Operation and Maintenance Management Services

for Oryx Oilfield in Chad

Contents

- I. Project Understanding
- II. ANTON's Advantage



1. Scope of Work

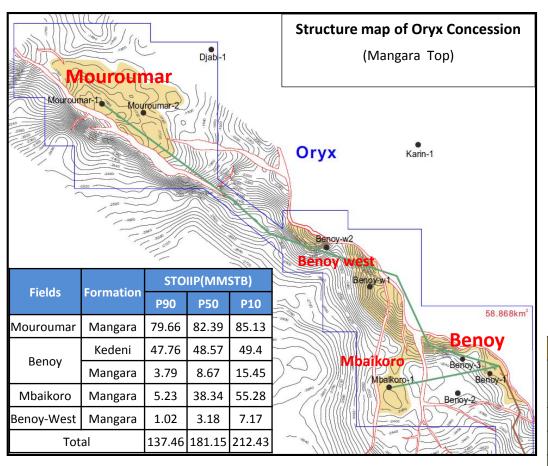
- a. Petroleum/Reservoir Engineering- (WRFM/Modeling and Forecasting/Subsurface to New wells Drilling Campaigns/Production Programming/Hydrocarbon Allocation/Metering/Production Chemistry)
- **b.** Operations-(Provide all qualify manpower & sufficient resources & documents for execute the operation of OPIC's facilities)
- c. Maintenance/Emergency Plan-(PM/CM/Trouble Shooting/OEM/Specialist for all facilities)
- **d.** Materials Management-(Materials Management/Warehousing/Procurement)
- **e. Support Services**-(Contract and SUBCONTOR Management/HR/F&A/IT/Ad-hoc Support)
- **f. Technical Services-**(Metering & Relief Valve Calibration/Special Equipment & Pressure Vessels Validation/Furnaces Overhaul/Electrical Devices Testing and Maintenance/Storage Tanks Cleaning)
- g. Quality Management-ISO 9001/ISO 14001/OHSAS 18001
- h. HSSE-HSE/Security/PPE
- Logistic& Transportation Services- (Catering/Housekeeping/Laundry/Garden Development and Station Routine Maintenance/Vehicles Management and Maintenance/Visa, Air tickets)

2. Contract Duration

3 months (joint commissioning) + 2 years (O&M service)

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3. Oryx Oilfield Brief



Geological Characteristics

■ Location: Chad BCO III of OPIC African

■ Fields: Mouroumar, Benoy, Benoy West,
Mbaikoro

■ Rervoir lithology: Sandstone

■ Porosity: 10-17%

■ Permeability: 50-8000mD

Reservoir type: Layered reservoir with unsaturated light crude

Edge water drive in Benoy, mainly bottom water drive in Mouroumar

■ Wax Content: 19.9-30.7%

■ Oil Pour Point:30-33 °C , 48°C (Benoy U)

Fields	Pay Fm.	P _i (psia)	P _b (psia)	ºAPI	μ _{0i} (cP)	B _{oi}
D	Kedeni ^a	3206~3077	1250~1350	34~37	1.35	1.16
Benoy	Mangara ^b	3846-3894	1221-1382	35.8-39.7	1.2~1.4	1.26-1.28
Benoy West	Kedeni ^c	3530	_	30.8	_	_
Mbaikoro	Mangara ^d	3812~4038	245~255	36~40	2.6	1.07
Mouroumar	Mangara ^b	3010~3056	245~255	39~40	2.6	1.07

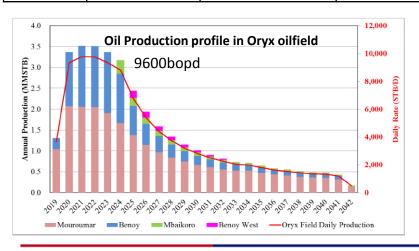
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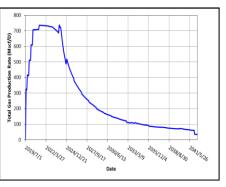
3. Oryx Oilfield Brief

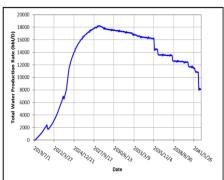
Development Plan

Drilling number in development plan of Oryx oilfield

	Produ	ction Well	Water I	njection Well		
Trap	New Well	Existing well	New Well	Production Well Converted	Contingent Development Well	
Mouroumar	8	2	4	0	6	
Benoy	4	1	2	1(Benoy-1)	7	
Mbaikoro	1	0	1	0	5	
Benoy-West	1	0	0	0	2	
Total	14	3	7	1	20	
Total	17			8	20	







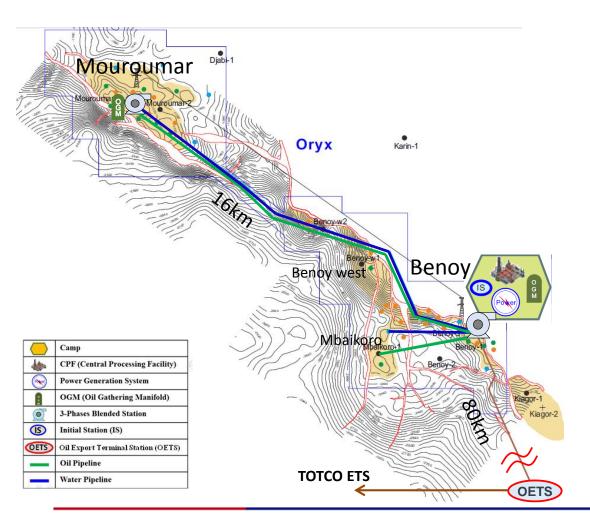
Production profile of naturel gas

Production profile of water

- Producing reserve: 120.06MMSTB
- Annual recovery velocity: 2.9%
- Target Peak Production: ~9600bopd
- Starting water injection when reservoir pressure decreases to 85% of Pi
- Estimated Water injection Time: Benoy(2021.4),Mouroumar(2024.1)

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3. Oryx Oilfield Brief



Surface Facilities

- **CPF:** 50×10⁴t/y, Oil to OETS,

 Produced Water injected back to

 Kome, Gas as fuel used for Heater &

 Turbine Generator
- OETS (Transfer Point): $3 \times 40 \text{m}^3/\text{h}$ Export pump
- Camp
- 3-Phase Pump Station with OGM
- **8"** \times 16km + 8" \times 81km Pipeline
- Power Supply System: CPF

 3×4.1 MW dual fuel generator

 1×1.0 MW emergency generator

OETS

4×0.8 MW diesel generator

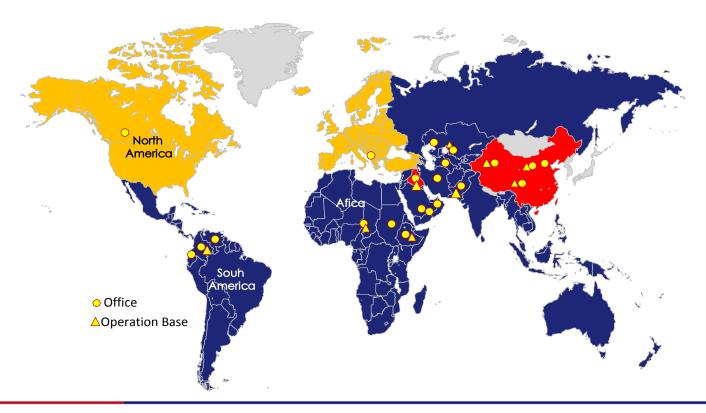
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1. Corporate Profile

- ◆ A global oilfield technology service company listed on the Hong Kong stock exchange (Code: 03337HK).
- ◆ Provide services in more than 20 countries and regions.

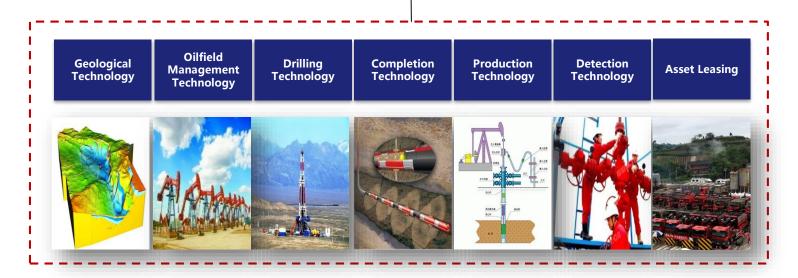




1. Corporate Profile

Whole-process products and technical services for oil & gas development

Anton's Oil and Gas Development Products and Technologies





2. Fully experience for oilfield operation and maintenance management

There are 15 main O&M Projects, continually safety and smooth operation more than 10,000d.

No.	Name of Contract	Client	Scope of Work	Duration	Location of Service	Manpower	Safety Operation (Days)
1	Integrated Field Management Services	Basra Oil Company	Integrated Field Management in Majnoon Oilfield	2018.7-2021.4	IRAQ MAJNOON	510	398
2	General Maintenance Services	LUKOIL	General Maintenance for the whole oilfield	2016.4-2019.4	IRAQ West Quran 2	190	1095
3	Power Plant O&M Supervisor Service	CNOOC	Power Plant Operation & Maintenance Supervisor Service	2018 .4-2019.10	IRAQ.Buzurgan	43	547
4	Oilfield Technical Support Services	CNPC Chad	CPF,Pipeline,Camp maintenance services etc.	2018.5- 2021.1	Ronier & Daniella Oilfield	96	225
5	CPF-1 Operation Services	PETROCHINA	Operation and Maintenance services	2012.5-2014.6		60	763
6	CPF-1, HPS & PWTP O&M Services		Operation and Maintenance services	2014.6-2016.6	IRAQ.HFY	90	730
7	CPF-2 O&M Services		Operation and Maintenance services	2014.7-2016.8		86	792
8	CPF-2 Operation Service		Operation services	2016 .9-2018.4		86	563

II. ANTON's Advantage

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No.	Name of Contract	Client	Scope of Work	Duration	Location of Service	Manpower	Safety Operation (Days)
9	Provision of CPF-2 Main Facilities comprehensive Operation Service	PETROCHINA	Operation And Maintenance services	2017.11-2021.11		86	613
10	Provision of Operation and Maintenance for Gas Receiving Station and Gas Export Pipeline	PETROCHINA	Operation And Maintenance services	2013.1-2014.1		16	372
11	Provision of Operation and Maintenance Services for CPF1, CPF2 and CPF3 Power Plants	PETROCHINA	Operation And Maintenance services	2015.3-2017.3		35	730
12	Provision of Phase I and Phase II Power Plant Comprehensive Operation Services	PETROCHINA	Operation And Maintenance services	2017.12-2021.12		26	589
13	Provision of Maintenance and Minor Construction Support Services for Production Facilities Years 2015,2016 and 2017	PETROCHINA	General Maintenance And Minor Construction Services	2015.8-2017.8	IRAQ.HFY	30	730
14	Provision of General Maintenance Services Support On Call-Off Basis for Halfaya Field Organization(HFO) Camp Facilities	PETROCHINA	Minor Construction And Maintenance Services	2013.9-2016.8		24	1095
15	Provision Of EPCC And O&M For API Workshop Equipment In Halfaya Base Camp	PETROCHINA	Including Operation and maintenance services	2014.12-2017.11		28	1095





Current services providing in Chad by ANTON

No.	Name of Contract	Duration	SOW	Man power		
1	Technical Support Services	2018.5- 2021.1	Provide CPF operators, pipeline supt., Maint. supt., Drilling supt., Drilling engineer, W&T supt., W&T sup., W&T engineer, Waste treatment supt., Road construction supt., Camp Maint. supt., CPF supporter, Warehouse Supt., Admin. consultant, Construction supt., Geology Supt., Production supt., HSSE Consultant, doctor, Legal consultant etc. for CNPCIC			
2	Drilling Fluids Services	2018.8- 2020.8	Provide drilling fluids and onsite services for CNPCIC	8		
3	Directional Drilling Services	2018.9- 2020.9	Provide Directional drilling tools and onsite services for CNPCIC	8		
4	Workover Rig & Associated Services	2018.4- 2020.4	Provide Services Rig and Ancillary Services for CNPCIC	49		
5	NDT Inspection Services	2018.12- 2019.12	Provide Non-destruction Services for SINOPEC	4		



3. Global Supply Chain to provide a reliable support for the project

- Strong ability of sourcing materials, procurement, logistic, warehousing and suppliers management with services scope covering 20+ countries and Regions
- ◆ 1700+ excellent suppliers, among which overseas suppliers account for 31%
- Own 20+ well equipped warehouses domestic and overseas







Thank You

Helping others succeed......