

# 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 Company (NNPC: 55%), Total: 10%, Nigeria Agip Oil Company (NAOC: 5%) in SPDC-JV																																					
Amount	US\$ 19.95 Mln Shell Share 50/50, MOD of which US\$7.95 million CAPEX (US\$ 26.51 Mln 100% JV) and US\$ 12.00 million OPEX Shell share (US\$ 40.00 Mln 100% JV) is requested for approval in this proposal.																																					
Project	2010 and 2011 WRM <sup>1</sup> and Rigless Short Term Oil Generation (STOG <sup>2</sup> ) Project.																																					
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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. It has been prepared for 2 years to provide required continuity associated with these activities.																																					
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<sup>1</sup> Wells and Reservoir Management

<sup>2</sup> Short Term Oil Generation

## ***Section 1: The proposal (management summary)***

### **Management Summary**

This Group investment proposal seeks organizational approval for a Capex funding of US\$7.95Mln Shell Share (US\$ 26.51 Mln 100% JV) and Opex funding of US\$ 12.00 Mln Shell Share (US\$ 40.00 Mln 100% JV) to enable:

- Delivery of scoped production enhancement activities (including installation of gaslift infrastructure) as planned for 2010 and 2011 by the SPDC Corporate WRM Business Improvement team.
- Execution of 352 (assuming 160 for 2010 and 192 for 2011) rigless Locked-In-Oil (LIO) well activities project (Treatments and Flowline repairs, Appendix-1)

The Capex funding may however be phased over the next few years if project is delayed by security or other unforeseen circumstances.

The gas lift infrastructure and LIO activities will add 15,300 bopd (100% JV) annual oil gain to SPDC's 2010 production target and 22,178 bopd to the 2011 target. These planned activities are aimed at safe-guarding NFA production, unlocking oil and gas potential, building capability (including LEAN) and thus, embedding the improved processes for achieving and sustaining world class well and reservoir management.

All of the activities are in fields with associated gas gathering (AGG) solution. Impact of interrupting the production in 2010 is minimal.

The 'Locked in oil (LIO)' project, also referred to as 'Closed-in wells (CIW)' project, was kicked off in August 2003. The objective of the project was the resuscitation of the significant number of non-producing wells in SPDC (i.e. wells closed-in for at least 3 months). Table A2 below shows a performance summary of the intervention activities carried out between 2004 and 2009.

**Table A1: STOG/CIW HISTORICAL COST AND POTENTIAL GENERATED**

YEAR	POTENTIAL Planned (bopd)	POTENTIAL GENERATED (bopd)	COST (\$'000)
2004	135,702	100,236	49,409
2005	80,625	159,314	64,271
2006	185,893	70,516	20,832
2007	105,242	55,114	20,985
2008	97,973	86,285	23,397
2009	72,630	50,000	16,300

Budget was made available in BP08 for activities under the WRM Business Improvement team. However, budget performance was affected by security for a large part of 2009. For the LIO program, budget was approved for US\$ 5.75 million Shell share (SS) with actual delivery of 25,400 bopd vs. plan 18,400 bopd annualized oil gain. Forecast is as per asset submissions with 25% annual decline for subsequent years; it assumes both Eastern and Western divisions are accessible for operations. The project will be funded from SPDC's own generation of funds and existing shareholder facility.

### **2009 Budget Performance**

Budget and well activities' performance for 2009 WRM activities are shown in Table A1 below.

**Table A2: 2009 WRM Performance**

<b>COST CENTRE</b>	<b>DESCRIPTION</b>	<b>APPROVED BUDGET F\$ MLN</b>	<b>ACTUAL SPEND F\$ MLN</b>	<b>REMARKS</b>
	Metering improvement in Soku	9.86	3.20	Planned scope of work covered 3 fields mainly -Soku, Cawthorne Channel and Bonny. However, owing to delayed start up due to Detailed Design issues, followed by security situation in the Niger Delta the bulk of implemented work was in Soku. The activities for the other 3 fields have been rescheduled for 2010.
<b>TOTAL</b>		9.86	3.20	

The total under spend of \$6.66 was not accrued to 2010 and not included in this IP.

Budget and well activities' performance for 2009 STOG activity is shown in Table A2 below.

**Table A3: 2009 STOG Performance**

<b>COST CENTRE</b>	<b>DESCRIPTION</b>	<b>APPROVED BUDGET F\$ MLN</b>	<b>ACTUAL SPEND F\$ MLN</b>	<b>ACTIVITIES PLANNED</b>	<b>ACTUAL ACTIVITIES COMPLETED</b>
102155	STOG+CIW	17.70	16.30	189	189
<b>TOTAL</b>		<b>17.7</b>	<b>16.30</b>	<b>189</b>	<b>189</b>

The total under spend of \$1.40 MM was not accrued to 2010 and not included in this IP.

It is to be noted that as a result of the dynamic nature of oil generating activities, new opportunities were identified within the year and completed, though not included in the 2009 IP. The activities not executed in 2009 were moved to 2010 but have been re-screened and ranked with new opportunities for 2010. The list of opportunities is therefore regularly revised to remove or include new opportunities while ensuring all expenditures are within the approved budget for the business approved activities target.

Much of the 'locked-in potential' from existing wells could be realised at relatively low cost from Rigless through-tubing well operations and sectional flowline repairs and minor modifications activities, hence have been preferentially targeted over new development activities. About 1029 rigless activities have been executed since the onset of this project with over 760MMstb reserves safeguarded.

This portfolio being carried for 2010 and 2011 assumes that both the West and the East will be accessible. The opportunity database remains dynamic due to ongoing reviews, planned re-entries and additional new scope in both East and West (high flow line theft).

The current annual decline has been estimated at 25%, as the target requisite number of new wells required to offset the natural decline is not met due to funding constraint, limiting new projects/drilling. The preferred viable option left for SPDC to remain in business is better understanding and management of its entire production system from reservoir to custody transfers point in order to maximise asset value. Maximizing production and recovery from existing assets is deemed achievable only with an effective WRM system in place. Assessments of key SPDC fields show significant obsolescence and, sometimes, complete absence of basic field infrastructure for WRM including meters and gaslift infrastructure.

The table below shows the planned LIO and Gaslift Infrastructure and fix-the-basics improvement activities and the oil production gain expected for 2010 and 2011.

**Table A4: 2010/2011 LIO/Gaslift Infrastructure and fix the basics improvement activities.**

<b>2010 and 2011 Activities Scope &amp; Budget</b>	<b>2010</b>	<b>2011</b>
Number of LIO Activities	160	192
Procure and install GL Infrastructure	4	4
Procure and Install Meters in Gas Plants and Flowstations	5	5
Budget (US\$ Mln Shell Share)	9.97	9.98
Annual oil gains (bopd, 100%)	15,300	22,100

#### Issues

Because of the intensive exercise required in developing appropriate forecast for the economics and the overall error inherent in the LIO projects, a simple approach was adopted with initial risk production annualized as provided by the various assets and a conservative annual decline of 25% in generating oil gains for successive years.

All of the activities are in fields with associated gas gathering (AGG) solution. Impact of interrupting the production in 2010 is minimal.

#### ***Section 2: Value proposition and strategic and financial context***

The LIO project supports SPDC strategies of increasing production from existing wells with additional annualized production of 15,300 bopd and 22,100 bopd for 2010 and 2011 respectively. Additionally, these activities support SPDC targets of securing non-integral wells, WRM capability building (including LEAN) thus, embedding the improved processes for achieving and sustaining world class well and reservoir management.

#### ***Summary Economics***

The base case is forward looking using the 50/50 cost estimate and production forecasts of 15.3 Mbopd (100% JV) and 22.1 Mbopd (100% JV) annual oil gain to SPDC's 2010 and 2011 production targets respectively.

Additional evaluation carried out includes sensitivities based on high CAPEX, high and low producible volumes as well as one-year project schedule delay (which might be caused by security challenges in the Niger Delta).

Results are summarized in the table below:

#### **Note:**

The difference between the OPEX in the IP (project specific OPEX, US 12Mln) and total OPEX US 18.25Mln, is attributed to other costs associated with the project which are classified as OPEX (e.g. NDDC, education tax, variable cost of producing the oil etc). These OPEX are not to be requested for by the project team but must be incorporated in economic evaluation to get the true value of the project.

**Table 1: Economics Indicators (Shell Share)**

PV Reference Date: 1/7/2010.	NPV (\$/S \$ mln)		VIR	RTEP	UTC (RT \$/bbl or \$/mln btu)		Payout-Time (RT) (yyyy)	Maximum Exposure \$mln (RT)
Cash flow forward from: 1/1/2010	0%	7%	7%	%	0%	7%		
Base Case								
SV-RT (\$50/bbl)	43.3	37.1	4.87					
RV-RT (\$60/bbl)	52.8	45.3	5.95	n/a	3.3	3.6	2010	0.0
HV-RT (\$80/bbl)	71.8	61.8	8.11					
Sensitivities (using RV-RT)								
High Capex (+40%)		44.7	4.19				2010	0.5 (2010)
Low Reserves (P85)		35.6	4.67				2010	0.0
High Reserves (P15)		57.5	7.54				2010	0.0
1 Year Schedule Delay		42.1	5.53				2011	2.5(2010)

**Table 2: Key Project Parameter Data (Shell Share)**

Parameter	Unit	Bus Plan (RV)	Low	Mid	High	Comments
Capex (MOD)	US\$ mln	3.9	7.2	8.0	11.2	BP amount for 2010 only
Investment Opex (MOD)	US\$ mln	6.0	10.8	12.0	16.8	BP amount for 2010 only
Production Volume	mstb		6.2	7.8	9.8	
Start Up Date	mmm-yy	Jan-10	Jun-10	Jan-10	Mar-10	
Production in first 12 months	mstb		1.3	1.7	2.1	Base Case Volume

**Economic Assumptions**

- All expenditure treated as oil costs.
- Used SPDC Generic variable Oil OPEX of \$0.5/bbl. Fixed cost is assumed negligible for this activity.
- NDDC cost assumed at 3% of total expenditure
- Education Tax assumed at 2% of assessable profit
- 2% of the project MOD CAPEX assumed as SCD and included in project cost

**Section 3: Risks, opportunities and alternatives**

Risks to these projects are technical risks, security and community disturbances, for which mitigation plans, have been put in place. Proposed scope is technical, routine and in existing producing fields, where reasonable understanding exists with communities, all within SPDC approved HSE standards and Well Services execution capacity. Surplus back-up activities exist to replace those affected by technical complications and/or community disturbances.

*Community Interface*

These activities are covered under the global memorandum of understanding (GMOU) umbrella for those areas where they have been signed. For these, Cluster Development Boards (CDBs) and Community Trusts (CTs) will be informed accordingly of the activities involved.

Where there is no GMOU, steps will be taken to secure freedom to operate via homage payment and employment of community workers during the rigless well operations and to facilitate negotiations, community development support will be provided in line with SPCA guidelines. Where necessary to

facilitate negotiations, community developments' support will be provided (football kits, plastic chairs, computers, etc.)

### *Security and HSE management*

A project specific HSE plan will be developed and implementation actions agreed with key stakeholders, such that the associated activities are delivered under the current drive to achieve **'Goal Zero'**. Controls will be put in place to mitigate the identified hazards and effects, but these will be subjected to continual supervisory critique to ascertain their adequacy and effectiveness throughout the execution phase.

Non-core drilling contractors and secondary logistics are identified as areas requiring closer supervision. Learning from incidents is key to HSE improvement and therefore the learning will be disseminated to all staff involved in the project, including contractors and their sub-contractors. In addition clear consequence management, more stringent enforcement of equipment pre-mob and more supervision by contract holders will be enforced.

In addition to the project team latching into existing security arrangement in the area of operation, the LIO & Gas lift project activities will be supported by deployment of duly approved Site Specific Security Plan (SSSP) based on risk assessment of the area to mitigate and manage identified security threats/risks.

Furthermore, the Project Security Plan (PSP) will address and also recommend appropriate security emergency response controls to proactively manage potential incidents in the event of occurrence.

### ***General***

As per SPDC procedures the contractor handling any of the projects will develop a security plan, to be agreed to by the Contract Holder, and then sent to the Area Security Adviser for review. Thereafter, the reviewed plan will be sent to the Security Coordinator/Asset Manager for approval. It is only then that the contractor can mobilize to site to commence well operations.

### **Risks and Mitigation**

Risk		Mitigation
Technical	Operational risks	28 WRM BI activities, and 352 Rigless activities planned for 2010 and 2011. Activities are technical and annual routine within SPDC overall standards and execution capacity. Surplus back-up LIO and Well Integrity activities available to make up for the risks identified. Risked LIO potentials with 25% annual decline.
	Lower productivity	
Community disturbances	Delay in project execution	Focus on East Swamp and Western division reopening ongoing. LIO portfolio large (new additions West) to provide replacement candidates
Health, Safety & Security	Damage to the environment	Strict compliance with all SPDC HSE policies and procedures. Latch into existing security arrangement in the area of operation. Put in place Project Security Plan (PSP).
	Damage to Equipment	
	Loss of life/Insecurity.	

## ***Opportunities***

Opportunities to build internal capability in WRM & LEAN Six Sigma business improvement methodology through short-term development assignment/ in-house training have been agreed between the SPDC WRM Business Improvement team and the Central WRM team in Rijswijk. This is part of the process to ensure sustainability of the different WRM improvement programs currently been implemented across assets in SPDC.

Also, the dynamic nature of the LIO portfolio will enable additional opportunities to be included by the Value Realization teams during the course of the year. The LIO team will execute these opportunities provided they meet or exceed base plan screening criteria. Due to multiple risks (access, technical, security, community) the initiative has been taken to prepare all outstanding opportunity proposals in order to mature the portfolio and allow execution on a first-come-first-serve basis pending overall readiness until the budget is exhausted or additional budget is secured.

## ***Alternatives***

The activities under discussion are core business activities in any E&P environment and as such there is no alternative for not executing them. For the LIO opportunities, the Do-Nothing scenario will impact negatively on SPDC's 2010 production target (compare to Table A4).

Proposed activities will lead to safeguarding NFA production, higher ultimate recoveries (min. +30 mln stb, based on 5 year forecast), higher well utilization and sustainability through capability building.

## ***Section 4: Corporate structure, and governance***

SPDC is the operator of an Unincorporated JV with 30% interest, with Under Operational Control (UOC) and Joint Controlled Assets (JCA).

This proposal is within the SPDC corporate structure and governance framework.

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

This project operates in line with SPDC processes and is supported by the relevant functions: Well Engineering; Well Services; Contracting & Procurement and Corporate Affairs Directorate. The proposal is consistent with SPDC's strategy to utilise closed-in wells and make positive contribution to meeting oil production targets in the Business Plan. The Finance, HSE/SCD, Supply Chain Management, Legal, Treasury and Tax Functions have provided functional support for this IP.

## ***Section 6: Project management, monitoring and review***

The execution of these activities (excluding the LIO) will be fully coordinated by the WRM Business Improvement team, working with the respective Asset teams in line with the existing SPDC organisational model.

For all LIO and Well Integrity activities, a dedicated, 3-staff team working together with respective Asset teams and well completion and intervention team, will have single point accountability for driving execution, managing the budget, monitoring performance and achieving the oil gains associated with this IP.

The WRM BI and the LIO teams both reside in the Development Directorate and report directly to the SPDC Asset Development Manager. As such, direct cooperation with the Asset Development/Value Realization teams is guaranteed. Strong operational ties exist with the Well Completion and Intervention team and the Engineering Hub teams. Keen interest and support from the Production Directorate is secured through a common objective: to produce more oil. The Corporate Affairs Directorate is instrumental in creating the community relations that allow the team to operate in the swamps and on land.

Hence, the teams will report weekly and monthly to ADM management and there will be regular reviews with internal stakeholders (C&WI, Engineering etc) to monitor project health

### ***Section 7: Budget provision***

The BP09 requested budget for the LIO project for 2010 and 2011 has been adjusted to US\$ 12.00 Mln Shell Share in line with JV support (\$40.00 mln 100% JV). The agreed annual budget will not be exceeded. The BP09 requested budget for the WRM BI for 2010 and 2011 has been adjusted to US\$ 7.95 Mln Shell Share in line with JV support (\$26.51 mln 100% JV).

### ***Section 8: Group financial reporting impact***

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

<b>US\$ Mln</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Post 2014</b>
Total Commitment	11.22	11.30	1.02	0.95	0.89	0.83
Cash Flow						
Pre-FID Expenditure	7.24	7.32	1.02	0.95	0.89	0.83
Capital Expenditure	3.98	3.98	0.00	0.00	0.00	0.00
Operating Expenditure	7.24	7.32	1.02	0.95	0.89	0.83
Cash Flow from Operations	0.22	1.80	1.49	0.21	0.21	0.22
Cash Surplus/(Deficit)	-3.76	1.80	5.47	0.21	0.21	0.22
Profit and Loss						
NIBIAT +/-	-0.93	-0.93	-0.28	-0.27	-0.26	-1.12
Balance Sheet						
Average Capital Employed	4.02	8.15	3.66	-0.93	-0.94	-10.31

### ***Section 9: Disclosure***

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

### ***Section 10: 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 11: Taxation***

Taxation will be in accordance with SPDC's general tax for capex and opex activities.

### ***Section 12: Key Parameters***

The following are the main aspect of this proposal:

Approval for the amount of US\$ 19.95 Mln Shell Share 50/50, MOD, of which US\$7.95 million CAPEX Shell Share (US\$ 26.51 mln 100% JV) and US\$ 12.00 million OPEX Shell share (US\$ 40.00 mln 100% JV) to:

- Execute planned scope of work for WRM Business Improvement in 2010 and 2011.
- Carry out SPDC's 352 Rigless well activities (Treatments and Flowline repairs) to generate 15,300 bopd (100% JV) annualized oil gain for 2010 and 22,100 bopd (100% JV) annualized oil gain for 2011, within the Locked-In-Oil generation program.



***Section 13: Signatures***

This Proposal is submitted to EPG Regional Development Manager for approval.

Initiated by: Erome Utunedi – Subsurface Operations Support Leader.

Supported by:

Supported by:

For Business approval:

.....  
***Goke Akinrinmade***

**Asset Dev. Mgr**

EPG-TDS

Date .... / .... / ....

.....  
***Van Velden, Rob***

***Regional BF - Tech.  
Disciplines***

SPDC-EPF-G-T

Date .... / .... / ....

.....  
***Bayo Ojulari***

***(General Manager, Development,  
EPG-TD)***

Date .... / .... / ....

**Appendix-1: Baseline List of STOG Projects (Natural Flow)**

S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type	S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type
1	OBN050T	1236	WHM	53	ADIB012T	1300	Sand Exd / Clean out
2	OBN025T	732	TRSCSSV lockout	54	FORC133T	1050	Sand Exd / Clean out
3	OBN027T	586	FL rep/ repl	55	FORC046L	700	WSO/GSO
4	OBN048L	234	FL rep/ repl	56	FORC114L	700	WSO/GSO
5	ADIB012T	863	WSO/GSO	57	BENS019S	300	FL rep/ repl
6	AGBD062L	569	Stimulation	58	BENS009L	300	FL rep/ repl
7	AGBD061S	503	Stimulation	59	OTUM009T	300	FL rep/ repl
8	MINI003L	600	WSO/GSO	60	OPUK034T	375	FL rep/ repl
9	OBN031T	400	FL rep/ repl	61	FORC140T	400	Sand Exd / Clean out
10	ADIB004S	336	Stimulation	62	FORC136T	400	Sand Exd / Clean out
11	AGBD007S	332	FL rep/ repl	63	OTUM038V	280	Zone change
12	KOCR020T	319	FL rep/ repl	64	AKOS010S	200	Stimulation
13	SAPL026S	383	WHM	65	CAWC018T	500	TTGB
14	UGHW026L	456	Hook-up Repair	66	SOKU021S	174	FL rep/ repl
15	UTOR008S	601	WHM	67	SOKU023S	128	FL rep/ repl
16	OLOM008L	300	TTGB	68	SOKU027L	140	Zone change
17	UZRW002L	741	FL rep/ repl	69	AGBD038L	221	FL & GLL Rep/ Repl
18	OLOM027L	300	Onfice Insert	70	ADNE004S	170	Stimulation
19	SAPL012L	700	WSO/GSO	71	SOKU044T	225	Reperforation
20	ERMU008L	604	FL rep/ repl	72	KOCR016T	850	FL rep/ repl
21	SAPL025S	600	Reperforation	73	AGBD025L	312	FL rep/ repl
22	SAPL002S	600	Reperforation	74	ETEL010L	254	Reperforation
23	OLOM033L	500	FL & GLL Rep/ Repl	75	AGBD038S	221	FL rep/ repl
24	SAPL010L	100	TTGB	76	ETEL010S	170	FL rep/ repl
25	UZRW016L	440	FL rep/ repl	77	KOCR029T	665	FL rep/ repl
26	AFIE32L	560	Reperforation	78	AGBD007L	221	FL rep/ repl
27	SOKU018S	277	FL rep/ repl	79	AGBD059S	200	Stimulation
28	SOKU043T	275	FL rep/ repl	80	AGBD053S	164	Stimulation
29	SOKU022L	274	FL rep/ repl	81	OBEL005T	364	Sand Exd / Clean out
30	AKOS010L	500	Stimulation	82	UZRW005S	291	FL rep/ repl
31	SOKU009T	203	FL rep/ repl	83	AFIE012S	285	FL & GLL Rep/ Repl
32	AKOS010V	300	Stimulation	84	OLOM011S	277	FL rep/ repl
33	SOKU021S	174	FL rep/ repl	85	AFIE021T	400	FL & GLL Rep/ Repl
34	SOKU011S	168	FL rep/ repl	86	UZRW009S	398	FL rep/ repl
35	SOKU014S	315	Reperforation	87	SAPL002L	500	WSO/GSO
36	SOKU006T	142	FL rep/ repl	88	AFIE012L	350	FL & GLL Rep/ Repl
37	AKOS004S	3600	FL rep/ repl	89	KOKR016L	400	FL rep/ repl
38	ALAK021T	2758	FL rep/ repl	90	OLOM033S	400	FL rep/ repl
39	BELE009T	1670	FL rep/ repl	91	KOKR009S	400	FL rep/ repl
40	BELE008T	1580	FL rep/ repl	92	UZRW014S	233	FL rep/ repl
41	AKOS002L	1000	WSO/GSO	93	SOKU027L	140	Zone change
42	AKOS001S	672	FL rep/ repl	94	SOKU021S	130	FL rep/ repl
43	CAWC048T	800	TTGB	95	SOKU044T	225	Reperforation
44	BELE006L	650	Zone change	96	AKOS010S	200	Stimulation
45	CAWC043L	600	Zone change	97	SOKU023S	128	FL rep/ repl
46	SOKU028L	388	FL rep/ repl	98	OPUK006L	375	FL rep/ repl
47	SOKU031S	362	FL rep/ repl	99	OTUM010S	200	FL rep/ repl
48	Soku012T	328	FL rep/ repl	100	ISU001L	587	FL rep/ repl
49	CAWC040L	400	Zone change				
50	SOKU001T	305	FL rep/ repl				
51	SOKU014L	303	FL rep/ repl				
52	SOKU040T	420	Reperforation				

S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type
101	ISU001S	238	FL rep/ repl
102	KOCR009T	255	FL rep/ repl
103	AGBD036L	155	FL & GLL Rep/ Repl
104	NKAL014L	130	Zone Change
105	KOCR010T	150	FL rep/ repl
106	AGBD053L	149	FL & GLL Rep/ Repl
107	AGBD064S	182	Sand Exd / Clean out
108	NKAL011S	107	Stimulation
109	ADIB005L	70	WSO/GSO
110	AGBD010S	55	FL rep/ repl
111	OBEL002T	33	FL rep/ repl
112	AGBD036S	23	FL rep/ repl
113	AFIE015T	682	FL rep/ repl
114	AFIE015T	655	FL rep/ repl
115	AFIE026L	312	FL rep/ repl
116	AFIE028S	248	FL rep/ repl
117	AFIE023S	211	FL & GLL Rep/ Repl
118	AFIE013L	500	FL rep/ repl
119	OLOM016S	210	FL rep/ repl
120	AFIE003S	156	FL rep/ repl
121	ERMU005S	276	FL rep/ repl
122	AFIE008S	266	FL rep/ repl
123	UZRW002S	221	FL rep/ repl
124	UZRE019L	218	FL rep/ repl
125	UZRW006L	197	FL rep/ repl
126	UZRW011S	143	FL rep/ repl
127	KOKR036T	200	FL rep/ repl
128	ERMU009S	169	FL rep/ repl
129	OVHO010V	1715	Zone change
130	UZRW006S	130	FL rep/ repl
131	UZRW010S	128	FL rep/ repl
132	UZRE021T	122	FL rep/ repl
133	AFIE021T	122	FL & GLL Rep/ Repl
134	KOKR002L	121	FL rep/ repl
135	AFIE007S	102	FL rep/ repl
136	UZRW014L	86	FL rep/ repl
137	AFIE007S	75	FL rep/ repl
138	UZRW009L	74	FL rep/ repl
139	OBEN025L	100	Stimulation
140	UZRE022L	54	FL rep/ repl
141	AFIE033S	48	FL rep/ repl
142	AFIE005L	40	FL rep/ repl
143	AFIE008S	33	FL rep/ repl
144	SOKU039T	4741	Stimulation
145	SOKU042T	4310	FL rep/ repl
146	SOKU051T	1724	Stimulation
147	SOKU025T	350	WSO
148	SOKU035T	245	Reperforation
149	AKOS004L	1000	WSO/GSO
150	NEMC029L	690	FL rep/ repl

S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type
151	NEMC029S	250	FL rep/ repl
152	NEMC029L	690	FL rep/ repl
153	NEMC028S	600	WSO
154	NEMC055L	500	WSO
155	NEMC001L	400	WSO/GSO
156	NEMC025L	400	WSO/GSO
157	NEMC008L	400	WSO/GSO
158	NEMC009L	400	WSO/GSO
159	NEMC020L	400	WSO/GSO
160	NEMC052S	400	WSO/GSO
161	NEMC035S	400	WSO/GSO
162	NEMC026L	400	WSO/GSO
163	NEMC029S	250	FL rep/ repl
164	OPNO003L	375	FL rep/ repl

**Appendix-1: Baseline List of STOG Projects (Gas Lift)**

S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type	S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type
1	EA-51	500	GLV Inst / Ch Out / Opt	51	AFIE037S	422	GLL Rep/Repl
2	EA-27	500	GLV Inst / Ch Out / Opt	52	OWEH011I	200	GLV Inst / Ch Out / Opt
3	EA-21	300	GLV Inst / Ch Out / Opt	53	ERMU008S	170	GLV Inst / Ch out / Opt
4	EA-38	300	GLV Inst / Ch Out / Opt	54	UZRE017T	107	GLV Inst / Ch out / Opt
5	EA-42	300	GLV Inst / Ch Out / Opt	55	KOKR021S	106	GLV Inst / Ch out / Opt
6	EA-28	300	GLV Inst / Ch Out / Opt	56	OLOM021I	315	GLL Rep/Repl
7	AGBD063I	1233	GLV Inst / Ch out / Opt	57	OLOM026S	300	GLL Rep/Repl
8	AGBD052L	744	GLV Inst / Ch Out / Opt	58	OGIN016S	100	GLV Inst / Ch Out / Opt
9	OBN002I	1171	GLV Inst / Ch out / Opt	59	KOKR003S	150	GLV Inst / Ch out / Opt
10	AGBD026S	540	GLV Inst / Ch out / Opt	60	SAPL021S	150	GLV Inst / Ch Out / Opt
11	AGBD050L	479	GLV Inst / Ch out / Opt	61	OLOM016S	150	GLV Inst / Ch out / Opt
12	AHIA003L	336	Swabbing	62	OLOM002I	300	GLL Rep/Repl
13	IMOR048S	376	GLV Inst / Ch out / Opt	63	OLOM011S	150	GLV Inst / Ch out / Opt
14	AGBD057S	340	GLV Inst / Ch out / Opt	64	SAPL021L	150	GLV Inst / Ch Out / Opt
15	ADIB001S	286	Swabbing	65	AFIE035S	149	GLV Inst / Ch out / Opt
16	IMOR023L	312	GLV Inst / Ch out / Opt	66	ALAK009T	1810	Nitrogen lift
17	AGBD064L	210	GLV Inst / Ch out / Opt	67	AKOS009S	1200	Nitrogen lift
18	OBN007I	351	GLV Inst / Ch out / Opt	68	BELE005V	1200	Nitrogen lift
19	IMOR031S	169	Swabbing	69	CAWC051I	1000	Nitrogen lift
20	OBN003I	304	GLV Inst / Ch out / Opt	70	AKOS013L	400	Nitrogen lift
21	AGBD012S	176	GLV Inst / Ch out / Opt	71	FORC065L	700	Nitrogen lift
22	OBN015I	296	GLV Inst / Ch out / Opt	72	OTUM018I	500	GLL Rep/Repl
23	IMOR037L	169	GLV Inst / Ch out / Opt	73	FORC043S	700	Nitrogen lift
24	AGBD040S	160	GLV Inst / Ch out / Opt	74	OTUM011I	445	GLL Rep/Repl
25	OBN051S	272	GLV Inst / Ch out / Opt	75	OTUM007S	300	GLL Rep/Repl
26	IMOR022L	156	GLV Inst / Ch out / Opt	76	OTUM049I	300	GLL Rep/Repl
27	IMOR043T	154	GLV Inst / Ch out / Opt	77	SOKU004T	150	Nitrogen lift
28	IMOR030L	148	GLV Inst / Ch out / Opt	78	SOKU007S	125	Nitrogen lift
29	AGBD027L	130	GLV Inst / Ch out / Opt	79	AGBD010I	143	GLL Rep/Repl
30	OBN038I	184	GLV Inst / Ch out / Opt	80	IMOR057S	255	GLL Rep/repl
31	AGBD056S	95	GLV Inst / Ch out / Opt	81	AGBD026L	28	GLV Inst / Ch Out / Opt
32	IMOR032S	91	GLV Inst / Ch out / Opt	82	OBN033I	546	GLV Inst / Ch Out / Opt
33	IMOR022S	78	GLV Inst / Ch out / Opt	83	OBN013I	209	GLV Inst / Ch Out / Opt
34	IMOR020S	77	GLV Inst / Ch out / Opt	84	OBN013S	108	GLV Inst / Ch Out / Opt
35	IMOR032L	73	GLV Inst / Ch out / Opt	85	OBN028S	65	GLV Inst / Ch Out / Opt
36	OBN051I	123	GLV Inst / Ch out / Opt	86	OBN045I	48	GLV Inst / Ch Out / Opt
37	AGBD024L	60	GLV Inst / Ch out / Opt	87	IMOR012S	141	GLV Inst / Ch Out / Opt
38	OBN008I	100	GLV Inst / Ch out / Opt	88	OBN028I	64	GLV Inst / Ch Out / Opt
39	AGBD015S	55	GLV Inst / Ch out / Opt	89	IMOR004T	78	GLL Rep/Repl
40	ERMU013L	750	GLV Inst / Ch Out / Opt	90	ERMU014L	100	GLV Inst / Ch out / Opt
41	OGIN012S	335	GLV Inst / Ch out / Opt	91	AMUK002I	100	Swabbing
42	OGIN019T	659	GLL Rep/Repl	92	OLOM031S	250	GLL Rep/Repl
43	KOKR005I	300	GLV Inst / Ch Out / Opt	93	OLOM026I	400	GLV Inst / Ch out / Opt
44	ERMU013S	586	GLL Rep/Repl	94	OLOM006I	340	GLV Inst / Ch out / Opt
45	OLOM025I	580	GLL Rep/Repl	95	OWEH007S	200	GLL Rep/Repl
46	KOKR032I	280	GLV Inst / Ch out / Opt	96	UGHW013S	100	GLV Inst / Ch out / Opt
47	AFIE031S	165	GLV Inst / Ch Out / Opt	97	OLOM002S	290	GLL Rep/Repl
48	KOKR029S	160	GLV Inst / Ch Out / Opt	98	KOKR018I	460	GLV Inst / Ch Out / Opt
49	OLOM030S	159	GLV Inst / Ch Out / Opt	99	KOKR024I	260	GLV Inst / Ch Out / Opt
50	KOKR011I	155	GLV Inst / Ch Out / Opt	100	SOKU007S	125	Nitrogen lift

S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type
101	SOKU004T	150	Nitrogen lift
102	OTUM043I	250	GLL Rep/Repl
103	OTUM043S	250	GLL Rep/Repl
104	OTUM017I	230	GLL Rep/Repl
105	OTUM044S	150	GLL Rep/Repl
106	IMOR012L	27	GLV Inst / Ch Out / Opt
107	IMOR021L	140	GLV Inst / Ch Out / Opt
108	IMOR021S	126	GLV Inst / Ch Out / Opt
109	IMOR024S	65	GLL rep/repl
110	OBGN055I	37	GLV Inst / Ch Out / Opt
111	IMOR010L	60	GLL rep/repl
112	IMOR013S	40	GLL Rep/Repl
113	OLOM012S	150	GLL Rep/Repl
114	OLOM005S	190	Nitrogen lift
115	OLOM012S	100	GLL Rep/Repl
116	AFIE001S	120	GLV Inst / Ch out / Opt
117	UGHW026S	200	GLV Inst / Ch Out / Opt
118	AFIE001L	65	GLV Inst / Ch out / Opt
119	KOKR017S	39	GLV Inst / Ch out / Opt
120	OBEN009L	250	Nitrogen lift
121	AFIE025T	30	GLV Inst / Ch out / Opt
122	AFIE002S	30	GLV Inst / Ch out / Opt
123	SAPL006S	150	Nitrogen lift
124	AFIE029S	20	GLV Inst / Ch out / Opt
125	OBEN009S	100	Nitrogen lift
126	KOKR016S	80	Nitrogen lift
127	AFIE011S	13	GLV Inst / Ch out / Opt
128	AFIE013S	10	GLV Inst / Ch out / Opt
129	SOKU048L	700	GLL Rep/Repl
130	SOKU021L	350	GLL Rep/Repl
131	SOKU022L	350	GLL Rep/Repl
132	Soku048S	350	GLL Rep/Repl
133	SOKU045T	11638	Vel_String
134	SOKU033T	3017	Vel_String
135	ALAK003S	280	Nitrogen lift
136	ALAK011T	280	Nitrogen lift
137	ALAK003L	210	Nitrogen lift
138	ALAK031L	210	Nitrogen lift
139	ALAK013L	140	Nitrogen lift
140	AKOS014L	425	Nitrogen lift
141	SBAR010T	4000	Nitrogen lift
142	ODEC004I	352	Nitrogen lift
143	ODEC002S	322	Nitrogen lift
144	NEMC050S	1578	Nitrogen lift
145	NEMC016S	710	Nitrogen lift
146	NEMC032I	705	Nitrogen lift
147	NEMC048S	630	Nitrogen lift
148	NEMC017S	593	Nitrogen lift
149	NEMC011I	514	Nitrogen lift
150	NEMC043S	250	Nitrogen lift

S/N	CONDUIT NAME	Initial Potential Gain (BOPD) Risked	Opportunity type
151	NEMC033S	390	Nitrogen lift
152	NEMC048I	250	Nitrogen lift
153	NEMC047I	190	Nitrogen lift
154	NEMC012I	160	Nitrogen lift
155	NEMC047S	120	Nitrogen lift
156	NEMC033I	110	Nitrogen lift
157	NEMC032I	705	Nitrogen lift
158	NEMC048S	630	Nitrogen lift
159	NEMC017S	593	Nitrogen lift
160	NEMC011I	514	Nitrogen lift
161	NEMC033S	390	Nitrogen lift
162	NEMC048I	250	Nitrogen lift
163	NEMC047I	190	Nitrogen lift
164	NEMC012I	160	Nitrogen lift
165	OTUM052I	300	GLL Rep/Repl
166	OTUM051I	400	GLL Rep/Repl
167	OTUM033I	195	GLL Rep/Repl
168	EKUL005V	750	Nitrogen lift
169	EKUL035V	800	Nitrogen lift
170	SOKU026T	180	Nitrogen lift
171	SOKU007S	125	Nitrogen lift
172	SOKU027S	175	GLL Rep/Repl
173	Soku022L	188	GLL Rep/Repl
174	NEMC043S	250	Nitrogen lift
175	SOKU025T	210	GLL Rep/Repl
176	SOKU032I	175	GLL Rep/Repl
177	NEMC033I	110	Nitrogen lift