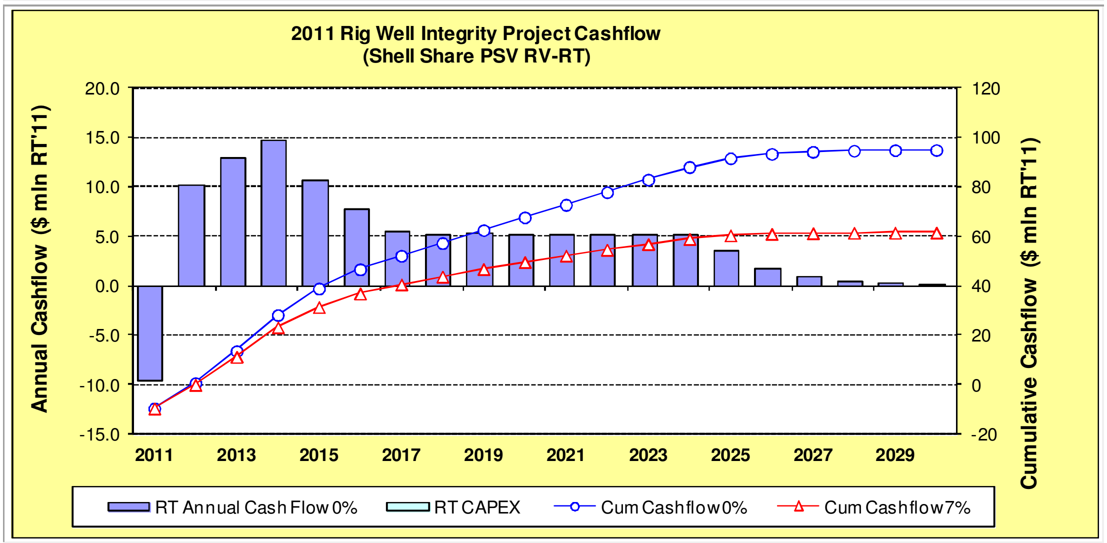
</td></tr>
<tr><td>Source and form of financing</td><td>This investment will be financed with JV funding and Shell share capital expenditure will be met by SPDC’s own cash flow. Formal JV partners’ approval will therefore be obtained.</td></tr>
<tr><td>Summary cash flow</td><td>
</td></tr>
<tr><td>Summary economics</td><td>
<table>
<tr><th>Summary economics</th><th>NPV 7% (USD mln)</th><th>RTEP (%)</th><th>VIR 7%</th></tr>
<tr><td>Base case (RV-RT'11)</td><td>61.5</td><td>>50</td><td>NA</td></tr>
<tr><td>High Reserve (RV-RT'11)</td><td>66.3</td><td>>50</td><td>NA</td></tr>
<tr><td>Low Reserve (RV-RT'11)</td><td>26.9</td><td>>50</td><td>NA</td></tr>
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Section 1: The proposal

Management Summary

This investment proposal seeks support/organizational approval for US$ 13.94 million Opex (Shell share, P50, MOD) to enable SPDC fund the execution of 4 Well Integrity activities (make well safe to secure NFA gas production) planned for 2011. Two of the wells are 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 operations in the area indicate that reasonable understanding exists with communities. Provisions are made in this proposal to cater for legacy community relation issues to assure freedom to operate, including unfulfilled (see community interface in Risks section) promises from the last Ughelli East drilling campaign. 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 BP10 and is supported by Joint Venture partners.

Background

In 2008, two gas wells, UGHE-031T and 32T were drilled in the land asset team to support Western Domestic Gas commitments of SPDC. During the well testing for hand-over to production, it was realized that the wells had high casing head pressures with resultant well integrity problems and HSSE exposures. Accordingly, a detailed review was conducted with a view to determining the optimal means of managing the wells. The review recommended the two wells for workover at the nearest opportunity; consequently the two wells were put on the Short Term Drilling Well Sequence in line with the overall strategy to improve the well integrity in SPDC and thus maintain our license to operate.

Well Name	Integrity issue	Ultimate Recovery (Bscf)	Potential (MMscf/d)	Planned Cost (Shell Share) (US$ Mln)
UGHE-031T	The well was initially completed in October 2008 but could not be safely put on production due to a high casing head pressure (HCHP), that is above maximum allowable annular surface pressure (MAASP). Packer leak is suspected. Workover is planned in order to eliminate HCHP.	196.1Bscf	50.0	3.7
UGHE-032T	The well was initially completed in December 2008 but could not be safely put on production due to a high HCHP. Although the HCHP is below MAASP, the pressure build-up and bleed-down rates	59.4Bscf	50.0	3.0

	are high. A shallow depth leak point is suspected due to the rapid CHP buildup/bleed-down. Workover is planned in order to eliminate HCHP.			

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 two highest ranked wells from the list are in Utorogu field and have been planned for workover in 2011.

Well Name	**Integrity issue**	**Ultimate Recovery(Bscf)**	**Potential (MMscf/d)**	**Planned Cost (Shell Share) (US$ Mln)**
UTOR -27T	The well was recompleted in September 2006. In 2009 a drift and Lead Impression Block (LIB) run prior to a planned multi-rate test indicated parted tubing at ca. 2300ftah. Workover is required to change out the parted tubing and eliminate high casing head pressure (HCHP)	24.2 Bscf	30.9	3.6
UTOR-26T	The well was initially completed in May 1988. Routine surveillance indicated tubing corrosion and high casing head pressure, (HCHP).Workover is required to change corroded tubing and eliminate casing head pressure.	14.7 Bscf	19.0	3.6

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 minimise 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.

Summary Economics

The base economics for this IP was evaluated on a forward-looking basis using the project level III 50/50 cost estimate (see Table 2). The project value is driven by the incremental production (17.4mln boe, Shell share) that would otherwise remain shut-in as NFW production volume is zero for the 4 wells (Utorogu 26 &27 and Ugheli East 31 & 32).

The costs associated with the 4 wells are treated as OPEX as the workover involves production restoration. The base case returns an unusually high NPV7% due to the low level incremental OPEX investment required to bring the wells into production.

Sensitivities were carried to reflect how the project stands in different possible scenarios. These include:

- high & low reserves,
- 1-year schedule delay
- Low-low gas price to reflect the project value if the Nigerian Gas Master Plan (NGMP) framework fails
- PIB terms,
- 1.5% Cost mark-up due to BVA issues (provision for costs dispute by NAPIMS).

Further analysis was done to evaluate the full life cycle economics for the 2 Ughelli wells to show the value effect of the wells drilling cost which was incurred in 2008. Details are shown in Table 1 below.

Table 1: Economics Indicators (Shell Share)

PV Reference Date: 1/7/2011	**NPV (S/S $ mln)**		**VIR**	**RTEP**	**UTC (RT $/boe)**		**Payout-Time (RT)**	**Maximum Exposure $mln (RT)**
Cash flow forward from: 1/1/2011	**0%**	**7%**	**7%**	**%**	**0%**	**7%**		
Base case (Consolidation)								
SV-RT ($50/bbl RT11 & NGMP)	71.6	**46.4**	NA					
RV-RT ($70/bbl RT11 & NGMP)	95.0	**61.6**	NA	>50	1.7	2.2	NA	10.2 (in 2011)
HV-RT ($90/bbl RT11 & NGMP)	114.8	**74.7**	NA					
BEP (RT $/boe)								
Sensitivities (using RV-RT'11)								
High reserves		**66.3**	NA				NA	7.9 (in 2011)
Low reserves		**26.9**	NA				NA	8.7 (in 2011)
1-Year schedule delay		**58.7**	NA				NA	10.7 (in 2011)
Low Low gas price**		**10.3**	NA				NA	10.5 (in 2011)
PIB_IAT_v.9		**25.4**	NA				NA	14.0 (in 2011)
1.5% Cost mark up due to BVA issues		**60.3**	NA					
With Ring-Fence	95.0	**61.4**	NA	101				
Base case (Well level)								
UTOR 026T	1.8	**1.3**	NA	>50	5.6	6.2	NA	2.5 (in 2011)
UTOR 027T	4.8	**3.9**	NA	>50	3.7	4.2	NA	2.6 (in 2011)
UGHEL 031T	69.6	**41.5**	NA	>50	1.2	1.4	NA	2.6 (in 2011)
UGHEL 032T	18.6	**14.8**	NA	>50	2.1	2.3	NA	2.8 (in 2011)
Sensitivities (using RV-RT'11)								
Full Life Cycle (UGHEL 031T)	62.5	**34.1**	5.18	32%	1.9	2.6	2013	7.7 (in 2011)
Full Life Cycle (UGHEL 032T)	14.2	**9.4**	1.57	25%	3.6	4.4	2013	6.8 (in 2011)

Notes: NA: VIR does not apply to the base case of this evaluation due to zero CAPEX (project cost treated as OPEX)
** Low Low sensitivity reflects the vlaue of the project if the NGMP fails and gas prices reflect the reality of 2010

Table 2: Key Project Parameter Data (Shell Share)

Parameter	Unit	BP10	Low	Mid	High	Comments
OPEX (MOD)	US$ mln		-	13.9	-	--
CAPEX (MOD)	US$ mln		-	-	-	--
Production Volume	mm boe	17.0	-	17.4	-	--
Start Up Date	mm-yy	Jul-11	n/a	n/a	n/a	--
Production in first 12 months	mm boe	0.19	n/a	0.19	n/a	--

Economics Assumptions:

Base case (some apply to the sensitivities)

- Domgas price based on NGMP framework and Oil PSV of $70/bbl RT11 were used.
- Condensate was treated as oil and taxed under PPT.
- 31/12/2010 ARPR variable OPEX and SPDC generic fixed OPEX were used for the evaluation.
- SPDC generic fixed OPEX:
    - Oil fixed OPEX: 3% of cum. oil CAPEX , Gas fixed OPEX: 3.5% of cum. gas CAPEX
- SCD cost treated as OPEX
- CITA applies to gas with AGFA incentive.
- GHV of 1000Btu/scf
- NDDC levy of 3% of total expenditure
- Education tax of 2% of assessable profit
- 10% of total project RT CAPEX assumed as abandonment cost.

PIB Assumptions

- NHT rate is 50% for onshore and shallow water, and 30% for frontier acreages and Deep Water.
- CIT is 30% of taxable income and is not deductible for NHT calculation
- NHT depreciation schedule is 4x20%, 19% for qualifying expenditure.
- CIT depreciation schedule is 3x25%, 24%, for qualifying expenditure.
- Royalty rates based on product (value) prices and production rates per PML (assumed equal to a field).
- Education tax calculated as 2% of its assessable profit and it is not deductible for CIT, but deductible for NHT.
- NDDC levy calculated as 3% of expenditure
- Withholding tax is applicable at a rate of 7.5%
- Ughelli East and Utorogu are existing fields; hence no production allowances are applicable

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.
Community disturbances	Delay in project execution	Application of the existing Global Memorandum of 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	Community relations for the project shall be conducted using existing SPDC frameworks. During SPDC's last operation in the Utorogu-Ude area, which involved the drilling of Utorogu wells 25ST and 35, there was leadership crisis in the community which prevented the execution of agreed CD projects. These CD projects were part of WAGP specific CD projects planned for execution in 2007/2008. The referenced CD projects were valued at N16, 000,000.00 as part of the community MOU. The unspent budget was returned to the JV. There is no WAGP CD related budget in 2010 and 2011. It is envisaged that this unresolved and outstanding CD issue may pose a "show –stopper" to the current project hence provision has been made for the legacy CD issues by the project, to ensure that LTO is secured and maintained. During SPDC's last operation in the Ughelli East area, which involved the drilling of Ughelli East 31 and 32, there were no unresolved CD issues. However, it is envisaged based on prevailing experience that the current activity in the area may elicit CD interest which may threaten our operation and pose a "show –stopper" to the current project, hence the need to make a 2.5% of budget provision for the two Ughelli East wells for any CD issues by the project, to ensure that LTO is secured and maintained.

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 budget for this project is to be sourced from the Development function.

The agreed budget will not be exceeded.

Section 9: Group financial reporting impact

The post-tax expenditure related to this project will have limited impact on group financial results.

Section 10: Disclosure

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

Section 11: 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 12: Taxation

Taxation is in line with general SPDC taxation of Opex.

Section 13: Key Parameters

This proposal seeks organizational support and approval to carry out:

- SPDC's Rig Well Integrity Project for four wells in 2011 for a total amount of USD13.94 million (MOD, Shell share) to execute 3 activities (SCD, location preparation and well integrity restoration)

Section 13: 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 .../.... /....