

# **Analysts And Investors Field Trip**

**Western Argentina - Business Unit  
September 15th - 16th, 2003**

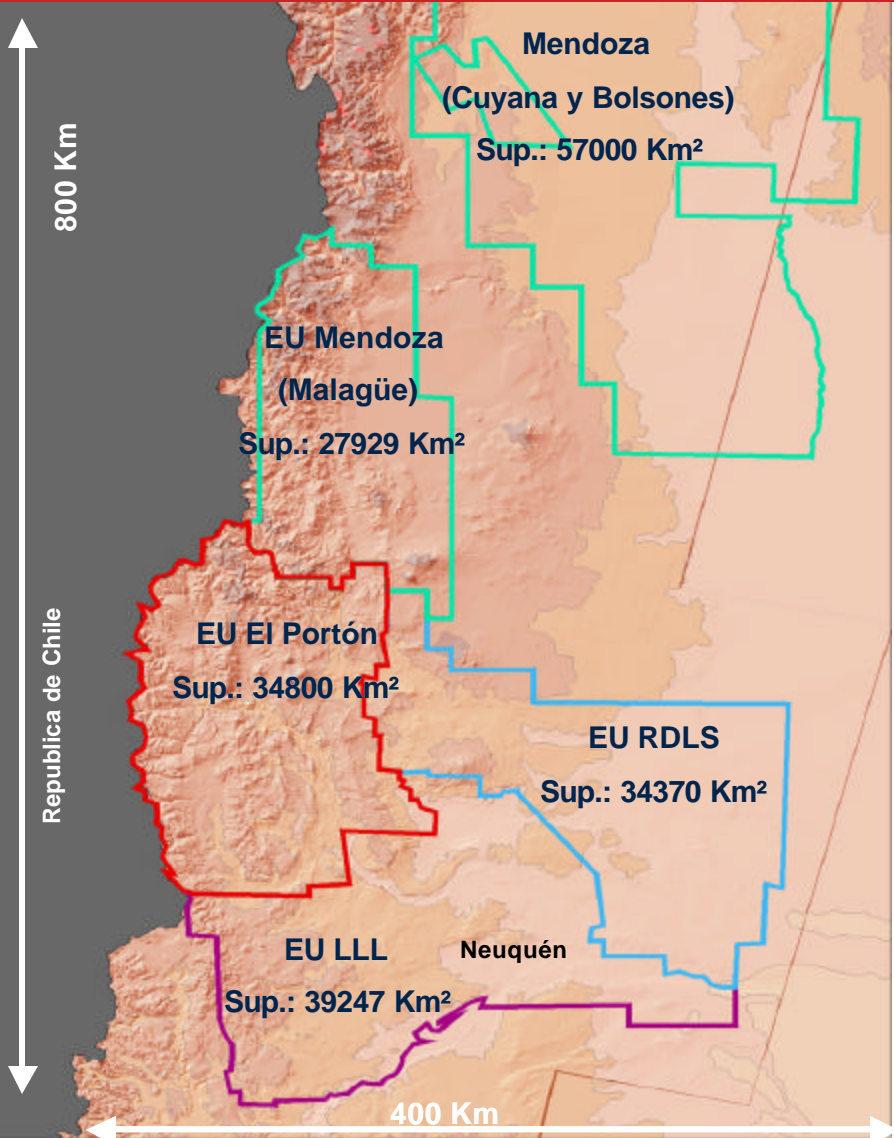
**Neuquén - Argentina**

**2003**

**Business Unit - West Argentina**



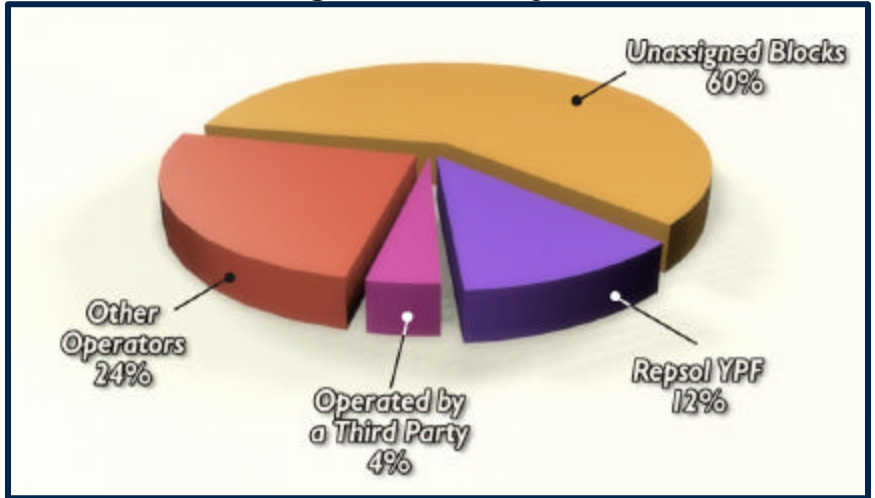
# Western Argentina Business Unit Geophysical Location



## First Production : 1918

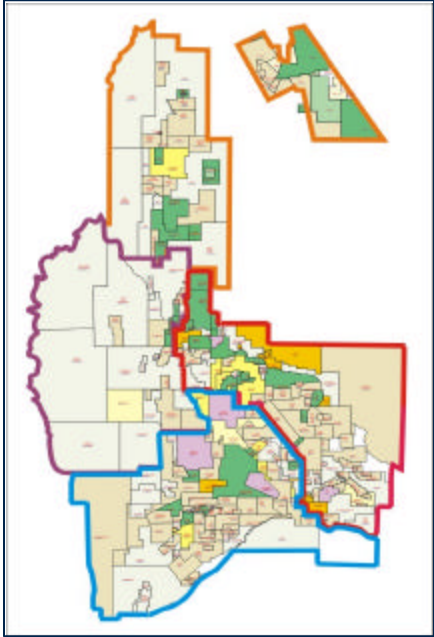
31/12/2002	
<i>Drilled Wells</i>	7022 (Opera)
<i>Producing Wells</i>	2872 (Opera)
<i>Productive Production</i>	5280 Mboe
<i>Proved Reserves</i>	2231 Mboe
<i>Drilled Development Wells 2003</i>	193 (2002) - 269 (2003)
<i>Drilled Exploration Wells 2003</i>	19 (2002) - 21 (2003)
<i>Fields</i>	85
<i>Working Rigs (Drilling+Workover) Agosto/03</i>	65

## Basin Consesion Segmentation by UNAO: 199346 Km²



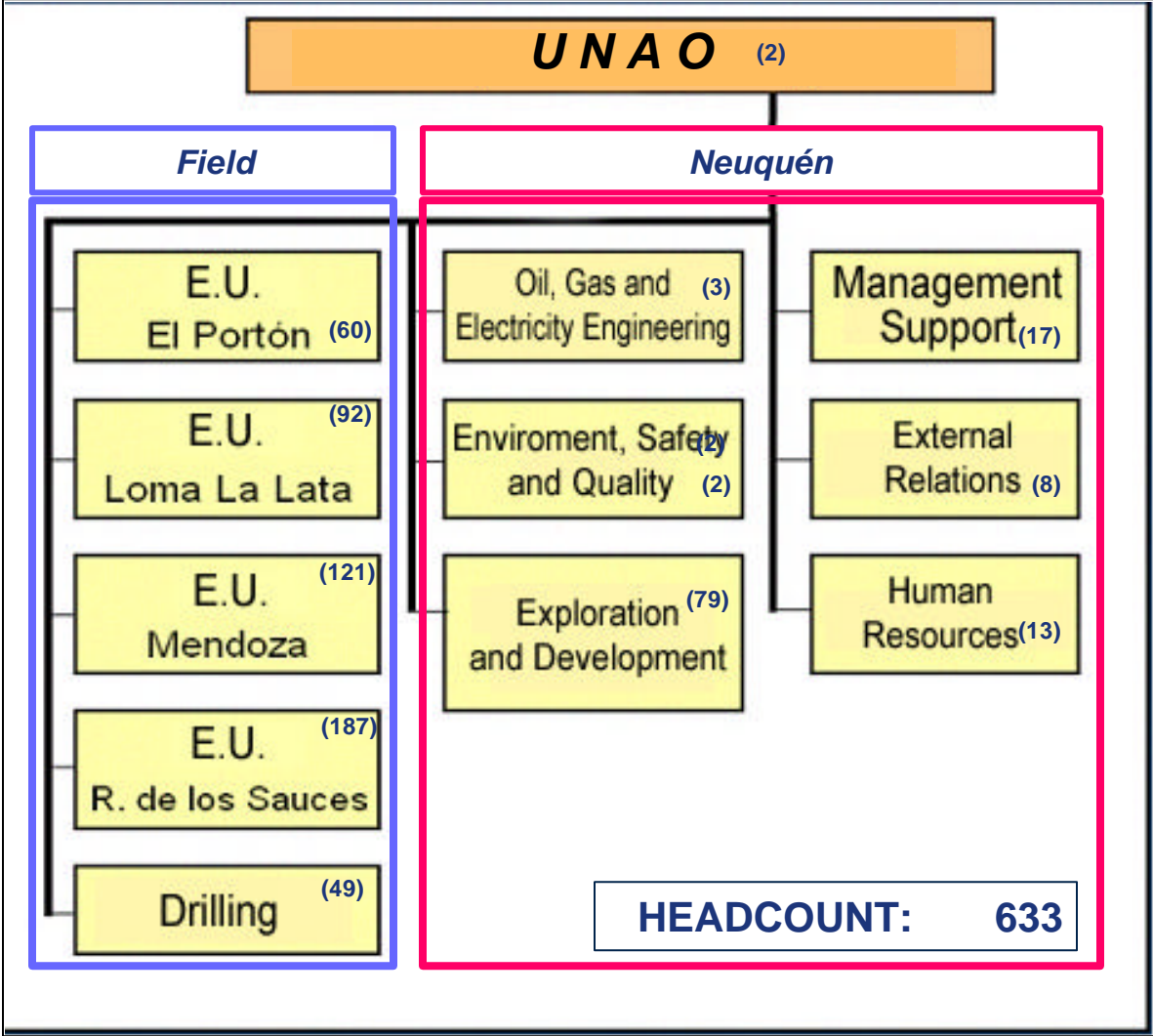


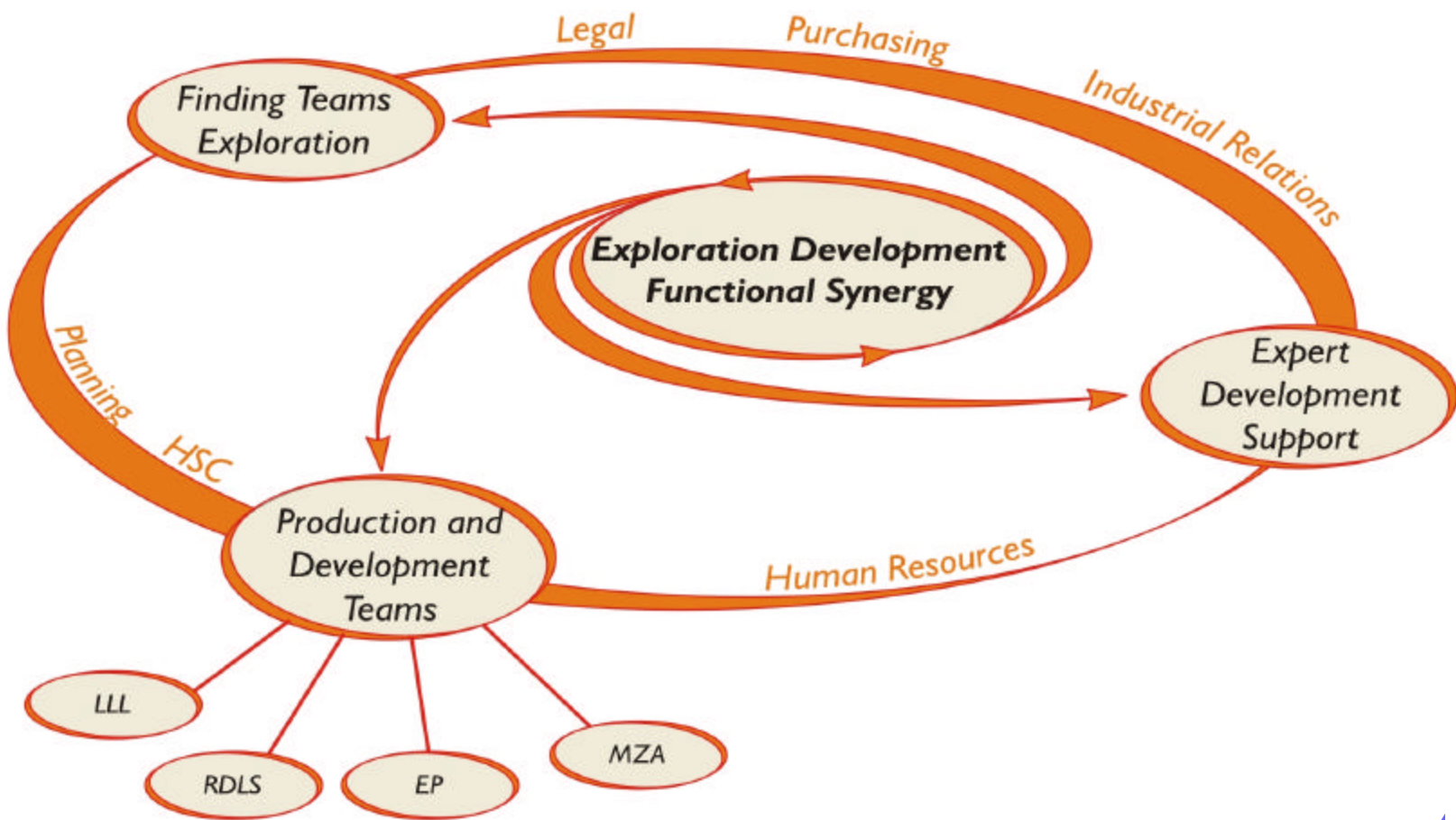
# Western Argentina Business Unit Organization Chart



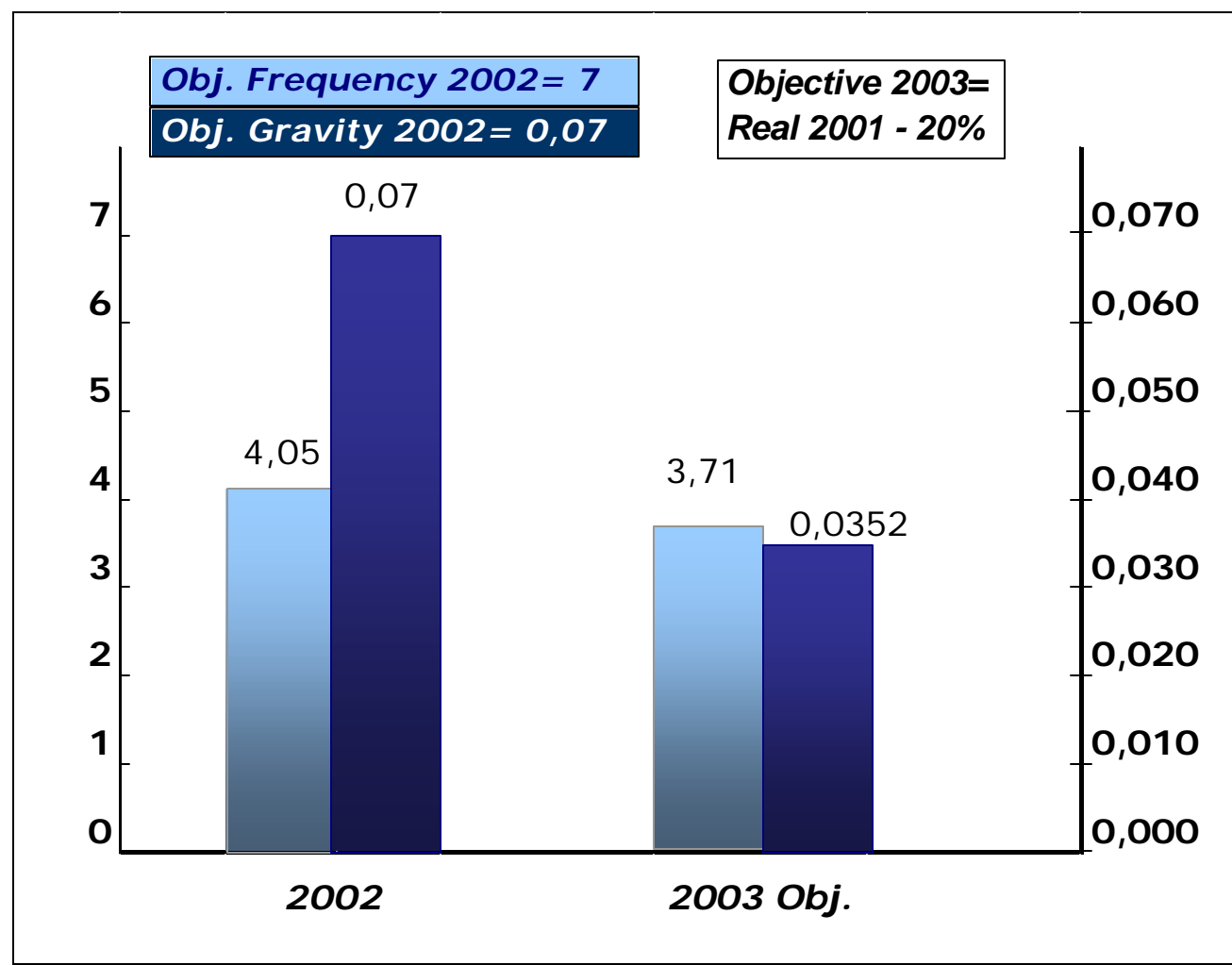
**UNAO YEAR 2003**

Oil Production	91 Mboe
GLP Production	18 Mboe
Gas Production	75 Mboe
Total Production	184 Mboe
Exploration Investments	53 MU\$\$
Development Investments	346 MU\$\$
Lifting Cost	1,53 U\$\$/Boe
Finding Cost	2,52





LTIIF (Accidents x 1.000.000 worked ours)



Gravity (Lost Time Days x 1.000 Worked Ours)

ISO 14001					
Economic Unit	1998	1999	2000	2001	2002
Loma de la Lata					
Loma de la Lata Zona Central					
Rincón de los Sauces					
Mendoza					
Malargüe					
El Portón					
Exploración					
Perforación					

 Certificate

Safety Management System		Audits	
Economic Unit	2003	Economic Unit	
Loma de la Lata		Loma de la Lata	10
Loma de la Lata Zona Central		Loma la Lata Zona Central	6
Rincón de los Sauces		Rincón de los Sauces	4
Mendoza		Mendoza	4
Malargüe		Malargüe	4
El Portón		El Portón	8
Exploración		Exploración	8
Perforación		Perforación	2

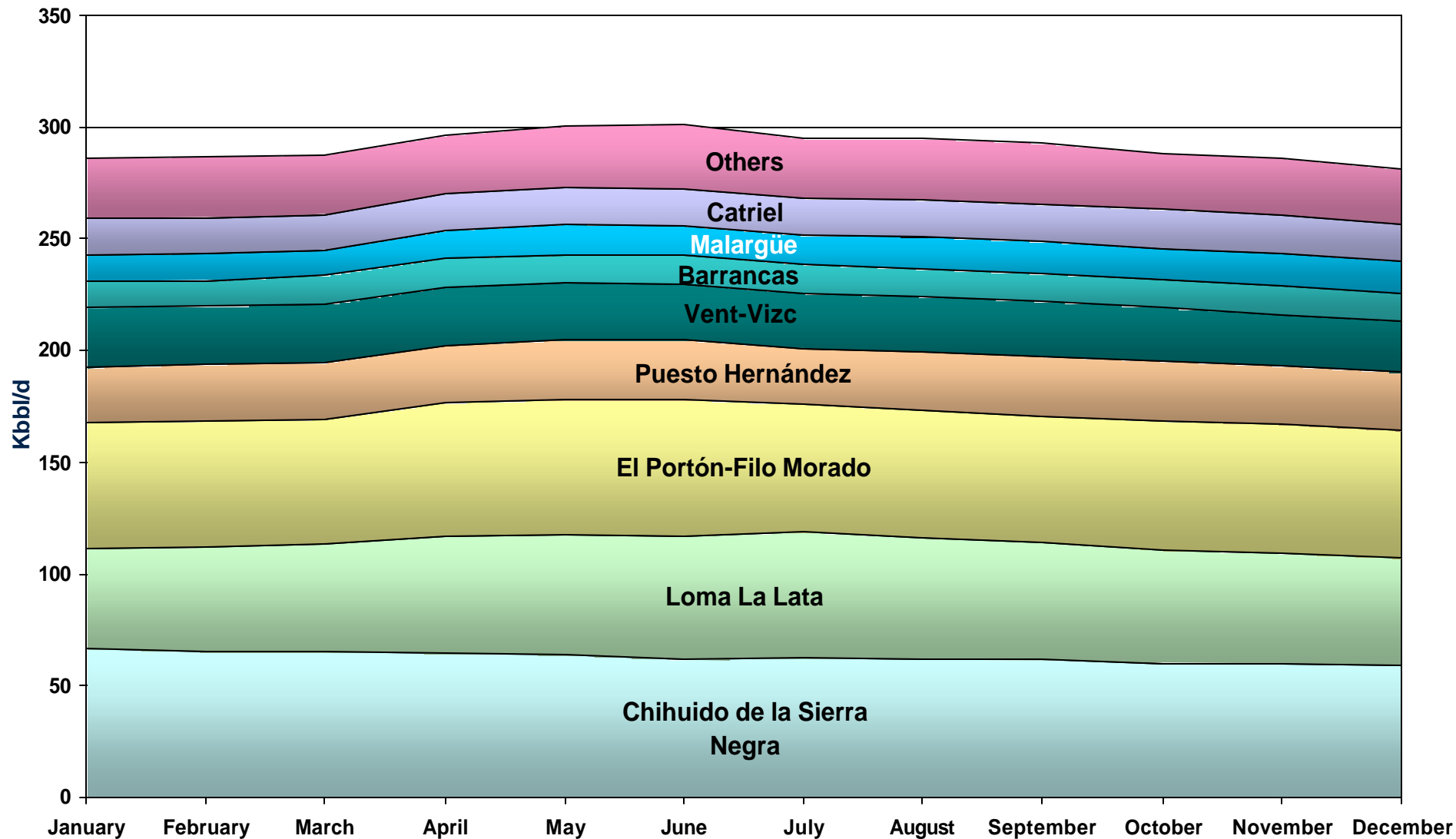
 Implementation



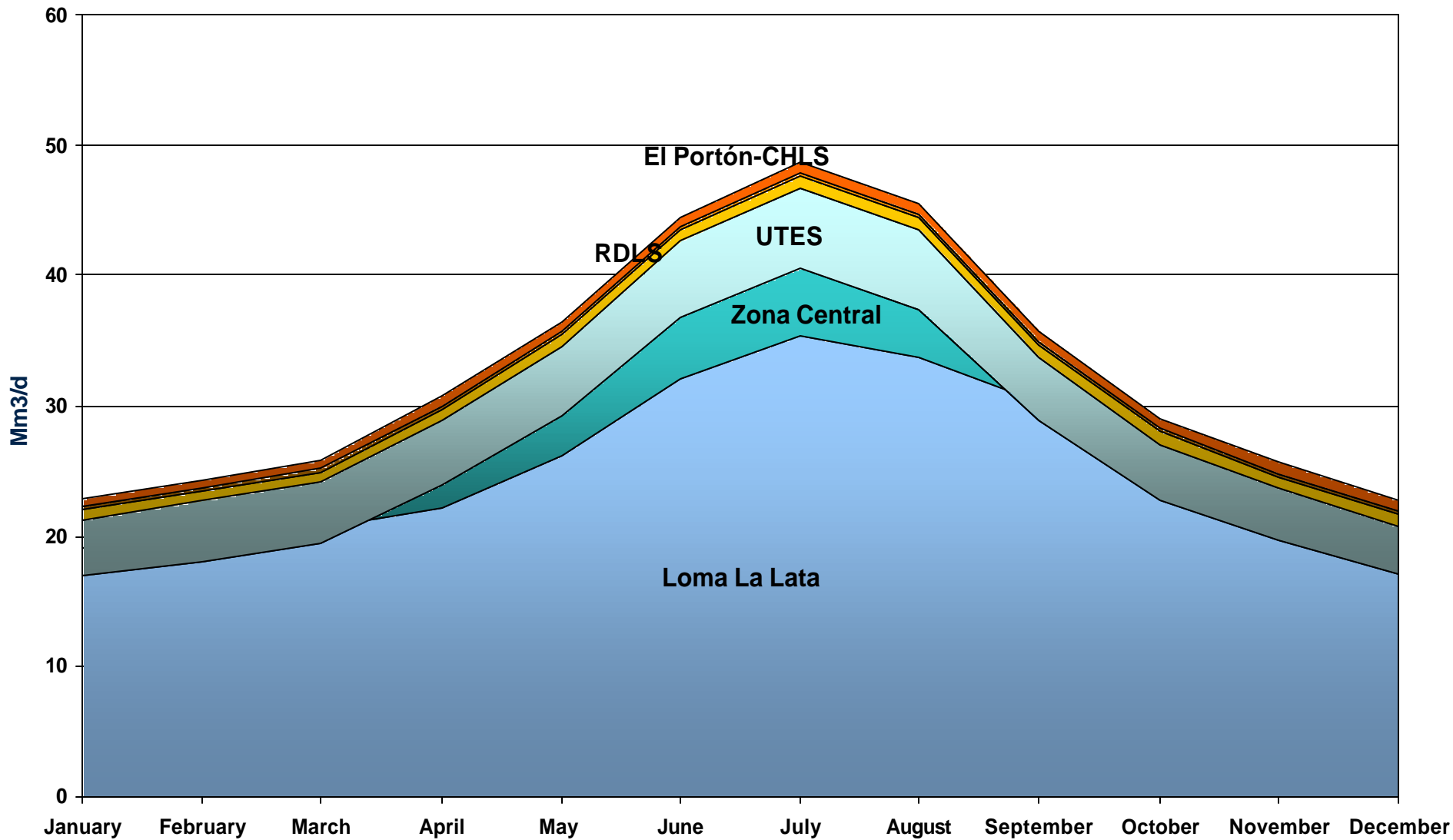
<b>Obj N°</b>	<b>Indicator</b>	<b>Objective</b>	<b>Achieved</b>	<b>Exceeded</b>
<b>1</b>	<b>Daily Net Production Kboepd</b>	<b>502,8</b>	<b>&gt;487,7</b>	<b>502,8</b>
<b>2</b>	<b>Investments (MU\$S)</b>	<b>399</b>	<b>399</b>	<b>&lt;379</b>
<b>3</b>	<b>Sales (MU\$S)</b>	<b>2204</b>	<b>&gt;2094</b>	<b>&gt;2424</b>
<b>4</b>	<b>Free Cash Flow (MU\$S)</b>	<b>760</b>	<b>&gt;722</b>	<b>&gt;836</b>
<b>5</b>	<b>Lifting Cost (U\$S/BOE)</b>	<b>1,53</b>	<b>1,53</b>	<b>&lt;1,48</b>
<b>6</b>	<b>ROA</b>	<b>26,84%</b>	<b>&gt;25,5%</b>	<b>&gt;29,5%</b>



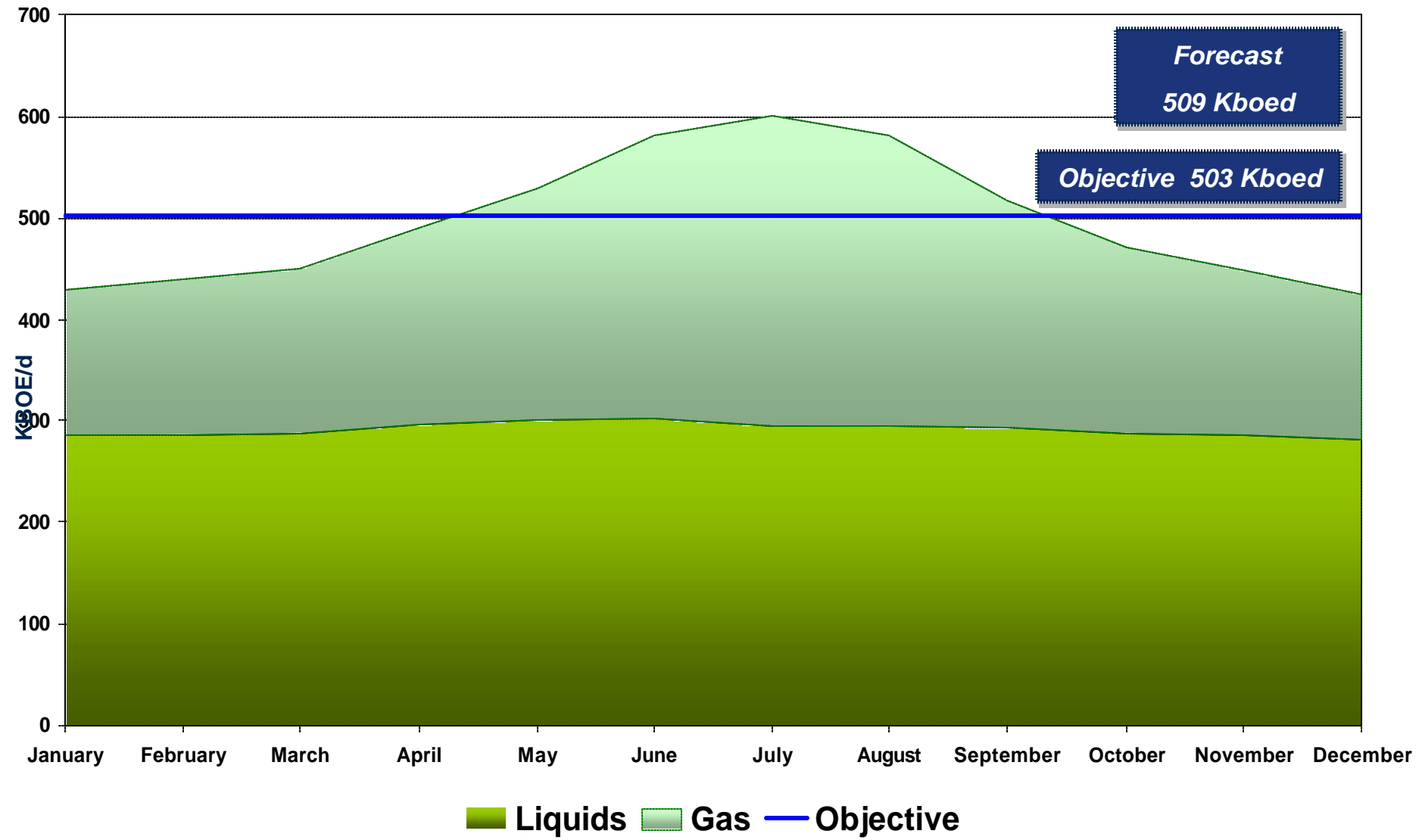
# Western Argentina Business Unit 2003 Liquids Production Profile by Field



# Western Argentina Business Unit 2003 Gas Production Profile by field



# Western Argentina Business Unit 2003 Net Production Profile



# Western Argentina Business Unit

## 2003 Investment by Reserves Categories

Proved  
Developed Reserves  
26%

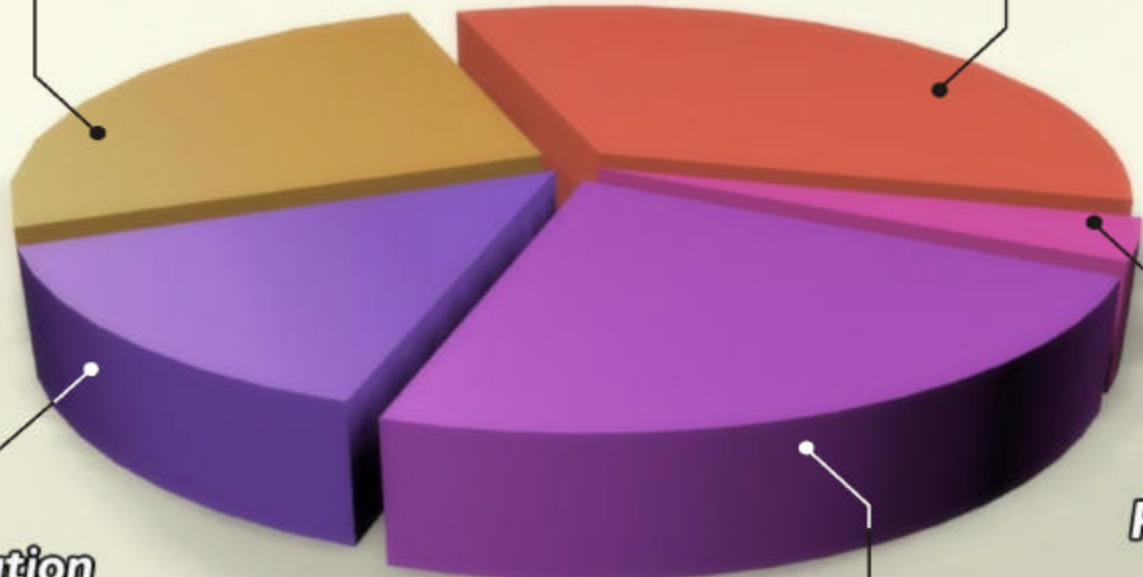
Proved Non  
Developed Reserves  
34%

Exploration  
Resources  
14%

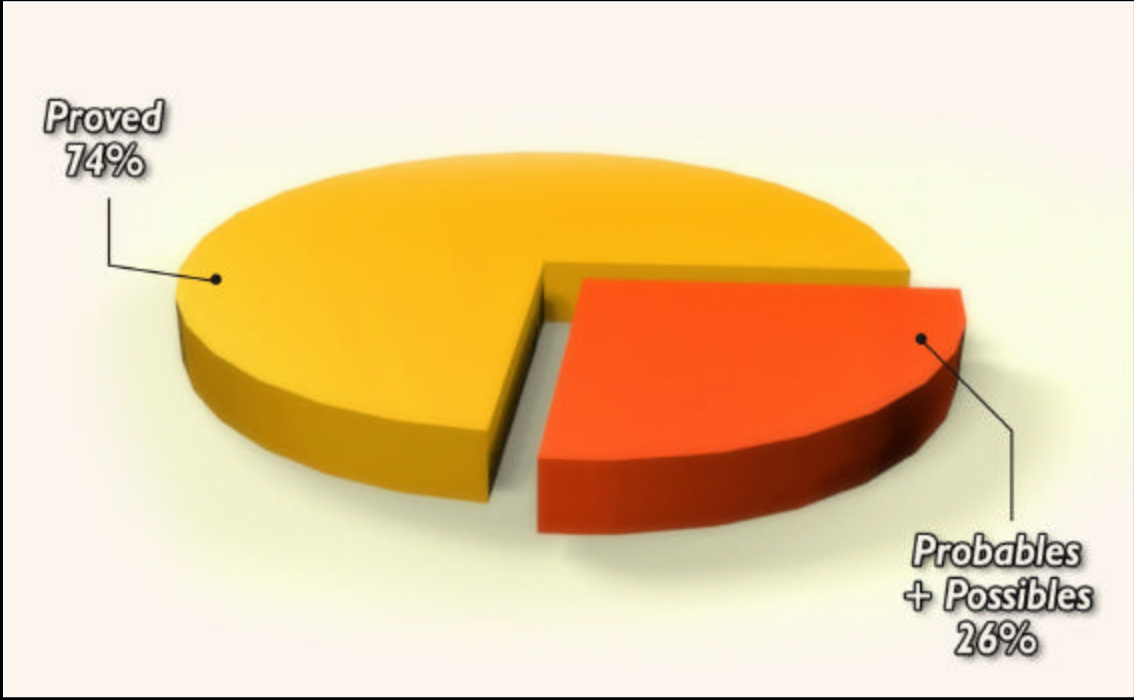
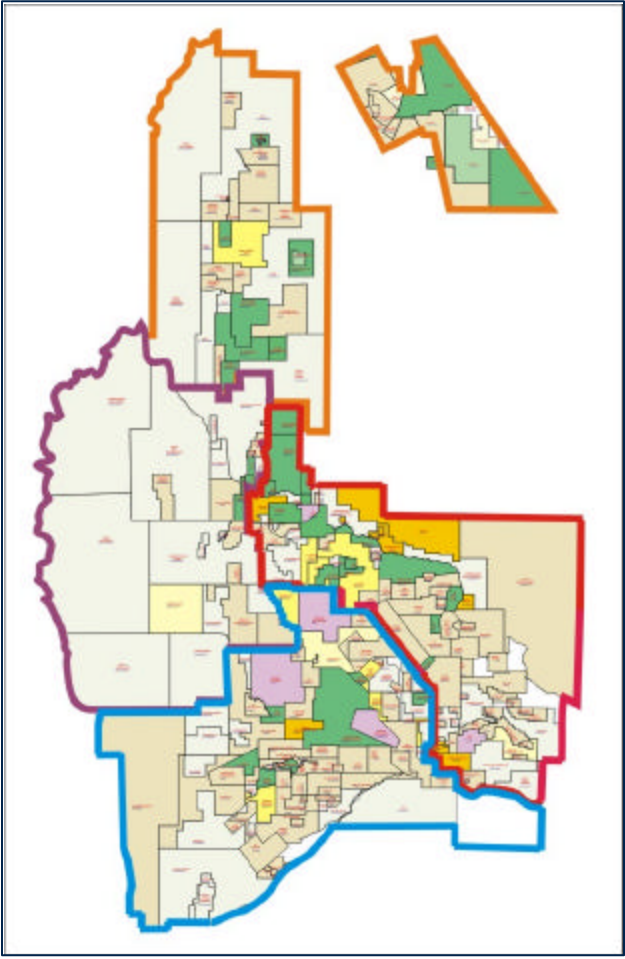
Possible  
Reserves  
23%

Probables  
3%

2003 INVESTMENTS : 399 MU\$S



# Western Argentina Business Unit Total Reserves (31/12/2002)



<b>Proved:</b>	<b>2231 MBOE</b>
<b>Probables+Possibles:</b>	<b>782 MBOE</b>
<b>TOTAL:</b>	<b>3014 MBOE</b>



- ✓ All our Exploration and Production operations require the continuous acquisition of Materials and Services.
- ✓ UNAO has over 850 suppliers.
- ✓ UNAO has indentified the supplies that are Strategically important and is changing the way it addresses and manages these supply areas. Starting with:

• Cementing and Stimulation Services	(23MUSD/year spend)
• Mud Services	(11MUSD/year spend)
• Gas Compression Services	(23MUSD/year spend)
• Logging Services	(15MUSD/year spend)
• Electro-submersible pump Services	( 9MUSD/year spend)
• Tubulars	(58MUSD/year spend)
• Wellheads	( 5MUSD/year spend)

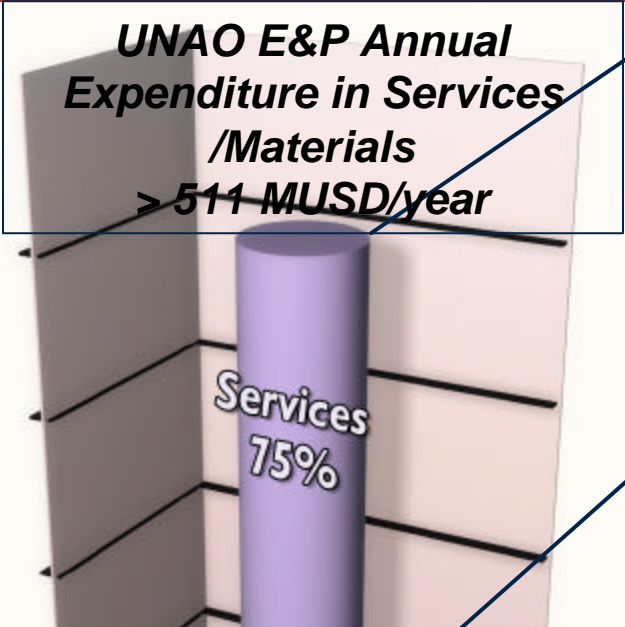
**Total = 144 MUSD/Year**

- ✓ The focus is to work with suppliers to understand and quantify all through-life costs (both our own associated costs and the suppliers costs), or TCO\*, for each commodity or service.
- ✓ Using Performance, Quality and Cost data, Multi-disciplinary teams are beginning to attack the business processes in order to reduce cost and provide important benefits to be shared by both parties.
- ✓ Both teams and management, use specific performance indicators to monitor progress.

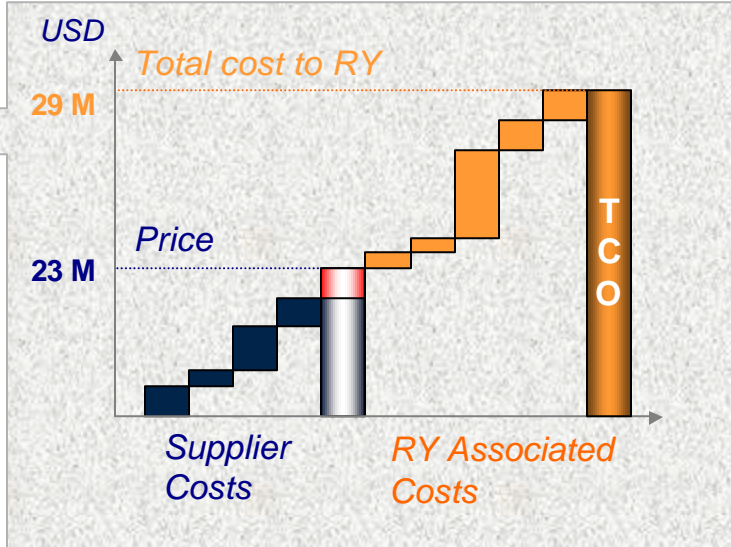
\* TCO – Total Cost of Ownership

# Western Argentina Business Unit

## Cost Reduction through Strategic Supply Management -Example



- Site Preparation
- Drilling Rigs
- Cementing/Stimulating**
- Logging
- Directional Drilling
- Muds
- O&M
- Gas Compression
- Artificial Lift
- .....



Total cost for RY?

So far this year..5,4MUS in tariff reduction and initiating strategies for mutual cost reductions with suppliers

11% reduction in supplier spend (=2,5MUSD)

Improvement

- 50%
- 20%
- 20%
- 20%

2,200 Cementing/Stimulating operations /year

4 Principal Supplier Cost elements being targeted *with the suppliers*

- 1) Financial cost of invoicing process
- 2) Sub-utilization of Equipment
- 3) Non-productive Time
- 4) Inventory Costs

>30% of suppliers charges to RY

Plus main RY cost element – operation time

>60% of RY Associated costs



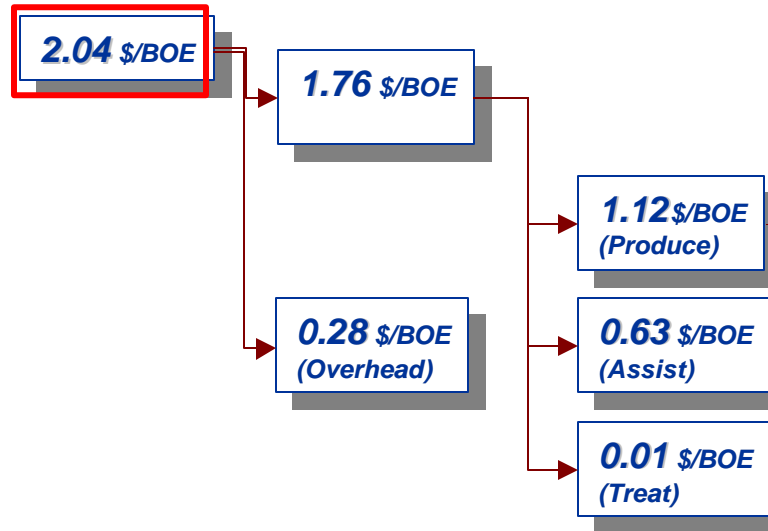
***Goal: Lifting Cost improvement in each field  
and identify improvement opportunities.***

***Why Activity Based Costing Model?***

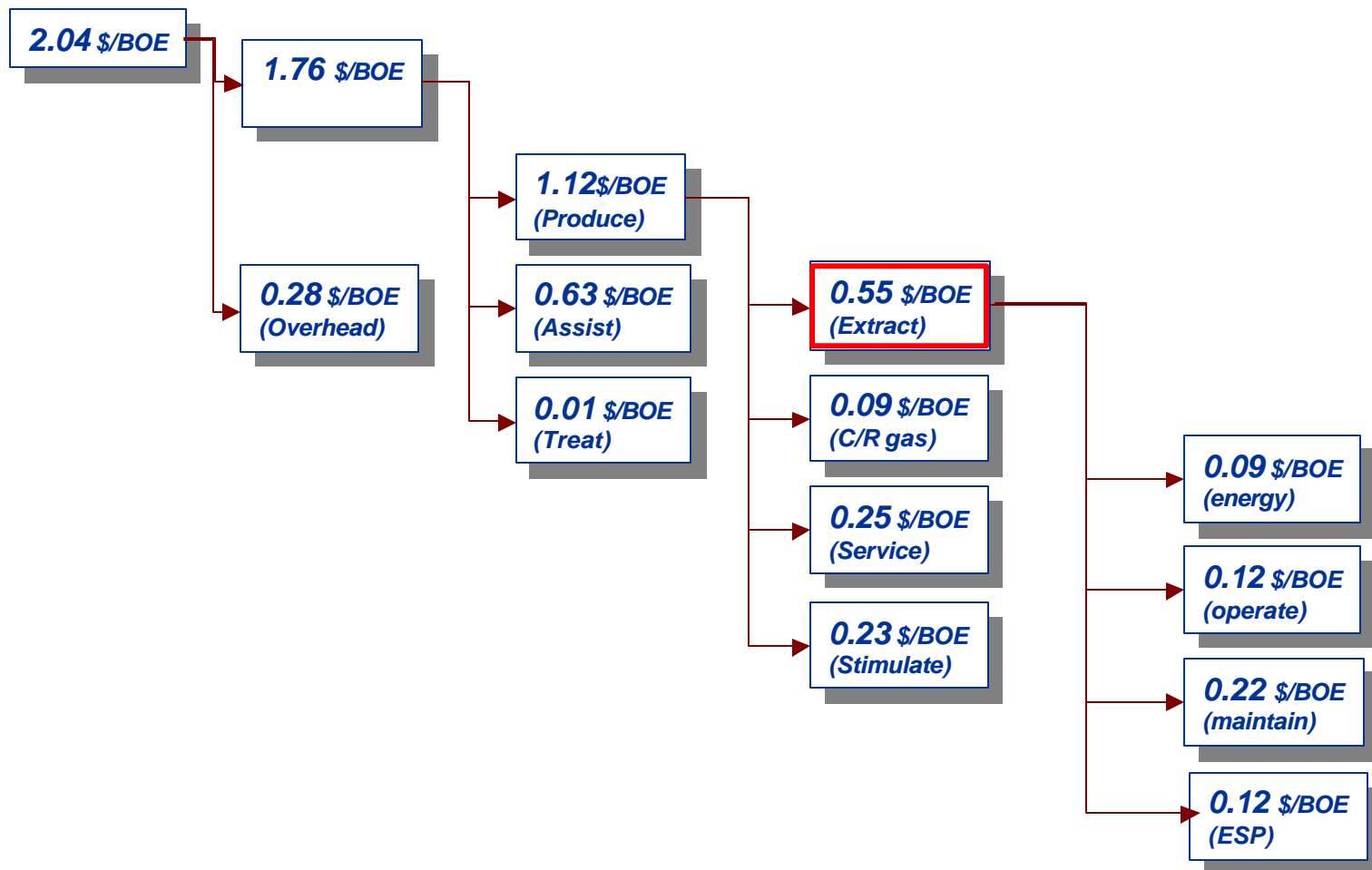
- ***To Identify activities (and not only the origin of the costs).***
- ***To select the best cost driver for each activity.***
- ***To analyze costs based on physic activity.***
- ***To use the driver concept to allocate indirect costs.***
- ***To obtain individual product´s cost (Oil, gas LGP).***



### Chihuido de la Sierra Negra

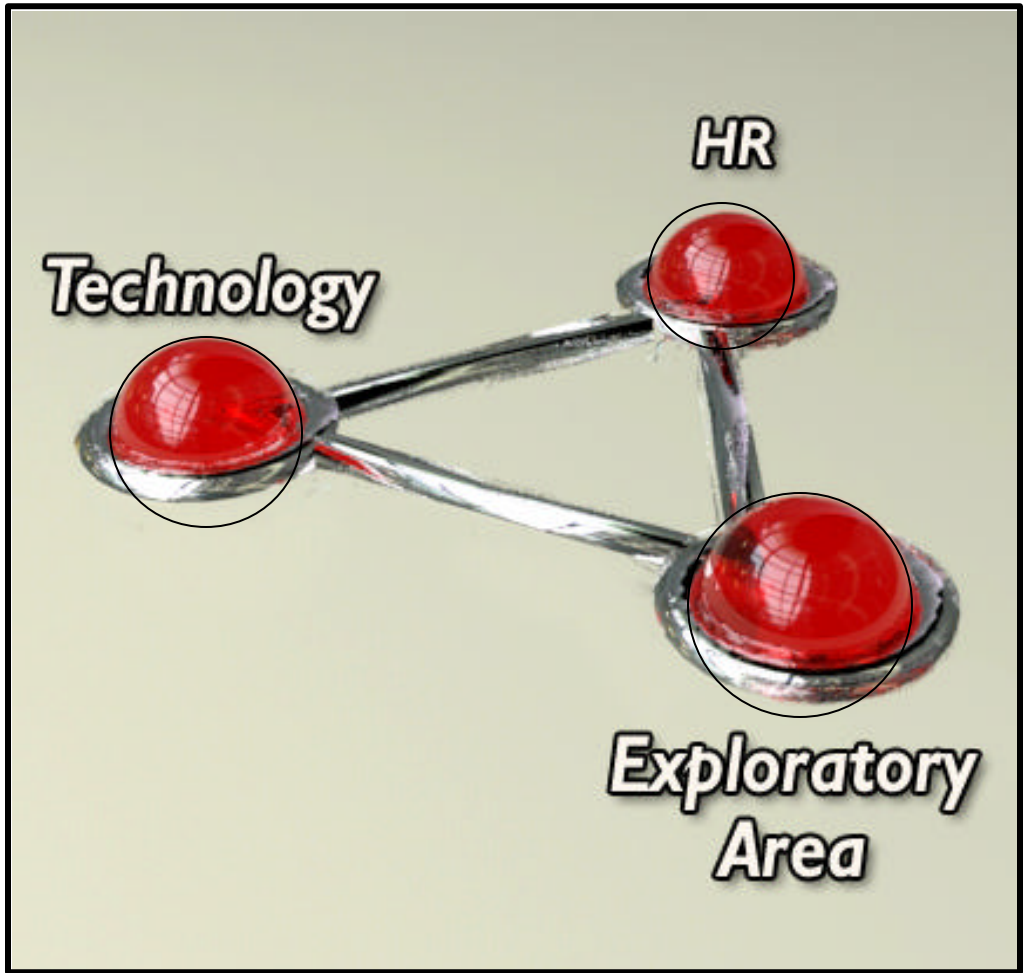
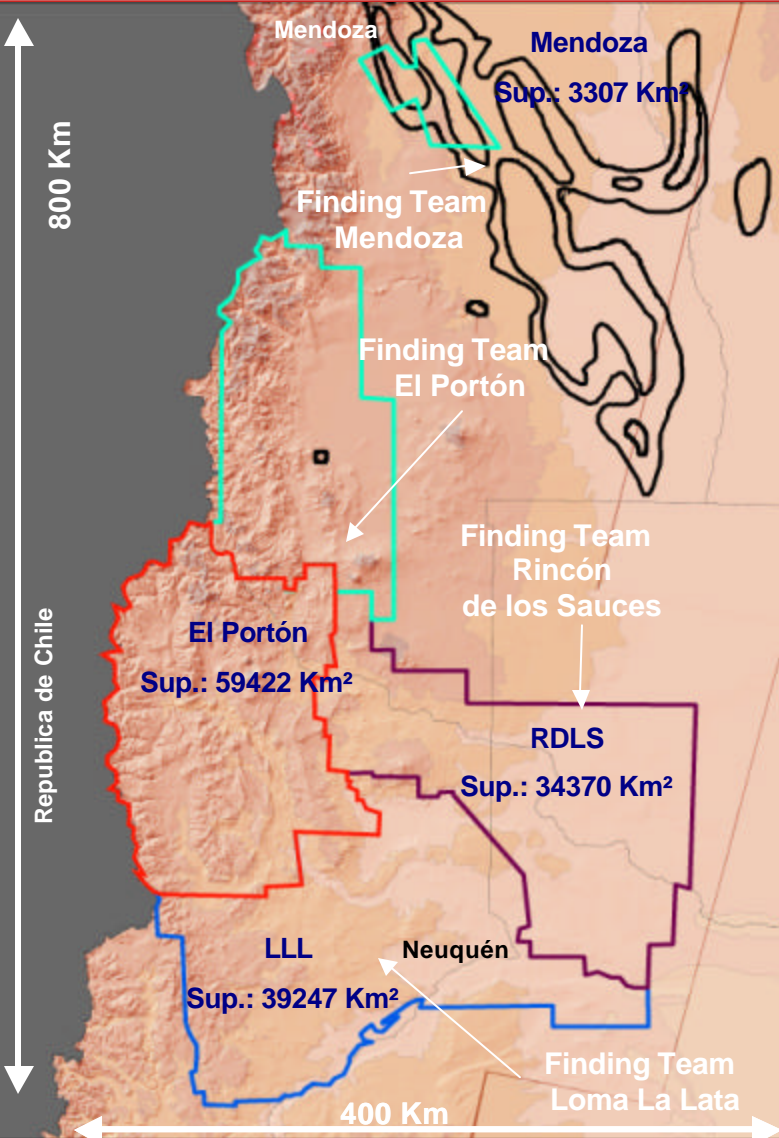


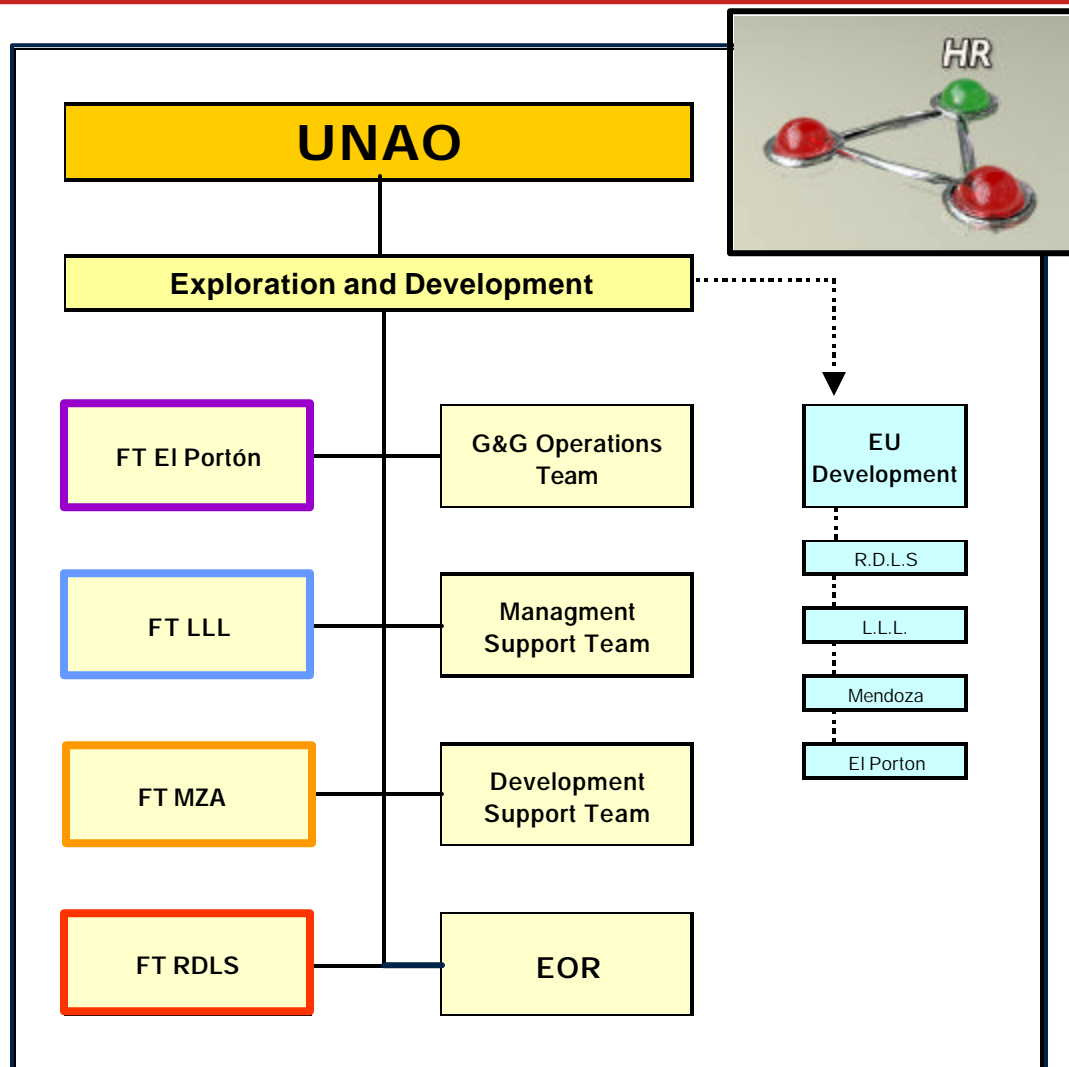
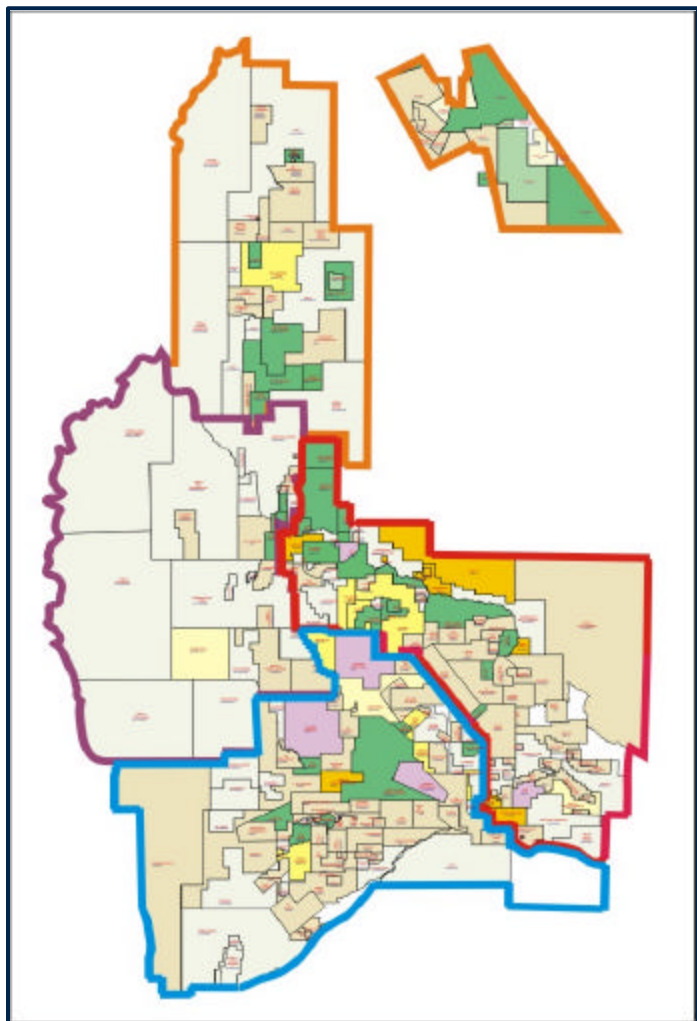
### Chihuido de la Sierra Negra



# Western Argentina Business Unit

## Exploration and Development – 3 Pillars





October 2003 



**Octane Station**



**PC/Linux Station**



**Sun Blade Station**

**2001 - 2003**

Acquisition 3D Seismic 5300 Km<sup>2</sup>

**2002 - 2003**

Processing Seismic Integrated Cubes  
 Barrancas-Vizca. 8 Suveys 1330 Km<sup>2</sup>  
 Chihuidos 14 Suveys 1470 Km<sup>2</sup>  
 Loma La Lata 6 Suveys 1630 Km<sup>2</sup>



**Storage**

**Fiber Channel**

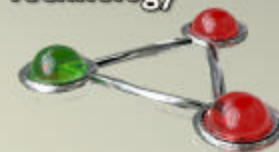


**Reality Center Station**



**Onix Station**

**Technology**



- Talero  
52 Workstations
- Rincón  
3 Workstations
- Loma de la Lata  
2 Workstations
- El Portón  
1 Workstation
- Mendoza  
4 Workstations
- Total = 62 Wks**

# Western Argentina Business Unit

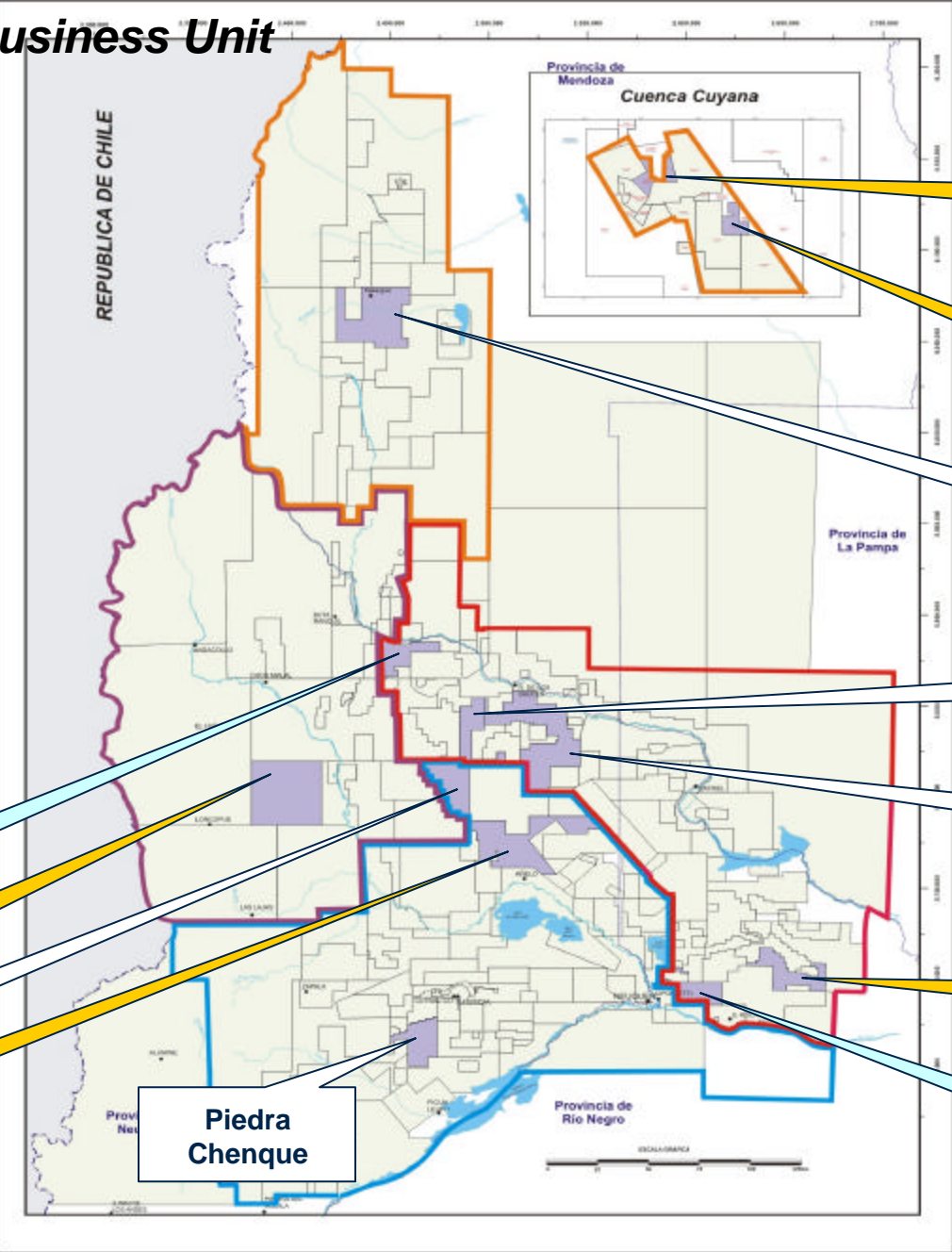
## Exploratory Area



**Exploratory Area**  
 Nov.2001: **4387 Km<sup>2</sup>**

**Acquired Exploratory Area**  
 (2001-2002): **7000 Km<sup>2</sup>**  
 (160% increase in Exploratory Area)

**Total Exploratory Area :**  
 (2002-2003): **11387 Km<sup>2</sup>**



**Corralera**

**El Mollar**

**Sauzalito**

**Bandurria**

**Piedra Chenque**

**Pampa del Sebo**

**Zampal Oeste**

**Malargüe Sur**

**Calandria Mora**

**La Banda**

**Puesto Gonzalez**

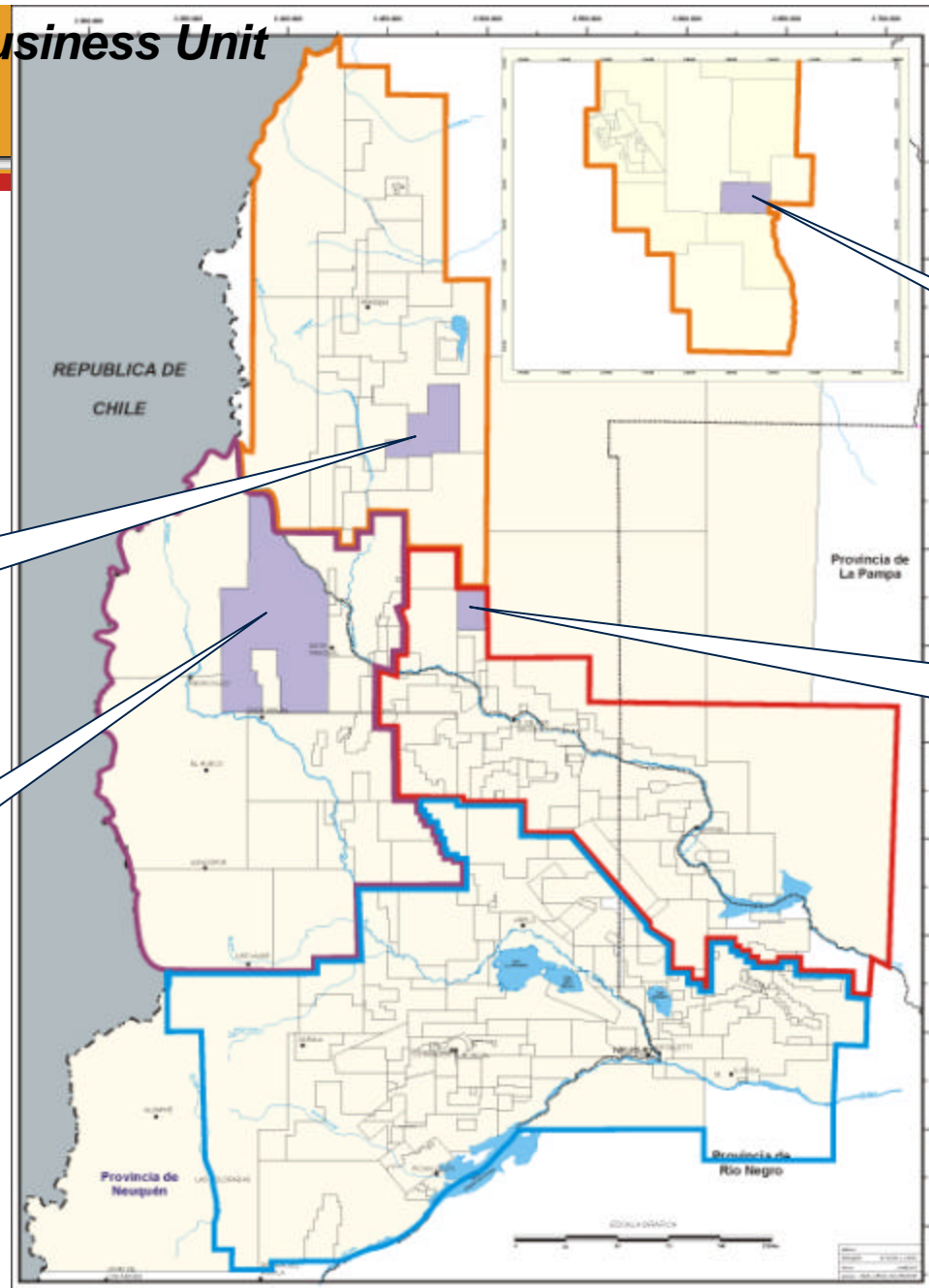
**Cerro Manrique**

**Operated by Repsol-YPF+Asoc.**

**Non Operated by Repsol-YPF**

# Western Argentina Business Unit

## New Blocks with Exploratory Potential



**Los Tordillos**  
2000 Km<sup>2</sup>

**Cajón de los Caballos**  
885 Km<sup>2</sup>

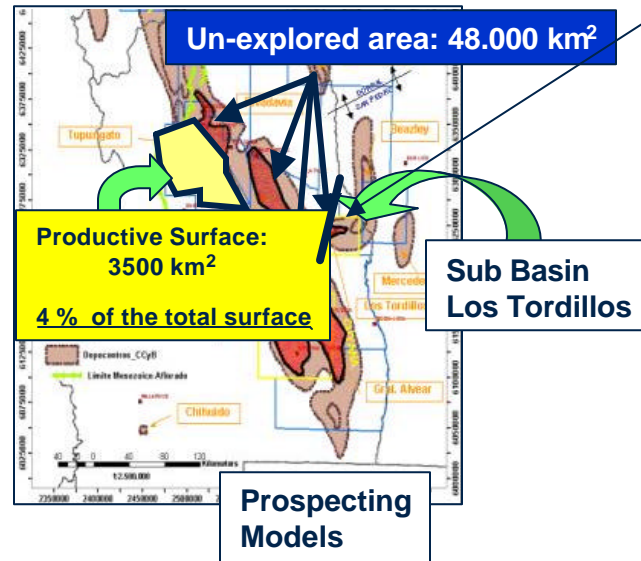
**Loma El Divisadero**  
330 Km<sup>2</sup>

**Río Barrancas**  
4503 Km<sup>2</sup>

**Total Surface: 7718 Km<sup>2</sup>**  
**Resources: 235 Mbbl**

# UNAO Main Exploratory Highlights FT MZA – FT EP

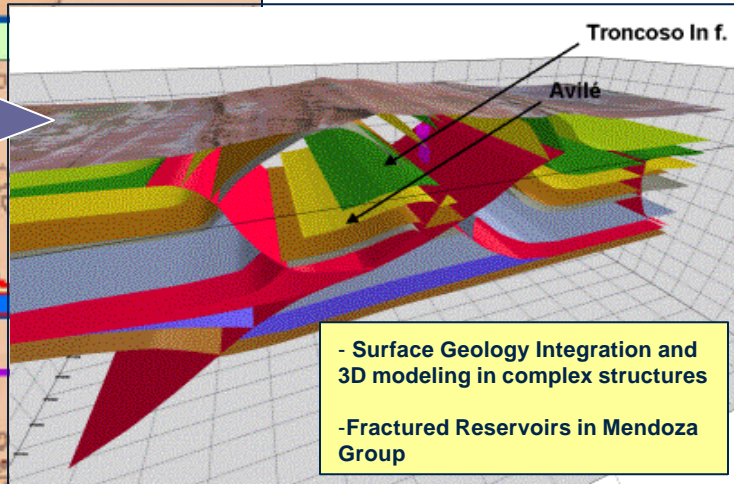
REPSOL  
YPF



## MENDOZA EXPLORATORY OBJECTIVES

New Terciary Horizons not yet explored to focus on

- ✓ Fractured reservoirs
- ✓ Petroleum Modeling System
- ✓ New scenario in Exploratory Sub-Basin

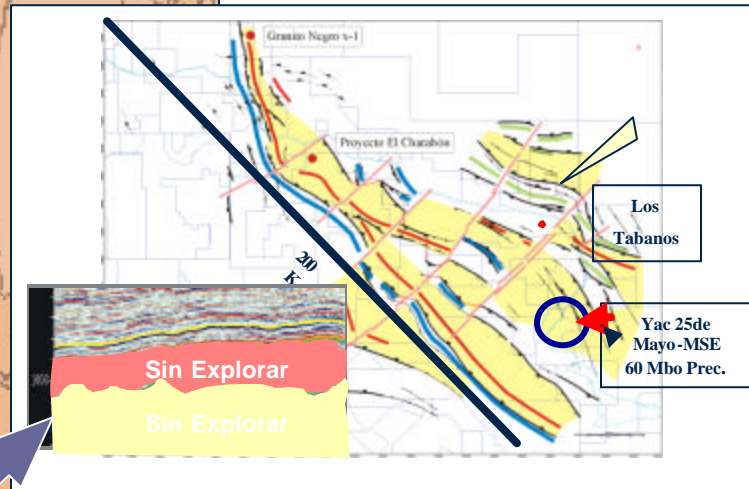


## EL PORTON EXPLORATORY OBJECTIVES

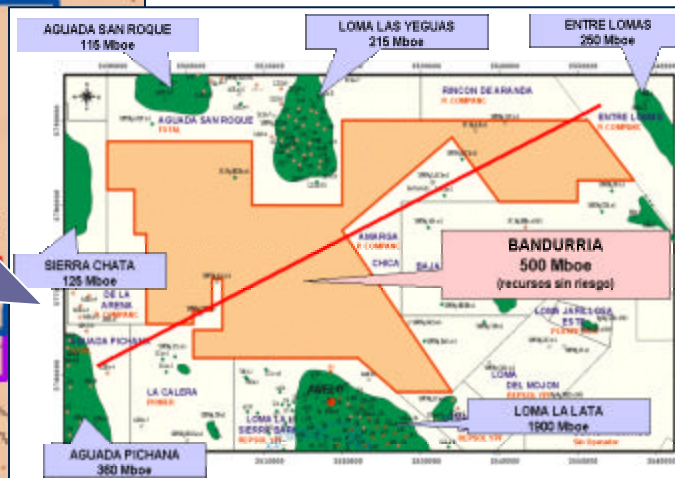
- ✓ Evaluation of new blocks close to bidding
- ✓ Petroleum Modeling System
- ✓ Know how in Faja Plegada
- ✓ Application of 3D Estructural Modeling (3D Move – Geosec)



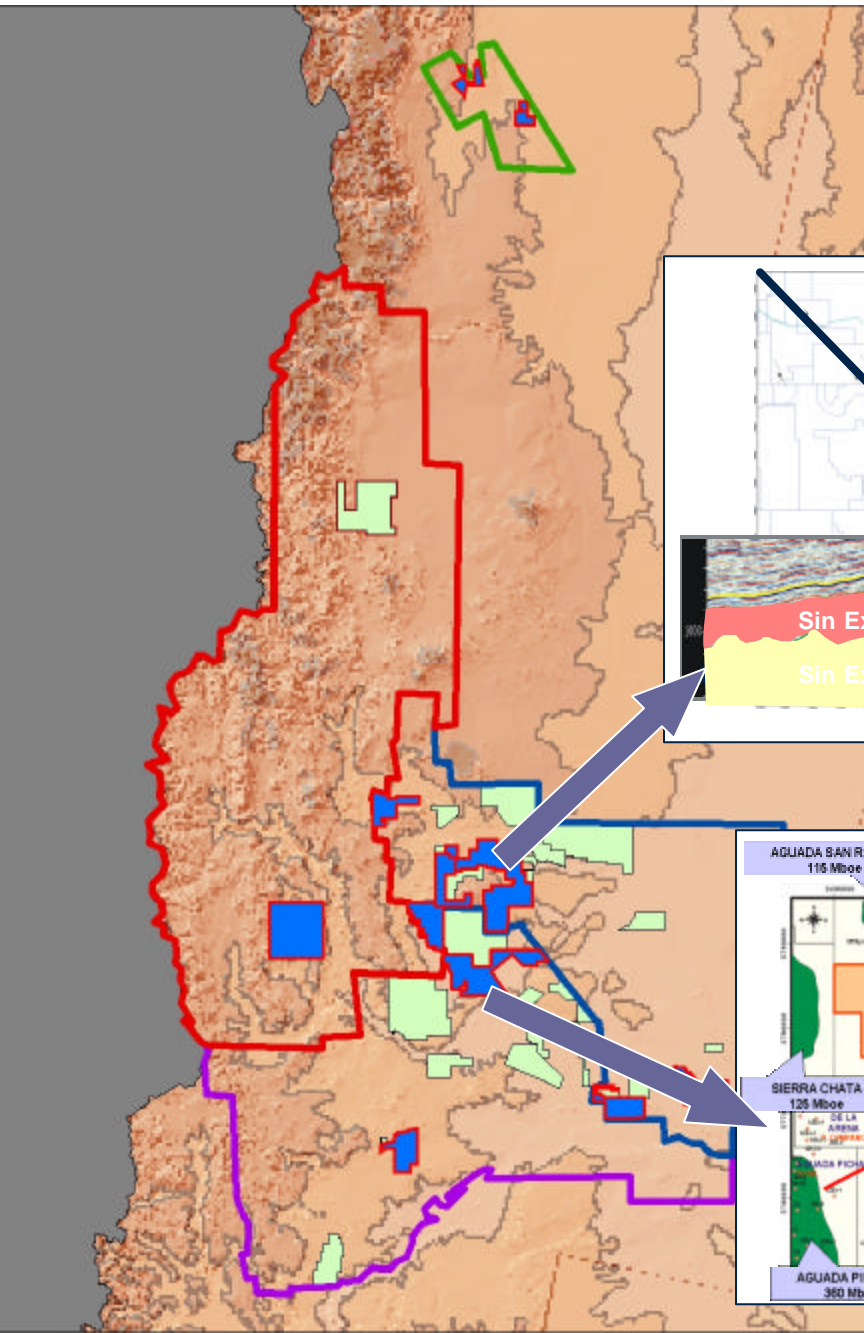
# UNAO Main Exploratory Highlights FT RDLS – FT LLL

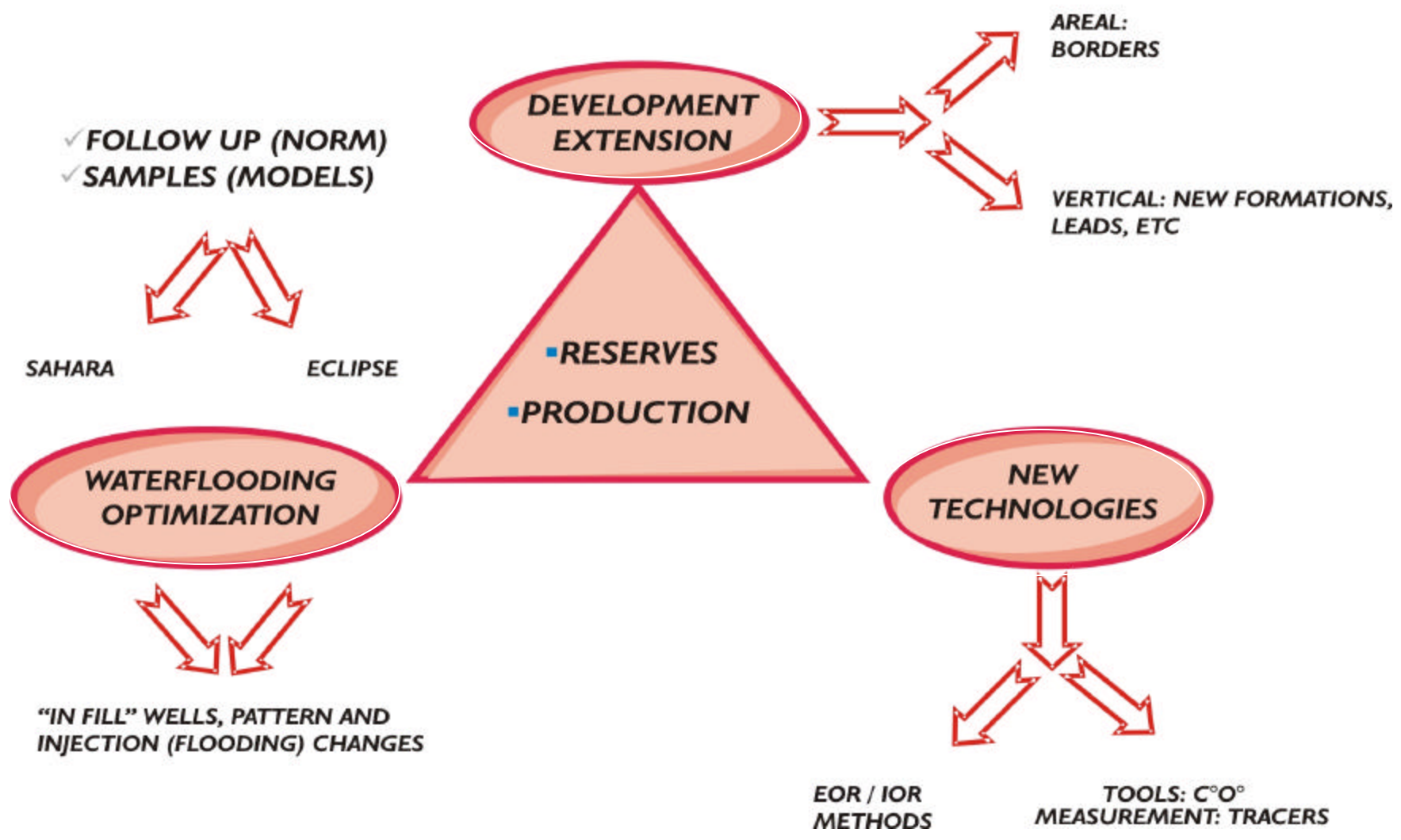


- RDLS EXPLORATORY OBJECTIVES**
- ✓ Immature region in a mature basin
  - ✓ Exploration in Precuyanos Hemigrabens
  - ✓ Altiplanicie del Payún structural
  - ✓ Application of 3D integrated seismic cube



- LLL EXPLORATORY OBJECTIVES**
- ✓ Exploration in recently acquired new blocks (Bandurria 500 Mboe – Resources)
  - ✓ Rich Gas in Precuyanos hemigrabens
  - ✓ Gas in Lotena and Sas. Blancas Formations
  - ✓ Application of 3D Integrated seismic cube



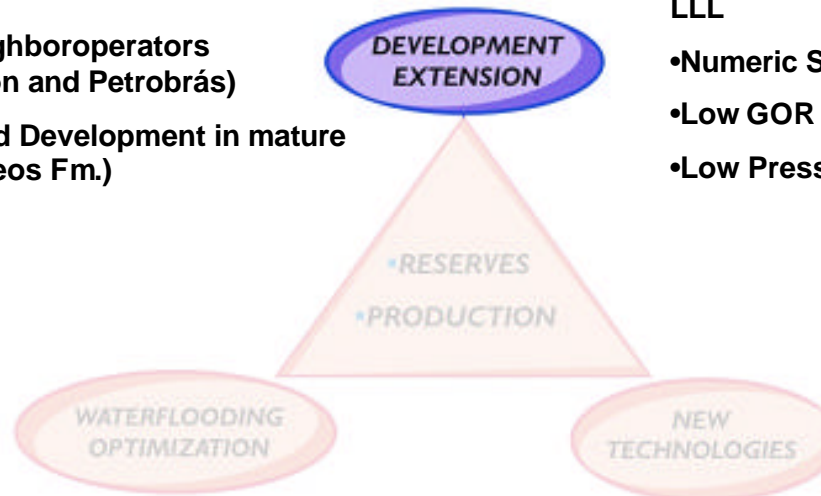


### EU Rincón de los Sauces

- Integrated Seismic Cube Interpretation: CHSN, D. Bayo, P. Hernandez
- Shared Development with neighboroperators (concession limits with Chevrón and Petrobrás)
- New Reservoir Exploration and Development in mature fields (Rayoso and Filones igneos Fm.)

### EU Loma la Lata

- Integrated Seismic Cube Interpretation: LLL
- Numeric Simulation LLL
- Low GOR well perforation project
- Low Pressure Gas Captation Project



### EU El Portón

- Integrated Seismic Cube Interpretation: CHLS, El Portón, F. Morado
- Prestack Deph Migration of CHLS
- New Reservoir Exploration and Development in mature fields (Mulichinco Fm.)

### UE Mendoza

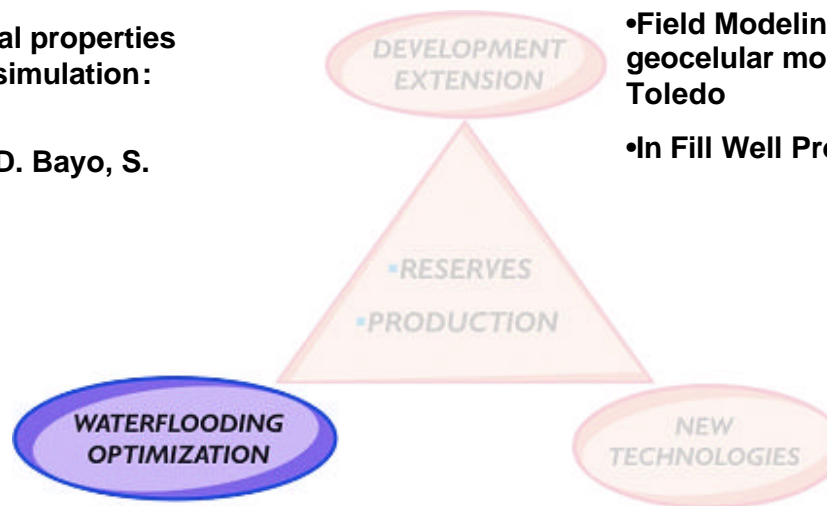
- Integrated Seismic Cube Interpretation: Barrancas, Vizcacheras and La Ventana
- Reservoir Exploration and Development
- New Reservoir Exploration and Development in mature fields (Punta de las Bardas and Mariños Fm.)

### EU Rincón de los Sauces

- Application of Standard Project Monitoring (WF Norm)
- Field Modeling: petrophysical properties geocelular models, numeric simulation: CHSN, D.Bayo, S.Picada
- In Fill Well Projects: CHSN, D. Bayo, S. Picada, P. Barda, P. Molina

### EU Loma la Lata

- Application of Standard Project Monitoring (WF Norm)
- Field Modeling: petrophysical properties geocelular models, numeric simulation: Aguada Toledo
- In Fill Well Projects: A. Toledo, C. Bandera



### EU El Portón

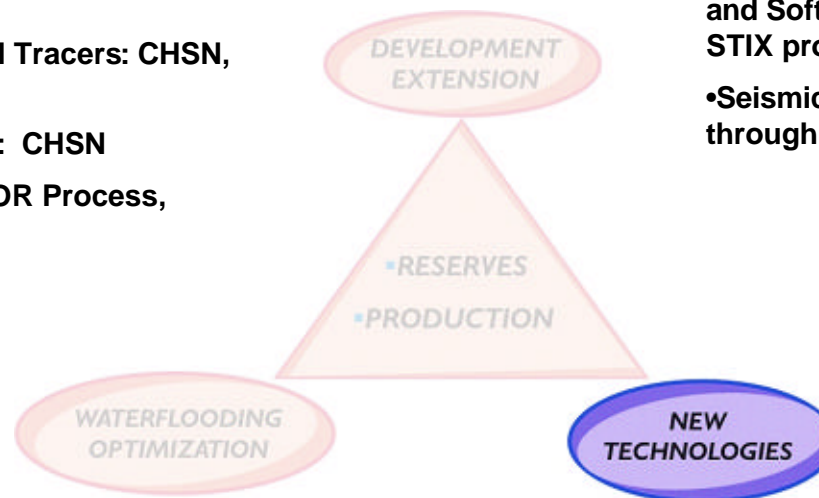
- Application of Standard Project Monitoring (WF Norm)
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- In Fill Well Projects: CHSL

### UE Mendoza

- Application of Standard Project Monitoring (WF Norm)
- Field Modeling: petrophysical properties geocelular
- Models, numeric simulation: L.Alta Sur, Barrancas
- In Fill Well Projects: Barrancas, Vizcacheras, Loma Alta Sur, Lunlunta

### EU Rincón de los Sauces

- IT: Cutting Edge Technology Hardware and Software 3D Visualization, ROXAR, STIX program.
- Radioactive and Chemical Tracers: CHSN, D. Bayo
- Gels for scan improvement: CHSN
- Water and Gas Injection EOR Process, P. Molina (WAG): CHSN



### EU Loma la Lata

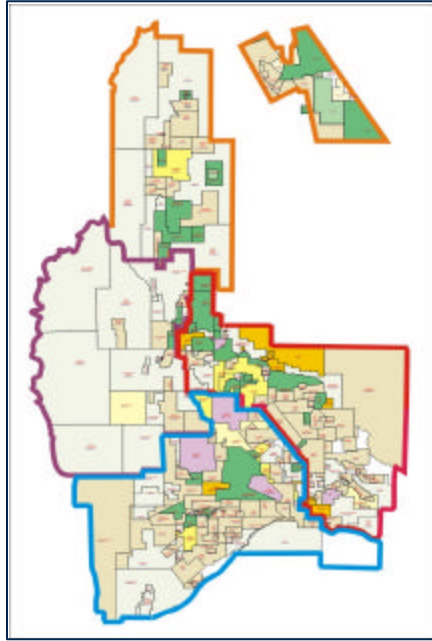
- IT: Cutting Edge Technology Hardware and Software 3D Visualization, ROXAR, STIX program.
- Seismic Integration with Well Data through probabilistic neuronal networks.

### EU El Portón

- IT: Cutting Edge Technology Hardware and Software 3D Visualization
- Radioactive and Chemical Tracers: CHLS

### EU Mendoza

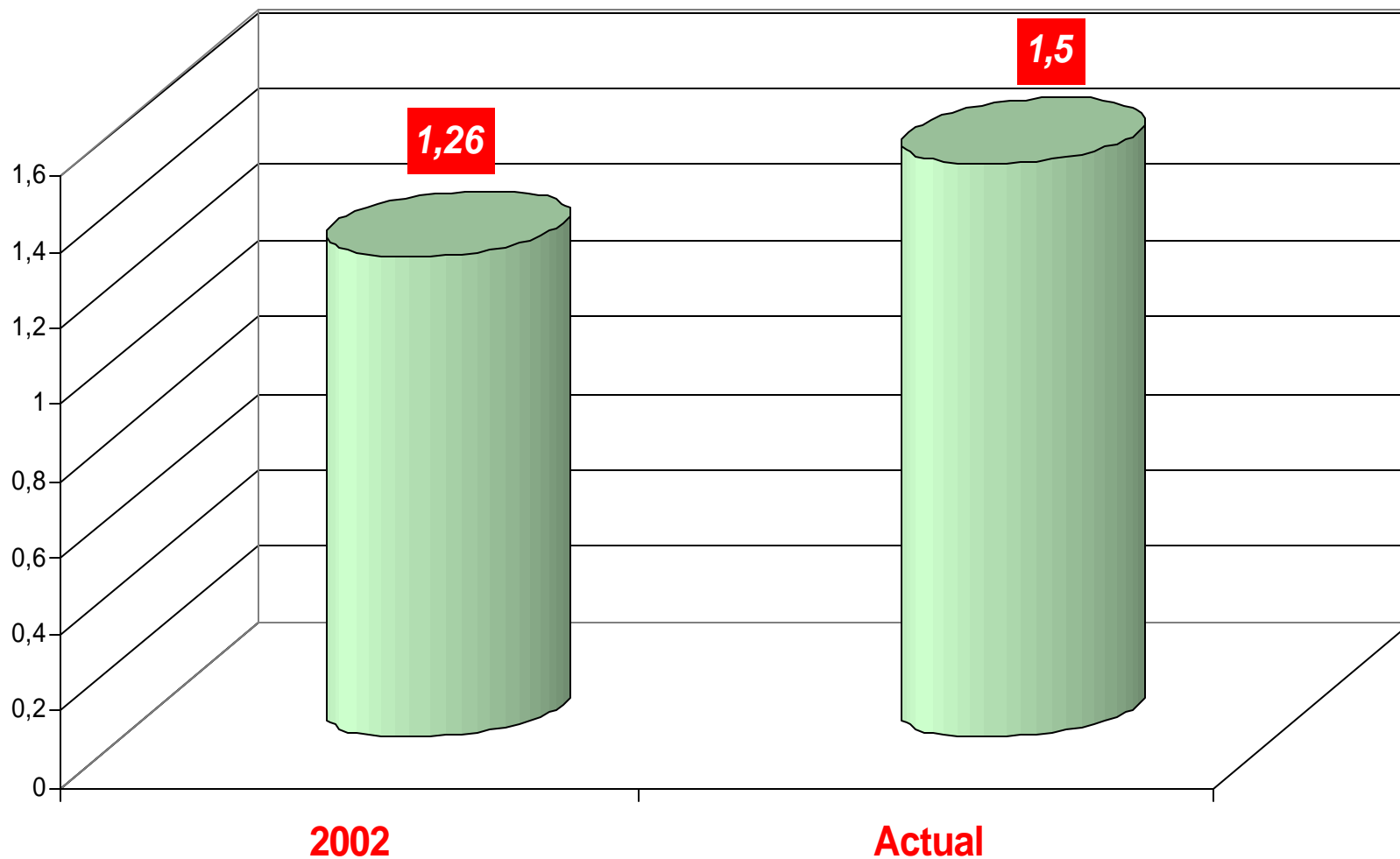
- IT: Cutting Edge Technology Hardware and Software
- 3D Visualization, Eclipse, Thermal Simulator.
- Gels for scan improvement: Cruz de Piedra –Lunlunta, Vizcacheras, Barrancas
- Microbian Processes (MEOR): Vizcacheras, La Ventana



***Key Indicators 2002 / July 2003***

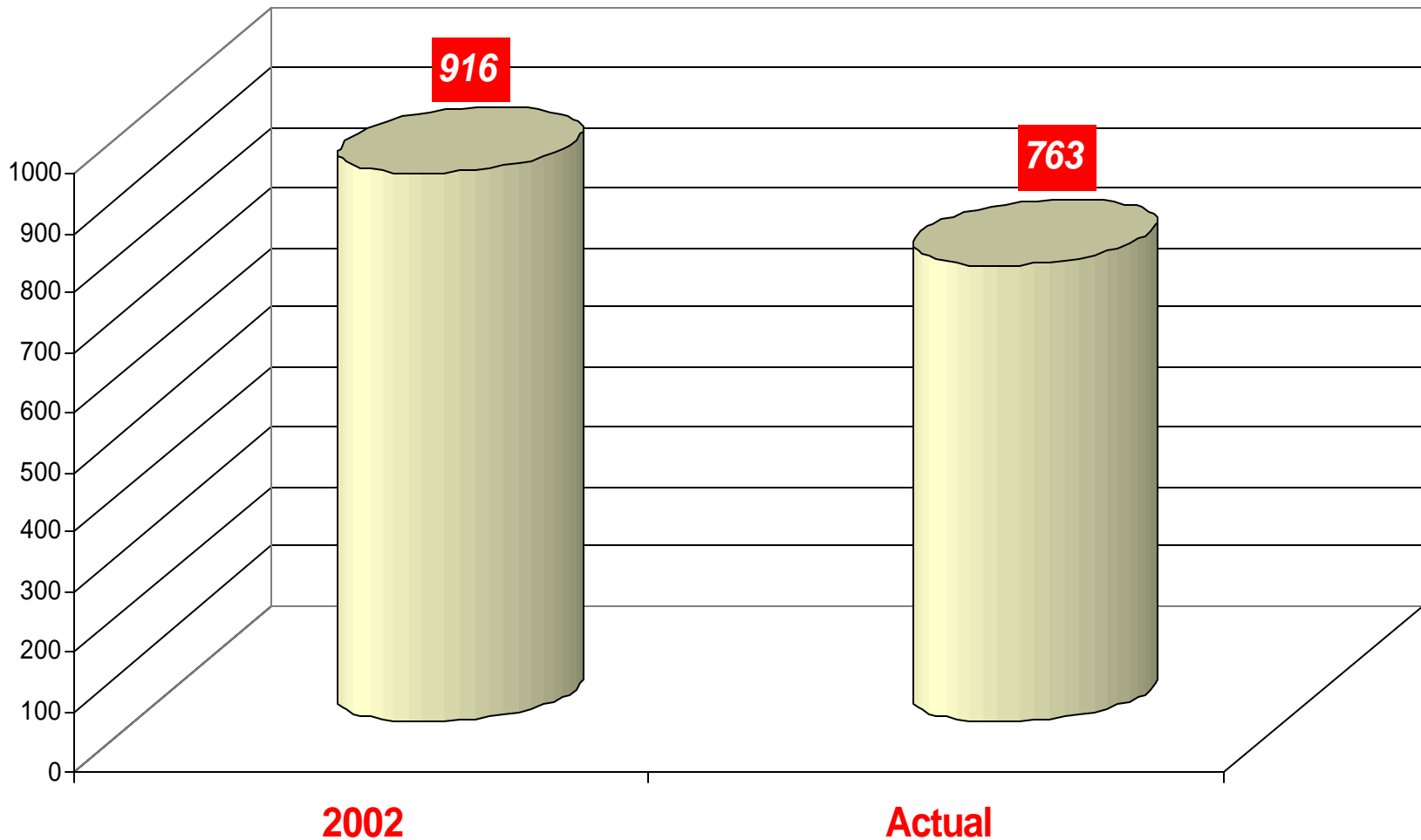
<b>Obj N°</b>	<b>Indicator</b>	<b>Objective</b>	<b>Achieved</b>	<b>Exceeded</b>
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<b>6</b>	<b>ROA</b>	<b>26,84%</b>	<b>&gt;25,5%</b>	<b>&gt;29,5%</b>

**Lifting Cost (U\$S/BOE) - UNAO**

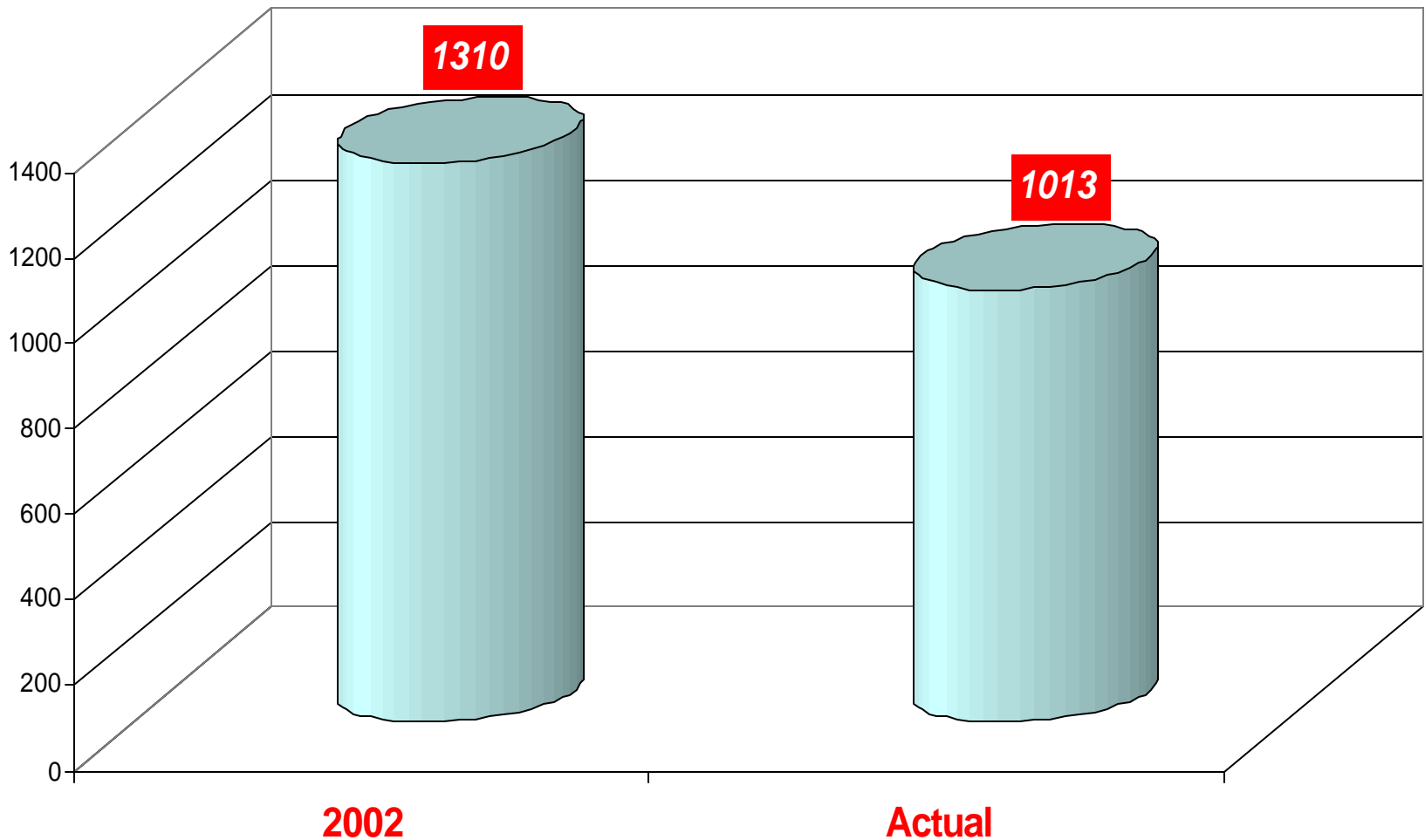




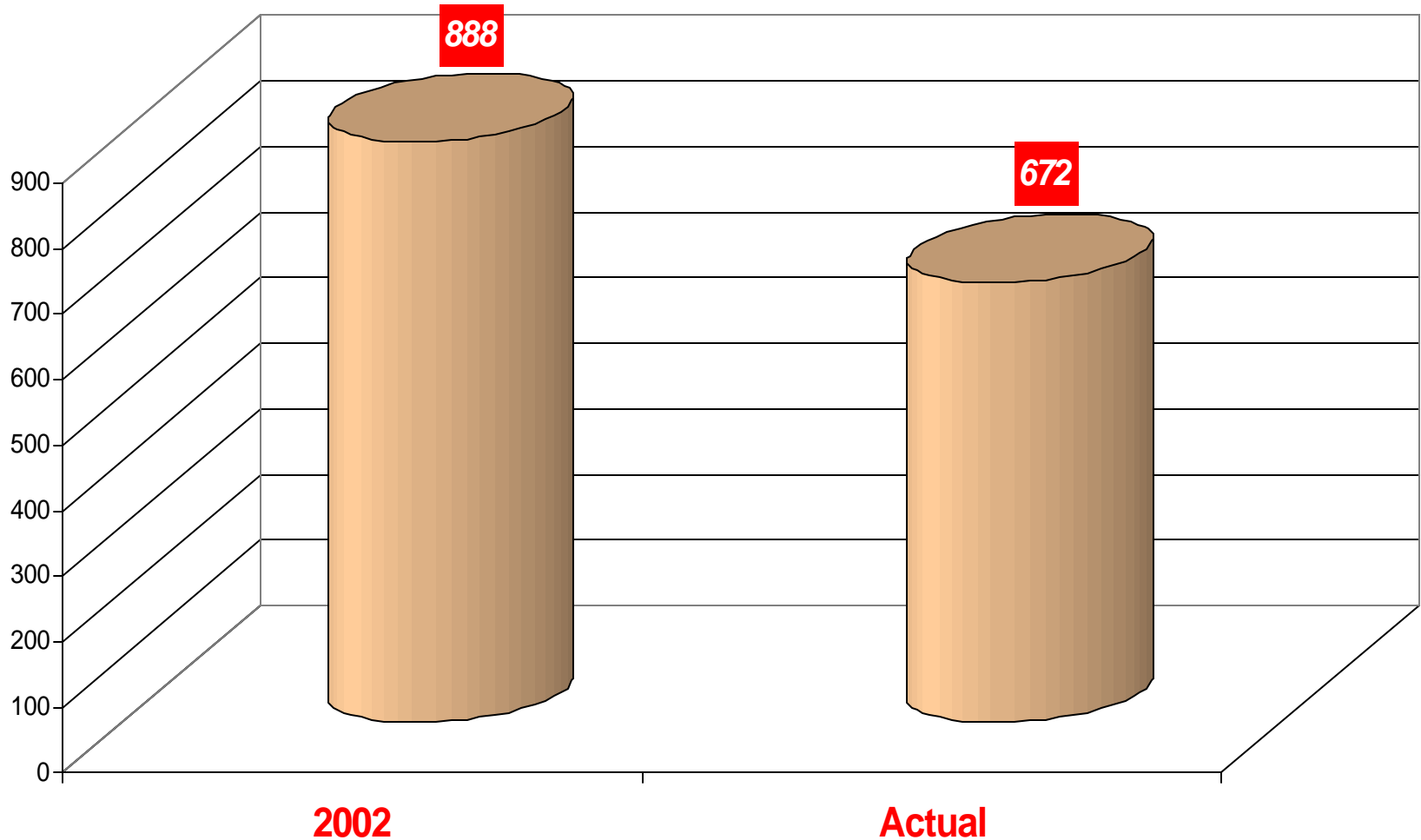
**Operative Result (MU\$) - UNAO**



**Operative Cash Flow (MU\$) - UNAO**



**Free Cash Flow (MU\$S) - UNAO**





REFPOL

