The Shell Petroleum Company Limited

Group Investment Proposal

Summary Information

<table>
<tr><td>Business unit and company</td><td>Shell Petroleum Development Company of Nigeria</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>NNPC (55%), TotalFinaElf (10%), and Agip (5%)</td></tr>
<tr><td>Business or Function</td><td>Upstream International</td></tr>
<tr><td>Amount</td><td>USD 6.96mln Shell share, MOD, 50/50 ($23.21 million 100% JV)</td></tr>
<tr><td>Project</td><td>vMonitor Wireless Wellhead and Pipeline Surveillance Implementation Project</td></tr>
<tr><td>Main commitments</td><td>
<table>
<tr><th></th><th colspan="2">US $Mln</th></tr>
<tr><th>Scope</th><th>Shell Share</th><th>100% JV</th></tr>
<tr><td>Resuscitate vMonitor units on 38 wellheads to ROCI L1 in Imo River and ROCI Level 3 pilot implementation on well 60T</td><td>0.37</td><td>1.25</td></tr>
<tr><td>Resuscitate vMonitor units on 38 wellheads to ROCI L1 in Agbada, ROCI Level 3 pilot implementation on well I6T and Nkpoku pipeline manifold</td><td>0.34</td><td>1.14</td></tr>
<tr><td>Resuscitate vMonitor units on 18 wellheads on ROCI L1 in Kolocreek</td><td>0.03</td><td>0.10</td></tr>
<tr><td>Resuscitate vMonitor units on 14 wellheads on ROCI L1 in Egbema</td><td>0.04</td><td>0.13</td></tr>
<tr><td>Installation and commissioning of vMonitor units on 46 wellheads in Cawthorne Channel wells (36 on L1 and 10 on L3)</td><td>3.14</td><td>10.45</td></tr>
<tr><td>Installation and commissioning of vMonitor units on 83 wellheads on ROCI L1 in FOT</td><td>1.59</td><td>5.30</td></tr>
<tr><td>Installation and commissioning of vMonitor units in 73 wellheads on ROCI L1 in S2 Tunu Kambo node</td><td>1.28</td><td>4.27</td></tr>
<tr><td>Total Project CAPEX (MOD) 50/50</td><td>6.79</td><td>22.65</td></tr>
<tr><td>SCD OPEX Estimate P50 MOD</td><td>0.17</td><td>0.57</td></tr>
<tr><td>Total Commitment</td><td>6.96</td><td>23.21</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>This is a cost-only evaluation without revenue streams; hence cash flow is not applicable.</td></tr>
<tr><td>Summary economics</td><td>The project returns an NPV 7% -$1.7 mln (Shell share) and VIR 7% -0.26 with an associated maximum exposure of $6.2mln in 2011</td></tr>
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Section 1: The proposal (management summary)

Management Summary

This investment proposal seeks management approval of CAPEX of US$6.79Mln and OPEX of $0.17mln, shell share (US$23.21Mln 100% JV) for the deployment and commissioning of vMonitor wireless sensors on 310 wellheads in SPDC.

As part of the drive for improved reservoir management to optimize production from SPDC's existing oil fields, the wells and reservoir management(WRM) team initiated projects to upgrade and automate the operations of gas lifting manifolds, metering systems, monitoring systems, data gathering/information processing in some selected SPDC field locations.
A key component of this drive is the real time acquisition of pressure and temperature data at various points of the wellheads, pipelines, pipeline manifolds and flow line manifolds. The vMonitor unit is an electronic device installed at distant and remote well heads, pipelines and pipelines manifolds to provide real time measurement of pressure, temperature and flow measurement to the flow station and into the office through a wireless network. The vMonitor unit can be used to capture and transmit data(downhole data (DHP/T) to the office) from permanent downhole gauges and can also be configured to enable remote controlling of the wellheads and pipelines manifolds (ROCI level 2 or 3).
When used for monitoring at the well head only(ROCI level 1), The data scan rates can be set to few minutes or hours depending on operational requirement, the real-time data is stored on existing data archive/historian (Plant Information (PI)-Process book) and can be accessed by all authorised users from office or field locations. The use of the data has added much value to the business in term well modelling and production surveillance with Fieldware Production Universe software application.
Integration with downhole smart wells for control command is possible if the well is so equipped. One of the key advantages of real time acquisition of data directly from the wellheads, pipeline manifold and other facilities is the reduction in unscheduled deferment on production targets.
The Remote Operation and Capabilities Implementation(ROCI) Team is charged with installing the vMonitor wireless sensors that will acquire this data in real time at the various SPDC wellheads, pipelines, pipeline manifolds and flow line manifolds.

A total of US$1.20Mln Shell Share (US$4.00Mln 100% JV) has been provided for in BP09 and approved by DEVCOM for 2010 vMonitor well and pipeline surveillance project. Funding for the additional amount of US$5.76Mln Shell Share (US$19.21Mln 100% JV) will be provided for in BP10.
All installed vMonitor units will be integrated to the Divisional Production Management Centre

Project Details/description

Project Details/description
The scope for the project includes

- Resuscitation of vMonitor units installed in 2007-8 but were not handed over to the asset teams for appropriate technical support and maintenance.
    - vMonitor units on 38 wellheads to ROCI L1 in Imo River and ROCI Level 3 pilot implementation on well 60T
    - vMonitor units on 38 wellheads to ROCI L1 in Agbada, ROCI Level 3 pilot implementation on well I6T and Nkpoku pipeline manifold
    - vMonitor units on 18 wellheads on ROCI L1 in Kolocreek

    - vMonitor units on 14 wellheads on ROCI L1 in Egbema
- Installation of and commissioning vMonitor units on 46 wellheads in Cawthorne Channel wells (36 on L1 and 10 on L3)
- Installation and commissioning of vMonitor units on 83 wellheads on ROCI L1 in Forcados fields
- Installation and commissioning of vMonitor units in 73 wellheads on ROCI L1 in S2 Tunu Kambo node

The sites were determined by WRM agreement with ROCI team.

Table-1: Cost Phasing ($mln MOD)

US $Mln (MOD)	2010	2011	Total (Shell Share)	Total (100% JV)
Total Project CAPEX (MOD) 50/50	1.17	5.62	6.79	22.64
SCD OPEX Estimate P50 MOD	0.03	0.14	0.17	0.57
Total Commitment	**1.20**	**5.76**	**6.96**	**23.21**

Section 2: Value proposition and strategic and financial context

The key value drivers for this project are:

- Improved wells and reservoir management surveillance and processes.
- Reduce unit cost by increasing production and minimize unscheduled deferment.
- Improve asset integrity by identification of process upset and prompt operator intervention.
- Real-time data from wellhead required for effective operations of automated gaslifting.
- Minimize exposure of staff, reduced logistics costs, improvement environmental records and also to deliver urgent operational solutions to SPDC large footprint and increasing security risk.
- Improved security and access control in ROCI L3 installed wells where intruder detection is installed
- Improved operational transparency with real time data availability.

Summary Economics

The ROCI- vMonitor Wireless Wellhead and Pipeline Surveillance Implementation Project was evaluated as a cost only project with aim of assessing the exposure to SPDC on a forward-looking basis. The base case evaluation was carried out using level III CAPEX estimates of $6.79mln SS, which has been treated as an oil infrastructure cost. No revenue stream is applied in this evaluation.

A high CAPEX sensitivity has also been carried out to show the project value in the event of a 20% cost overrun. Details of the results are shown in table 2 below.

Table 2: Economics grid of base case and sensitivities

PV Reference Date: 1/7/2010	NPV (S/S $ mln)		VIR	RTEP	UTC (RT $/bbl or $/mln btu)		Payout-Time (RT)	Maximum Exposure (S/S $ mln)
Cash flow forward from:	**0%**	**7%**	**7%**	**%**	**0%**	**7%**		**AT**
Base Case								
SV ($50/bbl RT10)	-1.1	-1.7	-0.26	NA	NA	NA		
RV ($60/bbl RT10)	-1.1	-1.7	-0.26	NA	NA	NA	NA	6.21 (2011)
HV ($80/bbl RT10)	-1.1	-1.7	-0.26	NA	NA	NA		
BEP (RT $/bbl)					NA	NA		
Sensitivities(Using RV-RT)								
High Capex (+20%)		-2.0	-0.26				NA	7.45 (2011)

Table 3: Key Project Parameters

Parameter	Unit	Bus Plan (BP09)	Low	Mid	High	Comments
CAPEX (MOD)	US$ mln	1.2	NA	6.8	8.2	Provision expected in BP10
Investment OPEX (MOD)	US$ mln	NA	NA	0.2	-	SCD cost at 2% of CAPEX

Economics Assumptions

- NDDC levy of 3% of total expenditure.
- SCD treated as Oil independent OPEX
- 10% of the project CAPEX is assumed as abandonment cost
- PPT tax rate of 85% applied

Section 3: Risks, opportunities and alternatives

The vMonitor wellhead devices will be installed on producing wells SPDC assets. The order of implementation on wells within a field will be based on wells with higher technical potential agreed with Corporate Production Technology discipline.

The project risks and opportunities matrix is presented below.

Area	Risk/Opportunity	Mitigation
Community Disturbances	Access to site and work permits from the Communities	Service provider will perform installation work at well sites with support from SPDC Area Team Community Relation Officer (CRO). The CRO will provide direct negotiations for FTO with local communities for each wellhead before any work will commence. Community youths will be employed where specialist skills are not required. Maintenance for vMonitor equipment at the wellheads will be incorporated into wellhead maintenance contracts.
Contracting Strategy	NAPIMS requires tendering (typically 12-18 months duration) rather than sole sourcing from vMonitor	NAPIMS has given budget approval for phased installations of vMonitor devices in SPDC. A price agreement for all vMonitor materials was approved by SPDC Minor Tender Board and will serve as a basis for all future installation contracts.

Manpower and Resourcing	Compliance with ORP and Availability of Skilled Manpower; Interface Management	This project has a PDAB with the PD as the Decision Executive. It will be managed by a project team consisted of: a Project Manager, two full time project engineers (positions approved), four to eight contract inspectors and the full resource of local contractors. Interfacing and support from the following departments/disciplines: IT-Telecommunications, Production Technology, Well Services, Well Engineering, CROs, Operations, BSUs, SCM and Real Time Systems team is critical. The specific responsibilities and involvement of the parties above was specified and approved in the Project Execution Plan.
Technical Risks	Technology obsolescence Inadequate Telecom Infrastructure Improper installation and integration Technical Support	vMonitor device is modular in design and can be upgraded or replaced onsite at chip level should a new technology or requirement emerge. IT is embarking on major projects to revamp SPDC telecommunication infrastructure. vMonitor project will be aligned with the IT projects. Satellite communication will be considered as back-up to transmit intermediate data collection points where urgently needed. Ensure technical capabilities of contractors. Project team will ensure vMonitor technology and skills transfer to contractors. vMonitor is responsible for QA/QC and commissioning. Real Time Operations Support team (RTO) has been set up to handle post-commissioning support for vMonitor devices and other ROCI projects.
Commercial Risk	Cost Escalation	High confidence in estimates (50/50; Level III). Contract has provisions for delays, provision of security and equipment lost or damage.
Schedule Risks	Schedule extension due to community disruption and rising tension in the Niger Delta	Install & implement progressively in areas with accessibility and low tension first. Ensure contract terms have flexibility to withstand long delays. Use existing small installation contracts not requiring NAPIMS approval to fast track the technology implementation.

Section 4: Corporate structure, and governance

The existing corporate structure and arrangements of SPDC-JV with SPDC as operator will be utilised. Direct responsibility for project execution and supervision rest with the Production Operations Support functions of SPDC Production Directorate. The Project Delivery Assurance Board includes UIG Project Assurance Manager P &T, SPDC Chief Production Technologist, SPDC ROCI Manager and SPDC Production Operations Support Manager. The Decision Executive is SPDC Production Director.

Section 5: Functional Support and consistency with Group and Business Standards

This proposal is consistent with strategy and objectives for the Corporate Production Operations philosophy for remote operations of assets and Smart well/field implementation plan and it is also in accordance with SPDC 2006 – 2010 Business Plan. The investment is supported by:

- UIG Project Assurance Manager P &T.
- Production Operations Support Manager of SPDC.

- SPDC/Regional Production Technology Discipline lead.
- Legal

Community Interface Management

An opex value of 2.5% of total capex cost is to cater for sustainable community development (SCD).

HSE and Security management

Project specific HSE Management Plan has been developed, consistent with SPDC's HSE Management System and the Group HSE-MS. Hazards and Effects Management Process (HEMP) tools are being applied to reduce risks to levels as low as reasonably practical and to manage residual risks in manner consistent with SPDC's HSE Risk Tolerability Criteria. The HSE Management process applied to this project will result in the existing asset's ISO 14001 / OHSAS 18001 certification being maintained. Additionally, Contractor HSE Capability Assessment will be carried out for the contractor(s) that will be involved in the project to ensure that their HSE capability for the project is assured.
Security Risk Exposure Matrix (SREM) will be applied during the project execution to ensure that security situations are properly assessed and adequate security measures are taken.

Section 6: Project management, monitoring and review

This project will be managed by a project team consisting of a project manager, two full time project engineers (positions approved), four to eight discipline inspectors (contractors), local contractors, Operations teams, discipline support from IT Surface Portfolio, IT Telecommunications, Production Technology, Well Engineering/Services and division Engineering Hubs, in accordance to the Opportunity Realization Process (ORP).
Project performance is reviewed and reported regularly (weekly and monthly) through SPDC Management and at the monthly Projects review with JV Partners.

Section 7: Budget provision

Provisional activity phasing for 2009-2010 has been made in BP09 in the Project Execution Plan. Budget is covered in 2010 budget allocation and BP09 capital budget proposal. WBS for this activity is C.NG.POE.OR.10.006

Section 8: Group financial reporting impact

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

US$ mln	2010	2011	2012	2013	2014	Post 2014
Total Commitment	1.20	5.76	0.00	0.00	0.00	0.00
Cash Flow						
SCD Expenditure	0.03	0.14	0.00	0.00	0.00	0.00
Capital Expenditure	1.17	5.62	0.00	0.00	0.00	0.00
Operating Expenditure	0.04	0.17	0.00	0.00	0.00	0.00
Cash Flow from Operations	0.19	1.12	1.24	1.15	1.15	1.10
Cash Surplus/(Deficit)	(0.98)	(4.50)	1.24	1.15	1.15	1.10
Profit and Loss						
NIBIAT +/-	0.05	0.23	(0.08)	(0.08)	(0.08)	(0.82)
Balance Sheet						
Average Capital Employed	0.71	4.80	7.52	6.52	5.84	14.14

Section 9: Disclosure

Project compliance to the requirements of Risk & Internal Control Policy, Media Relations Protocol, Investor Relations Protocol and Market Abuse Directive Guidelines as appropriate shall apply and in accordance with SPDC guidelines.

Section 10: Financing

This capital expenditure will be met through SPDC's cash flow and facilities from shareholders.

Section 11: Taxation

The income tax from the project would be in accordance with Petroleum Profit Tax Rate and relevant income tax applicable

Section 12: Key Parameters

This proposal seeks organisational support and approval for the:

- Execution of the vMonitor Wireless Wellhead Sensor Surveillance Implementation Project for a revised sum of USD 6.96 mln Shell share, MOD, 50/50

Section 13: Signatures

This Proposal is submitted to EPG Directors for approval.

Supported by:	For Business approval:
.....	.....
Rafiu A Emiloju	*Mutiu Sunmonu*
FUI/FB	UIG/P
Date ..../..../....	Date ..../..../....

Initiator: _____

Mr Okuns Godwin (UIG/P/SRF)

Date …/…./….