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Role of the Department of Petroleum Resources

- Regulate and Monitor all oil and gas activities in Nigeria.
- Optimize government revenue earnings and stakeholder value creation
- Ensure efficient recovery and conservation of hydrocarbon resources
- Administer and provide accurate and reliable data for investors, strategic planning and national development purposes.
- Promote and ensure a safe, secured and environmentally sustainable friendly oil and gas sector in Nigeria
- Ensure sustainable development of the industry through effective regulation and implementation of government policies on oil and gas matters.
- Ensure efficient development, operation and maintenance of oil and gas facilities in accordance with the provisions of the law.
- Conservation of the nation’s rich Hydrocarbon Resources.
### Field Development Plan (FDP)
- Section 37 of Drilling & Production Regulations 1969
- Resources/Reserves
- Wells Count
- Production profiles
- Well Test/Production Accounting
- New Technologies
- Flow Assurance
- Gas Utilization
- Economics

### Rig and Vessel Operations
- Section 34 of Drilling & Production Regulations 1969
- Expires 31st December
- Not transferable
- Pre Shipment Inspection
- ACS
- Pre License Inspection

### Drilling Activity
- Section 32 of Drilling & Production Regulations 1969
- Exploratory, Appraisal & Development drilling
- Sidetrack
- Redrill
- Well Deepening
- Change of Trajectory

### Re-entry Operations
- Section 32 of Drilling & Production Regulations 1969
- Initial Completion
- Well Clean Up
- Injectivity Test
- Workover
- Well Stimulation
- Recompletion

### Well Abandonment
- Section 35 of Drilling & Production Regulations 1969
- Well Suspension
- Well Plug back
- Well Abandonment

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**Petroleum act 1969 and amendments and other principal legislations**
Global Dynamics of Industry Developments

- Imbalance in oil demand and supply
- Oil price not dictated by demand/supply alone.
- Bust and Boom: cyclical investment pattern.
- Strong Production growth outside OPEC particularly USA.
- Nigeria is a Price Taker!
- A Regulators Dilemma?

Regional competition on investing upstream capital exploration and development spend reinforces the need for robust regulatory framework on resource optimization.
Commitment by Industry and dynamic regulation by government are critical to optimal intervention practices in oil and gas production and management.
Intervention Operations in Nigeria

- Well intervention is a necessary option to optimize resource recovery and accelerate revenue generation to fund national plans and stakeholder sustainable value proposition.

- Frequency of well intervention during the life of a field depends on numerous variables including reservoir characteristics, infrastructures and economic considerations.

- Choice of technique and equipment to be deployed for intervention depends on subsurface condition which determines the mechanical and economic success of the job.

- Deepwater fields notably Bonga, Agbami, Erha etc are cutting edge developments that have leverage on technology developments to enhance production through efficient well intervention techniques.

  - There is huge intervention requirement in onshore fields to shore up production and enhance recovery.
  - Equipment and vessel integrity and compliance is key to achieving value creation in intervention programs.
Frequency of well intervention during the life of a field depends on numerous variables including reservoir characteristics, infrastructures and economic considerations.

Large number of producing fields rely on intervention programmes to accelerate recovery and enhance performance.
Distribution of Fields Production Performance

Intervention optimization techniques facilitate production optimization.
### Intervention Cost and Duration – Case Study

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<th>YEAR</th>
<th>DURATION</th>
<th>COST</th>
<th>METHOD DEPLOYED</th>
<th>COMMENT</th>
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<tbody>
<tr>
<td>1</td>
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<td>8 M$</td>
<td>Rig</td>
<td>Acid stimulation with rig</td>
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<td>9.5 M$</td>
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<td>2.6 M$</td>
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<td>2.2 M$</td>
<td>Vessel</td>
<td>Rigless stimulation with Vessel</td>
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From the studies carried out:

- Required duration of rig per well – 65 days
- Required duration of Vessel per well – 68 days
- Required cost per well using rig - 70 M$
- Required cost of Vessel – 35 M$

**Conclusion**

For remaining reserves of 6 Mbbls and 16 Mbbls respectively, Cost effective solution developed for managing the PI decline in Wells A and B wells is deployment of OIMR Vessel with significant cost reduction compared to rig operations. Pay out is in about a month. Cost showed a significant capital outlay of 140 M$ (excluding rig mobilization cost)
Compliance Requirement For Re-entry (Well Intervention) Operations in Nigeria

RE-ENTRY PROPOSAL to include:

- Structural maps
- Well Correlations
- Re-entry plan
- Well Schematics
- Hydrocarbon Distribution Chart (Saturation Chart, Logs)
- Resource accounting (Reserves, production)
- Data gathering plan (Press, Zonal Vol., Temp., Formation Isolation)
- Valid licensed Rig / Intervention vessel
- Re-entry cost and Schedule (Dev. Cost/Operating Cost/Tangibles)

Payment of statutory fees
Re-entry approval prior to actual re-entry
Monitoring of re-entry operations
Well Intervention Value Addition

- Scope of work identified in well intervention includes: well logging, perforating, well cleaning, fishing, fluid displacement, thru tubing sand control, remedial cementing, selective stimulation, thru tubing completions artificial lift services, re-entry drilling and surface controlled subsurface safety valve repairs
- In 2017, estimate of oil gain from the above intervention operations in Offshore is about 20,000 bopd with about 65,000 bopd in other terrain.
- In 2018, estimate of oil gain from the above intervention operations in offshore increased to 50,000 bopd with about 80,000 bopd in other terrain
- This was achieved with reduced cost, time and production deferment.
- In Quarter 1, 2019, we have licensed 7 Intervention Vessels in Nigeria as against 3 and 4 for the previous years
- However, more can be achieved with enhanced engagement with the regulator by the industry
Key Intervention Challenges in the Nigerian Oil & Gas Industry

- Dwindling Exploration activities reinforces further intervention to recovery of remaining hydrocarbon
- Erosion of Value assurance to all stakeholders due to high operational cost
- Minimal intervention due to robust FDP
- Growing spate of non-compliance in terms of licensing of intervention vessels and well intervention operations permit
The Way forward

- Robust Field Development Plan
- Smart well Technologies for ease of intervention operations
- Timely engagement and effective interface management
- Regulatory compliance by industry players
- Statutory reporting of Oil and Gas Operations
- Automation of regulatory processes to ease business and enhance reporting and monitoring of intervention operations.
**Conclusion**

- Compliance in Well Re-entry Operations will promote the optimization of hydrocarbon resources recovery and value proposition to stakeholders.
- Emerging industry dynamics are reinforcing the importance of well intervention.
- Technology is a key enabler to cost efficiency and production optimization.
- Regulatory compliance by well intervention vessel operators must be pursued to ensure hitch-free and safe operations.
- We are committed to optimizing the regulatory environment in Nigeria to enhance our competitiveness and ensure ease of doing business and regulatory compliance.
For additional information on the mandate/roles of the DPR and the legislative instruments & regulatory tools employed by the Department, please visit the DPR corporate website:

www.dpr.gov.ng
Thank you for listening