

MKB Republic of Congo (Congo Brazzaville)

Panoro Energy
ΠΑΝΟΡΟ ΕΝΕΡΓΕΙΑ



Mark Scarbrough P. E.

Manager Drilling and Operations – MKB Project

- Registered Engineer with 29 years of upstream oil and gas experience
- Experience in Drilling, Completion, Production, Reservoir, and Integrated Projects
- Operating experience in USA, Latin America, and Western Africa

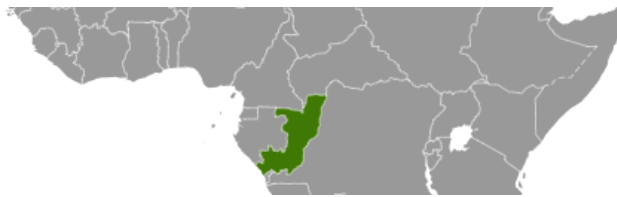


Significant experience in hydraulic fracturing low permeability reservoirs in Mid-Continent USA and South Texas

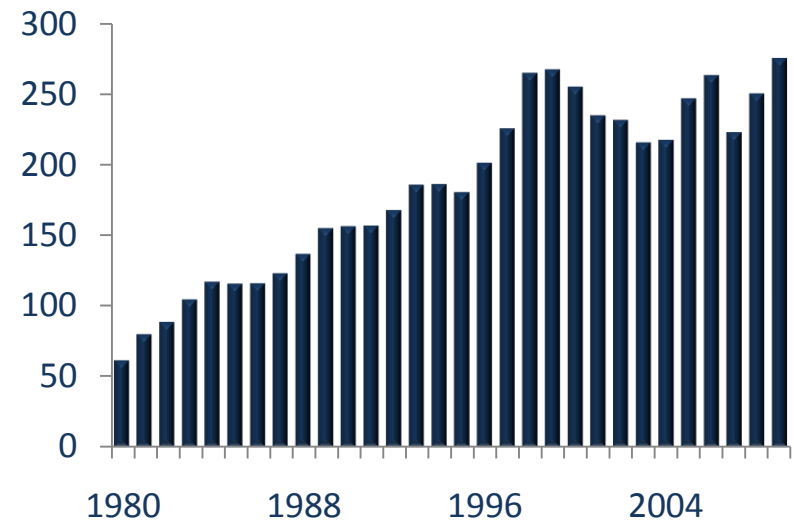
Held various management positions in multi-cultural multi-lingual environments, including last 7 years in Western Africa

Republic of Congo (Congo Brazzaville)

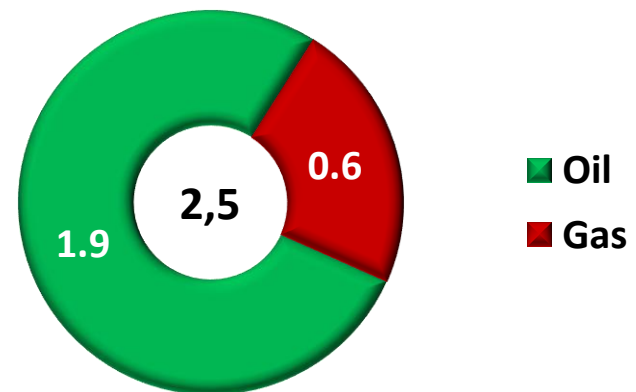
- 4.1 million people
- GDP of USD 3,900 per capita, +7.6% in 2009
- Independence from France 1960
- Legal system based on French Law
- Petroleum fiscal regime: Production sharing contract (PSC)
- National oil company: SNPC, holding share in all oil & gas projects
- Major Operators: TOTAL, ENI, Perenco, Murphy, SOCO, Maurel & Prom



Oil production ('000 boe/day)



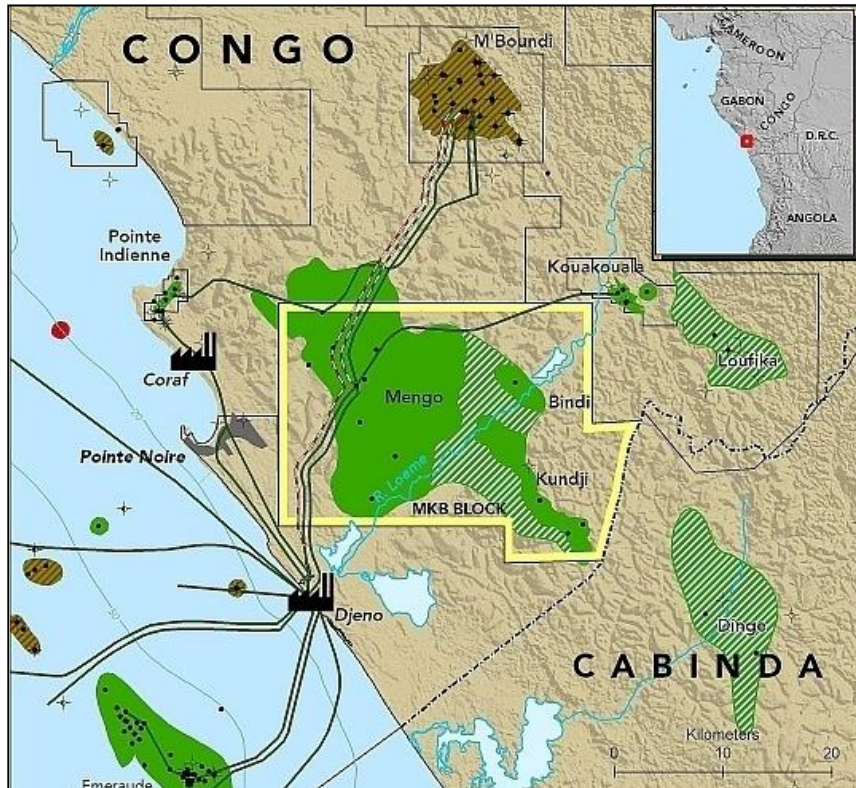
P1 Reserves (Billion BOE)



Mengo-Kundji-Bindi (20%)

Pilot program commenced

MKB (Congo)		MKB
Operator	SNPC - Congo National Oil Company (60%)	
Working Interest	20%	
Other Partners	PetroCI (20%)	
1st Prod	2010 test production	
Current stage	Pilot project commenced	



- 17 wells drilled to date within the MKB permit, including the latest 3 wellbores, KUN-4, KUN-4bis and KUN-5 drilled by SNPC
- Seismic coverage is represented by 1673km of 2D data, 1970's and 1980's vintage, reprocessed by Elf in 1990.
- Very large oil in place (>1 billion bbl) volumes with significant STOOIP upside
 - The Mengo sandstones are always oil saturated wherever encountered
 - Potential for large scale onshore development
- A proven producer: 700km² licence area includes three fields previously produced by Elf from 1980 to 1992
- Following Elf's exit, license holder's progress was hampered by low oil price, local unrest and other priorities
- Modern hydraulic fracturing technology as well as future possible water injection and artificial lift will result in a step change in production performance
- Additional upside may exist in the deeper exploration play (proven in the giant M'Boundi field nearby)

Very encouraging test results

- Completed two wells, which were drilled in 2009
- Used hydraulic workover unit to perforate and run completion equipment (packers, nipples, etc)
- Performed hydraulic fracture stimulation treatments
- Cleaned out wells with coiled tubing and nitrogen



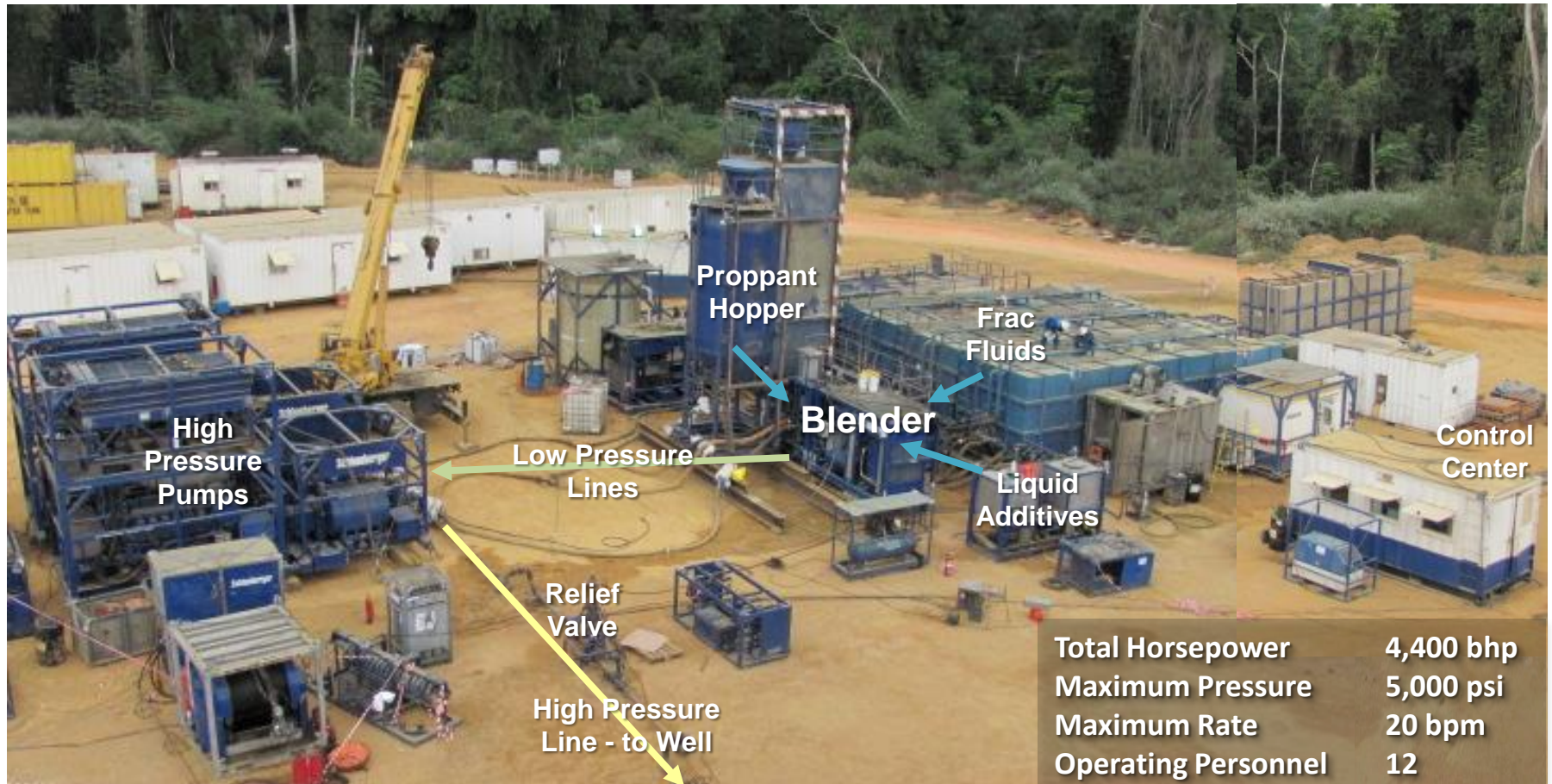
- Test production capacity has been around 600 bopd from KUN-4bis and 300 bopd from KUN-5
- Wells expected to decline to stable combined rate of 500-600 bopd after one year of production
- Sufficient permeability (~ 1 mD)
- Oil quality of 33-36 API with low viscosity (~ 1 centipoise)
- Good results from fracking
- Oil flow without formation water
- Produced and stored about 16,000 bbls on extended well tests through test facilities



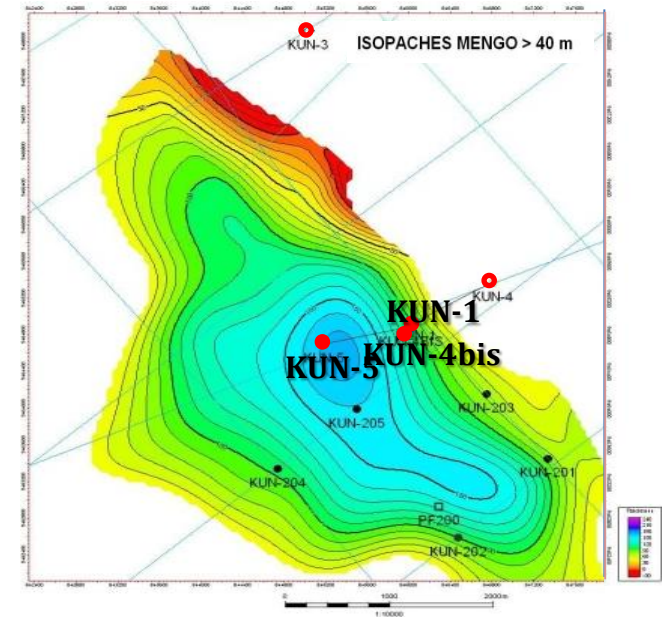
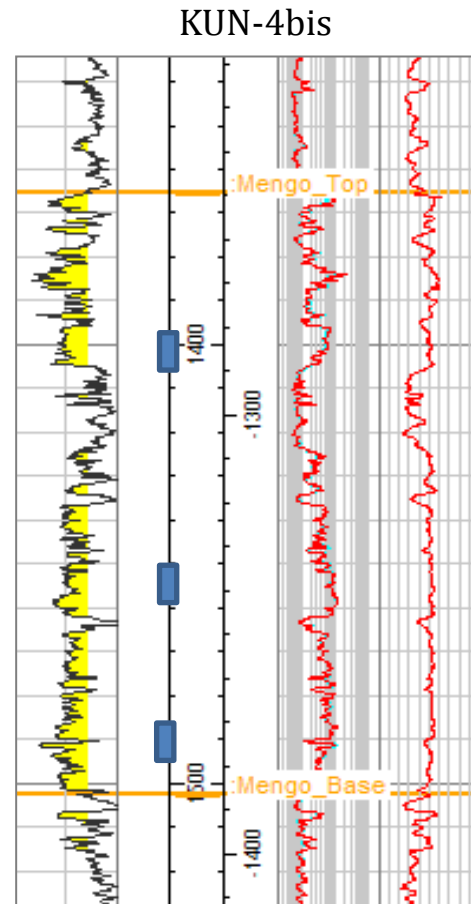
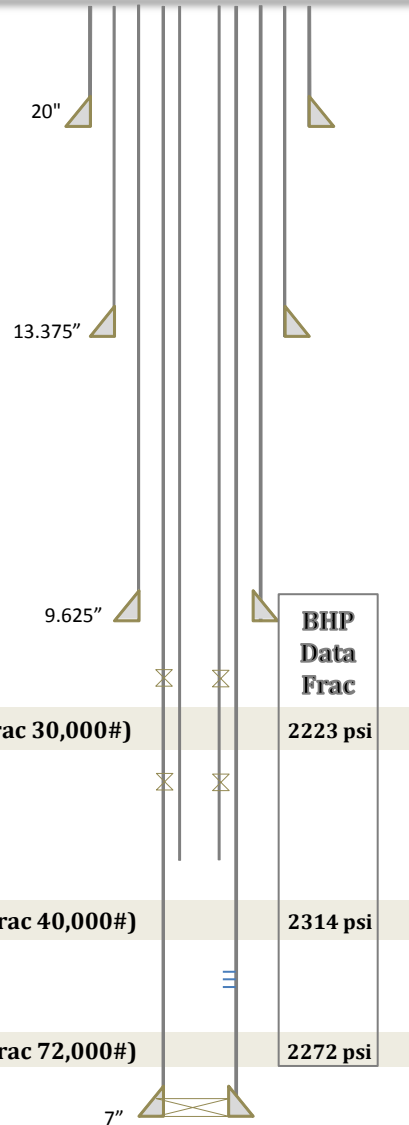
Kundji Completions Jul-Aug 2010

Hydraulic Fracturing Layout

KUN-4bis and KUN-5

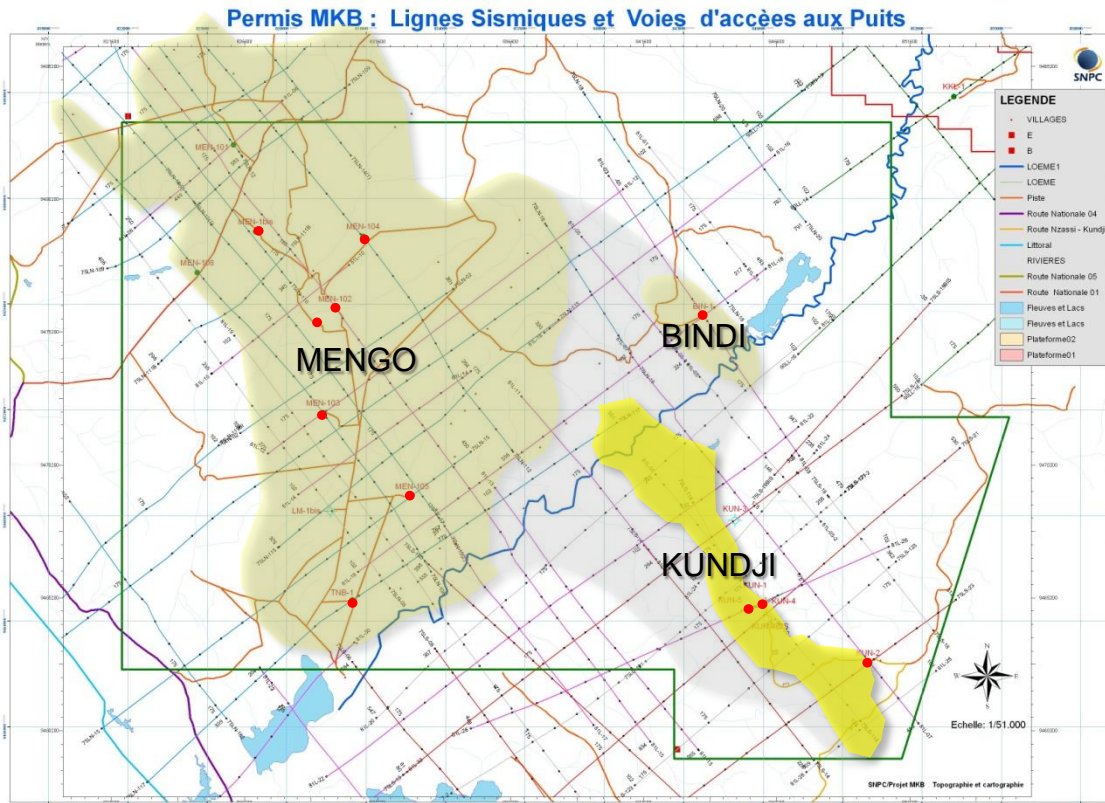


KUN-4bis fracture design and results



MKB production history

When operated by Elf (1980-1992)



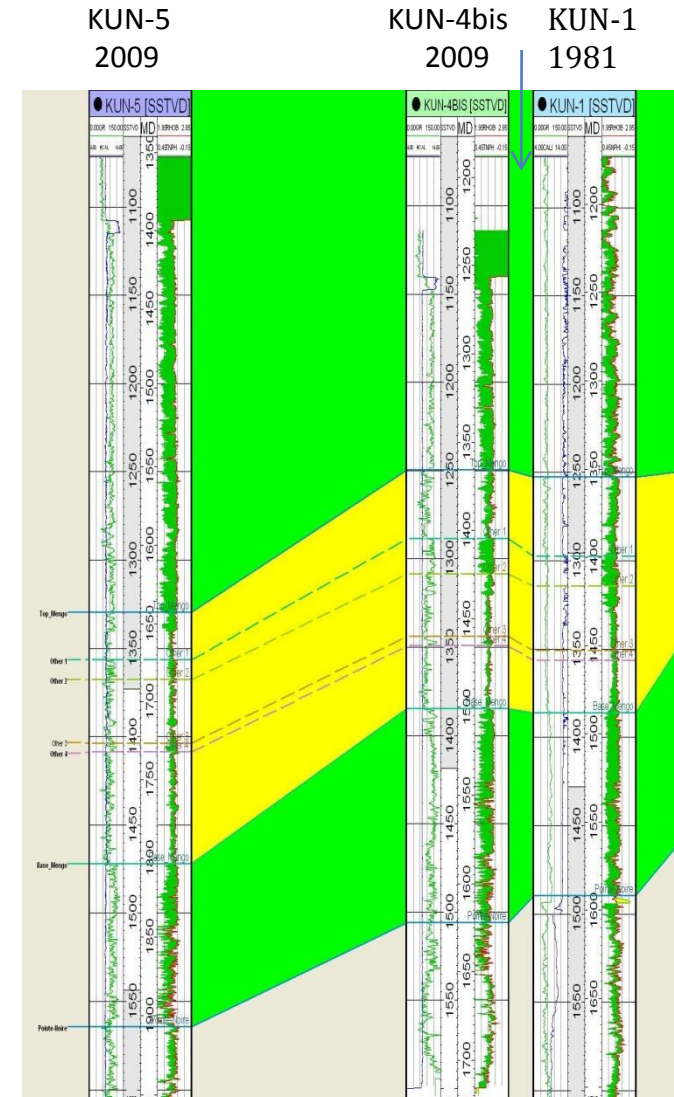
- Cumulative prod. ca .1.5MMbbls
- Kundji Produced 670,000 bbls from two wells producing for 12 yrs
 - Kundji-1 produced 516,000 bbls
 - Kundji-2 produced 154,000 bbls
- Mengo Produced 700,000 bbls
 - Three wells producing for 12 years
 - Men-102: produced 400,000 bbls
 - Men-101: produced 200,000 bbls
 - Men-105: produced 100,000 bbls
- Bindi Produced 175,000 bbls

Total Area: 700 km²

30 Year PSC Development License, Granted in 2007

KUN-1 (Elf) vs KUN-4bis

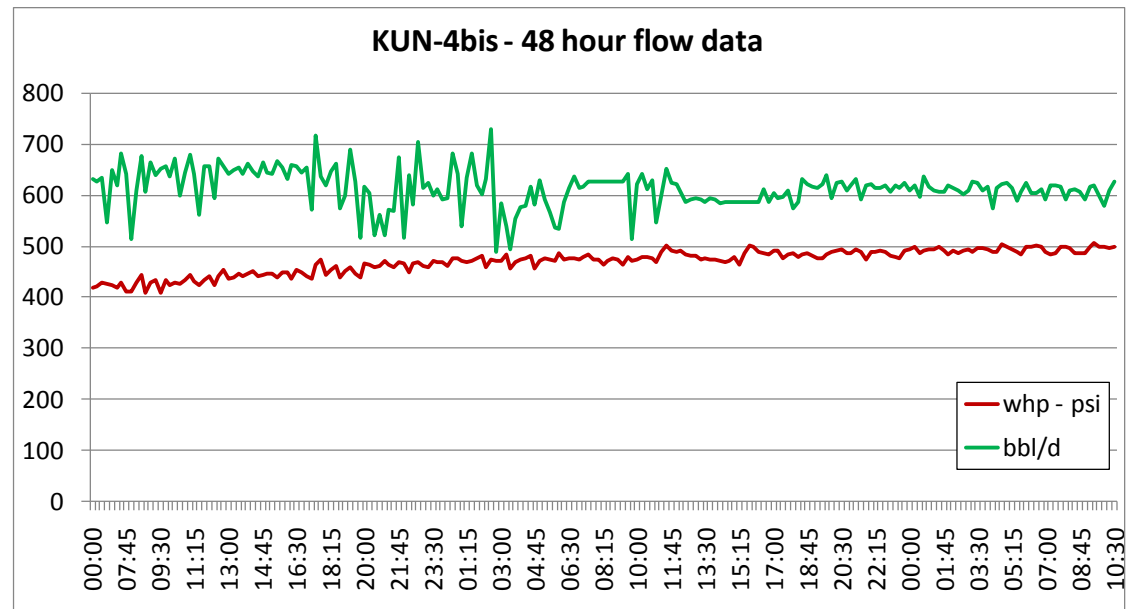
- KUN-1 Produced 516,000 bbls from 1980-1992, making it the largest cumulative producer in the entire concession area
- KUN-4bis was drilled in 2009 to a reservoir location only 80 meters from the KUN-1, and was completed in mid-2010 using modern techniques
- It was seen as a risk that the area might have been “drained” by the KUN-1
- Reservoir pressures suggest that the reservoir pressure is equal to the original pressure in the KUN-1, indicating good mobility and recharge



KUN-1 (Elf) vs KUN-4bis (con't)

- The KUN-4bis was hydraulically fractured in three zones, which are correlative to the zones fractured in the KUN-1
- Production rates from the KUN-4bis are more than twice the peak rates observed in the KUN-1
- KUN-4bis is expected to decline, but ultimately produce more oil than KUN-1

Well	Lbs. of proppant	Maximum proppant ppg	Production bopd
KUN-1	57,000	3	280
KUN-4bis	142,000	6-8	600



Way Forward

Overall

- Goal is to reach economies of scale in a larger project
- Proceeding cautiously, while defining optimum development plan

Sub-surface

- Additional seismic activity (acquisition and processing)
- Integrated study to determine optimum well paths and completions
- Integrated study to determine effectiveness of water flooding

Drilling

- Preparing to start 6-well drilling program in 1Q 2011
- Drilling rig is onsite, inspection and acceptance process from 1 Jan 2011

Way Forward (contn'd)

Production

- Installing temporary production equipment to allow early production
- 5,000 bopd third-party production facility contract in final stages of FEED, for installation in 3Q 2011 - including operational procedures and training of personnel
- Studies currently underway to study export pipeline options

Logistics

- Push to use more efficient, truck-mounted drilling & completion equipment
- Establish effective sourcing, procurement and contracting procedures

Organization

- Build sustainable organization, structures and procedures
- Adding more expatriates in key positions, starting in December 2010

MKB Project Organization

Managed by Project Team coordinated by Mr. Ciry Mikolo

Panoro is represented by participation in key leadership roles, including mentoring and training of local staff

Key staff:

- Drilling and Operations Manager
- Logistics Manager
- Drilling Superintendant
- Drilling Engineer (Dec 2011)
- Subsurface Manager (Jan 2011)
- Reservoir Engineer (Jan 2011)
- Production Superintendant (prop.)
- Finance Consultant (prop.)



Why MKB will be successful

- Very large STOOIP
- Confirmed that modern frac technology is more effective than methods used in the 80's, making it possible to achieve economic rates
- Cost reduction opportunities
 - Simplified completion
 - Economies of scale
- Operator open to expand project team with experienced expatriates

