

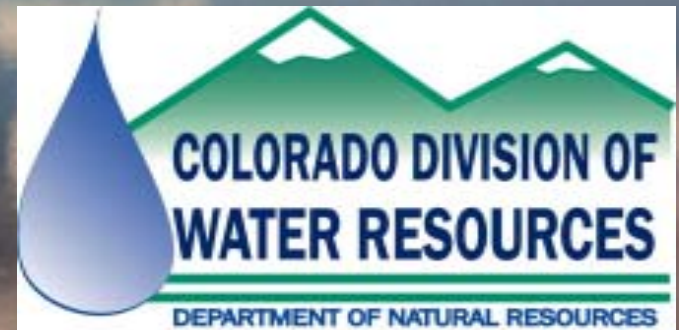
Water Rights and Beneficial Use of Produced Water In Colorado

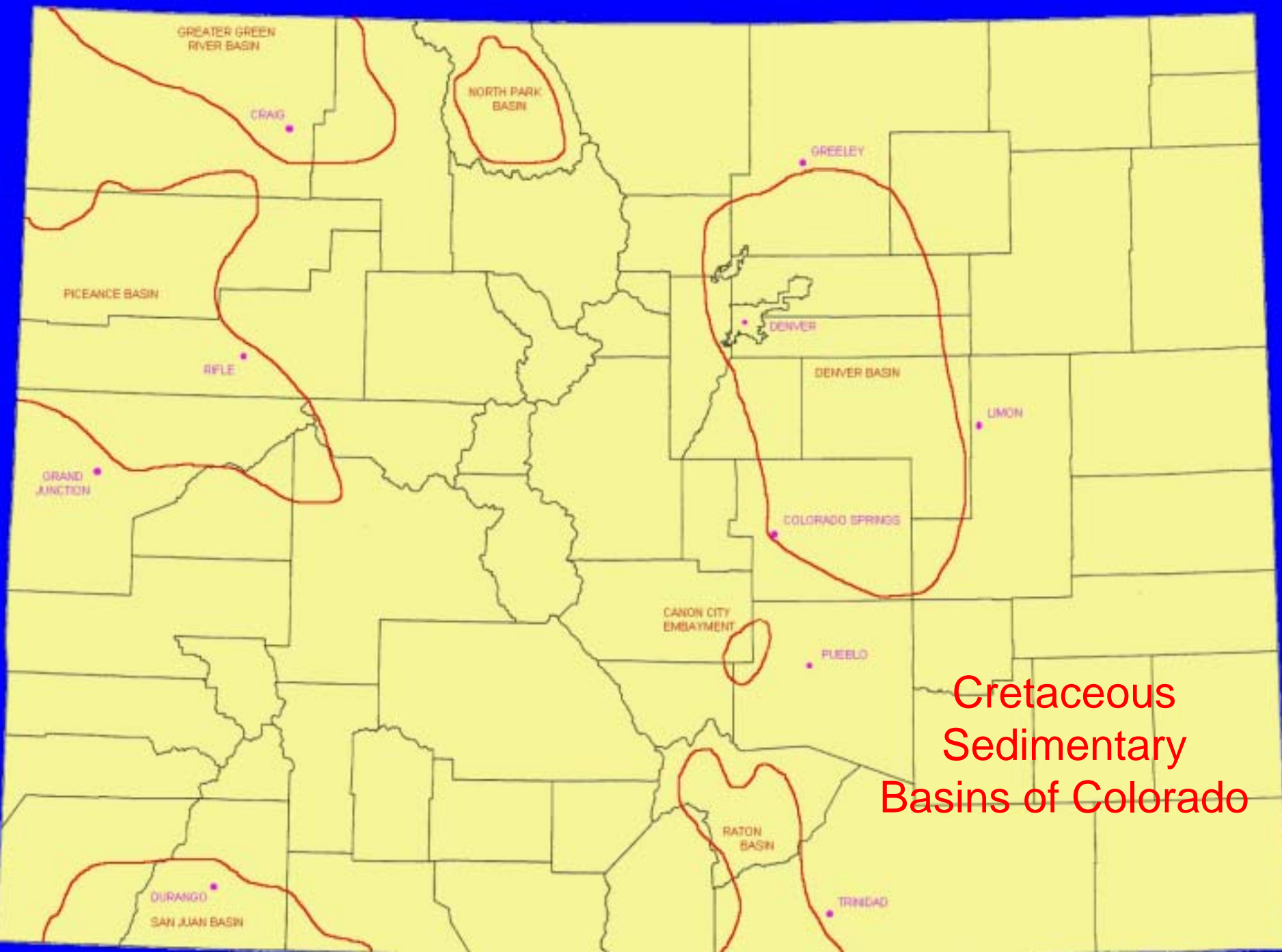
By

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&

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Cretaceous
Sedimentary
Basins of Colorado

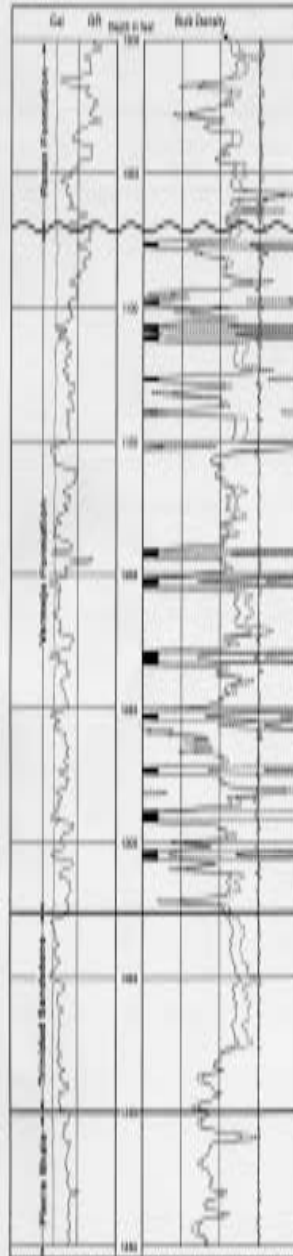
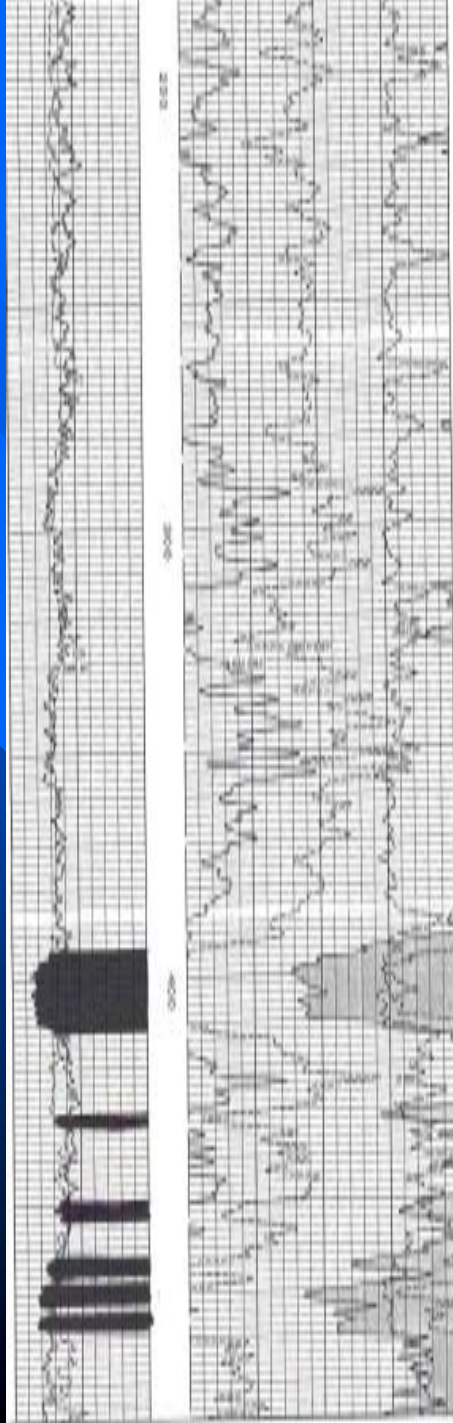


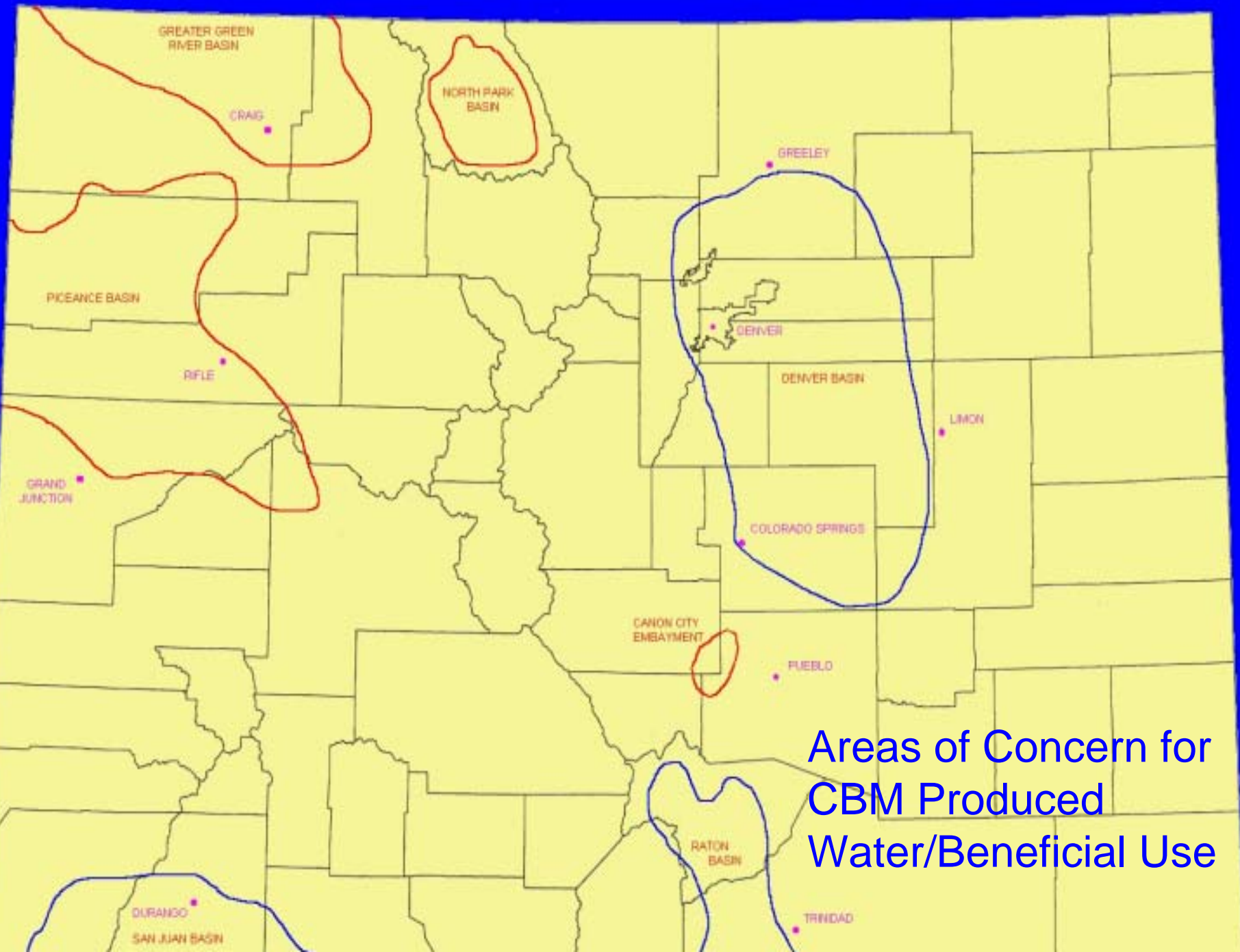
Figure 4 Type log, Spanish Peak field, showing gamma-ray and bulk density patterns. Solid black areas indicate coal seams.

Type Log Spanish Peaks Field Raton Basin, Colorado



Type Log
Denver Basin
Denver Aquifer
Arapahoe County,
Colorado

BASIN	CBM PRODUCING ZONE	KNOWN OR POTENTIAL AQUIFER INTERVAL
DENVER	DENVER LARAMIE	DENVER
RATON	RATON VERMEJO	RATON VERMEJO
SAN JUAN	FRUITLAND	PICTURED CLIFFS (SUBJACENT TO FRUITLAND)
GREATER GREEN RIVER	MESA VERDE GROUP	TROUT CREEK SANDSTONE OF MESA VERDE GROUP
PICEANCE	MESA VERDE GROUP	UINTA/GREEN RIVER/WASATCH
NORTH PARK	COALMONT	COALMONT (LIMITED)
CANON CITY		



Areas of Concern for
CBM Produced
Water/Beneficial Use

Types of Ground Water in Colorado

- Tributary
- Nontributary
- Not-nontributary
- Designated
- Geothermal

Allowed Beneficial Uses

- Types of beneficial uses
- CDWR has jurisdiction over appropriation of water
- Comply with the “Water Rights Acts”

Jurisdiction Over Produced Water

■ COGCC Rule 907

- Inject into a disposal well
- Place in lined or unlined pit
- Dispose at a commercial facility
- Road spreading
- Discharge into waters of the state
- Reuse for recovery, recycling and drilling
- Mitigation

Jurisdiction Over Produced Water

- Ground Water Permitting by CDWR
 - Nontributary 37-90-137(7)
 - » No permit required unless beneficially used
 - » Use not based on land ownership
 - » Do not need to determine if unappropriated water is available
 - » Must prevent material injury to vested water rights

Jurisdiction Over Produced Water

- Ground Water Permitting by CDWR
 - Tributary 37-90-137(1) & (2)
 - » Permit required
 - » Must determine if unappropriated water is available
 - » Must prevent material injury to vested water rights

Conclusions

- Must comply with Water Rights Acts (subject to appropriation)
- Most basins over-appropriated
- Water quality
- Unreliable as long-term source
- Collaboration
- Educate and communicate

Additional Information

- Division of Water Resources website at www.water.state.co.us
- Colorado Oil and Gas Conservation Commission website at www.oil-gas.state.co.us
- Colorado Department of Public Health and Environment website at www.cdphe.state.co.us