

# **MURPHY OIL COMPANY LTD.**

**SEAL PROJECT – Peace River Oil Sands Area**

**AEUB Performance Presentation  
(Approval No. 10329)**

**October 6, 2005**



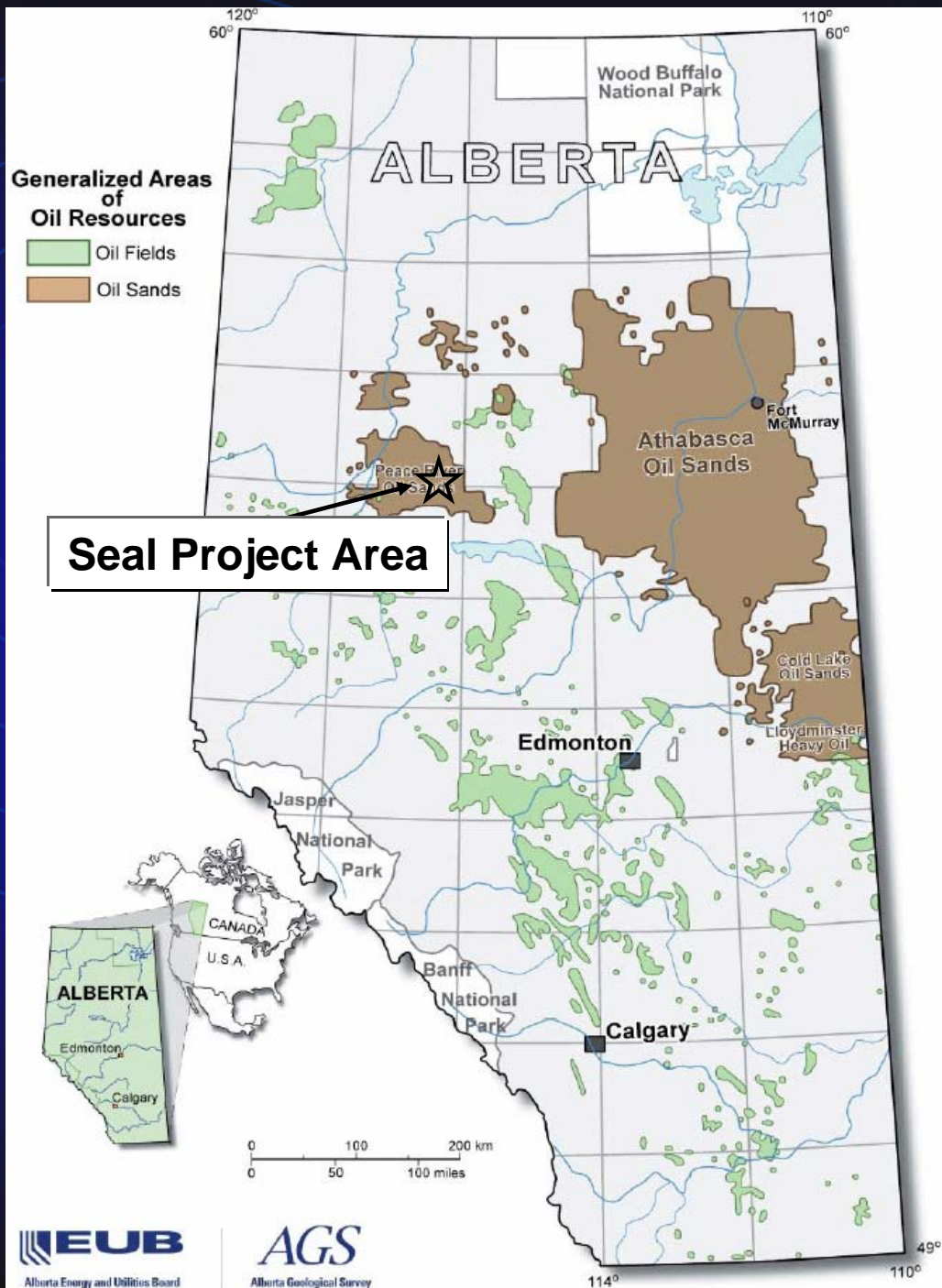
# Outline

- 🔥 **Seal – Overview**
  - Area Map
  - Geological Overview
- 🔥 **Seal Project Development**
  - Development Activities
  - Production Performance
- 🔥 **Regulatory Compliance**
  - Overview
- 🔥 **Seal – Recovery Review**
  - Overview

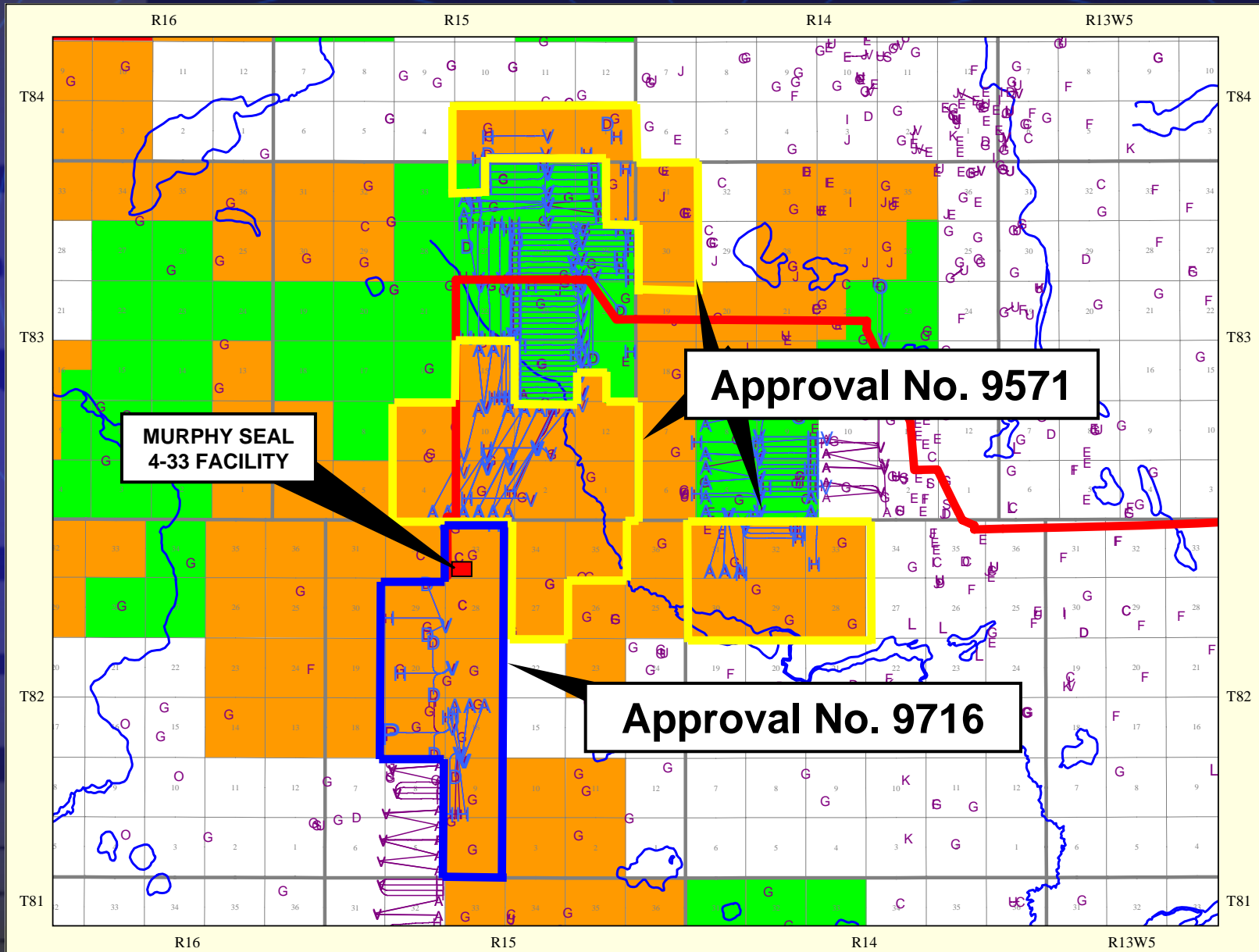


# SEAL AREA OVERVIEW





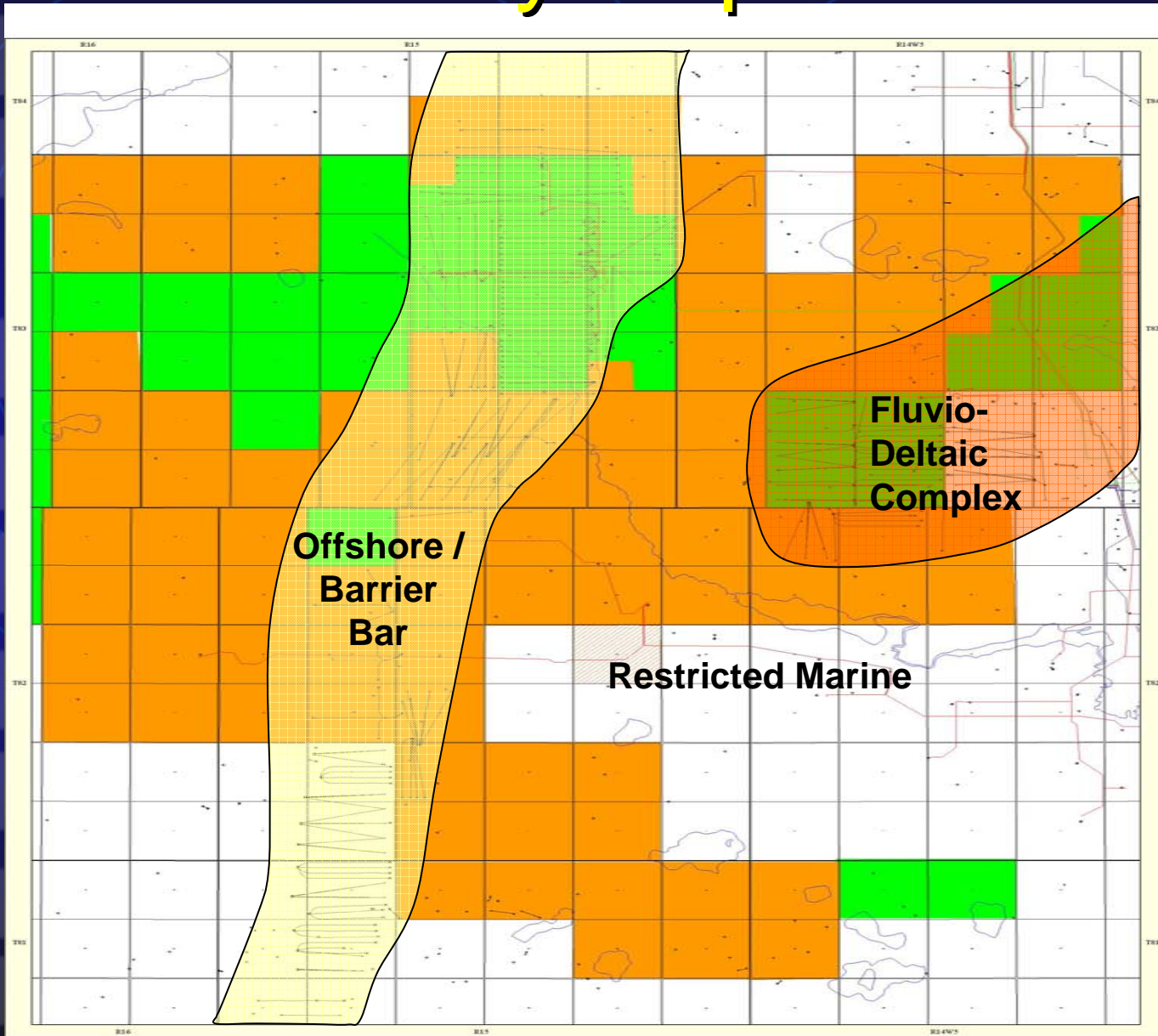
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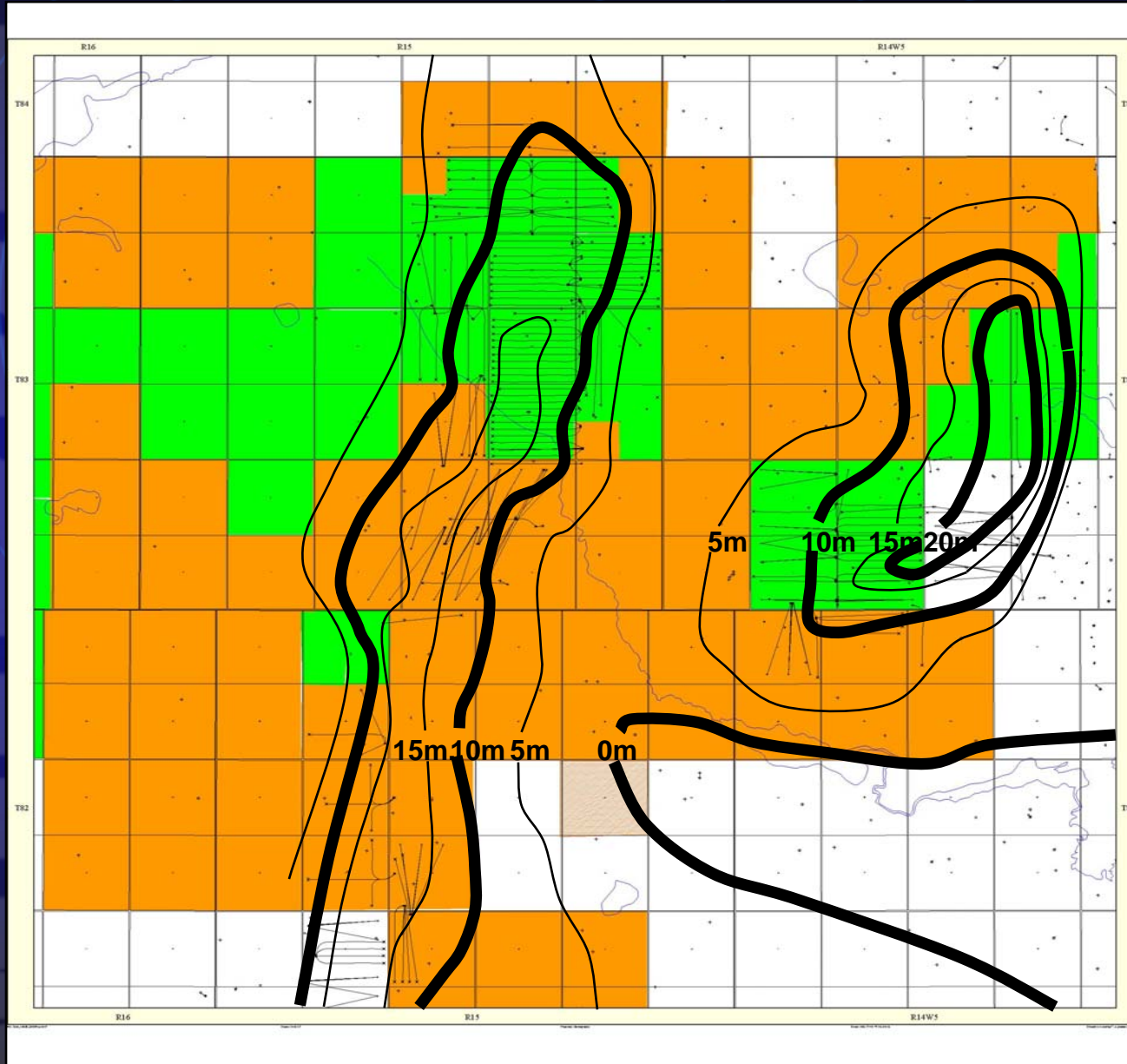
# SEAL BLUESKY GEOLOGY



# Bluesky Depositional Model

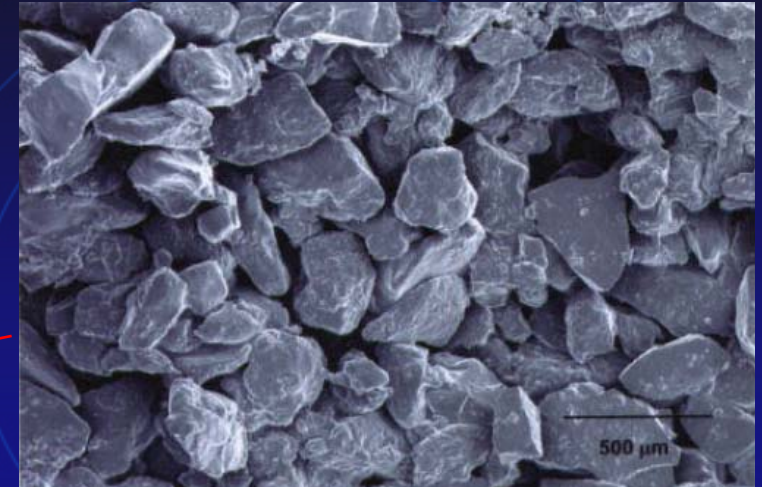
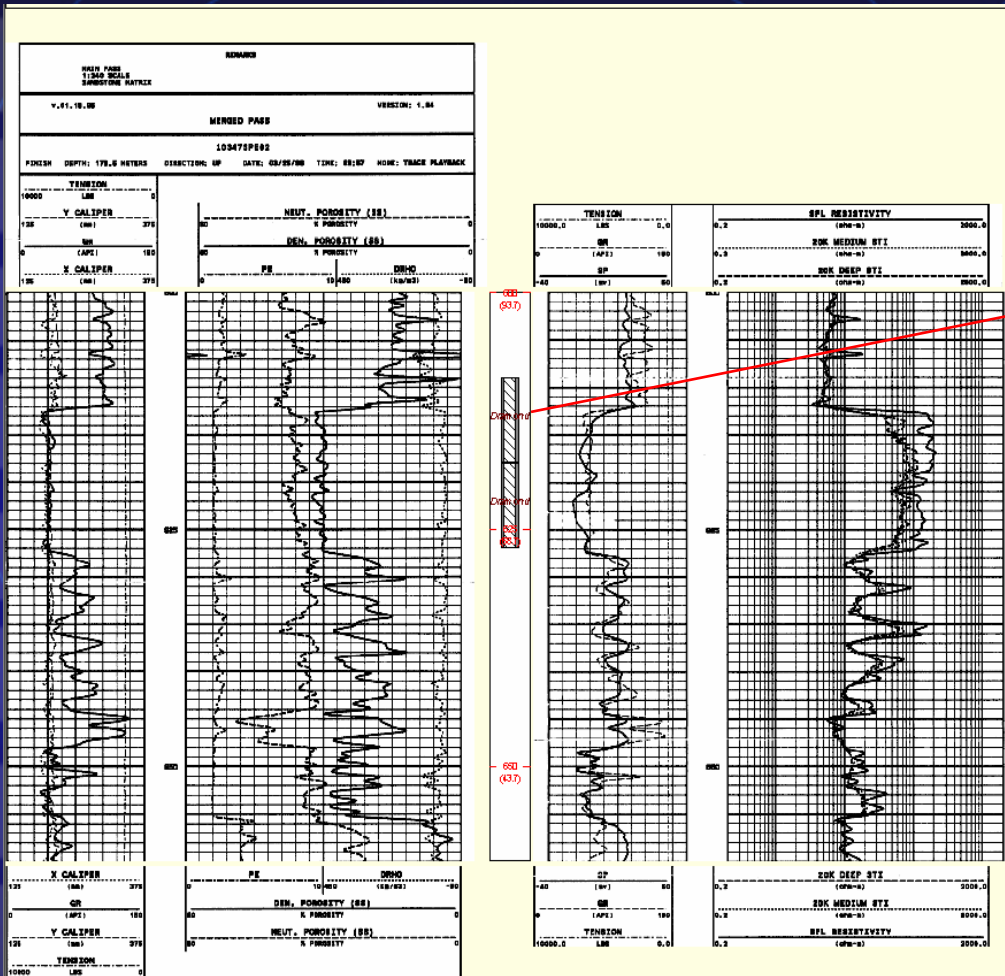


# Gross Bluesky Isopach



- 🔹 Average Net Pay of 10.8 meters
- 🔹 10 to 11% Bitumen by Weight

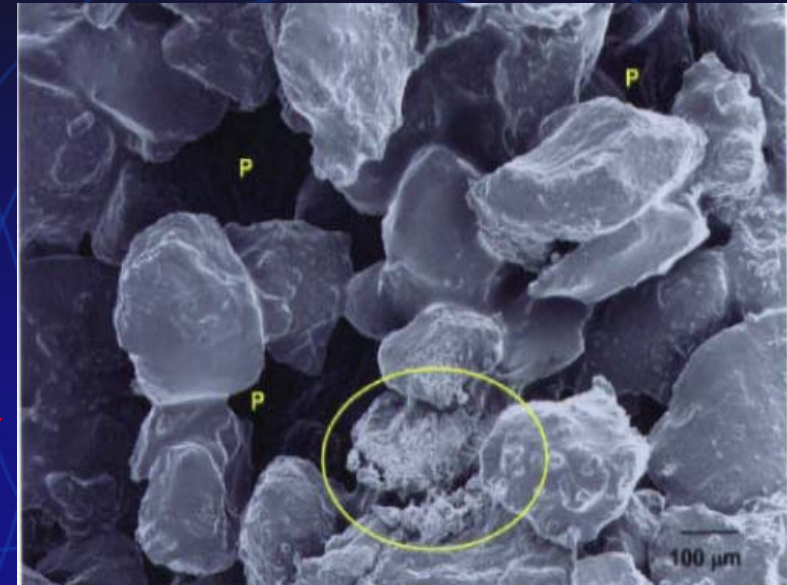
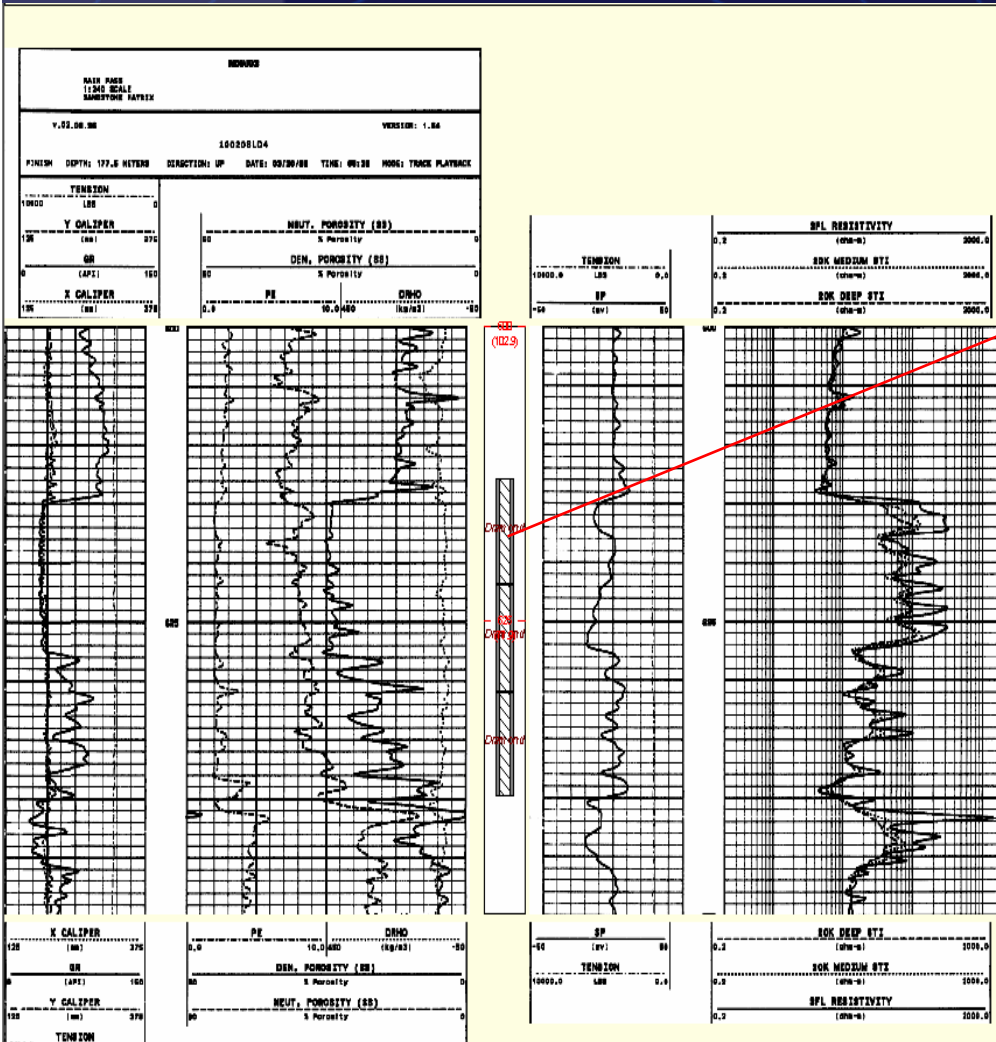
# AA/11-23-083-15W5/0



SEM Photomicrograph 612.5m.  
 Subang.-Subrd. Qtz. Litharenite  
 Avg. grain size .30mm U.Med.  
 grained, 16.6% Qtz., 33.3%  
 Chert, 16.6% Rock Frags.,  
 1.4% Glauc., 1.4% Clays. Grain  
 Density 2.68 g/cm<sup>3</sup>, Core  
 Porosity 30.7%.



# AA/06-25-083-15W5/0



SEM Photomicrograph 616 m.

“P” highlights pores, circled area shows Illite grain coating.

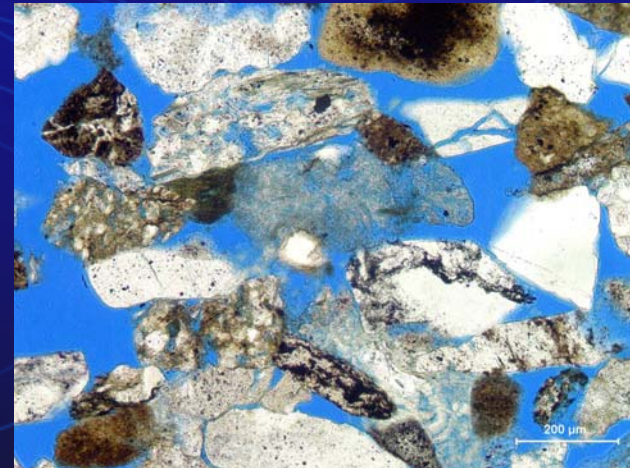
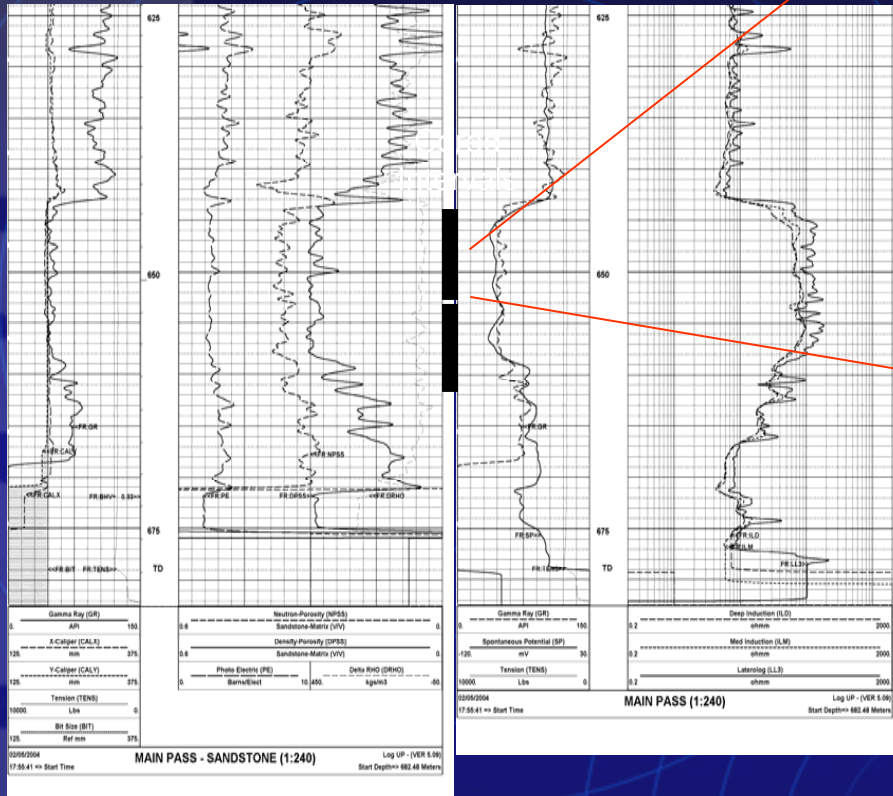
Subang.- Subrd. Qtz. Litharenite

Avg. grain size .26mm L. Med. grained, 21.5% Qtz., 33.7% Chert, 13.6% Rock Frags., 2.2% Glaucl., 0.7% Clays, Grain Density 2.63 g/cm<sup>3</sup>, Core Porosity 28.3%.



# AA/06-16-082-15W5/0

KB 707.7 m



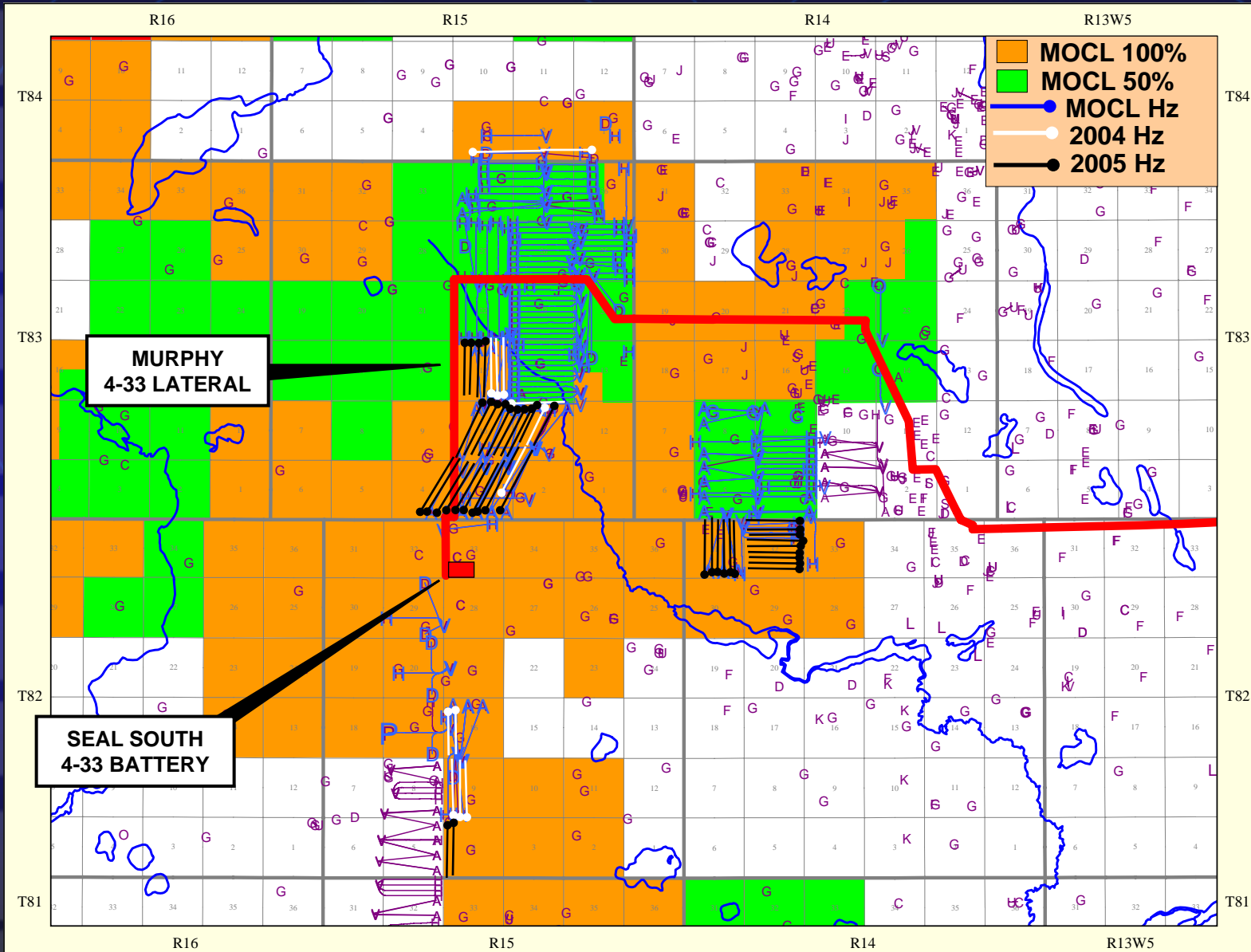
Photomicrograph 651.7m.: Subang.-Subrd. Qtz. Arenite. Avg.grain size .22mm. U. F.grained 16% Qtz, 33% Chert, 23.6% Porosity (this sample), 16%, Rock Frags., 2.4% Glauc., 6.8% Clays, 2.2% Calcite and Dol. Grain Density 2.62 g/cm<sup>3</sup>



# SEAL PROJECT DEVELOPMENT



# Seal Primary Drilling Activity



# Seal Development Activities

- ◆ **Horizontal Drilling Program**
  - ◆ 13 Well Horizontal Program in Q4 2004
  - ◆ 39 Well Horizontal Program for 2005
- ◆ **Murphy 4-33 Battery & Pipeline Lateral**
  - ◆ Battery capacity 1,300 m<sup>3</sup>/d
    - Started-up September '05
  - ◆ Pipeline lateral capacity 2,400 m<sup>3</sup>/d



# PRODUCTION PERFORMANCE



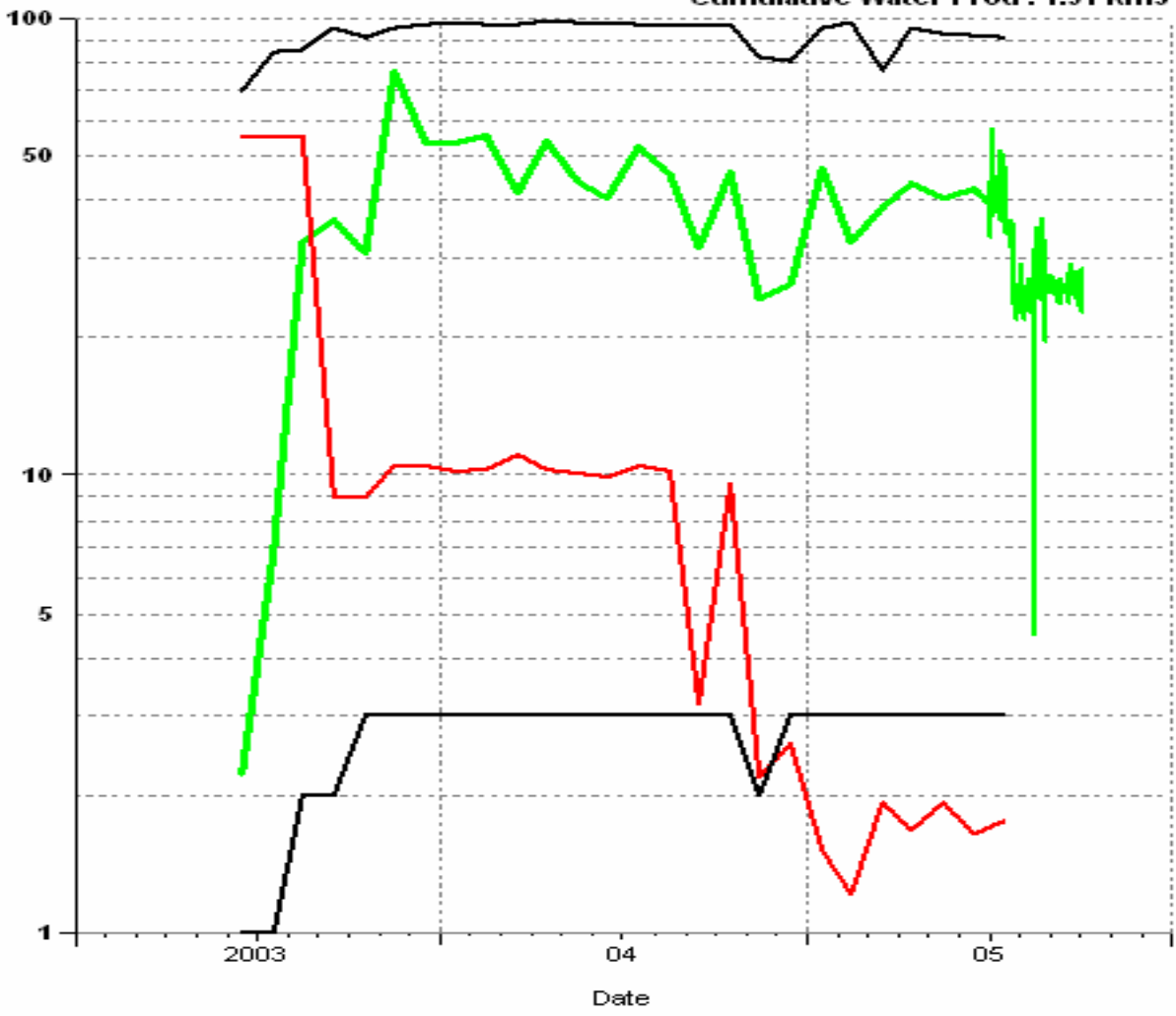


# CENTRAL 2003

CENTRAL 2003

Cumulative Oil Prod : 31.60 Km3  
Cumulative Gas Prod : 0.29 Mscm  
Cumulative Water Prod : 1.91 Km3

- CDOR (m<sup>3</sup>/d)
- GOR (m<sup>3</sup>/m<sup>3</sup>)
- OIL CUT (%)
- WELLS

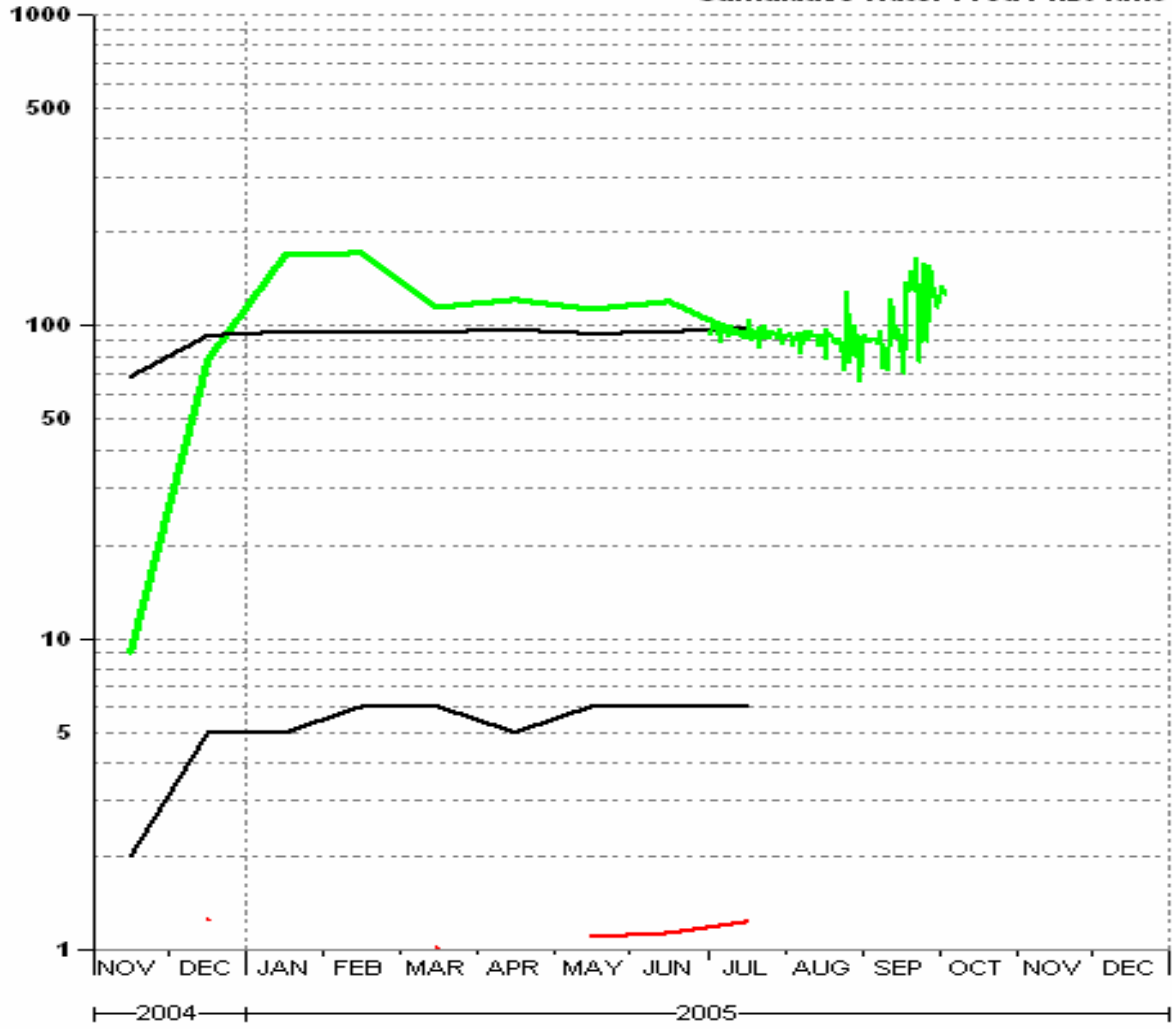


# CENTRAL 2004

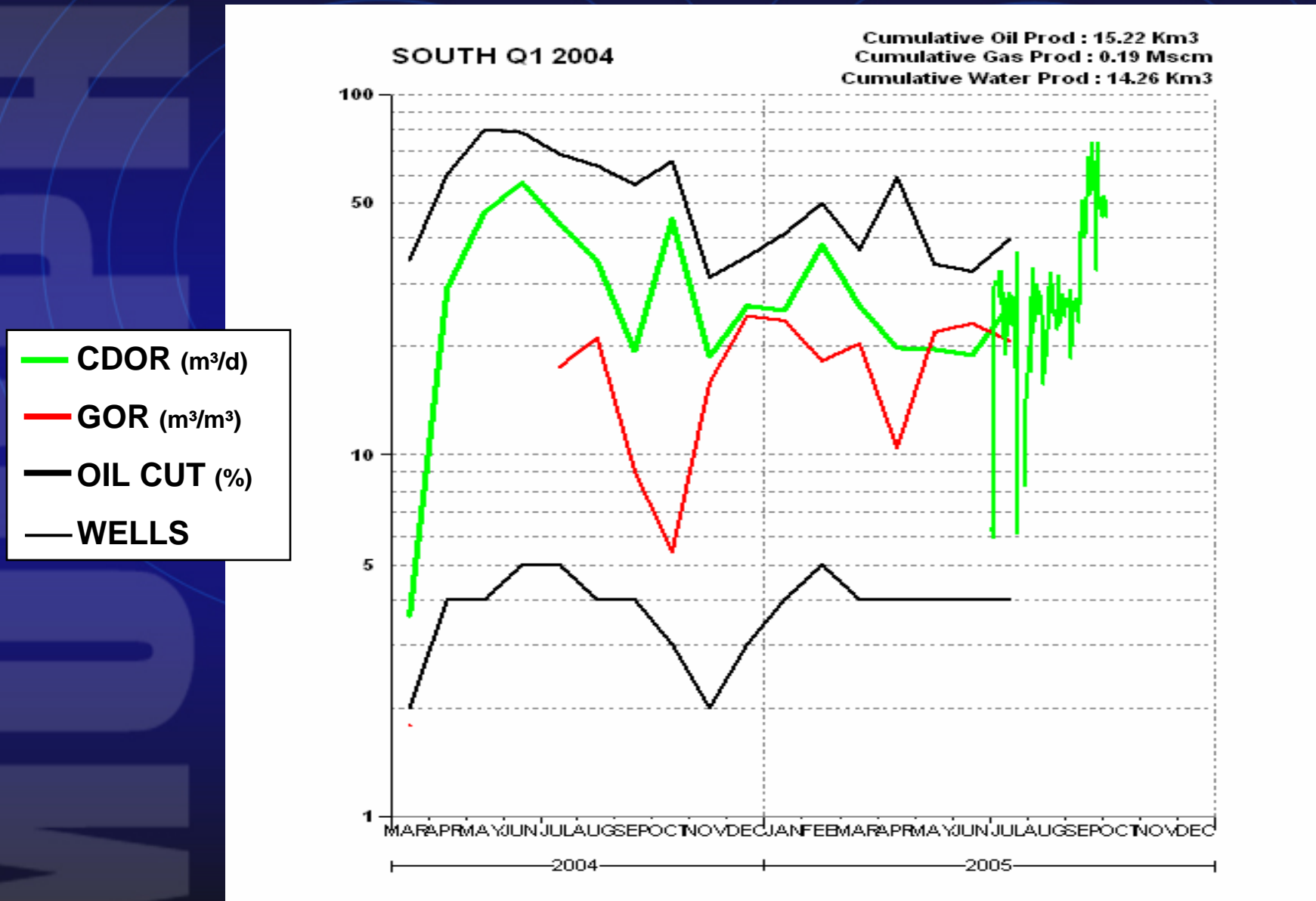
CENTRAL 2004

Cumulative Oil Prod : 30.04 Km3  
Cumulative Gas Prod : 0.03 Mscm  
Cumulative Water Prod : 1.20 Km3

- CDOR (m<sup>3</sup>/d)
- GOR (m<sup>3</sup>/m<sup>3</sup>)
- OIL CUT (%)
- WELLS



# SOUTH Q1 2004

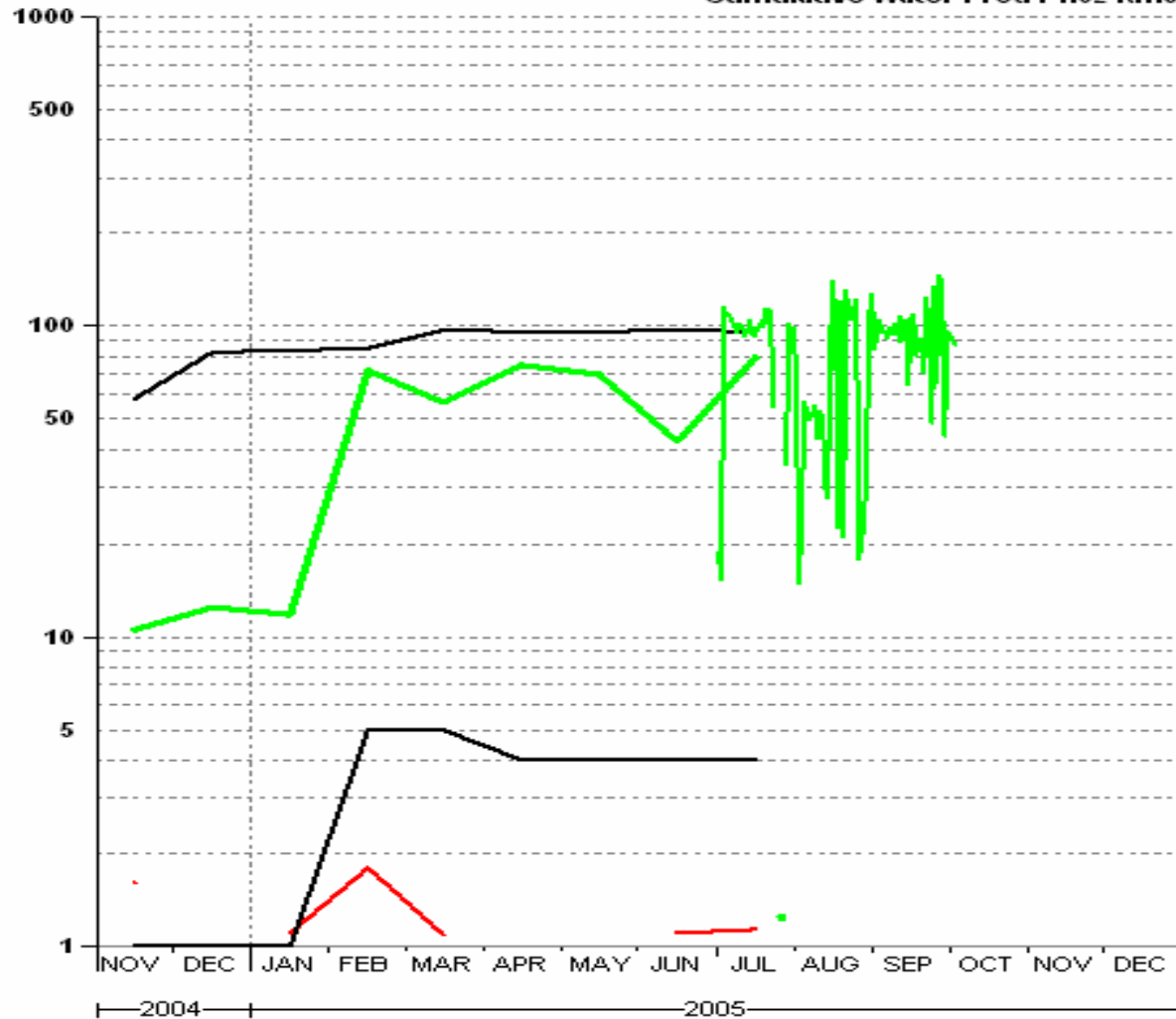


# SOUTH Q4 2004

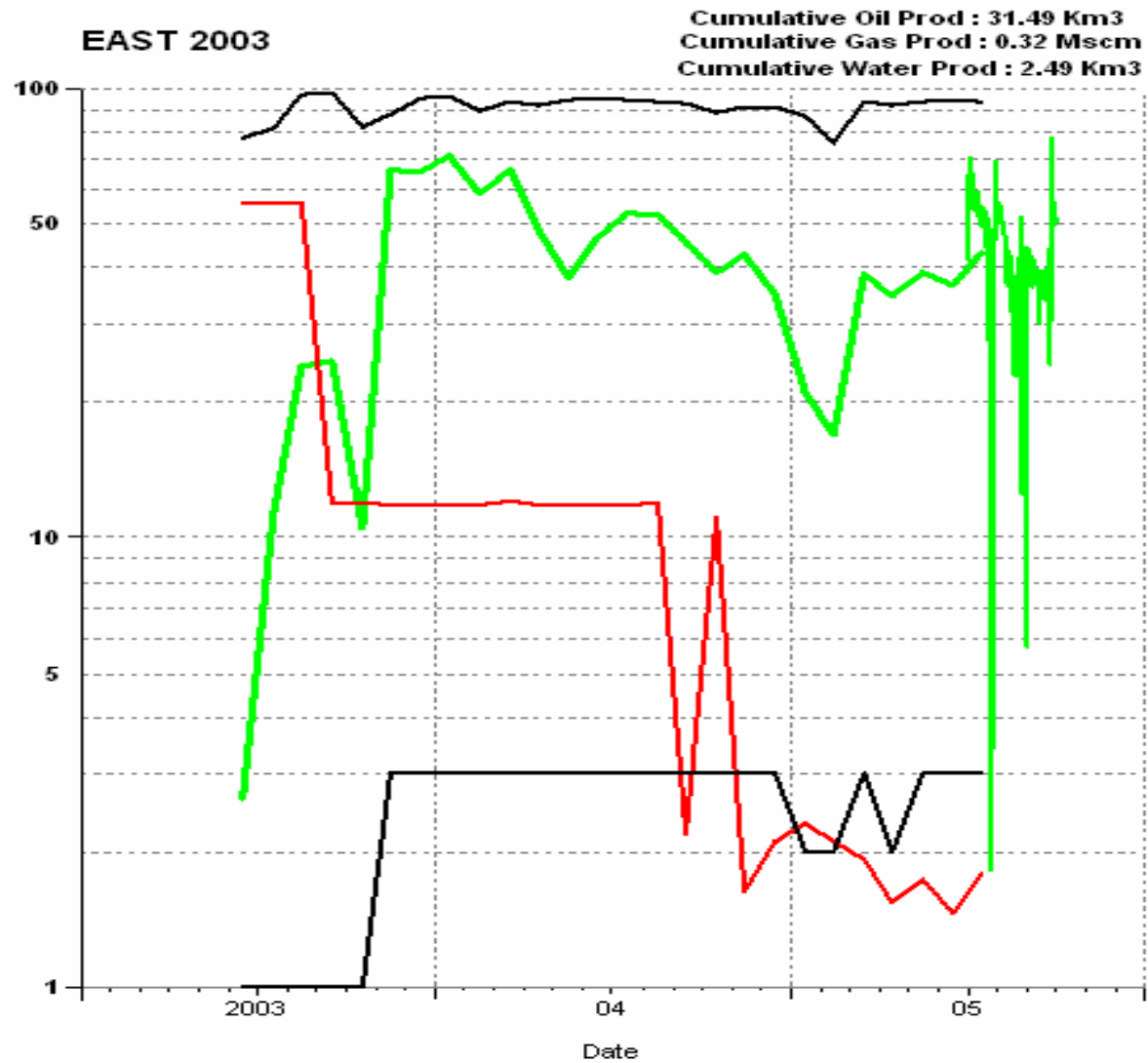
SOUTH Q4 2004

Cumulative Oil Prod : 13.03 Km<sup>3</sup>  
Cumulative Gas Prod : 0.02 Mscm  
Cumulative Water Prod : 1.02 Km<sup>3</sup>

- CDOR (m<sup>3</sup>/d)
- GOR (m<sup>3</sup>/m<sup>3</sup>)
- OIL CUT (%)
- WELLS



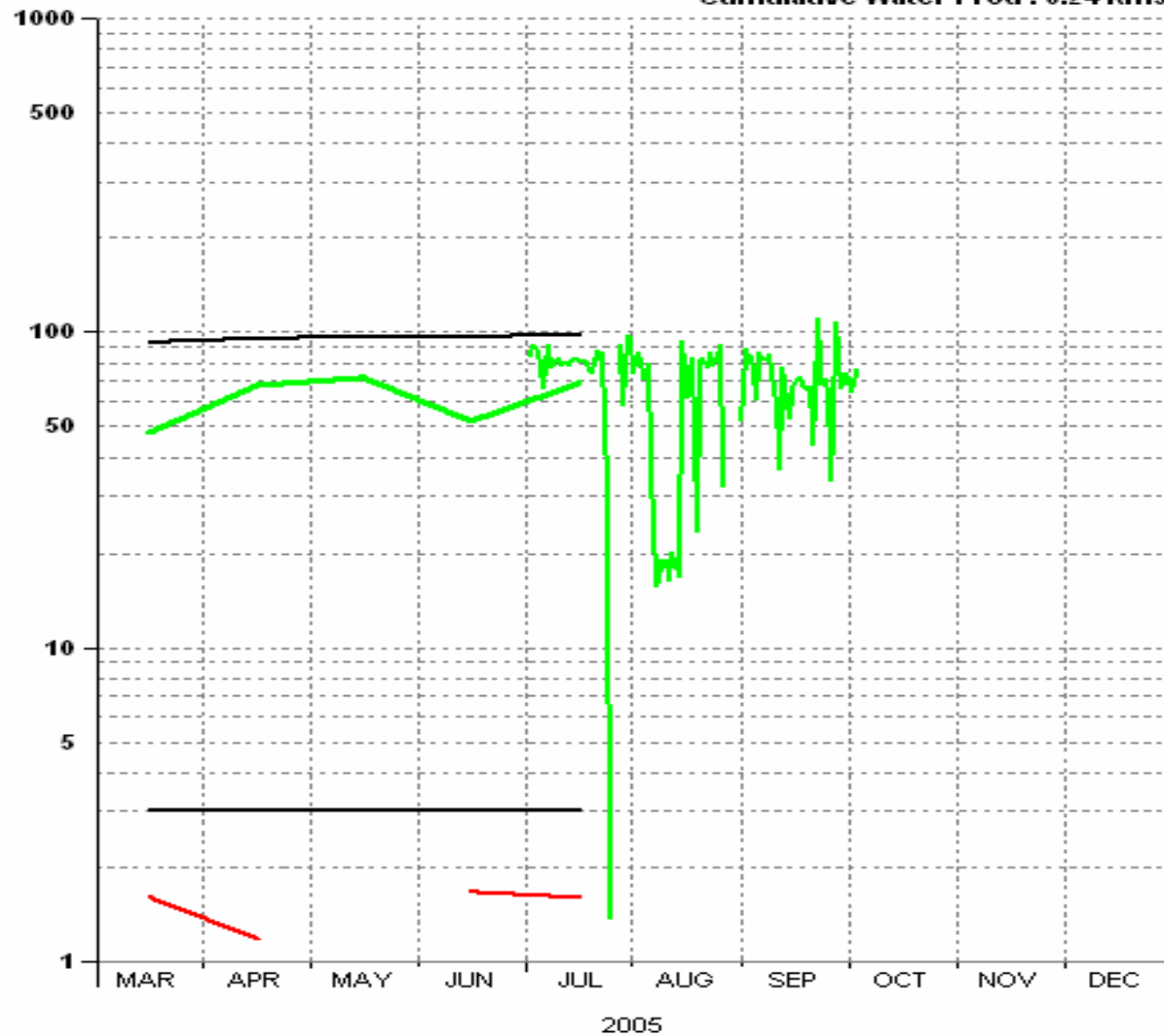
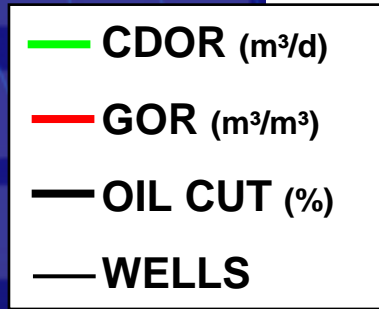
# EAST 2003



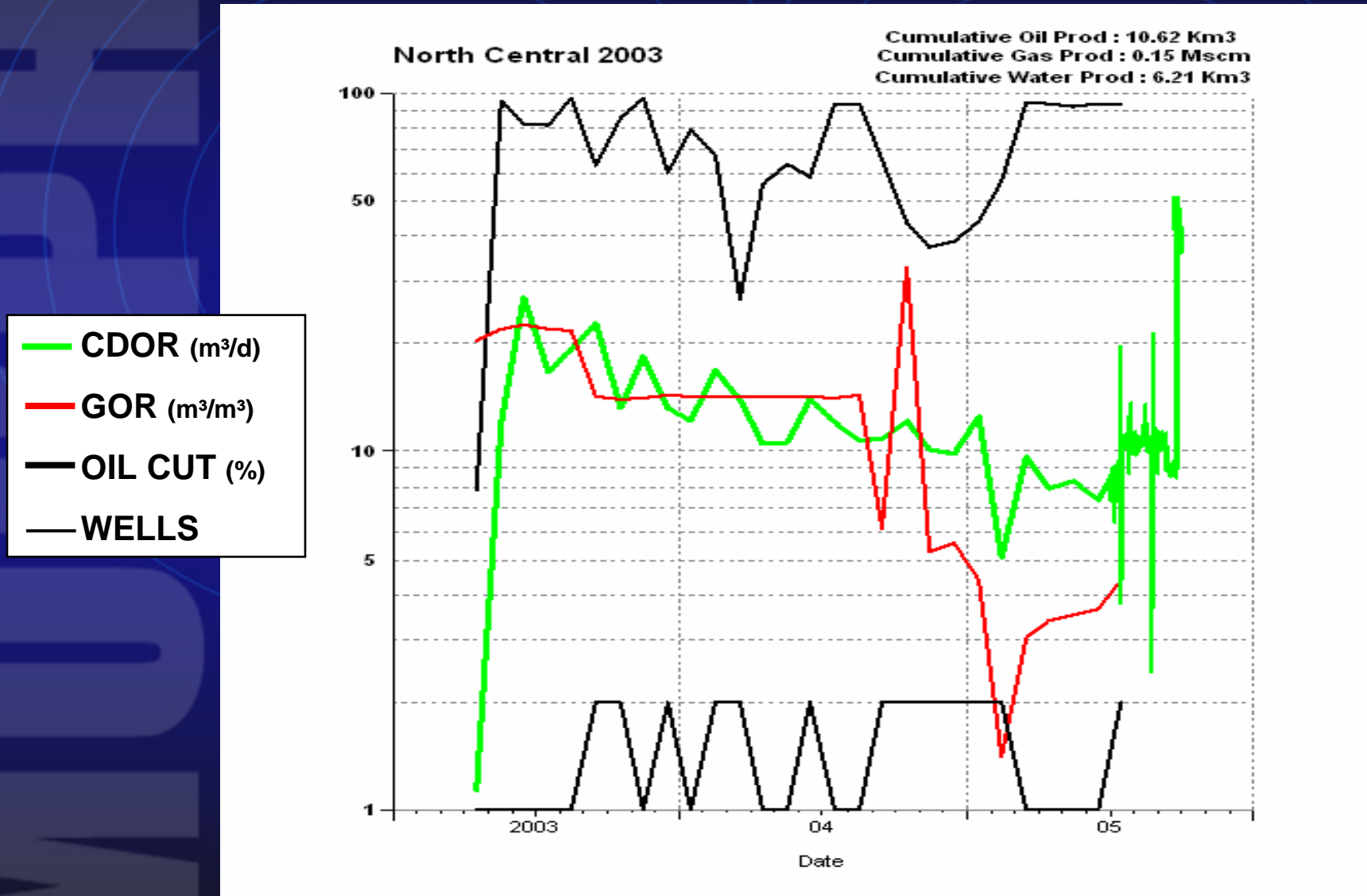
# EAST Q1 2005

EAST Q1 2005

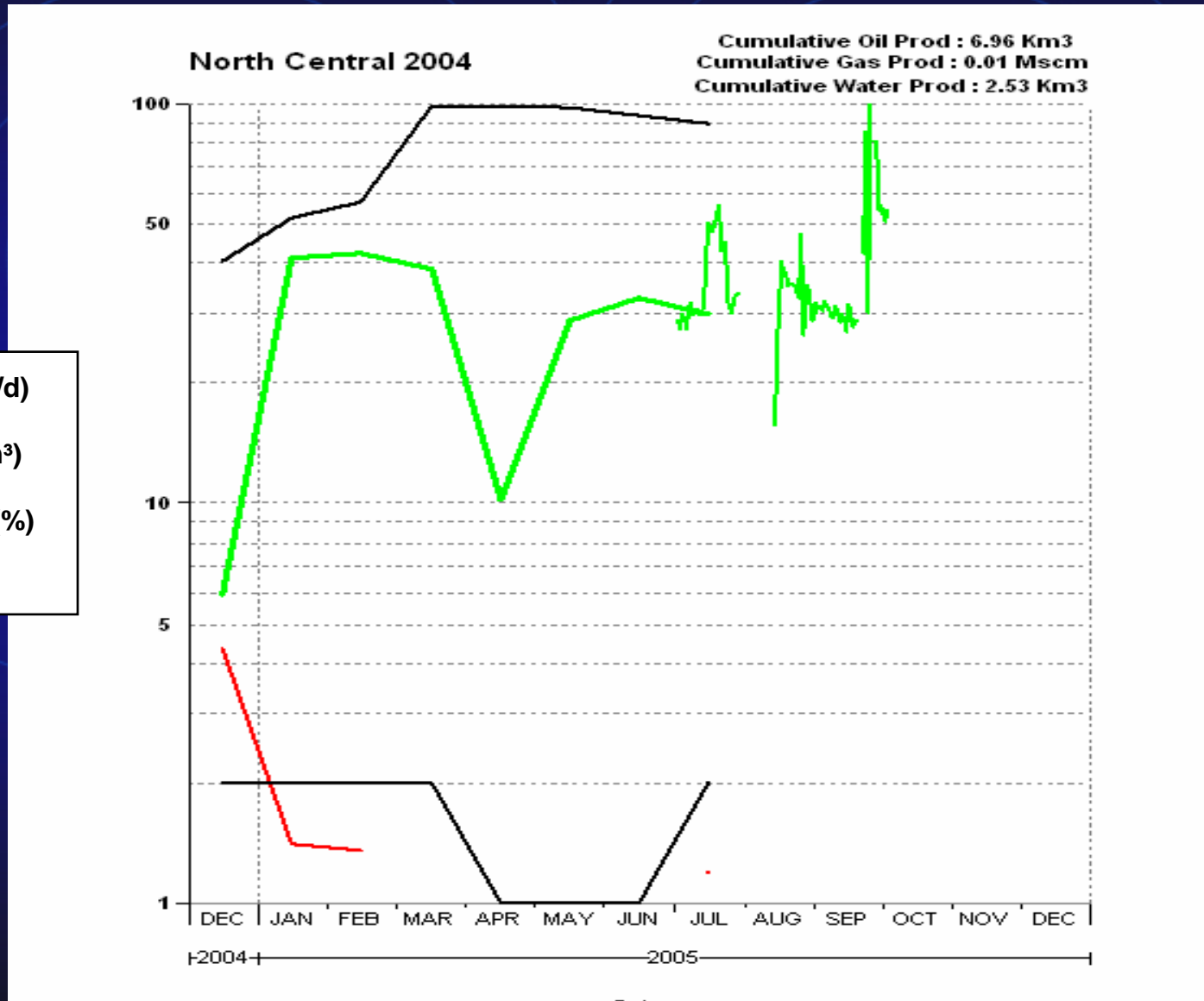
Cumulative Oil Prod : 9.47 Km3  
Cumulative Gas Prod : 0.01 Mscm  
Cumulative Water Prod : 0.24 Km3



# NORTH CENTRAL 2003



# NORTH CENTRAL 2004



- CDOR (m<sup>3</sup>/d)
- GOR (m<sup>3</sup>/m<sup>3</sup>)
- OIL CUT (%)
- WELLS



# Performance Summary

- 🔥 **Cumulative Oil Production of 152 10<sup>3</sup>m<sup>3</sup>**
- 🔥 **Current Average of 15 m<sup>3</sup>/d Oil with GOR < 5 m<sup>3</sup>/m<sup>3</sup> and Oil Cut > 80%**
- 🔥 **New wells IP of 25-30 m<sup>3</sup>/d**
  - ◆ **Improved performance with orientation change**



# Regulatory Compliance

- **Murphy currently operates 42 sweet oil horizontal wells in the Seal Area.**
- **Activities have been to AEUB Regulations.**
- **No AEUB reportable spills to date.**
- **Casing Gas is Conserved on lease for fuel gas.**
- **Murphy is unaware of any outstanding compliance issues.**



# SEAL FUTURE PLANS



# Primary Recovery

- 🔥 **Continue Horizontal Development**
  - ◆ **35 Well Program Budgeted for 2006**
- 🔥 **Emulsion and Casing Gas Gathering Systems**



# Seal – Beyond Primary Recovery

- **Murphy has participated with Blackrock on a Recovery Study, including physical modeling and numerical simulation.**
- **Murphy has initiated additional modeling with Sproule to advance primary and EOR identification.**
- **Murphy is conducting a detailed EOR study Including:**
  - **Incremental primary recovery**
  - **Waterflood potential**
  - **Thermal potential**
  - **Other EOR Schemes**



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