

BRAVO DOME CO₂ GAS UNIT

WEST AREA

160 vs. 640 SPACING

BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

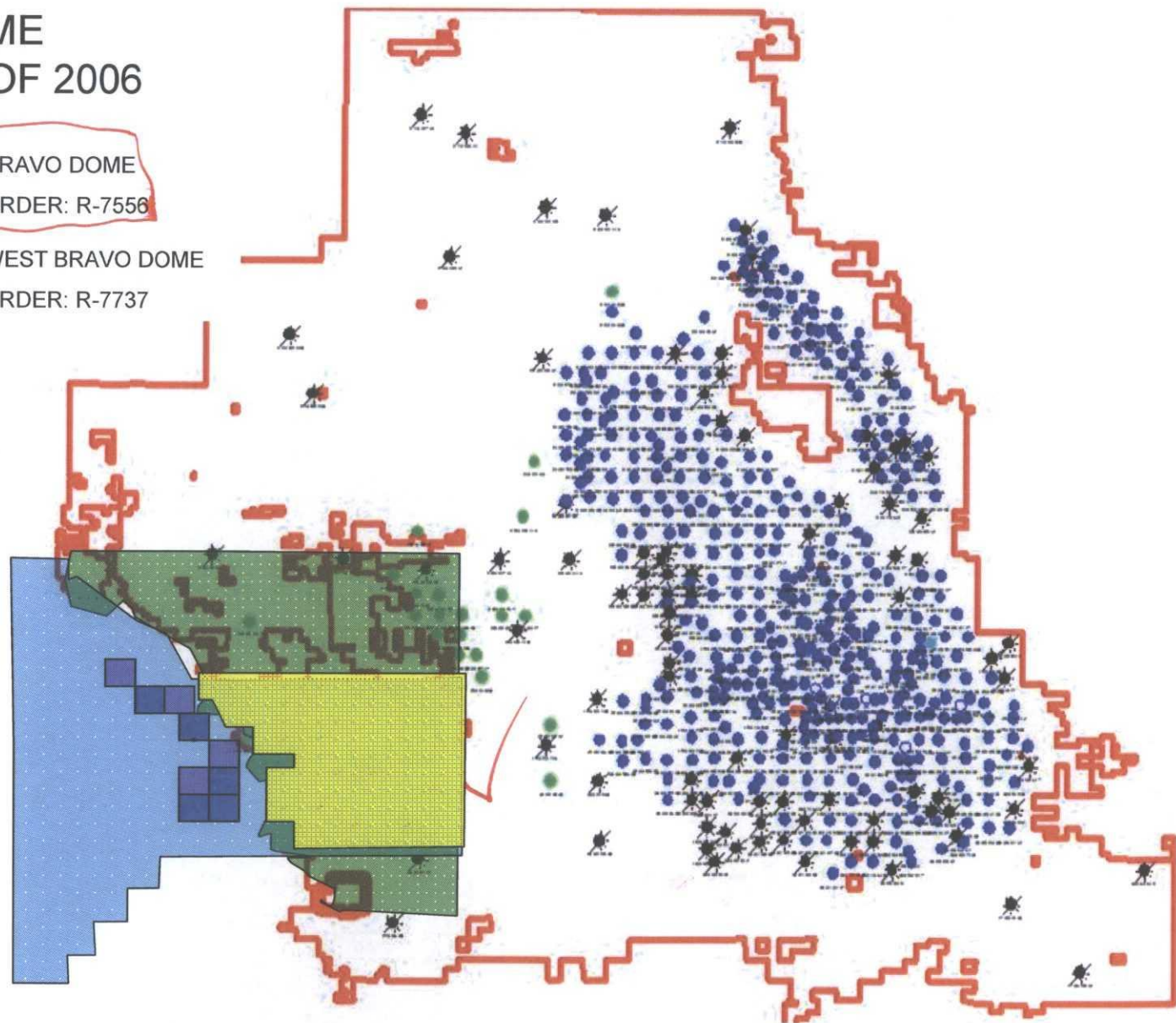
Exhibit No. 8

Submitted by: **OXY**

Hearing Date: June 4, 2013

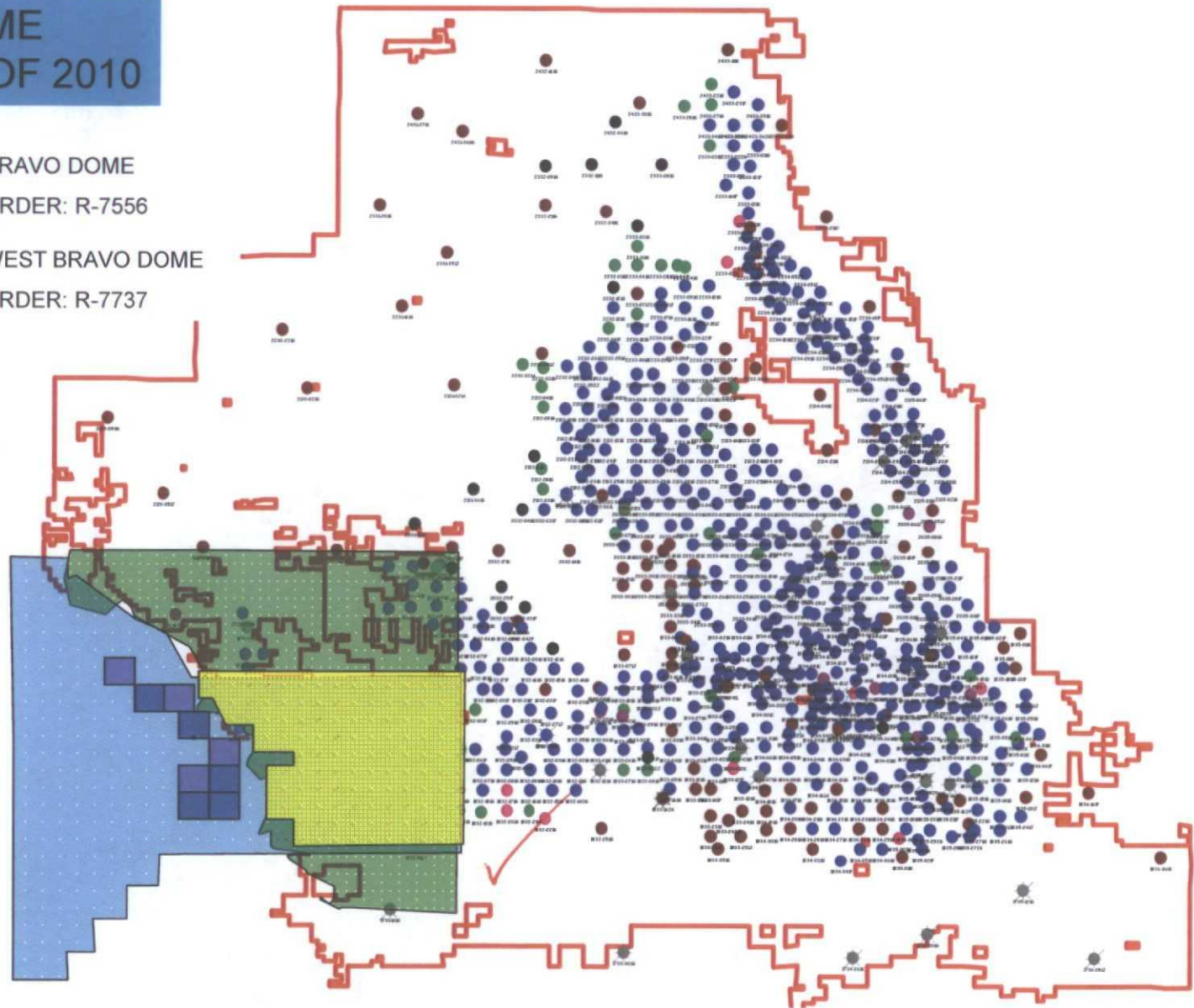
BRAVO DOME UNIT END OF 2006

-  160 AREA - BRAVO DOME
CASE: 8190 ORDER: R-7556
-  640 AREA - WEST BRAVO DOME
CASE: 8352 ORDER: R-7737
-  AREAS WITHIN 640
AREA LEFT AT 160
-  SUBJECT AREA



BRAVO DOME UNIT END OF 2010

-  160 AREA - BRAVO DOME
CASE: 8190 ORDER: R-7556
-  640 AREA - WEST BRAVO DOME
CASE: 8352 ORDER: R-7737
-  AREAS WITHIN 640
AREA LEFT AT 160
-  SUBJECT AREA



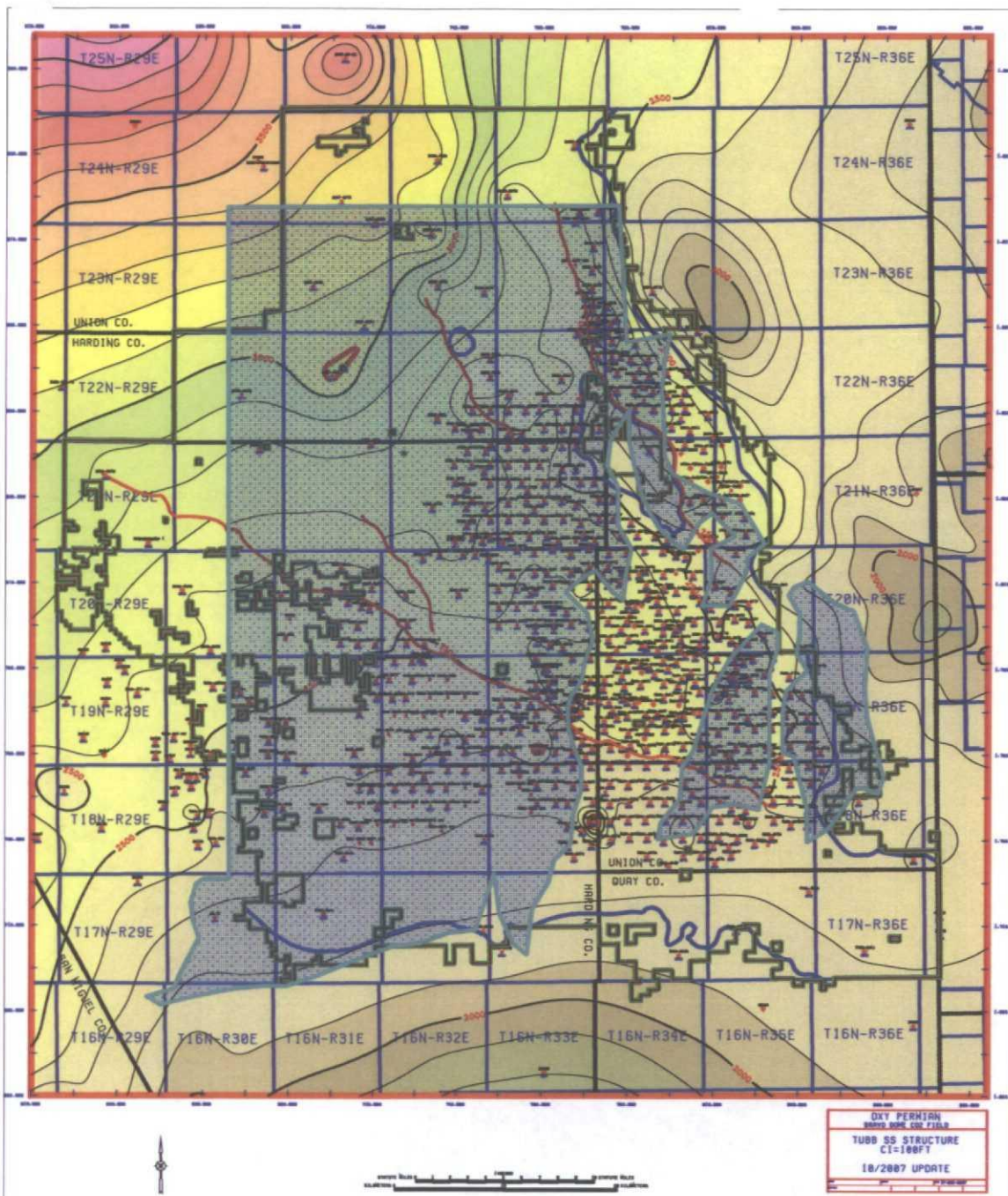
Bravo Dome Top Tubb Structure

- 910,000 Acre (1422 sq mi²)
- 48 Miles N-S, 42 Miles E-W

•Rhode Island

- 777,000 Acres (1214 sq mi)
- 48 Miles N-S, 37 Miles E-W

- Tubb @ 2300'
- Init P- 300-1900 psig
- 10.4 TCF OGIP
- 524 Producing Wells
- 280 MMCF/D,
- 3.5 TCF Cum CO₂



PRESENTATION OUTLINE

- **Petrophysics – Geology**

- Core data
- Cross Section

- **Performance**

- Production Profiles ✓
- Recoveries ✓

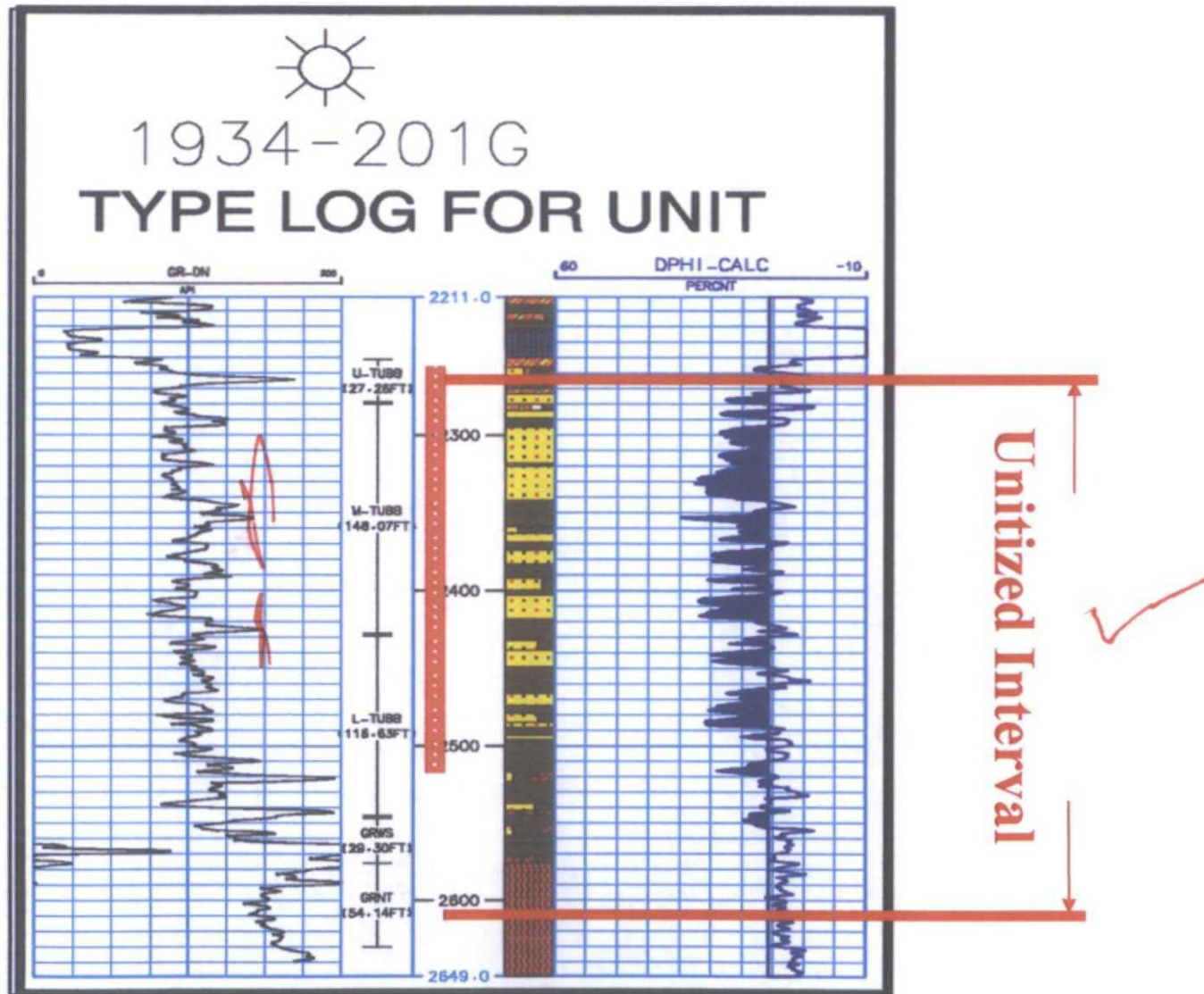
- **Conclusion**

- Geological and performance data does not support 640 acres spacing in the subject area

BRAVO DOME

PETROPHYSICS - GEOLOGY

Bravo Dome Type Log



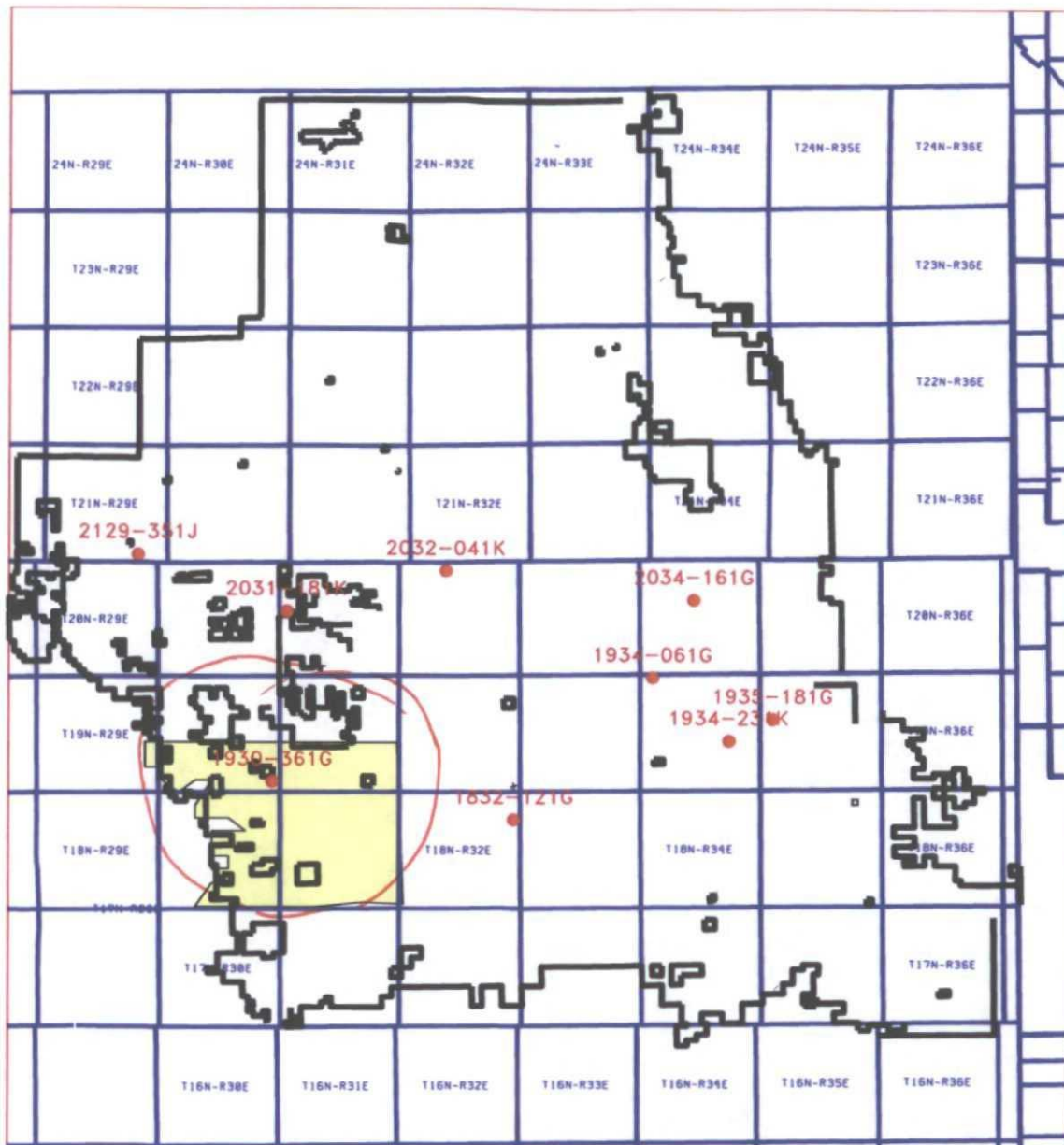
General Geologic Observations

- **Stratigraphic**

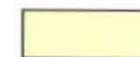
- Cimmaron Anhydrite - Top Seal
- Upper Tubb - Volumetrically Insignificant, Fine Grain Arkosic SS - Arid Alluvial Plain Depositional Environment,
- Middle Tubb - “Main Pay”, “Wind Blown Loess- Reworked Fluvial / Eolian sediments in Marginal Marine environment”, Fine to Med Grain Arkosic SS - Good Porosity: Ranges from 20% to 30%,
- Lower Tubb - Poorer Quality, greater amount of cements and clay, higher textural variability: Coarser Grained, Alluvial Fan to Braided Stream Depositional Environments
- Granite Wash - Weathered Basement, Often Conglomeratic, Texturally Immature
- Granite - “Basement”

Bravo Dome Key Tubb Core

9 Wells Cored >85% Tubb



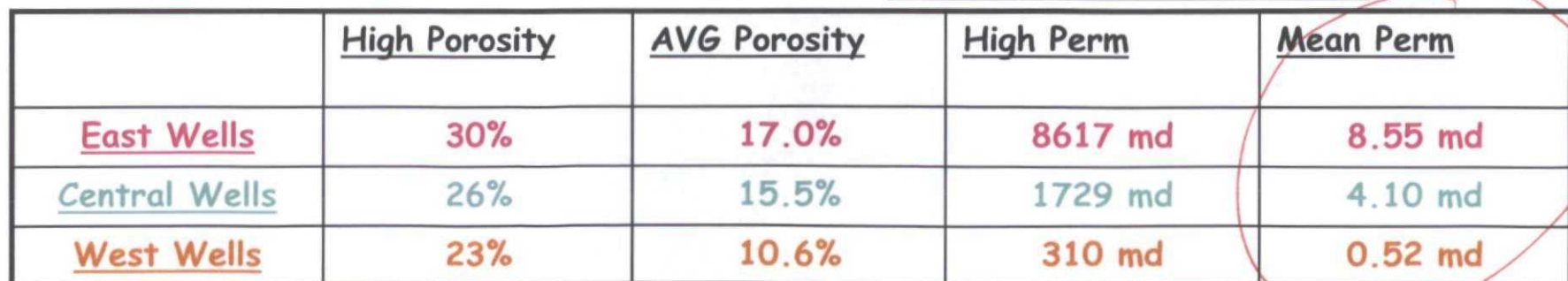
WELL	FEET OF TUBB FORMATION CORED	FEET OF TUBB ANALYZED	DYSTRA PARSON COEFFICIENT	AVERAGE PERMEABILITY MD
21 29 - 35 1 J	90	75	0.844	0.65
19 30 - 36 1 G	155	112	0.958	0.56
20 31 - 18 1 K	124	83	0.876	0.44
20 32 - 04 1 K	212	172	0.916	3.41
18 32 - 12 1 G	202	155	0.95	5.05
19 34 - 06 1 G	262	256	0.942	3.88
20 34 - 16 1 G	200	197	0.94	4.53
19 34 - 23 1 K	314	258	0.941	10.36
19 35 - 18 1 G	267	224	0.941	15.34
9 WELL TOTAL	1826	1532		



SUBJECT AREA

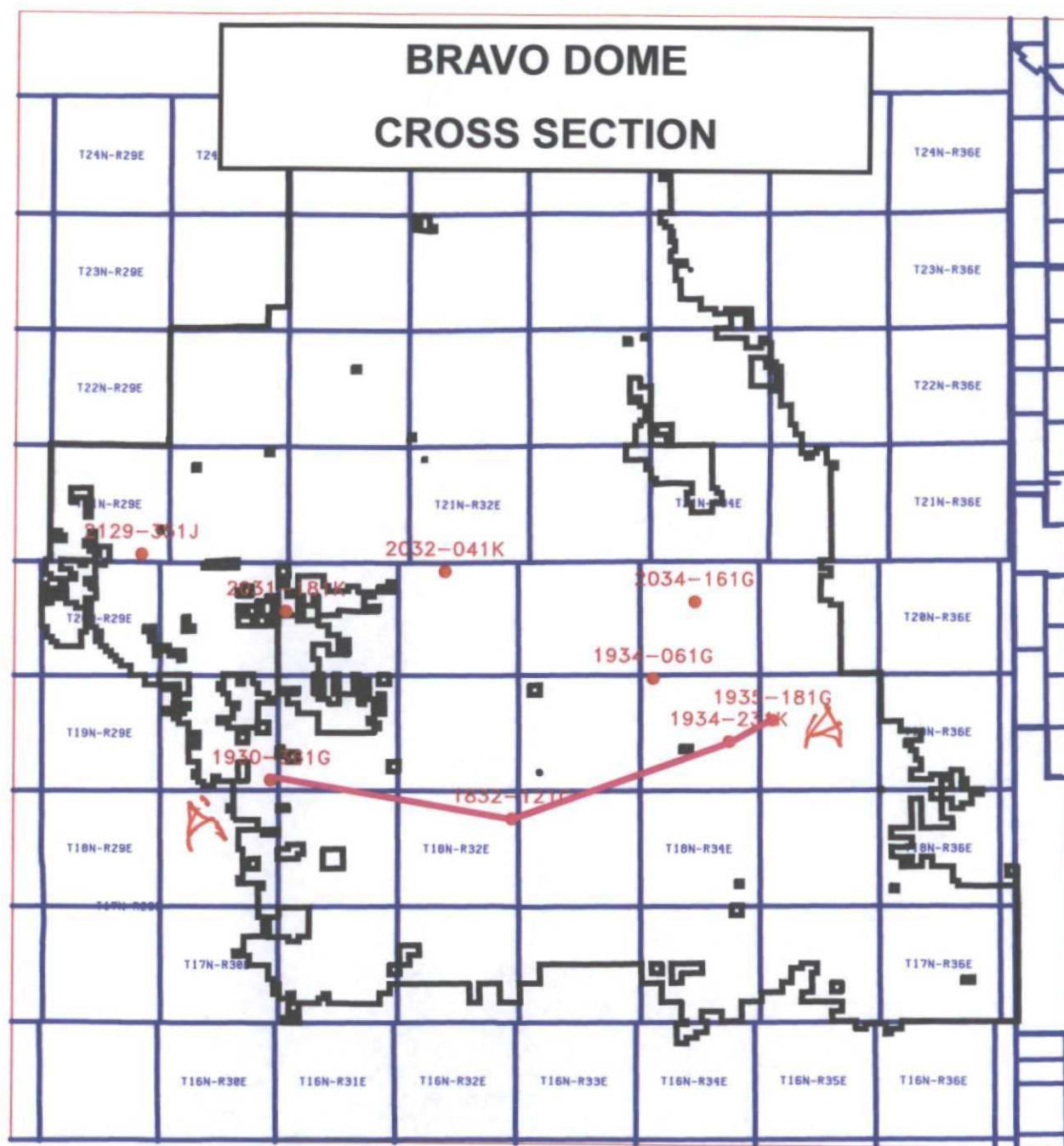
- Tubb Lateral Variability

- ## Bravo Dome R35 - Pore Types
- ### Key Tubb Cored Wells



BRAVO DOME

CROSS SECTIONS



West

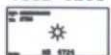
W-E Xsection South Core

East

1930-361G



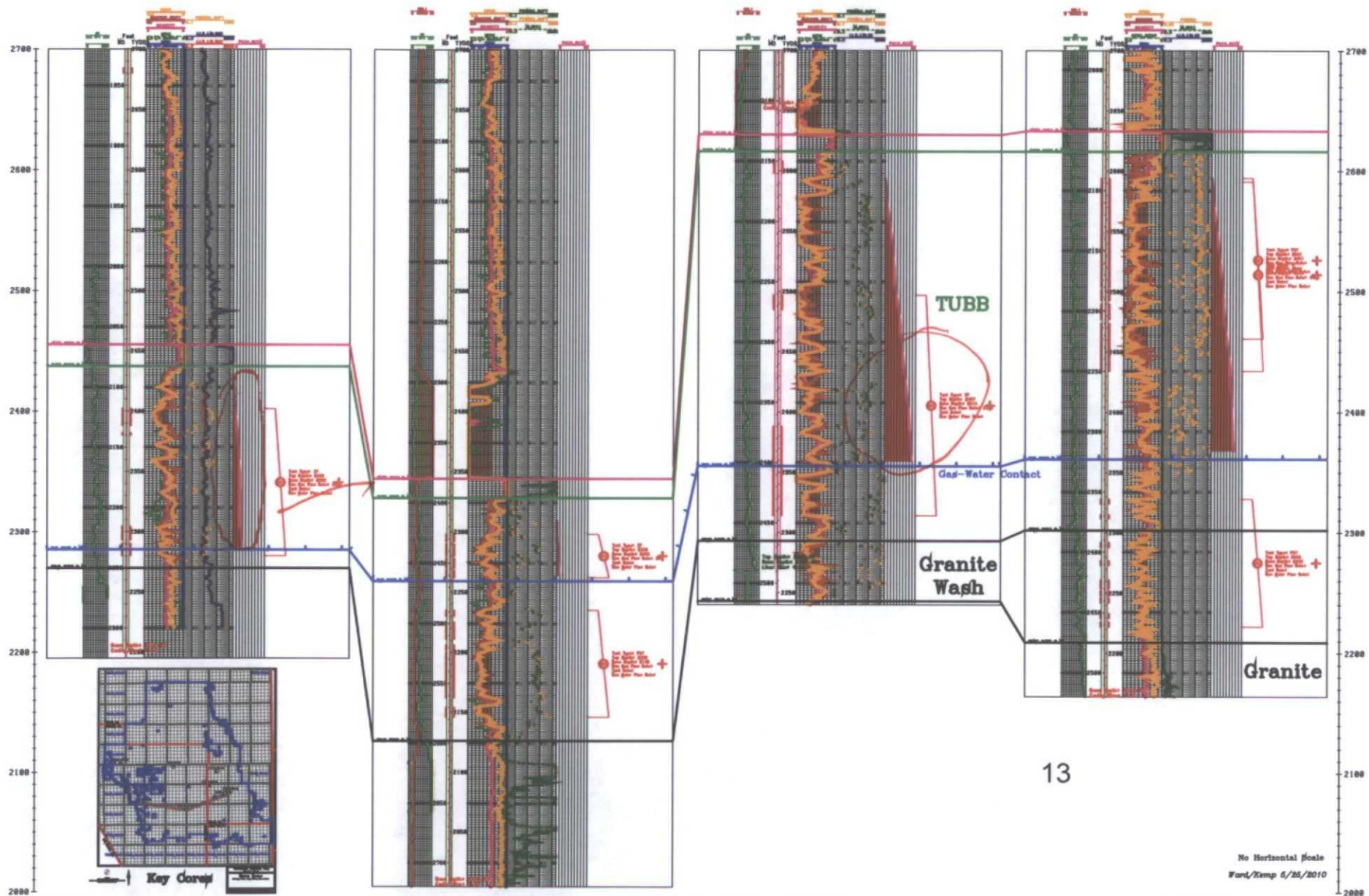
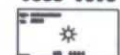
1932-121G



1934-231K



1935-101G



13

No Horizontal Scale
Ward/Kemp 5/25/2010

PERFORMANCE

PRODUCTION PROFILES
RECOVERIES

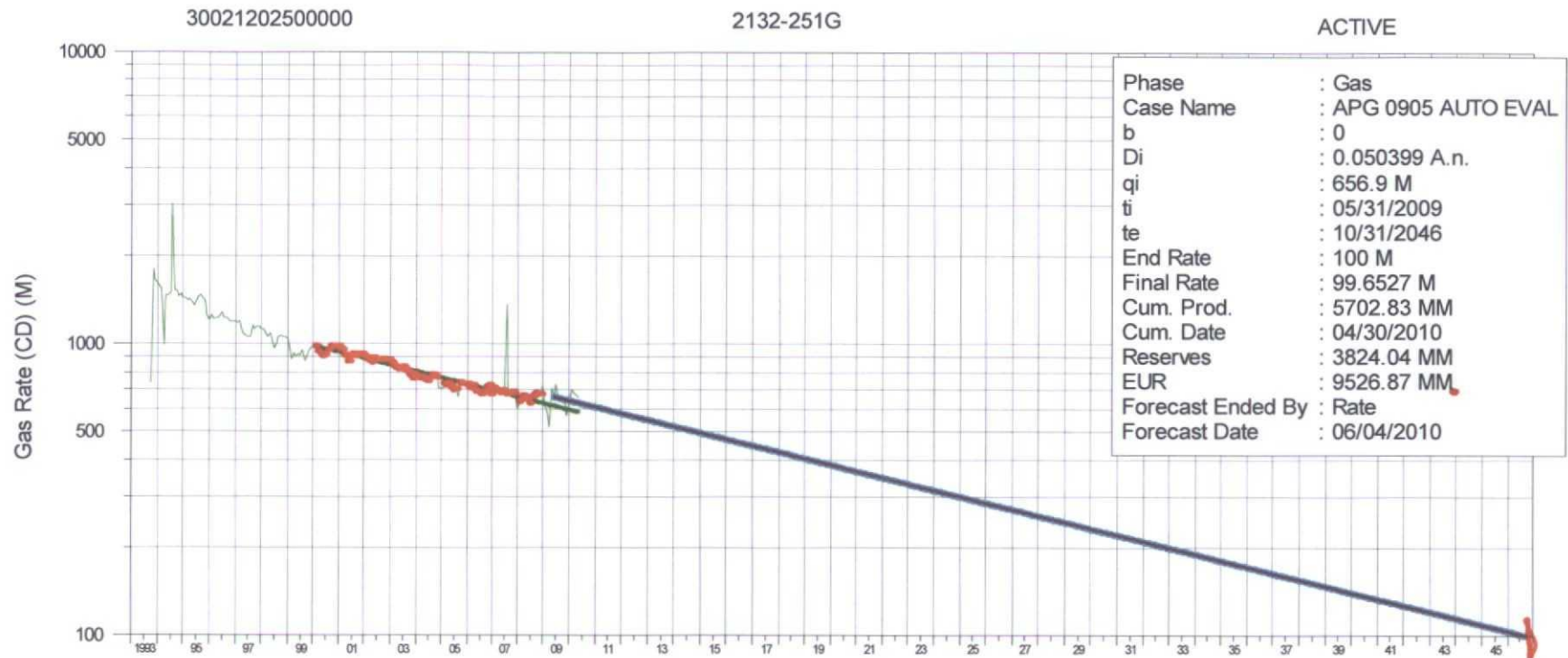
Typical Recovery for Different Production Mechanisms

DRIVE MECHANISM	EXPECTED RECOVERY % OOIP OR OGIP			
	OIL		GAS	
OIL EXPANSION	2	5		
GAS EXPANSION			70	95
SOLUTION GAS	10	30		
GAS CAP	20	50		
WATER DRIVE	25	50	45	70
GRAVITY SEGREGATION	30	70		

DESORCY 1979

742
160-420
18.58
640-420

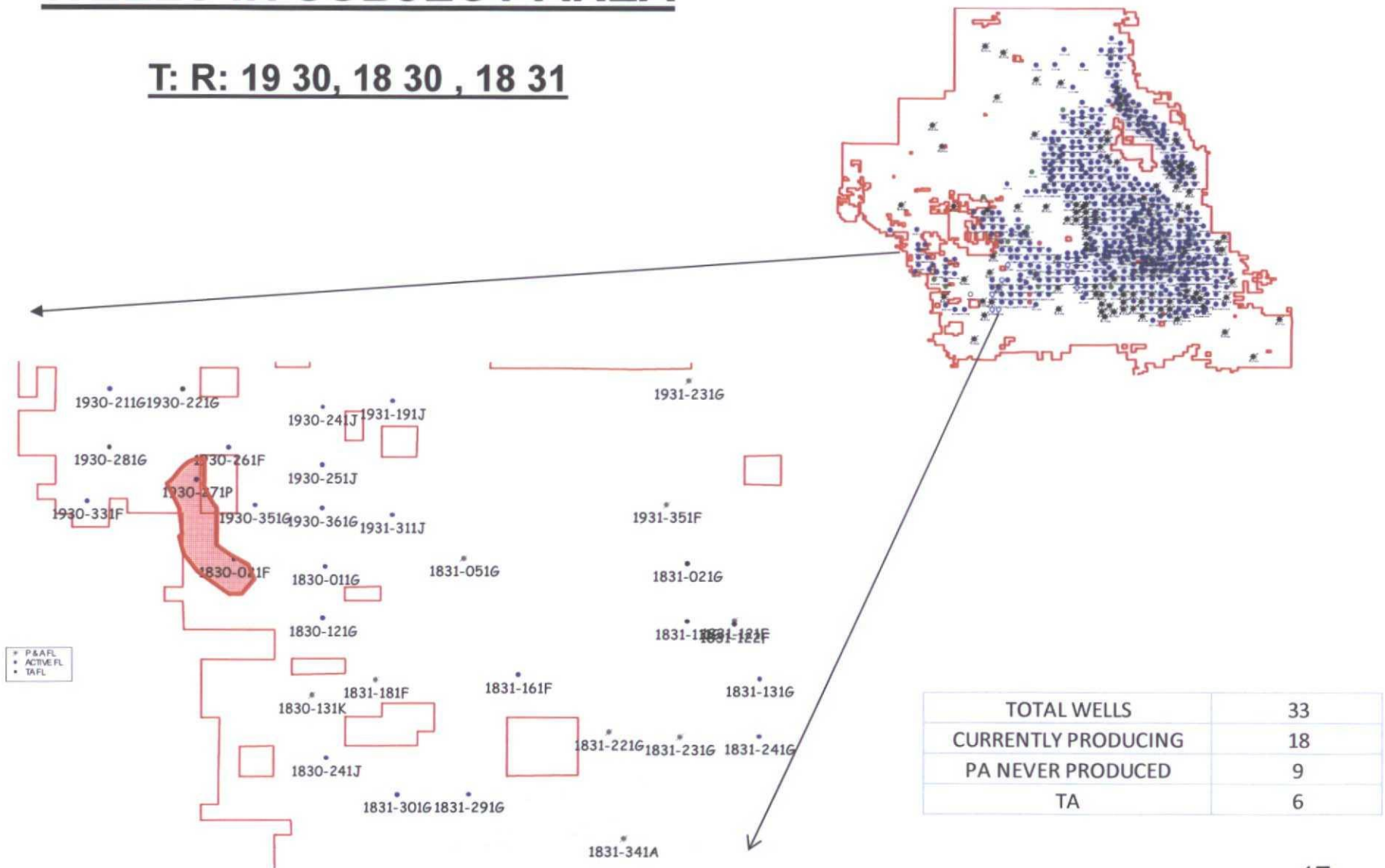
SAMPLE OF RECOVERY EFFICIENCY CALCULATIONS



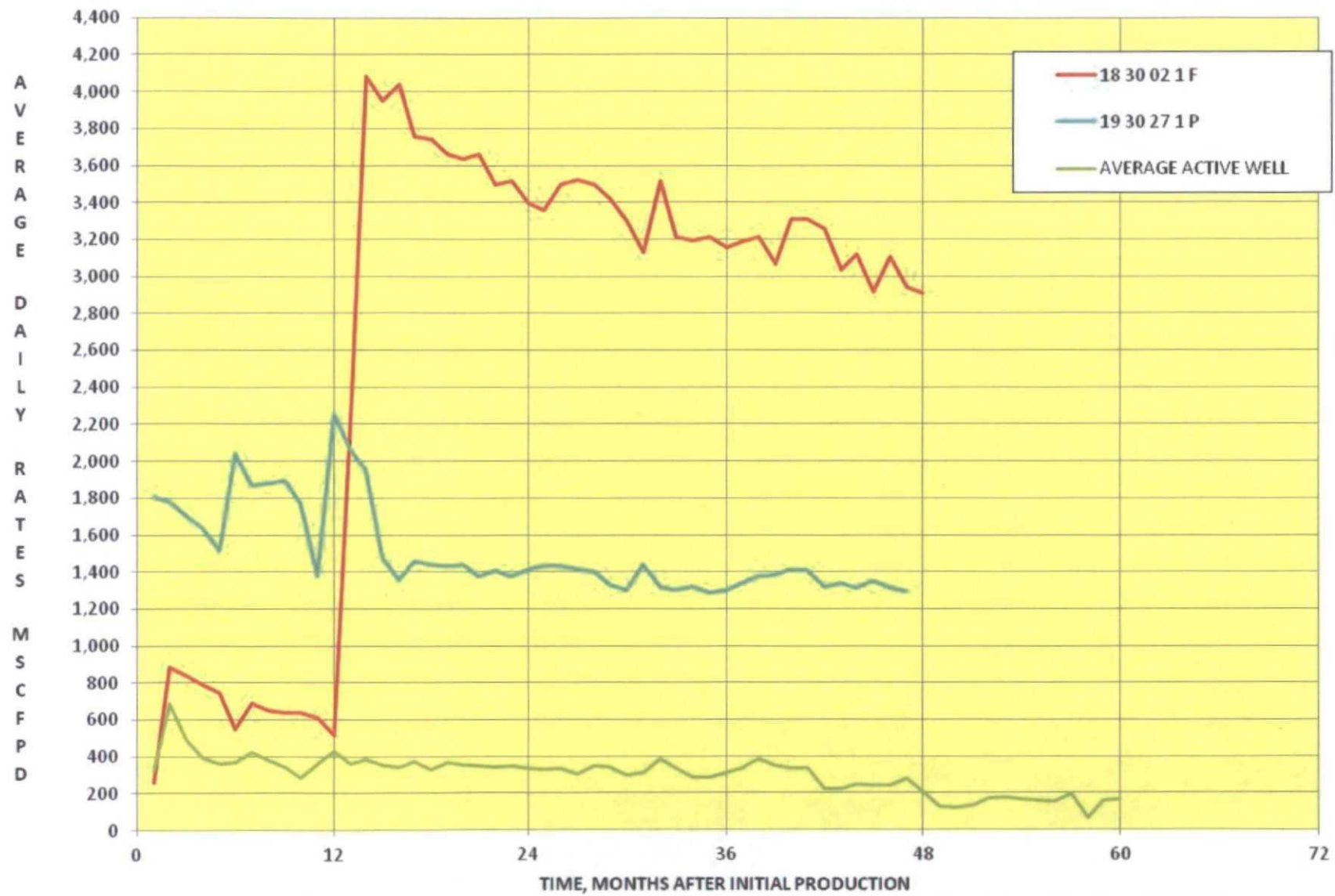
	NEW	NEW	NEW	NEW NET H	CUM	"RESERVES"	EUR	RE	OGIP	Bgi	Zi	AREA	Ti
	PhiH	Sw	P		AS OF 2/10				BCF	BBL/MCF		ACRES	RANKIN
213225	15.908	0.132	383	104	5,703	3,824	9,527	0.8609	11.066	6.1928	0.8588	640	550

WELLS IN SUBJECT AREA

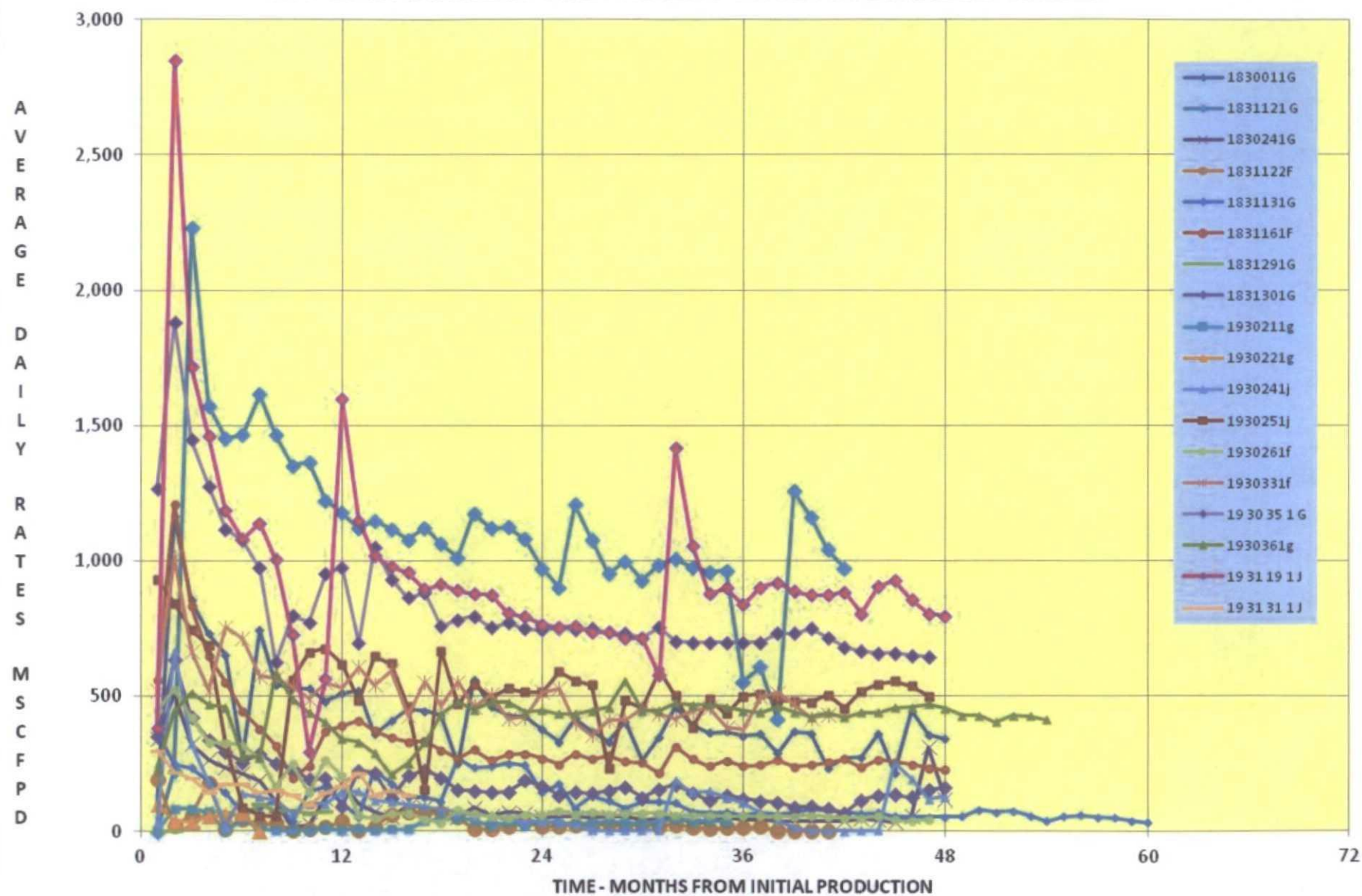
T: R: 19 30, 18 30 , 18 31



ANOMALOUS WELLS IN SUBJECT AREA



WELLS IN SUBJECT AREA EXCLUDING ANOMALUS WELLS



PRODUCING WELLS IN SUBJECT AREA EXCLUDING ANOMALOUS WELLS

- ESTIMATED ULTIMATE RECOVERY:
- AVERAGE : 1.9 BCF
- RECOVERY EFFICIENCY OF 18.5 % ON 640 ACRES SPACING
- RECOVERY EFFICIENCY OF 74 % ON 160 ACRES . Better SPACING