

Fruitland Coal Infill De Novo Hearing

Geologic Exhibits

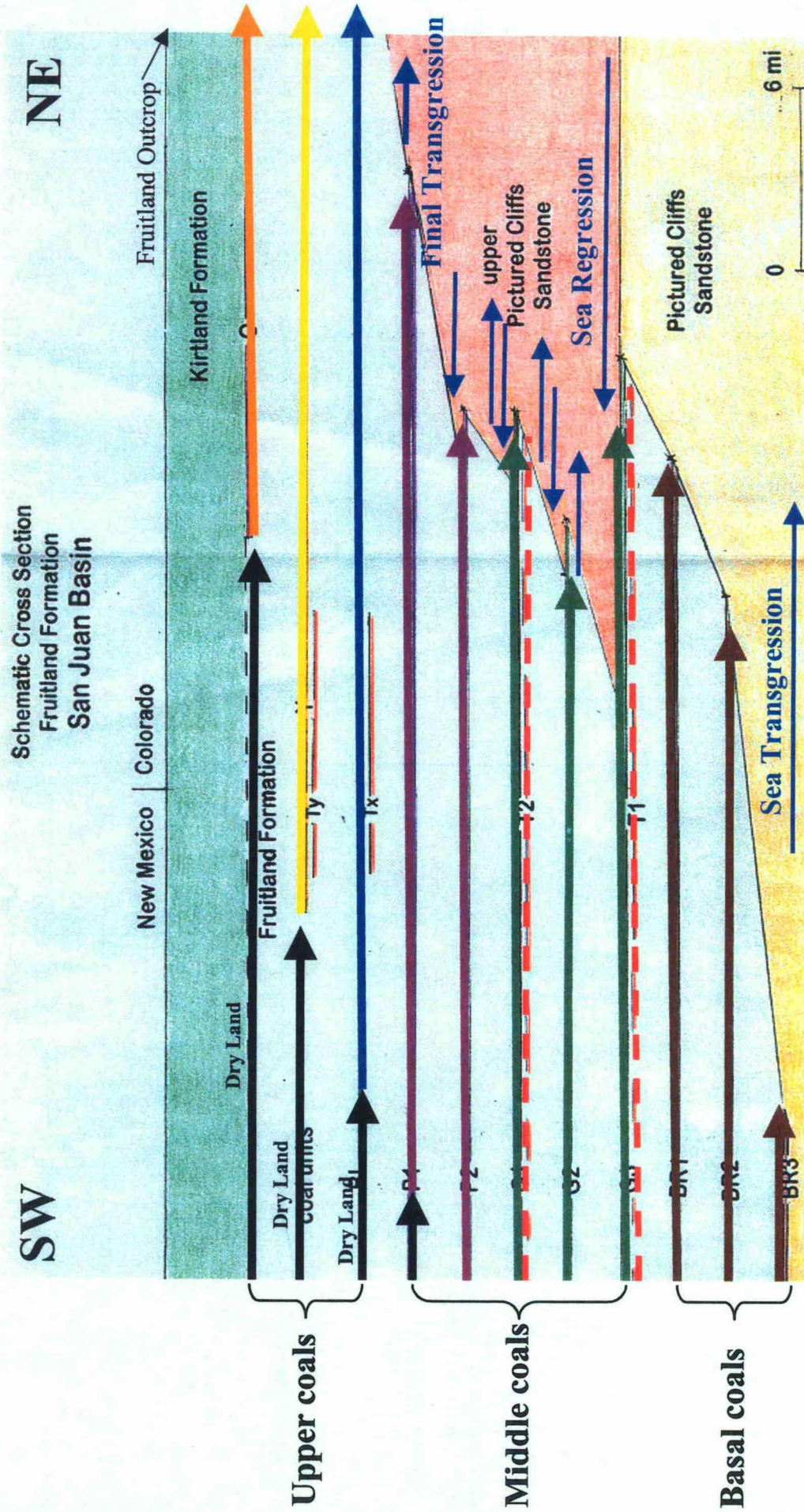
Burlington Resources

Steven Thibodeaux

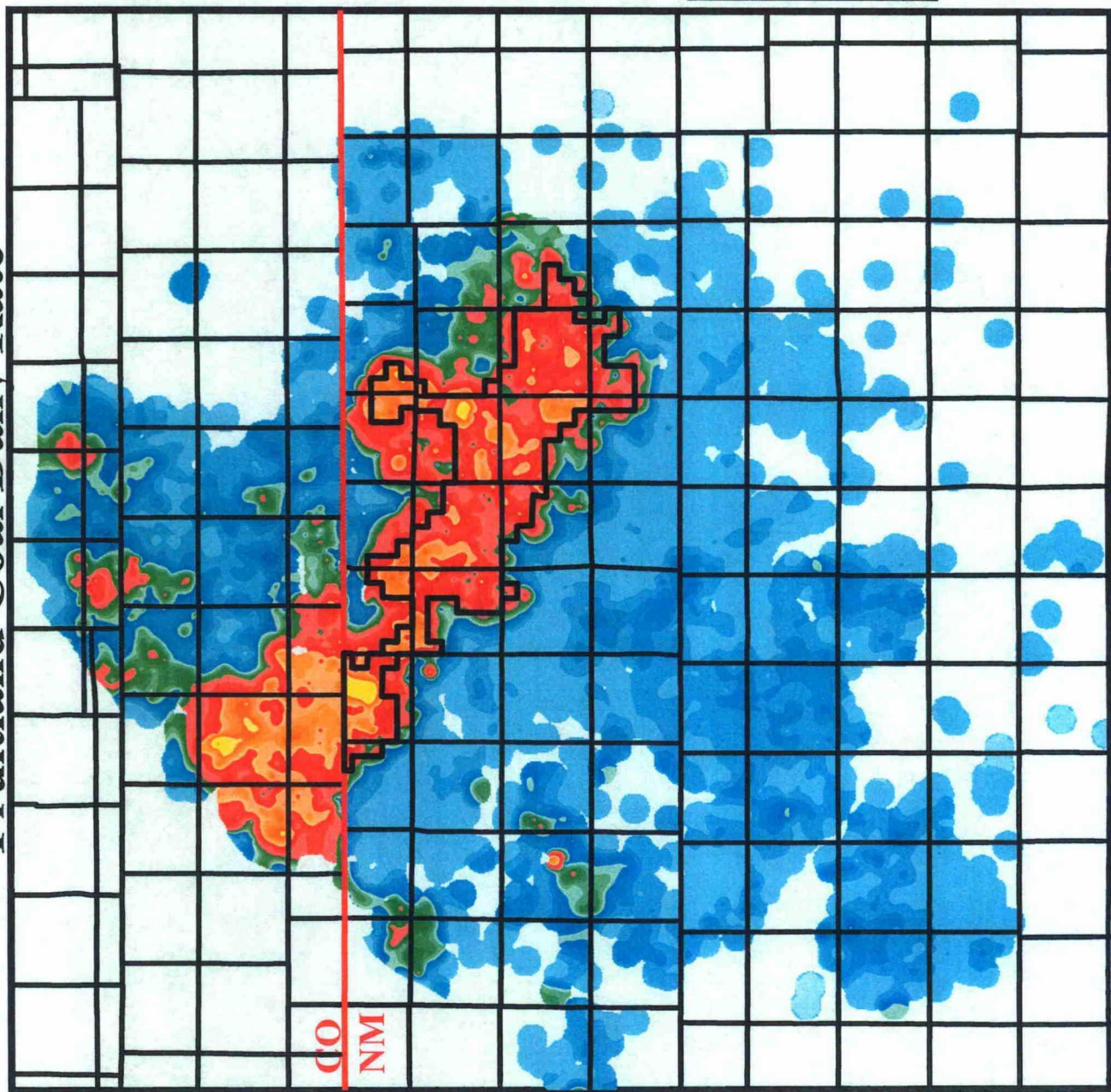
Sr. Staff Geologist

Geological Overview Summary

- Nine *genetic* coal packages identified and mapped
- Production heterogeneity exists across basin
- Packages change vertical communication “partners”
- Individual coal bed discontinuities are prevalent
- Modern analogues of Fruitland coal model exist
- Major coal packages correlatable throughout basin
- All coals display vertical and lateral heterogeneity



Fruitland Coal Daily Rate



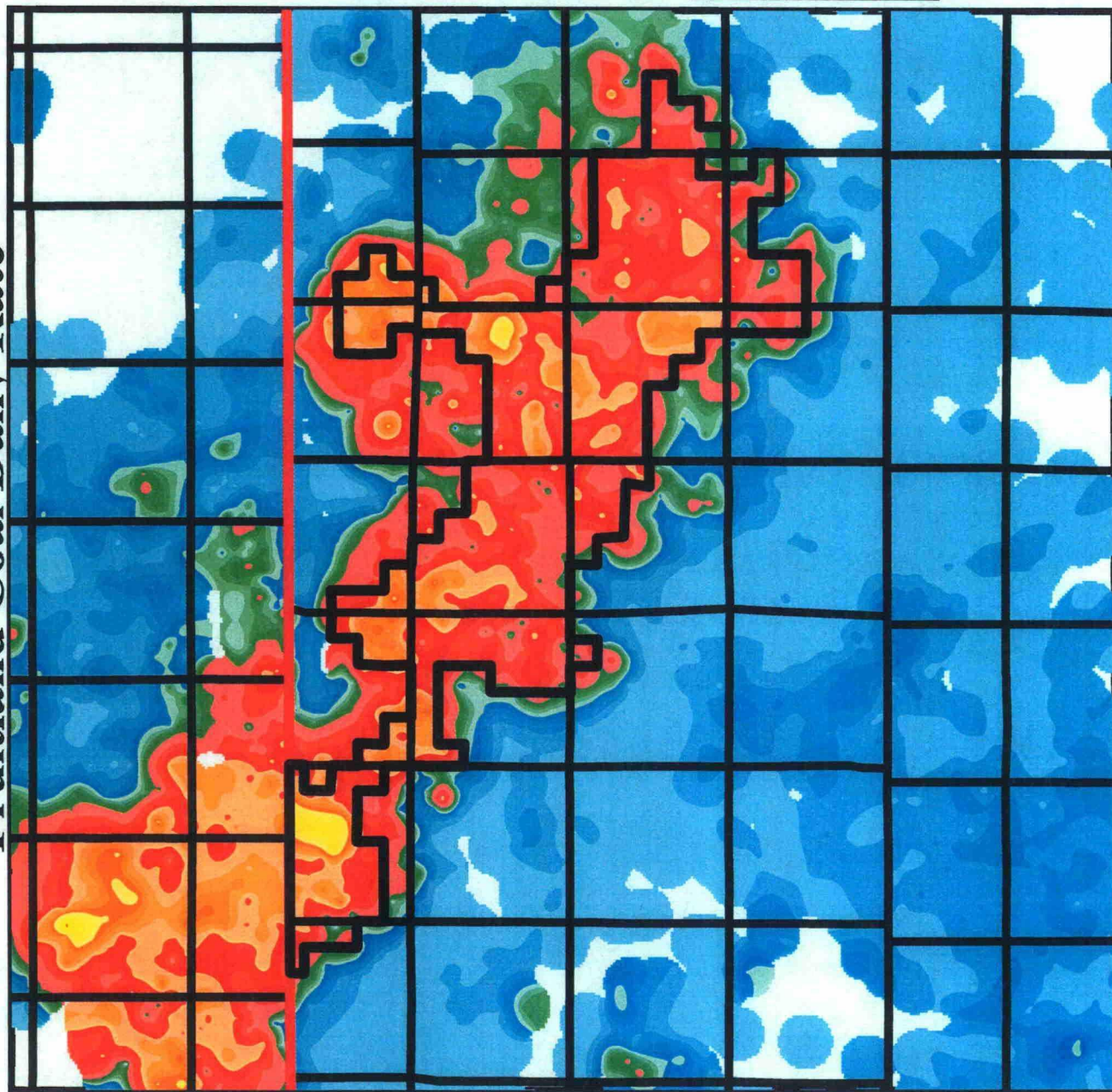
— 2 MMcfd HPA

Fruitland 06/01 Daily Rate

Blue	0 - .5	MMcfd
Green	.5 - 1	MMcfd
Red	1 - 3	MMcfd
Orange	3 - 5	MMcfd
Yellow	>5	MMcfd

CI: .1 MMcfd (for rates < 1MMcfd)
1 MMcfd (for rates > 1MMcfd)

Fruitland Coal Daily Rate

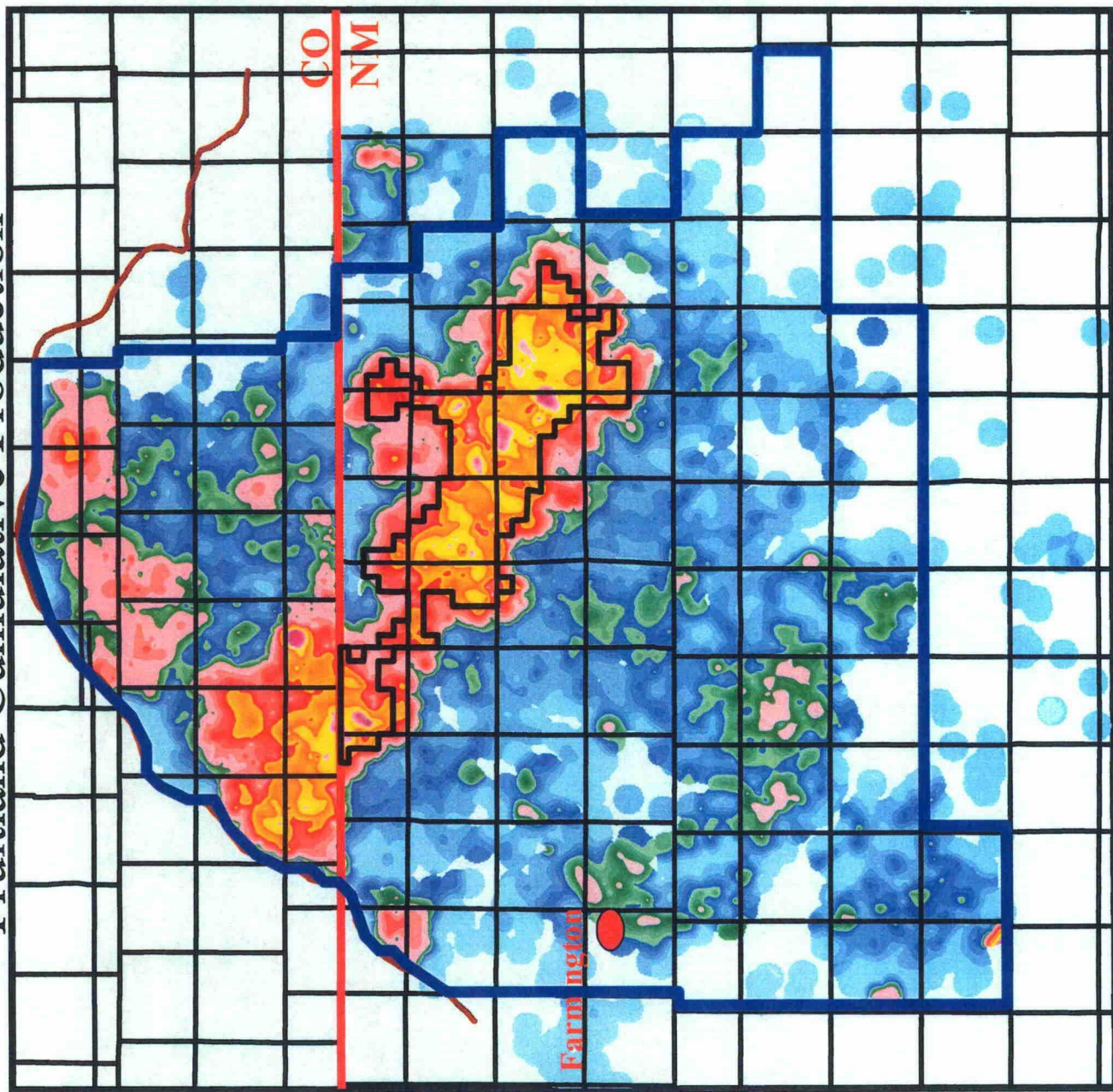


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Fruitland Cumulative Production

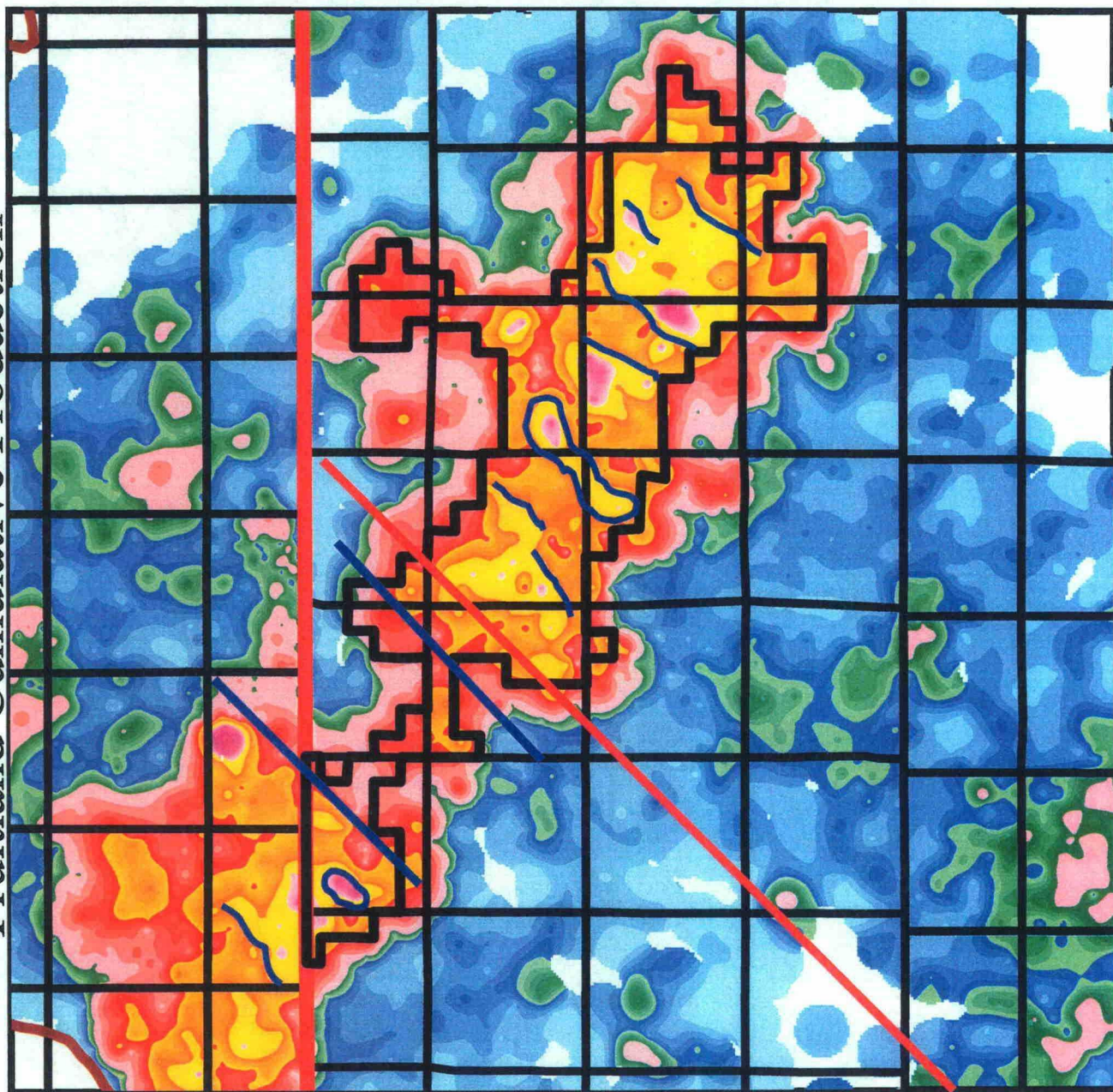


Fruitland Cumulative Production

Blue	0 - .5	BCF
Green	.5 - 1	BCF
Red	1 - 5	BCF
Orange	5 - 10	BCF
Yellow	10 - 15	BCF
Purple	> 15	BCF

CI: .1 BCF (for cum's < 1 BCF)
 1 BCF (for cum's > 1 BCF)

Fruitland Cumulative Production



— Fruitland Outcrop

— 2 MMcfd HPA

Fruitland Cumulative Production

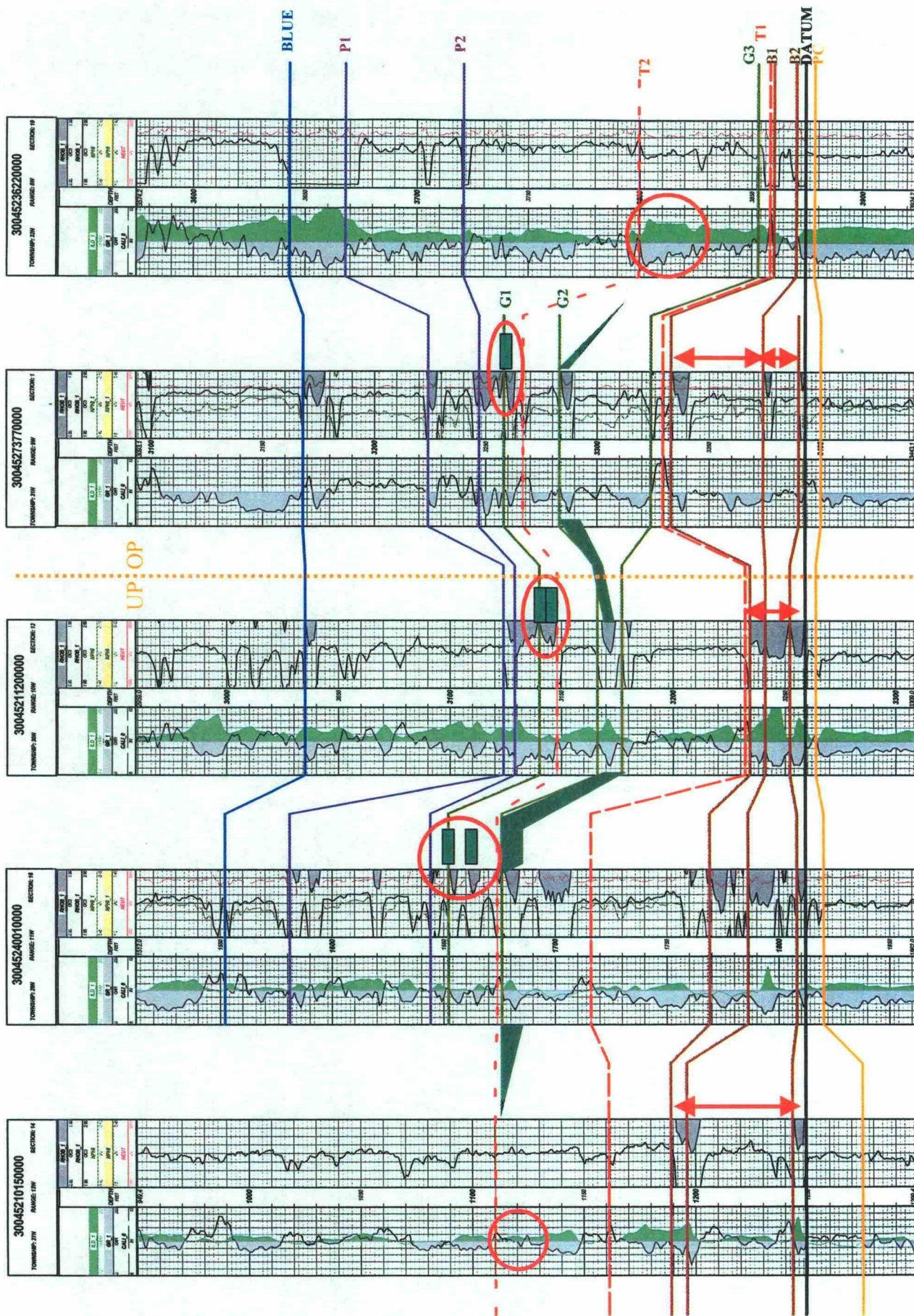
Blue	0 - .5	BCF
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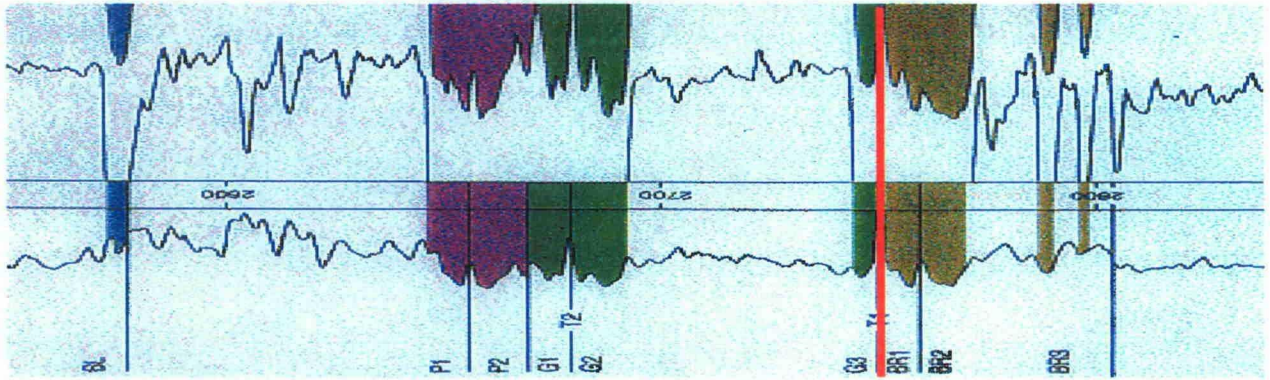
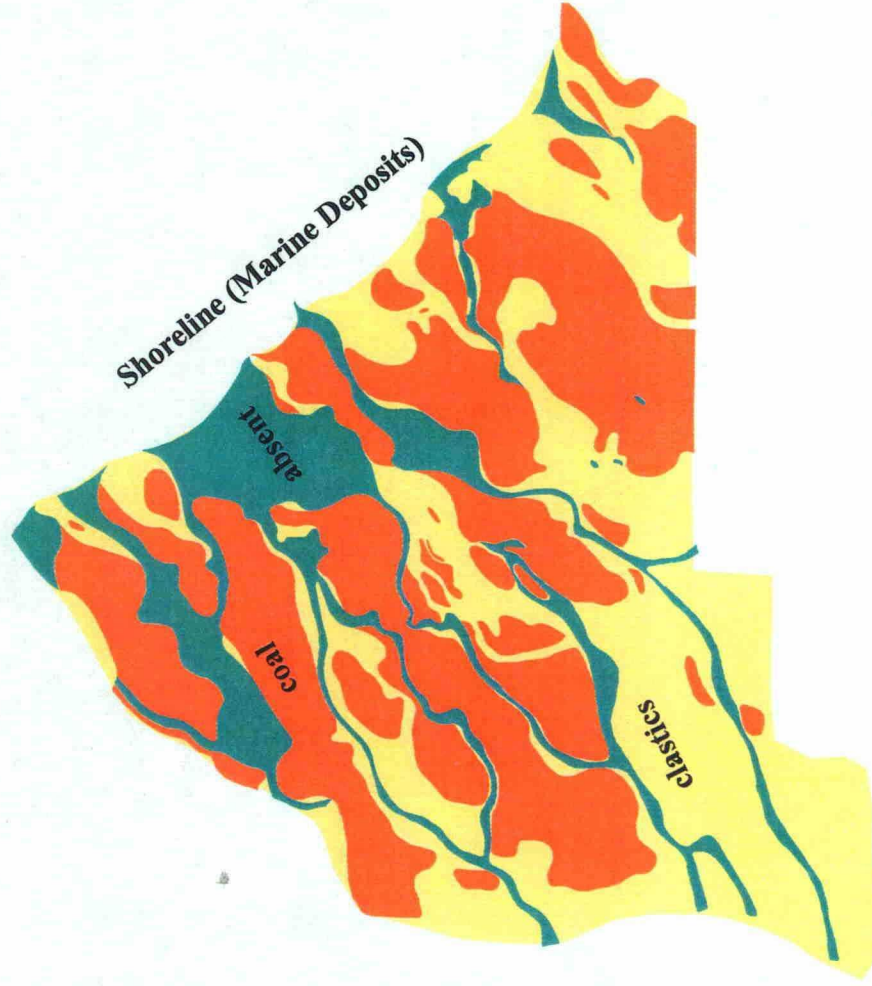
Fruitland Dip Section

NE

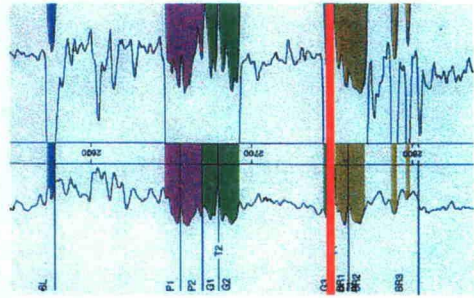
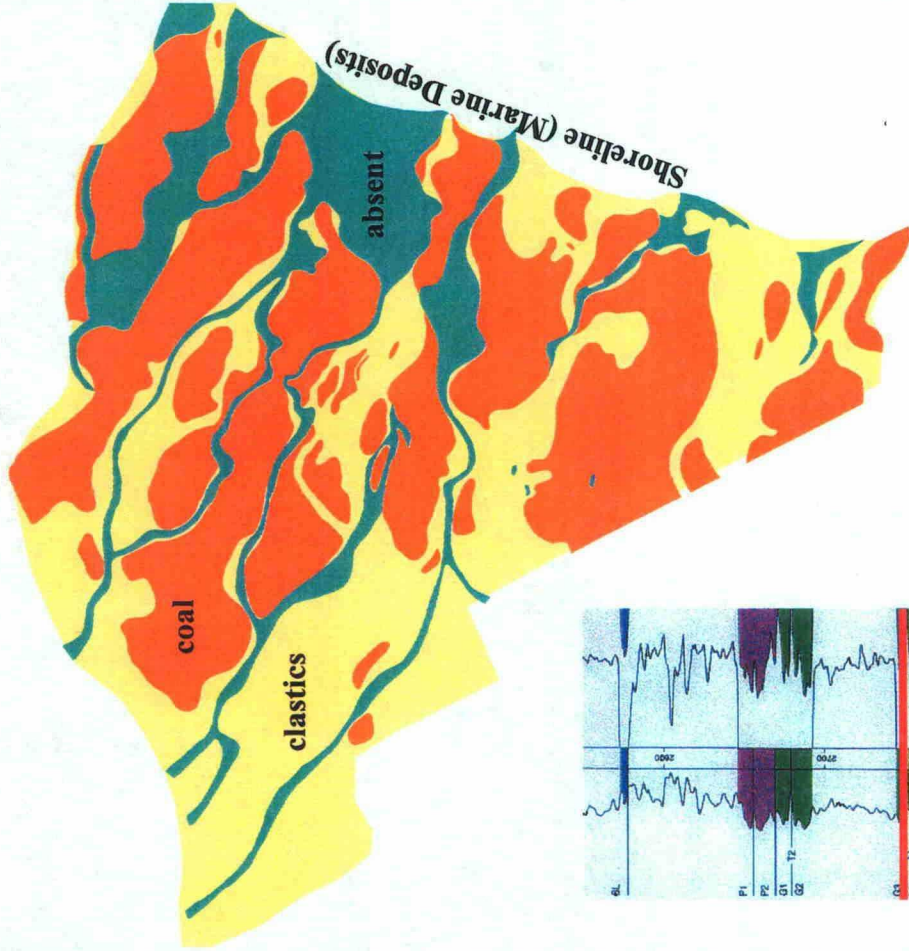
SW



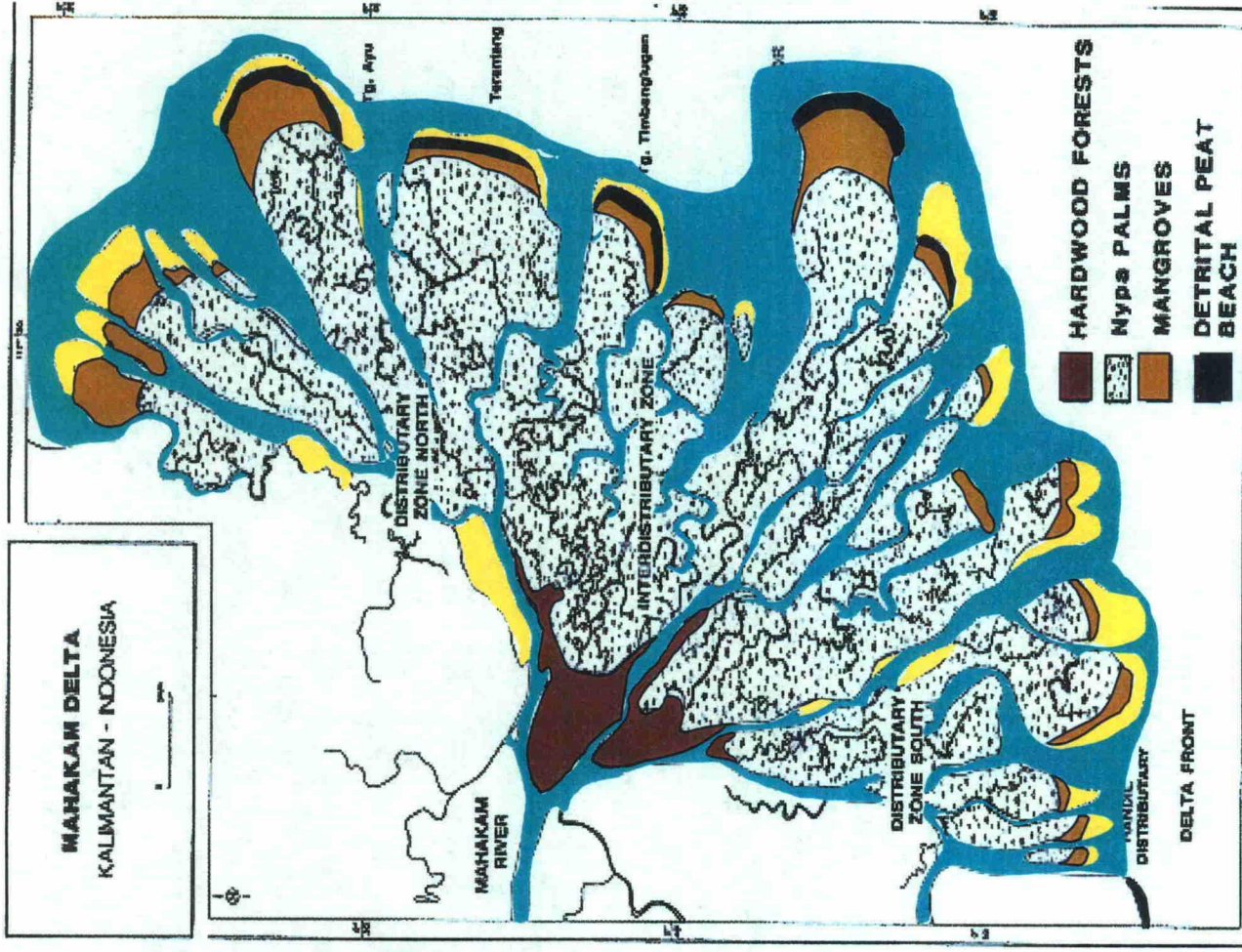
T1 Subcrop Map



T1 Subcrop Map

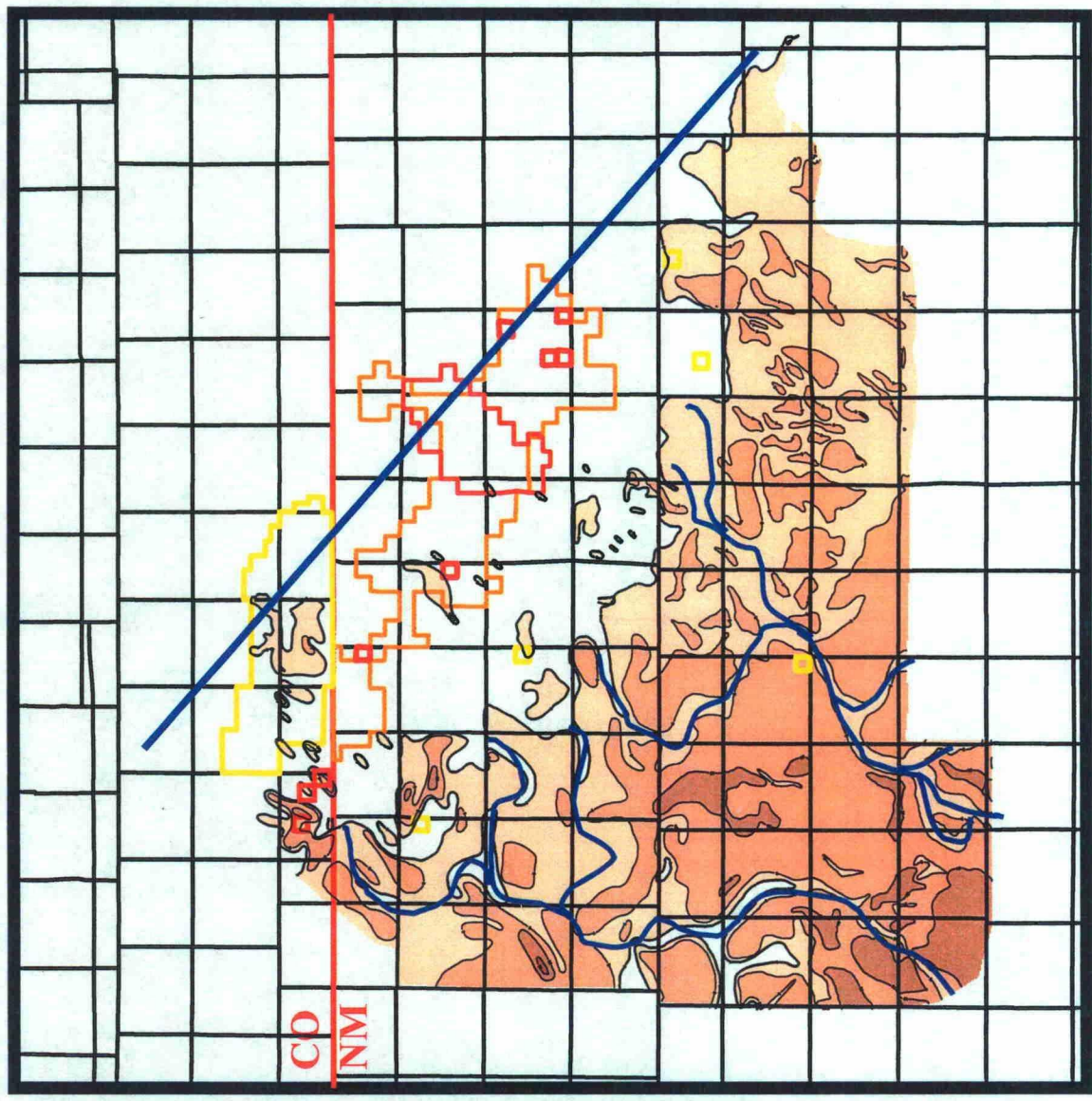


Wave Dominated Shoreline
(Straight)



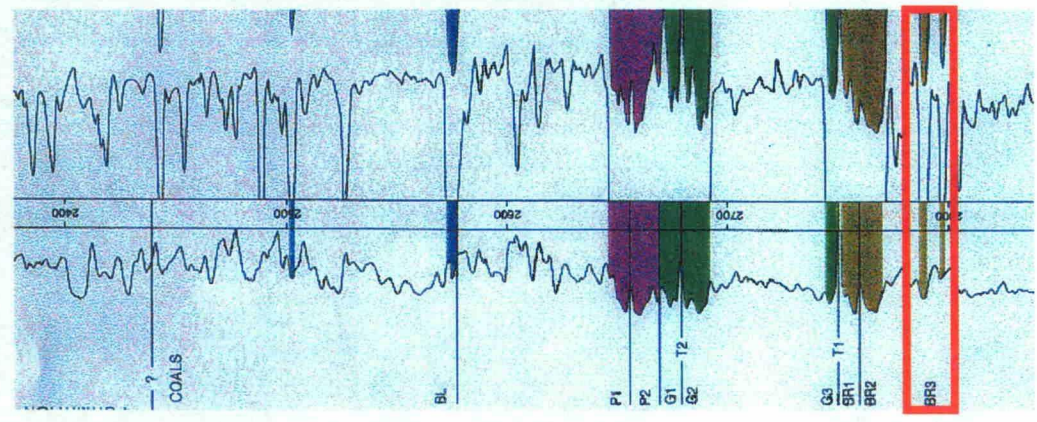
Tide Dominated Shoreline
(Lobate)

BR3 Thickness Isopach

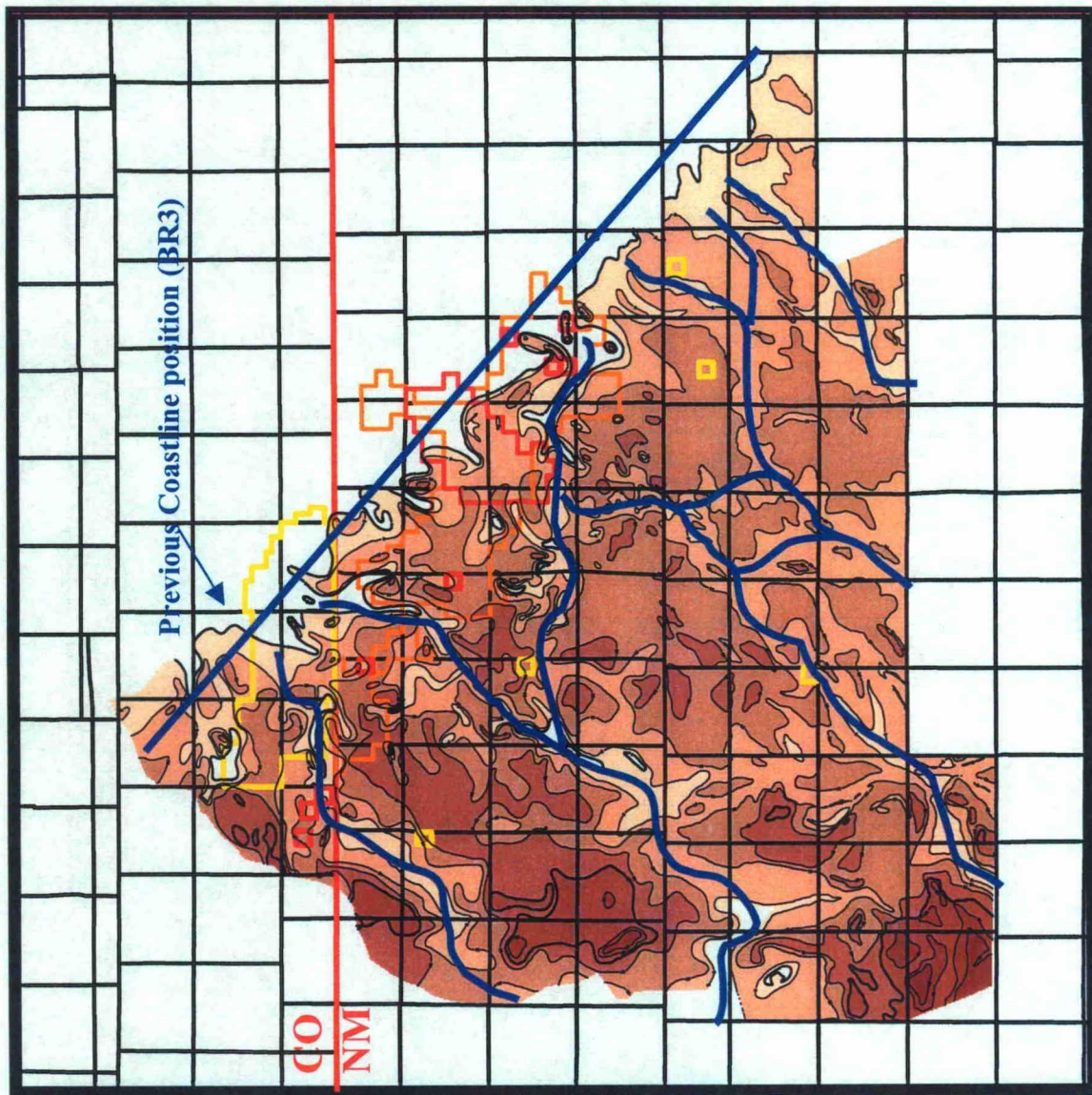


CI: 5'

T32N - R11W, CO

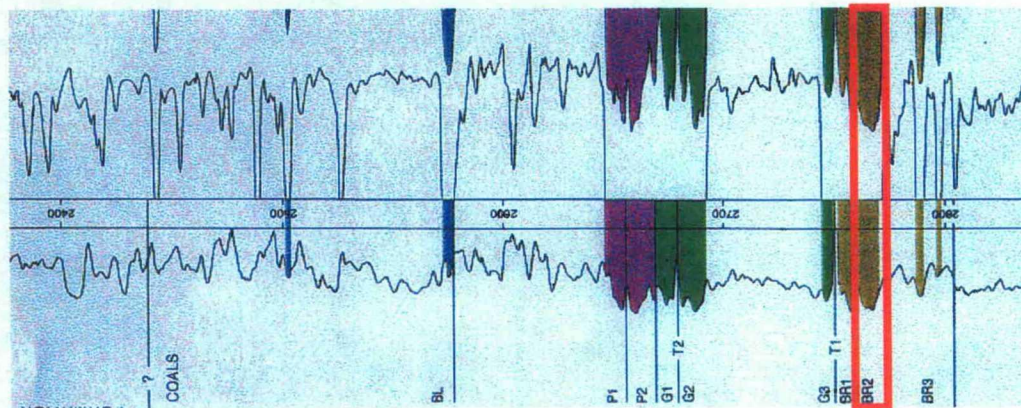


BR2 Thickness Isopach

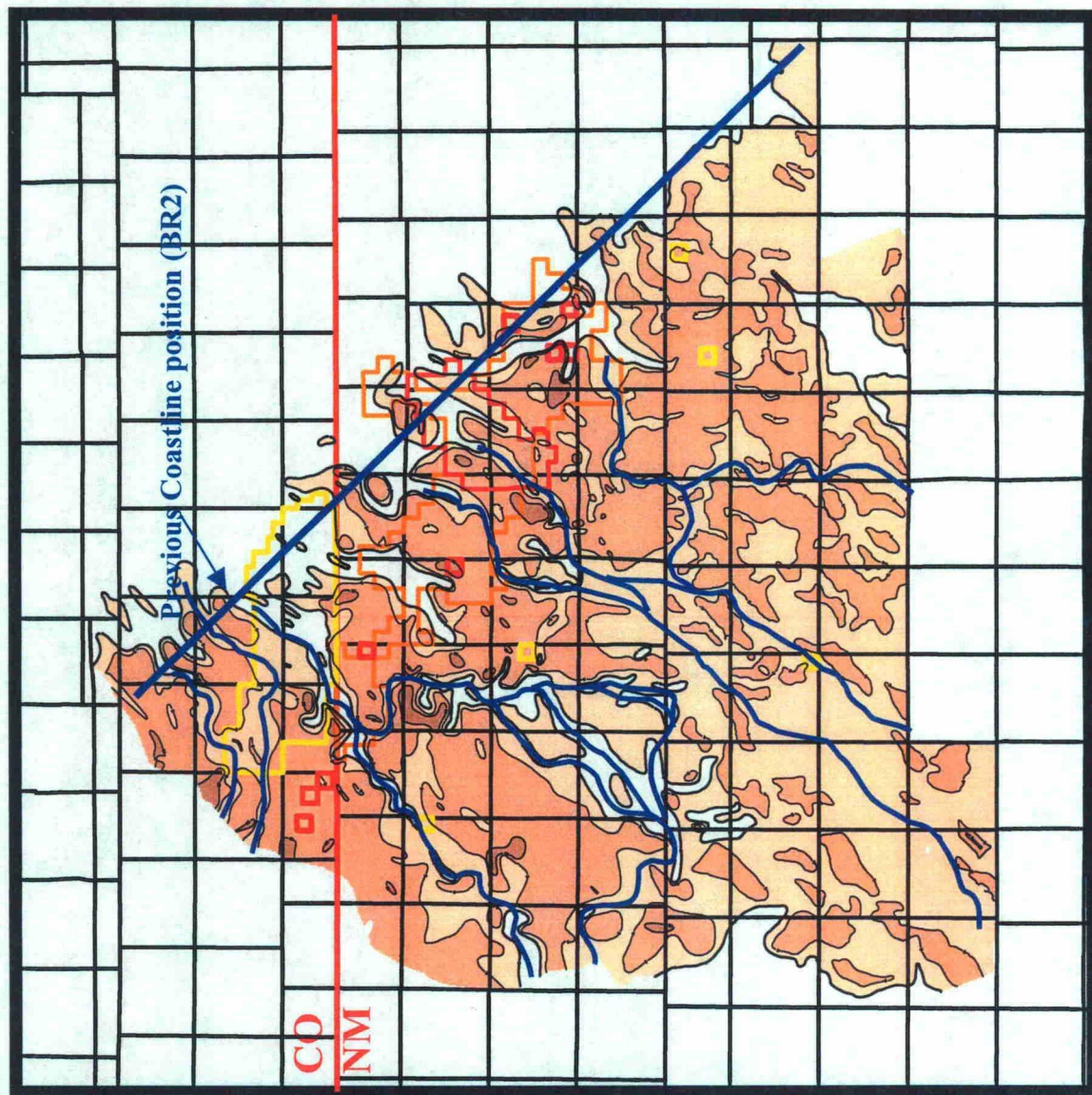


CI: 5'

T32N - R11W, CO

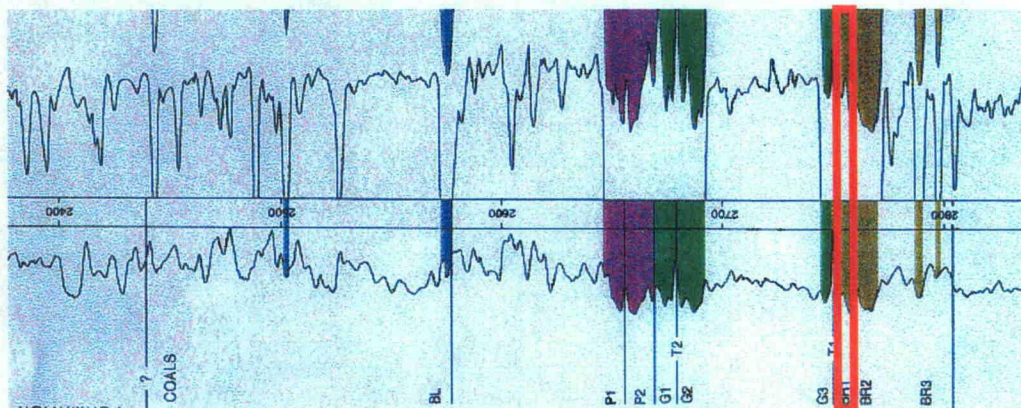


BR1 Thickness Isopach

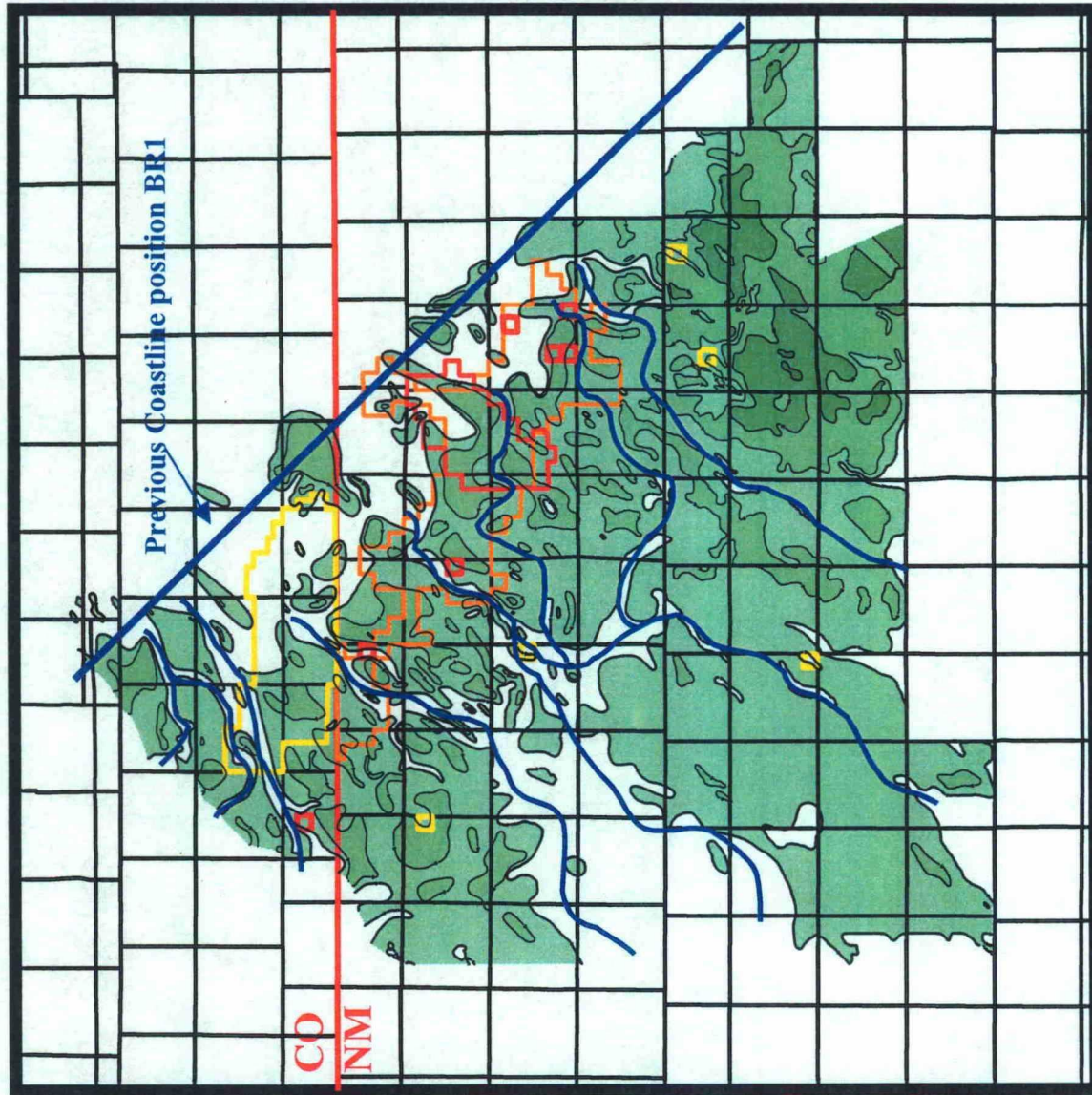


CI: 5'

T32N - R11W, CO

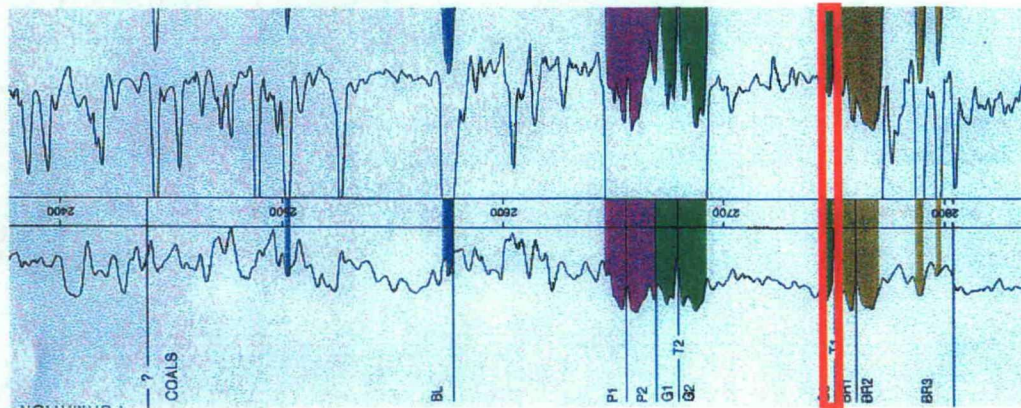


G3 Thickness Isopach



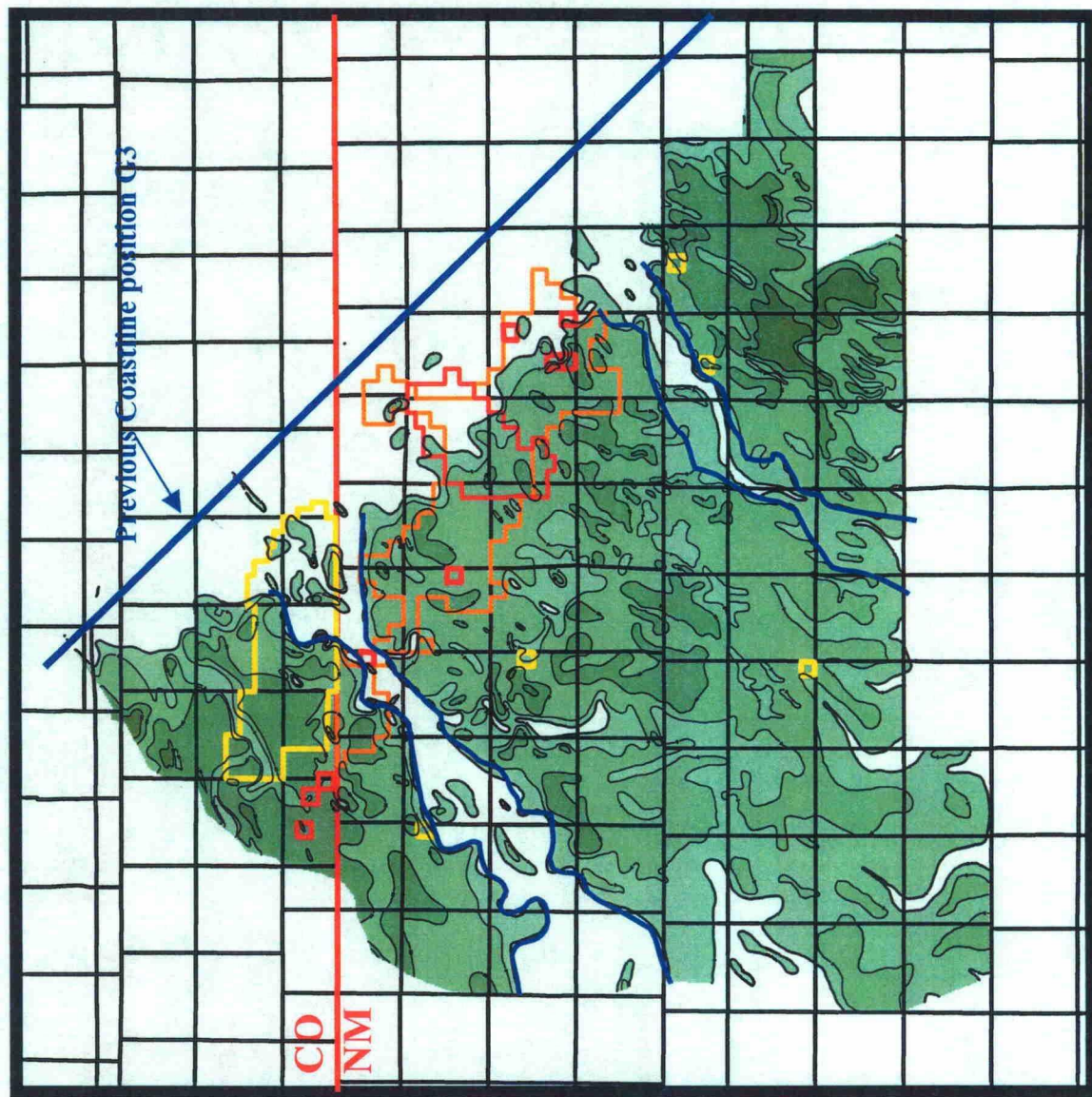
- BR HPA Data Wells
- BR LPA Pilot Wells
- Devon NEBU Unit
- BP's CO Infill Data
- HPA 2 MMcf/d Line

T32N - R11W, CO



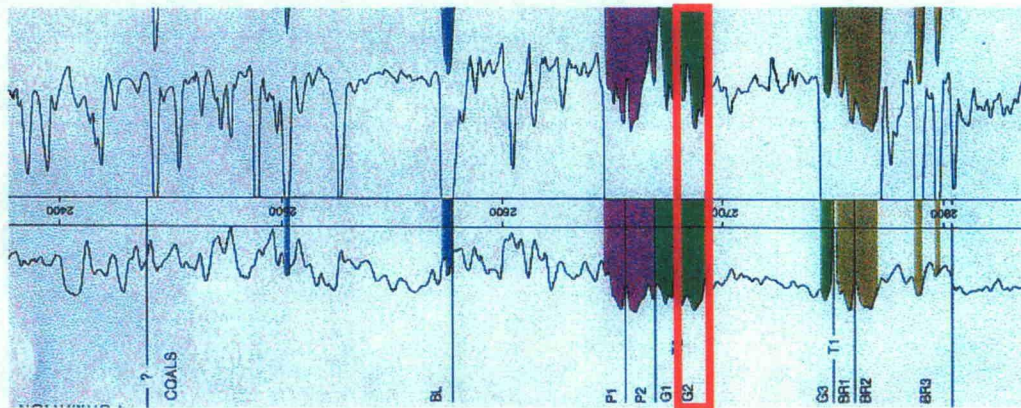
CI: 5'

G2 Thickness Isopach



CI: 5'

T32N - R11W, CO



BR HPA Data Wells

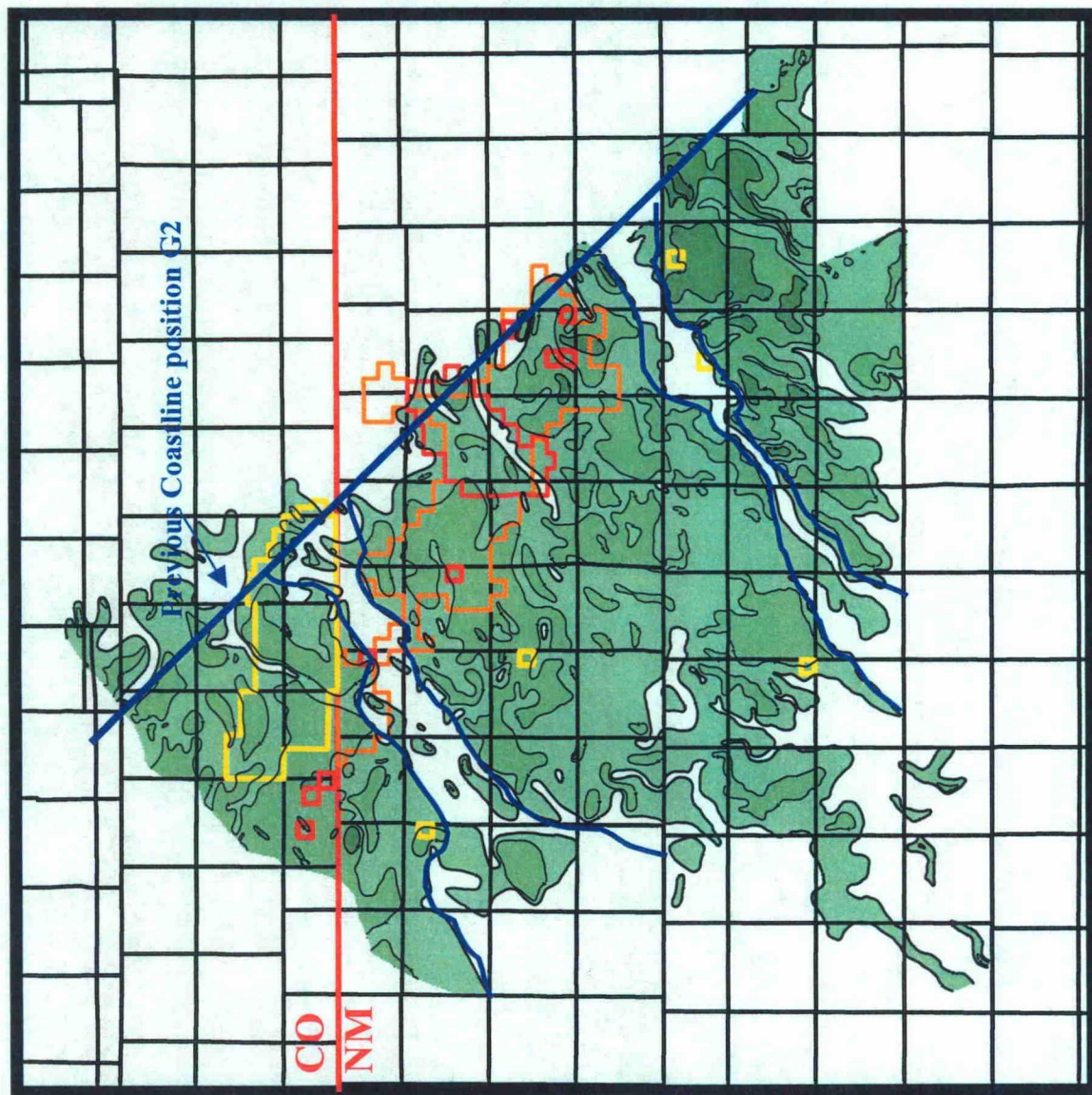
BR LPA Pilot Wells

Devon NEBU Unit

BP's CO Infill Data

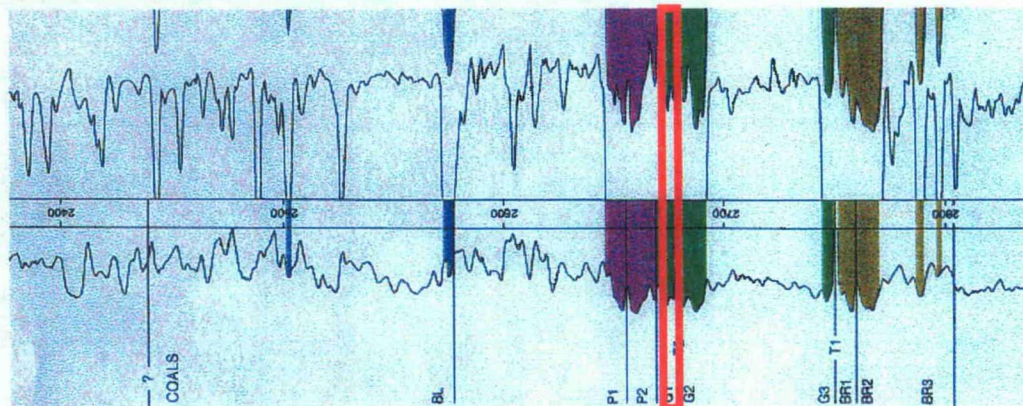
HPA 2 MMcf/d Line

G1 Thickness Isopach

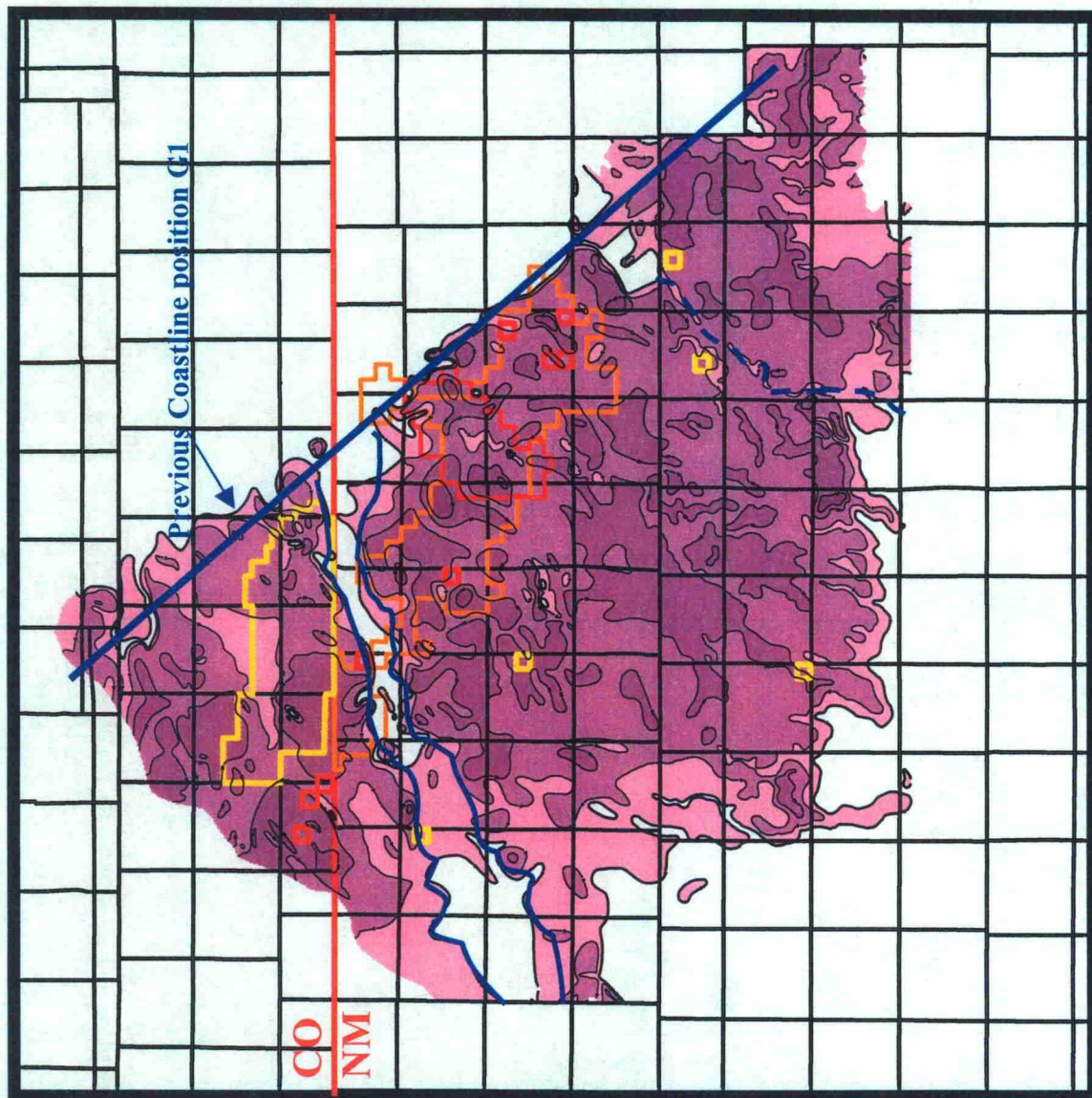


CI: 5'

T32N - R11W, CO

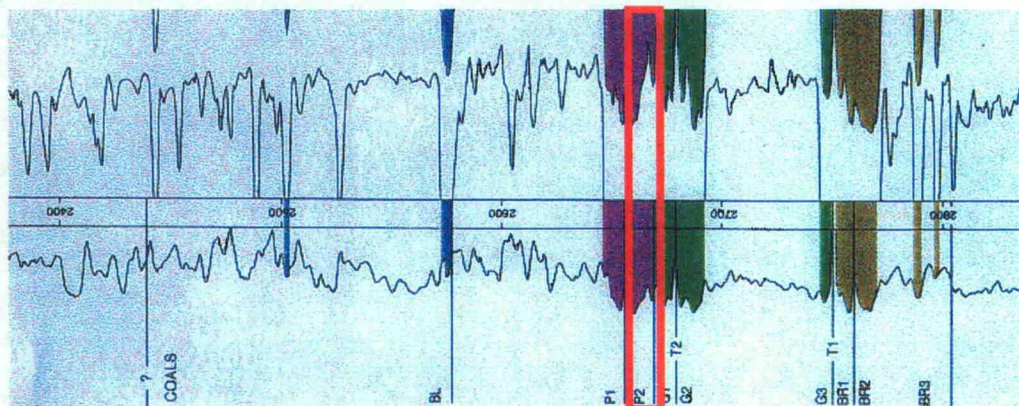


P2 Thickness Isopach

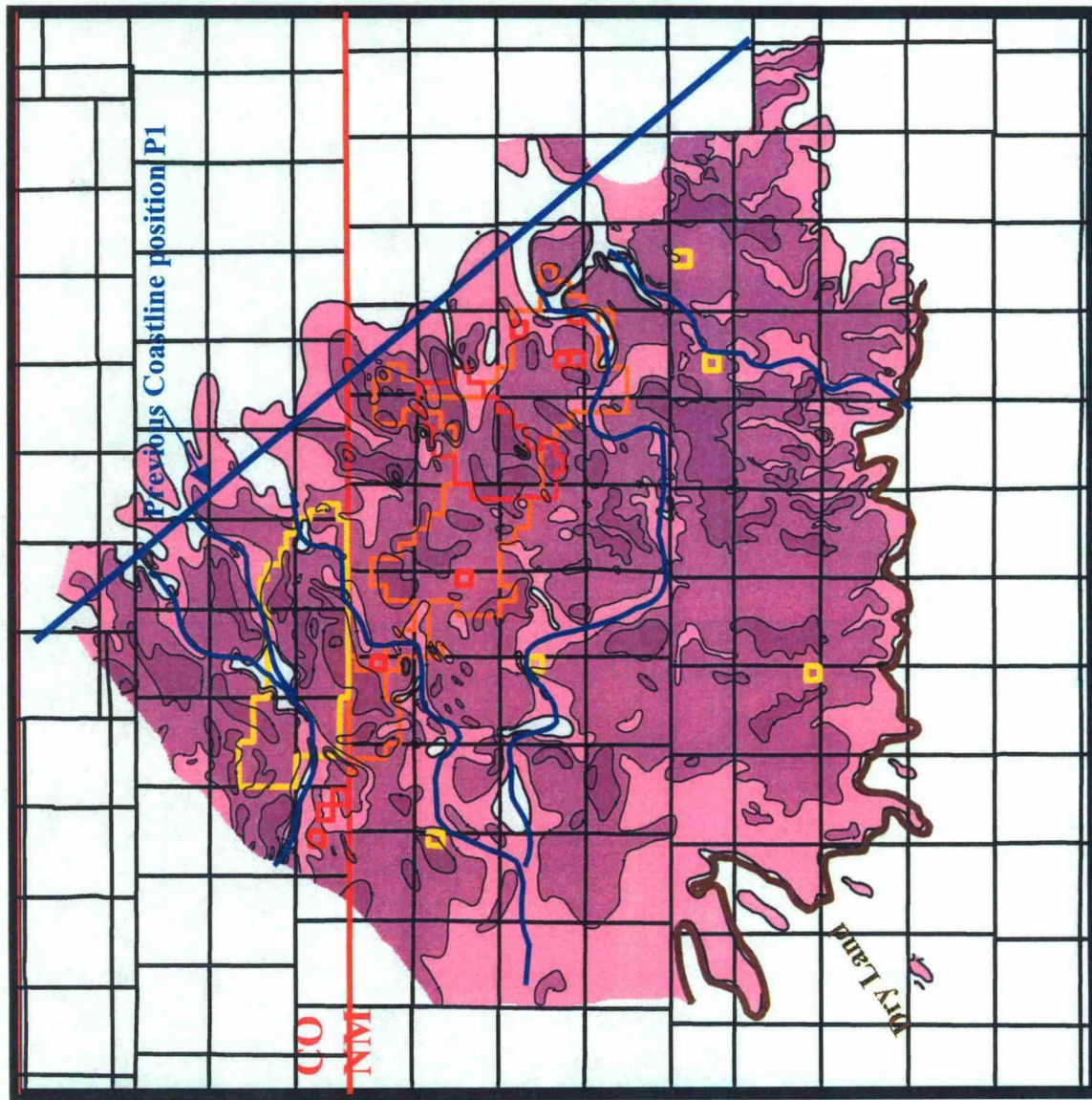


CI: 5'

T32N - R11W, CO

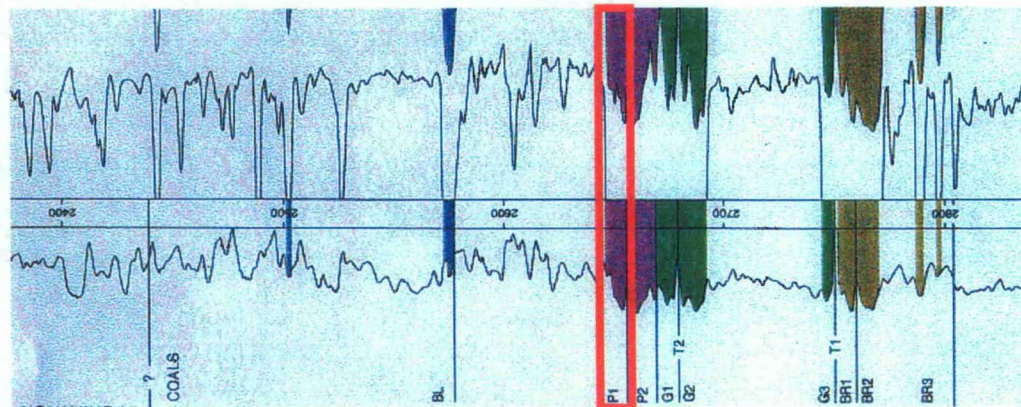


P1 Thickness Isopach

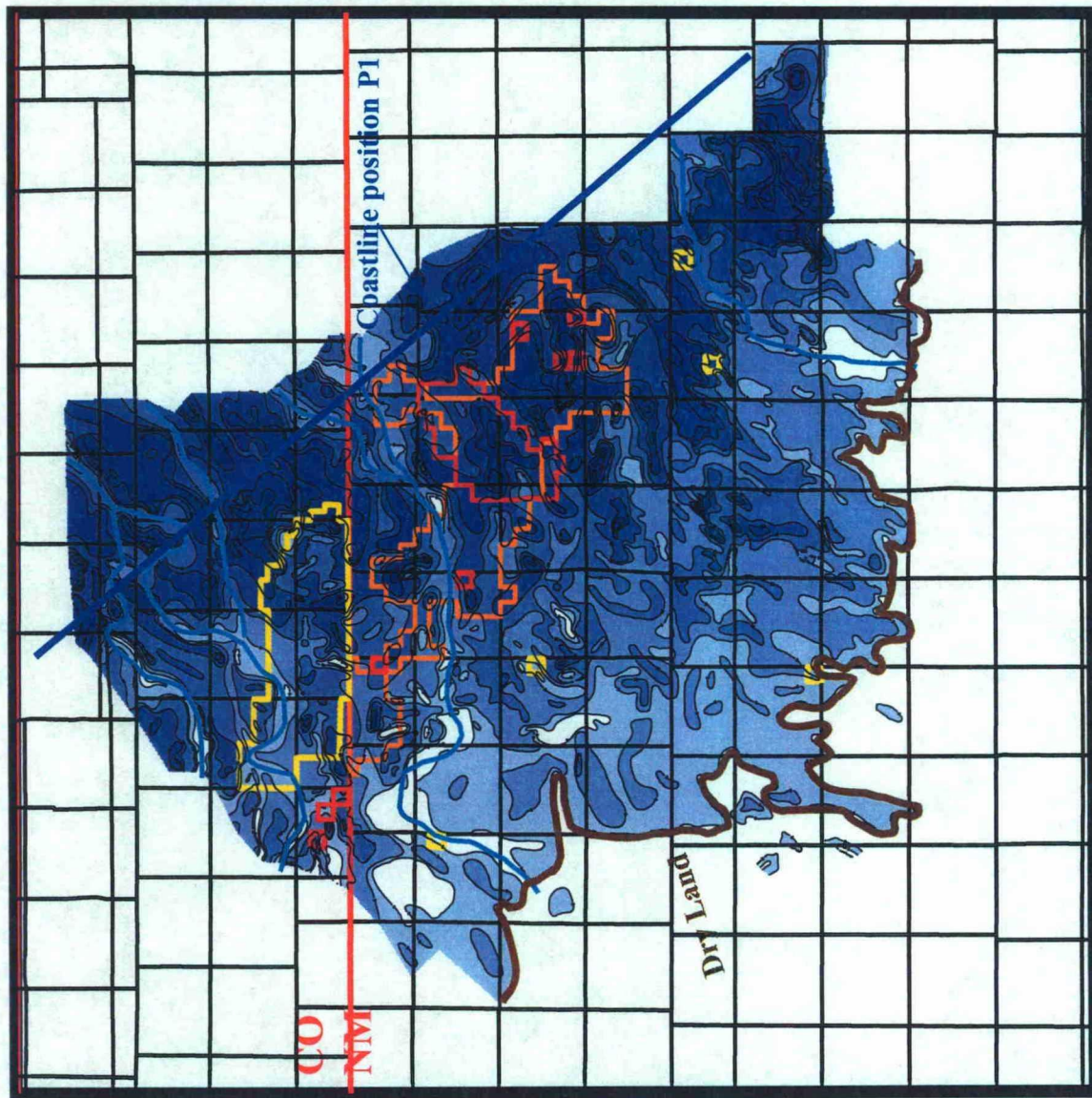


CI: 5'

T32N - R11W, CO

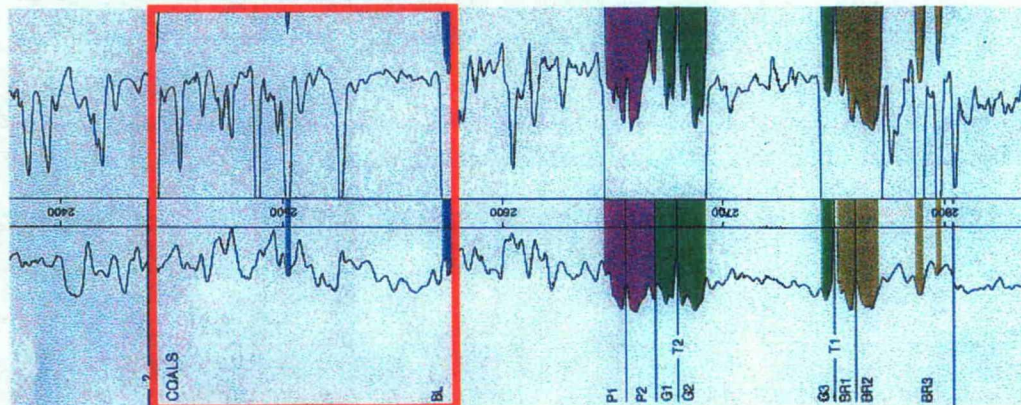


Blue Thickness Isopach



CI: 5'

T32N - R11W, CO



- BR HPA Data Wells
- BR LPA Pilot Wells
- Devon NEBU Unit
- BP's CO Infill Data
- HPA 2 MMcf/d Line

Peat Depositional Schematic

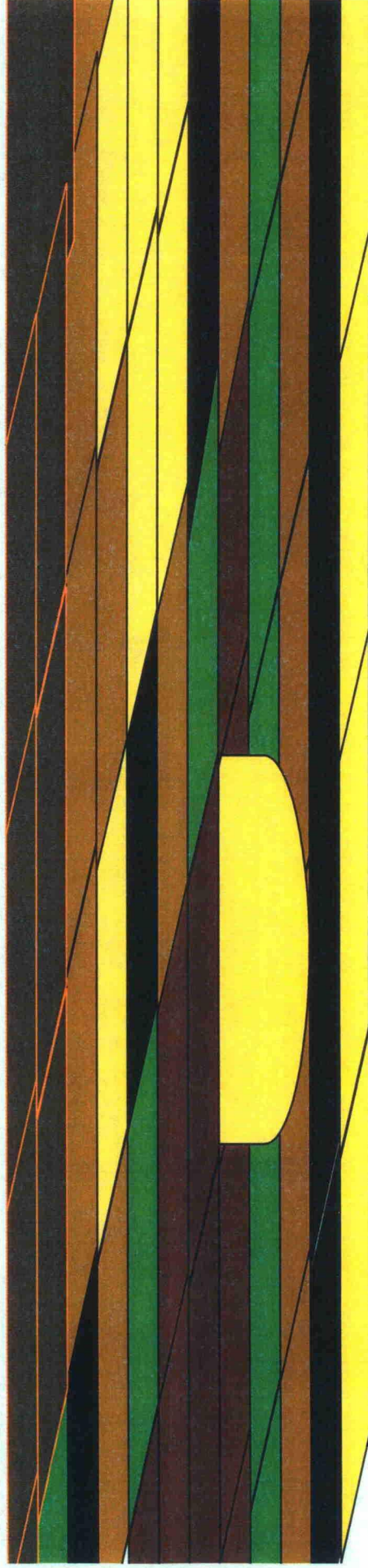
Shoreline progradation and plant growth



Prograding shoreline →

Peat Depositional Schematic

Compaction of Sediments and Peat



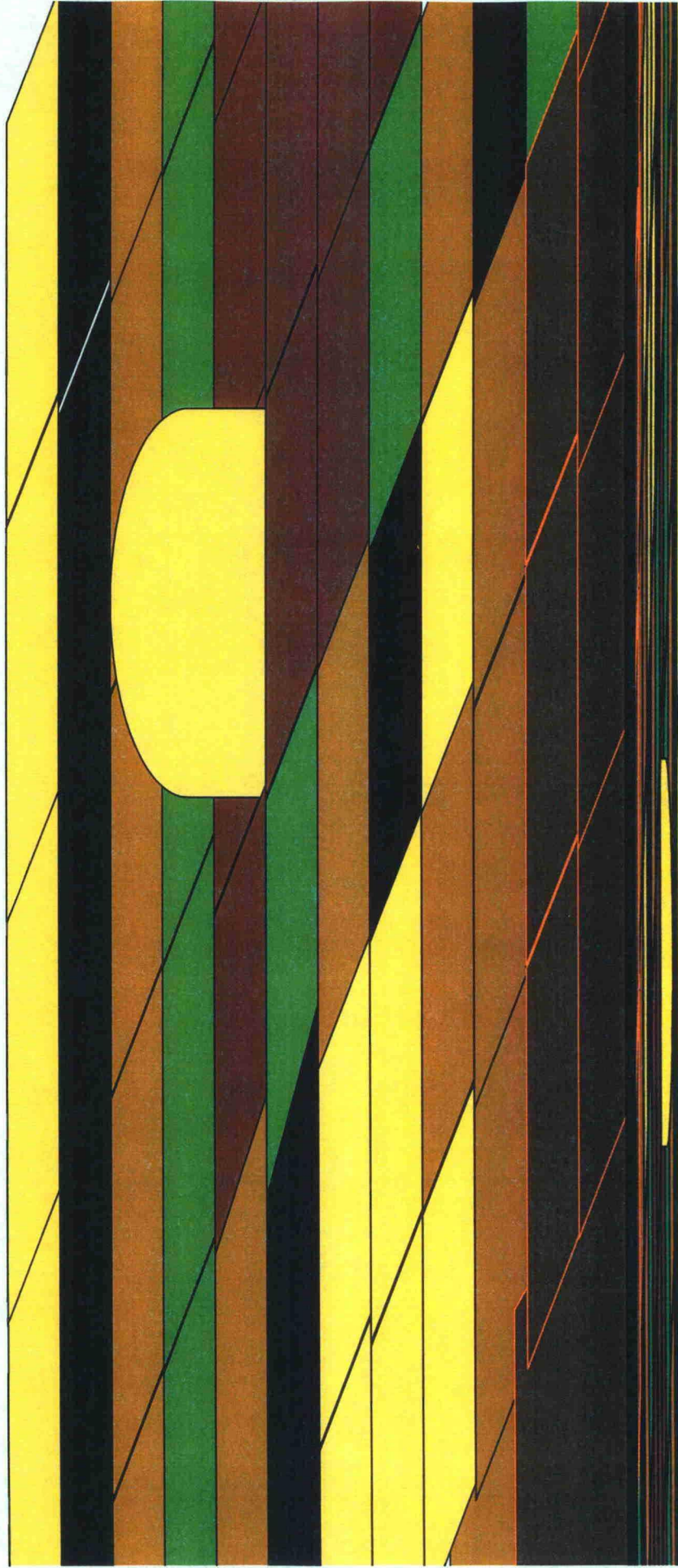
Peat Depositional Schematic

Approximate 10 to 1 Compaction Ratio



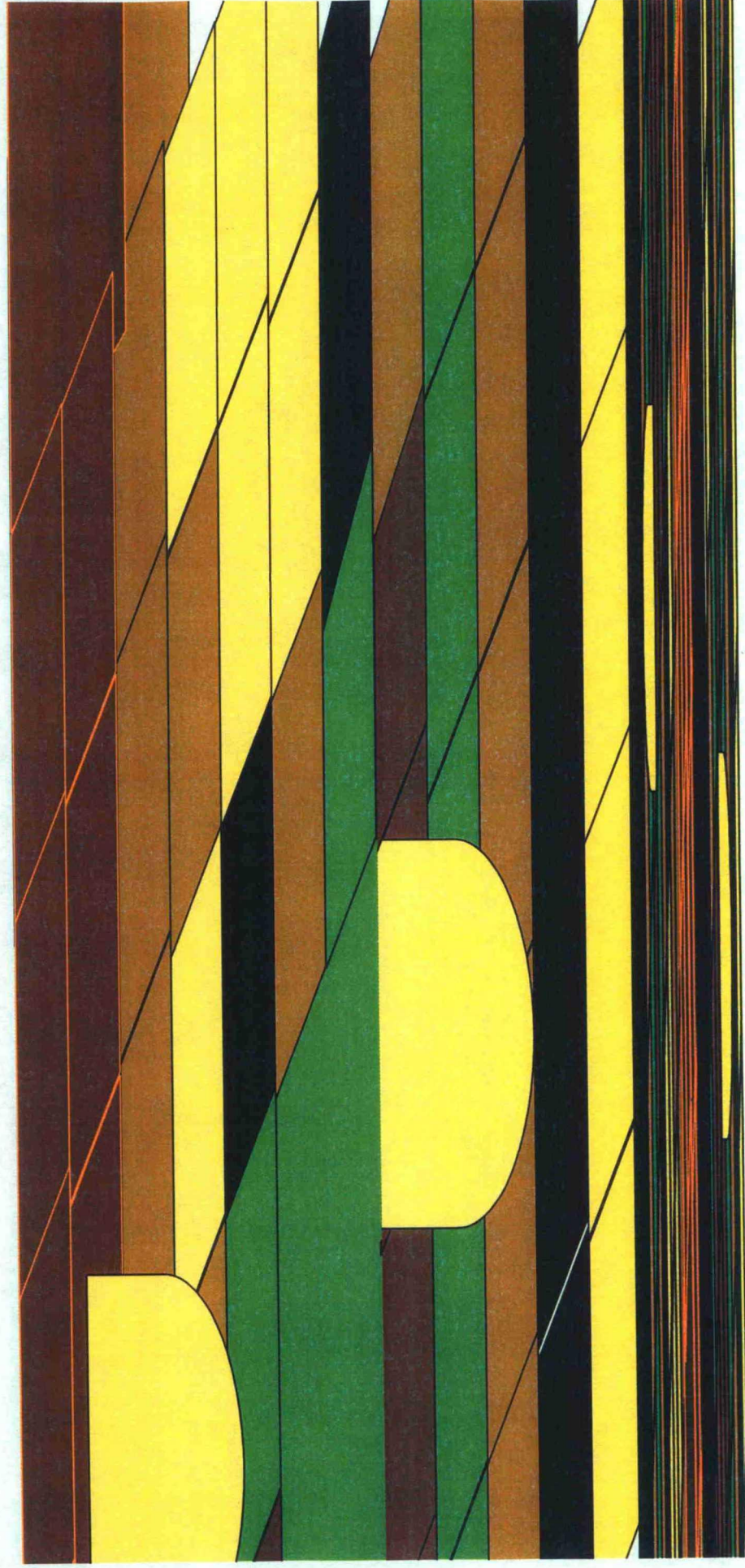
Peat Depositional Schematic

Additional Cycles of Deposition and Compaction



Peat Depositional Schematic

Additional Cycles of Deposition and Compaction



Peat Depositional Schematic

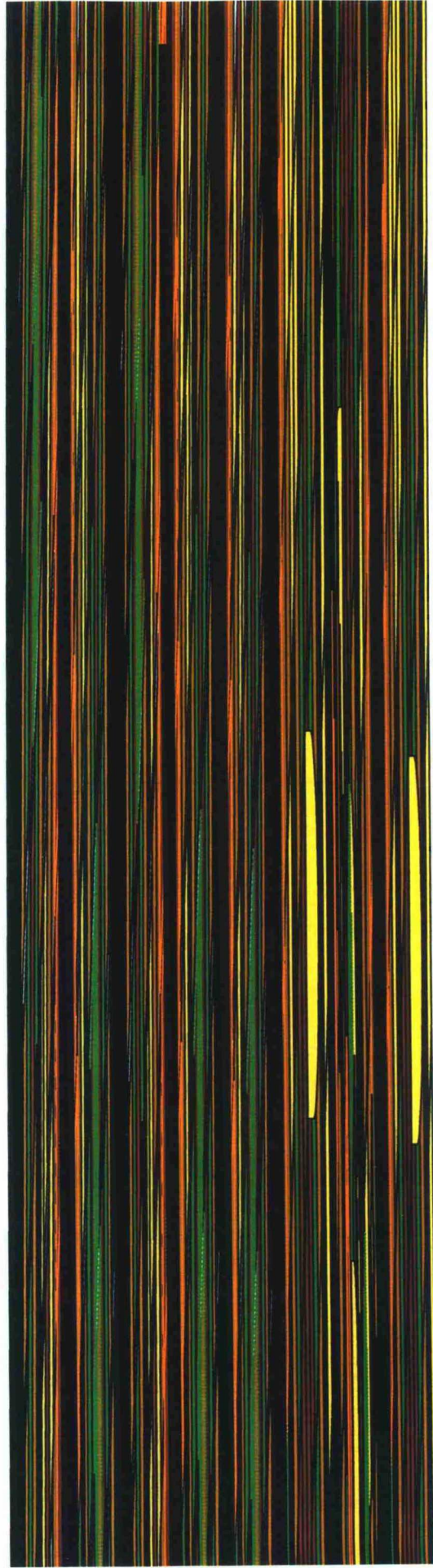
+/- 80' of peat deposition
10's of thousands of years

=

One 8' Coalbed

=

A subset member of
one mapped coal package



Conclusions

- Major coal packages correlatable throughout basin
- Diverse depositional environments of each package creates coal heterogeneity
- Heterogeneity has a direct impact productive capabilities
- There are vertical and lateral discontinuities in both the major packages and individual coal seams
- Major coal packages often change vertical and lateral communication partners
- Heterogeneity and discontinuities create multiple permeability and communication barriers
- Therefore, increased density drilling is necessary to efficiently recover the gas resource in this complex reservoir