

Addressing Potential for Oil & Gas Development in Minerals Assessment Reports

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MA should cover ALL Types of Mineral Resources

Solid Minerals (Metals/Nonmetals/dimension stone/sand-gravel/coal)

▶ Subsurface Fluids: Oil/Gas/CBM

Geothermal

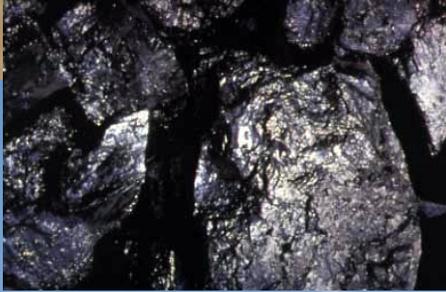
“The purpose of this study was to determine if the property is in accordance with federal laws governing the tax deductibility of conservation easements in which the ownership of the surface estate and mineral interests has been separated. The Internal Revenue Code §170(h)(5)(B)(ii) states that for such donations, the conservation purpose will be considered to be perpetually protected if the **probability of surface mining on the property is so remote as to negligible**. Federal Treasury Regulations 26CFR 1.170A-14 (g)(4) further state that a deduction will **not** be denied in the case of **certain methods of mining that may have limited, localized impact on the real property** but that are not irremediably destructive of significant conservation interests.”

Types of Mineral Resources: Locatable Minerals



- Locatable Minerals include all minerals subject to exploration, development, and production under the 1872 Mining Law. Includes metals (gold, silver, lead, zinc, copper, etc) and industrial minerals (sulfur, fluorspar, gypsum, etc). Basically everything not excluded by other laws. Usually claims (lode, placer) are in mining districts.
- Can be mined using surface or subsurface methods depending on geologic factors.

Types of Mineral Resources: Leasable Minerals



- Leasable Minerals include fuels and certain other minerals regulated under the Mineral Leasing Act of 1920 which excluded them from the 1872 Mining Law. Geothermal Steam Act of 1970 added Geothermal Energy to list of Leasable Minerals.
- Can be mined using surface or subsurface methods depending on geologic factors (oil/gas/CBM mined as subsurface fluids).
- Examples: coal, oil, gas, oil shale, potash, sodium, native asphalt, bituminous rocks, phosphate coal, geothermal energy.

Types of Mineral Resources:

Salable Minerals



- Minerals regulated by the Federal Materials Act of 1947 and the Multiple Surface Use Act of 1955 must be purchased from federal government except where mineral rights are privately owned.
- Usually low unit values for short ton, and need to be accessible to be profitable.
- Clay, dimension stone, marble, volcanic rocks, sand, gravel, pumice, petrified wood (since 1963). Other common minerals (sometimes uncommon varieties may be locatable).
- Sand & gravel are generally considered part of the surface estate in Colorado unless specifically reserved; requires attorney or legal counsel review.

Definition of Severed Mineral Right (Split Estate)

- Mineral rights are the right of ownership of the mineral resources under/in a tract of land (generally subsurface).
- A mineral interest is severed if the surface owner does not own all or part of the minerals. Called split estate since portions or all of subsurface estate is not owned by the surface estate owner. Surface owner cannot deny mineral owner right to their mineral estate.
- Land surface (surface estate) can be owned by federal, state, local governments and agencies such as BLM, USFS, DOE, Colorado, Municipalities or “Private” landowners.
- Mineral estate can also be owned by federal, state, local governments and agencies such as BLM, USFS, DOE, Colorado, Municipalities or “Private” owners.

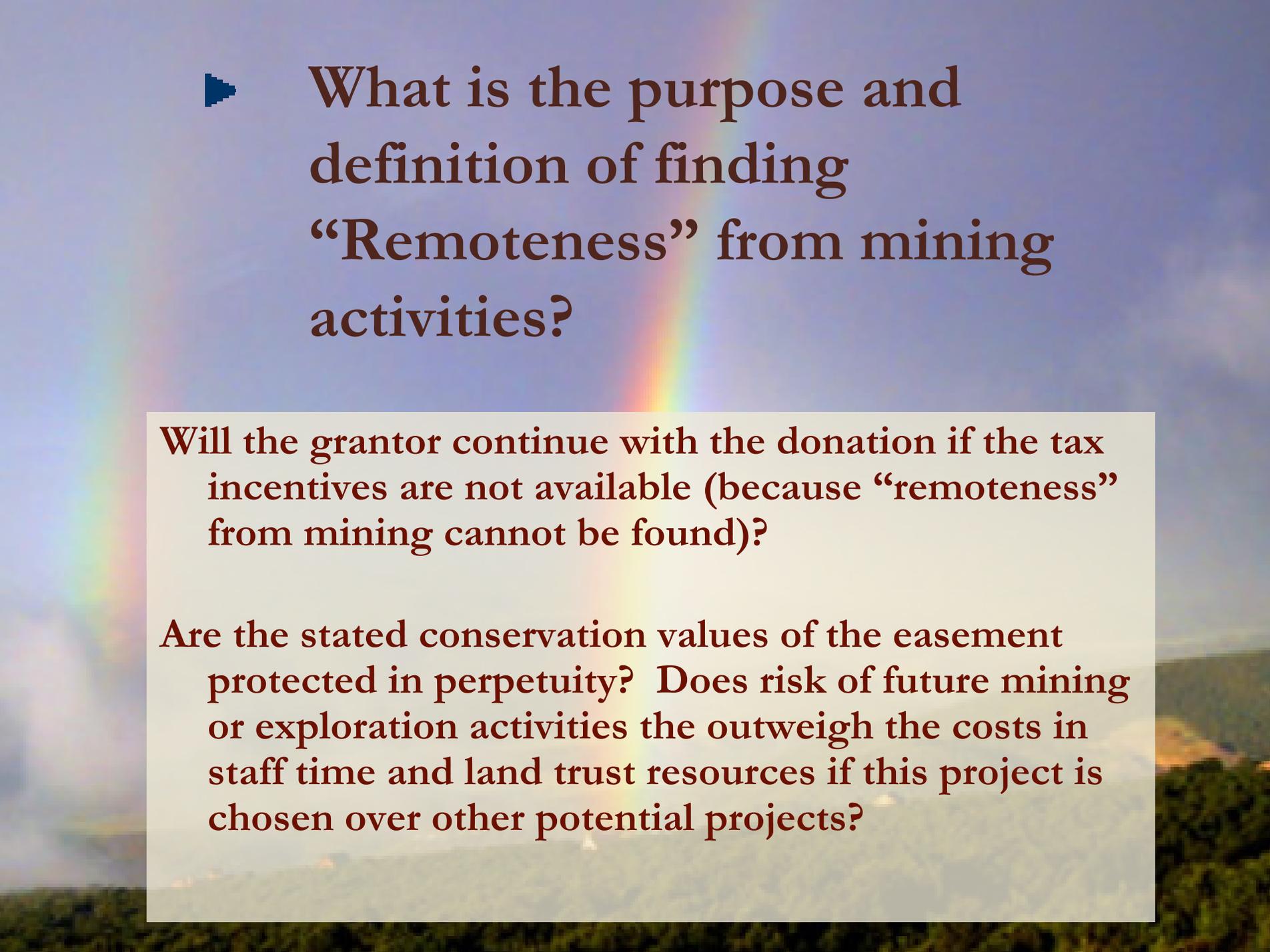
Two ways to split or sever mineral rights:

- Split by **Deed** --party owning both the surface and subsurface rights sells or grants by deed all/part of the mineral rights. Recorded by county register of deeds. (Generally used by private parties.)
- Split by **Reservation** --party owning both the surface and subsurface rights sells or grants by deed or patent the surface rights of the property but retains all/part of the mineral rights. Recorded by county register of deeds, if Federal Patent then also at General Land Office. (Used by federal & state governments, railroads, lending institutions, private parties.)
- Surface owner cannot deny mineral estate owner's property rights.



► Why do we care about oil/gas potential & development?

Potential concerns for Conservation Easements during all phases of mining including oil/gas: Exploration, Development, Production, Reclamation



▶ What is the purpose and definition of finding “Remoteness” from mining activities?

Will the grantor continue with the donation if the tax incentives are not available (because “remoteness” from mining cannot be found)?

Are the stated conservation values of the easement protected in perpetuity? Does risk of future mining or exploration activities outweigh the costs in staff time and land trust resources if this project is chosen over other potential projects?

Subsurface Mining Methods have surface disturbances too

- Oil/Gas/CBM
- Geothermal Wells



Oil/Gas potential map for Colorado

Legend

2002 CGS Oil/Gas Field

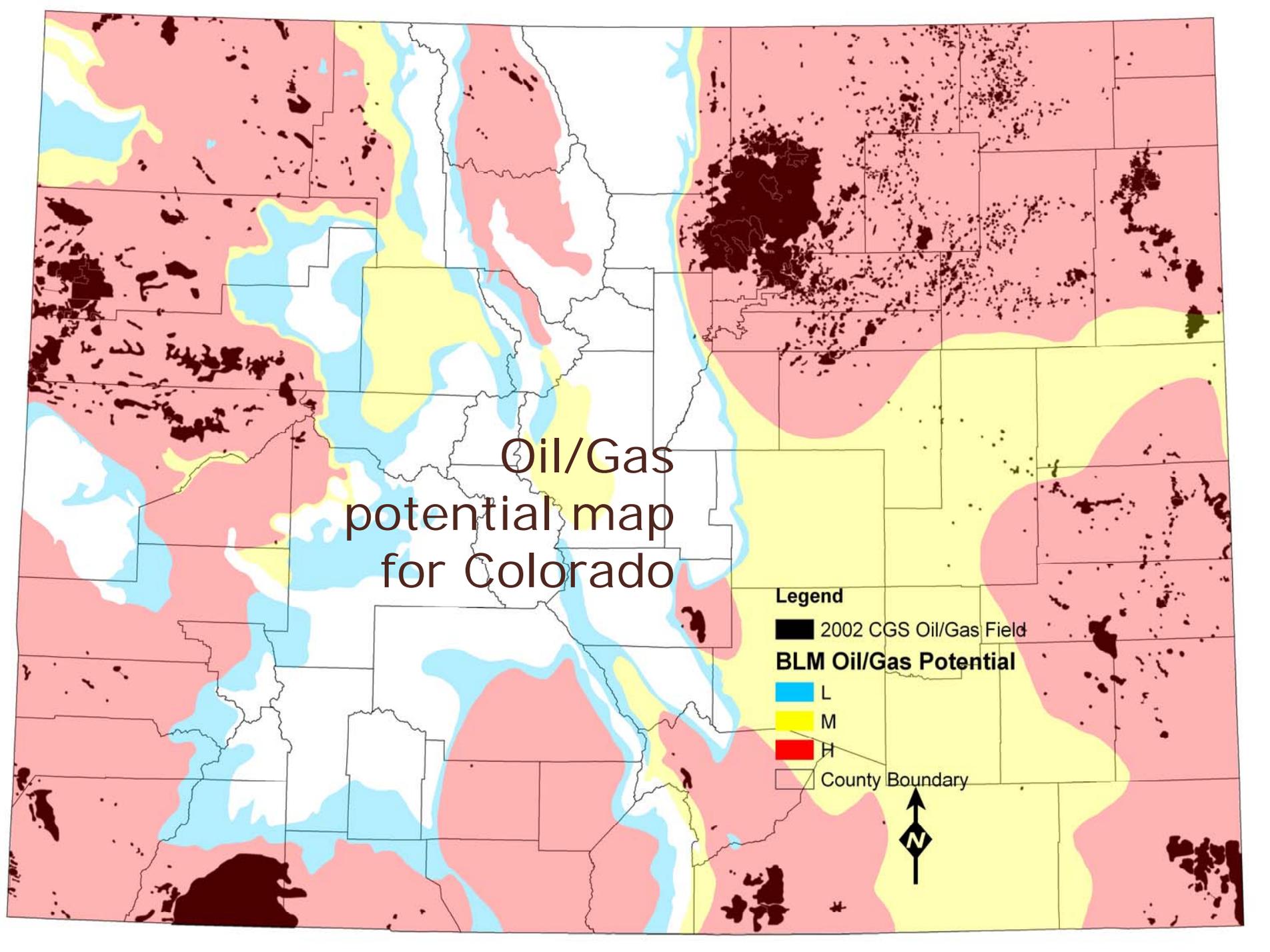
BLM Oil/Gas Potential

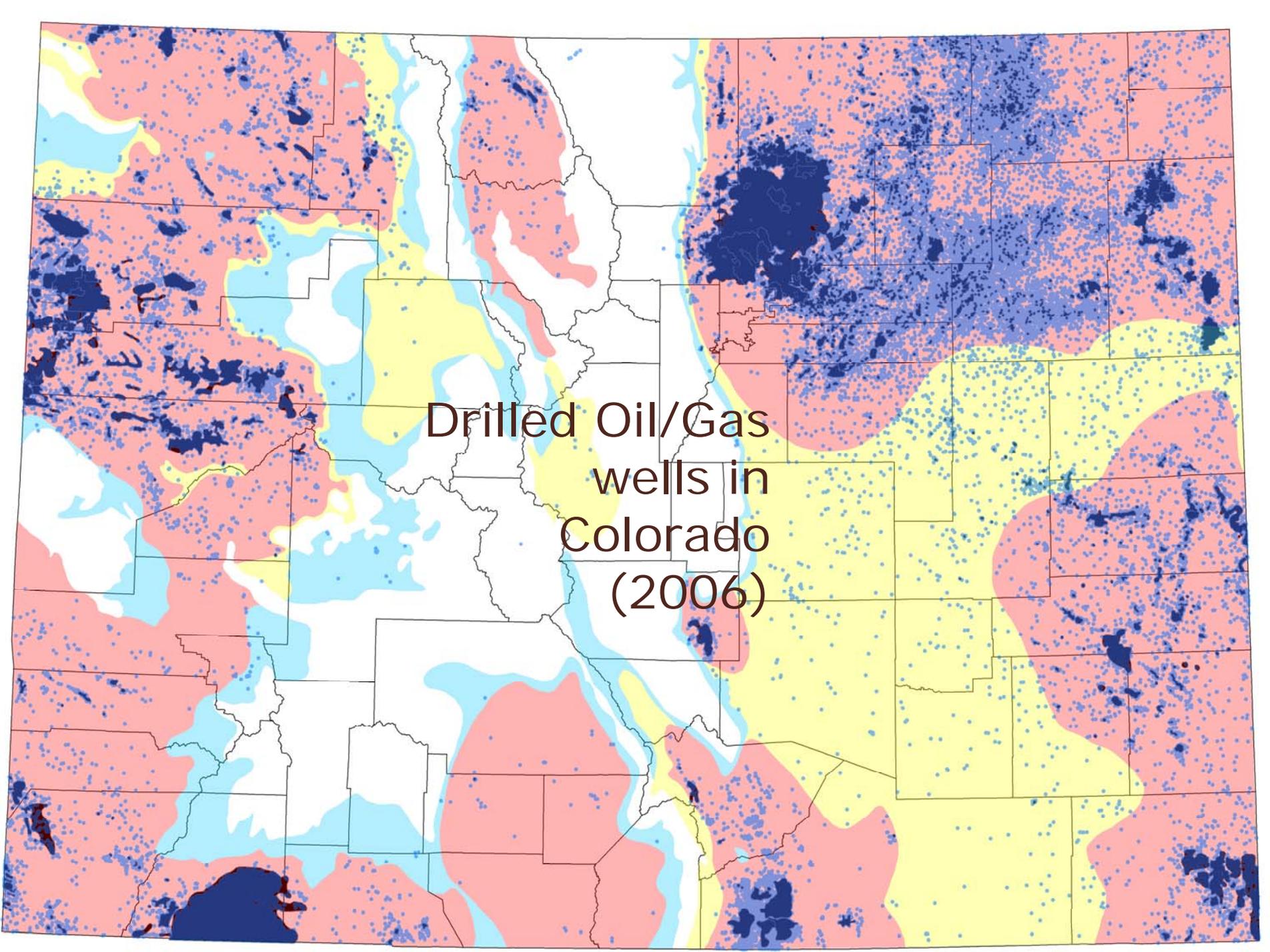
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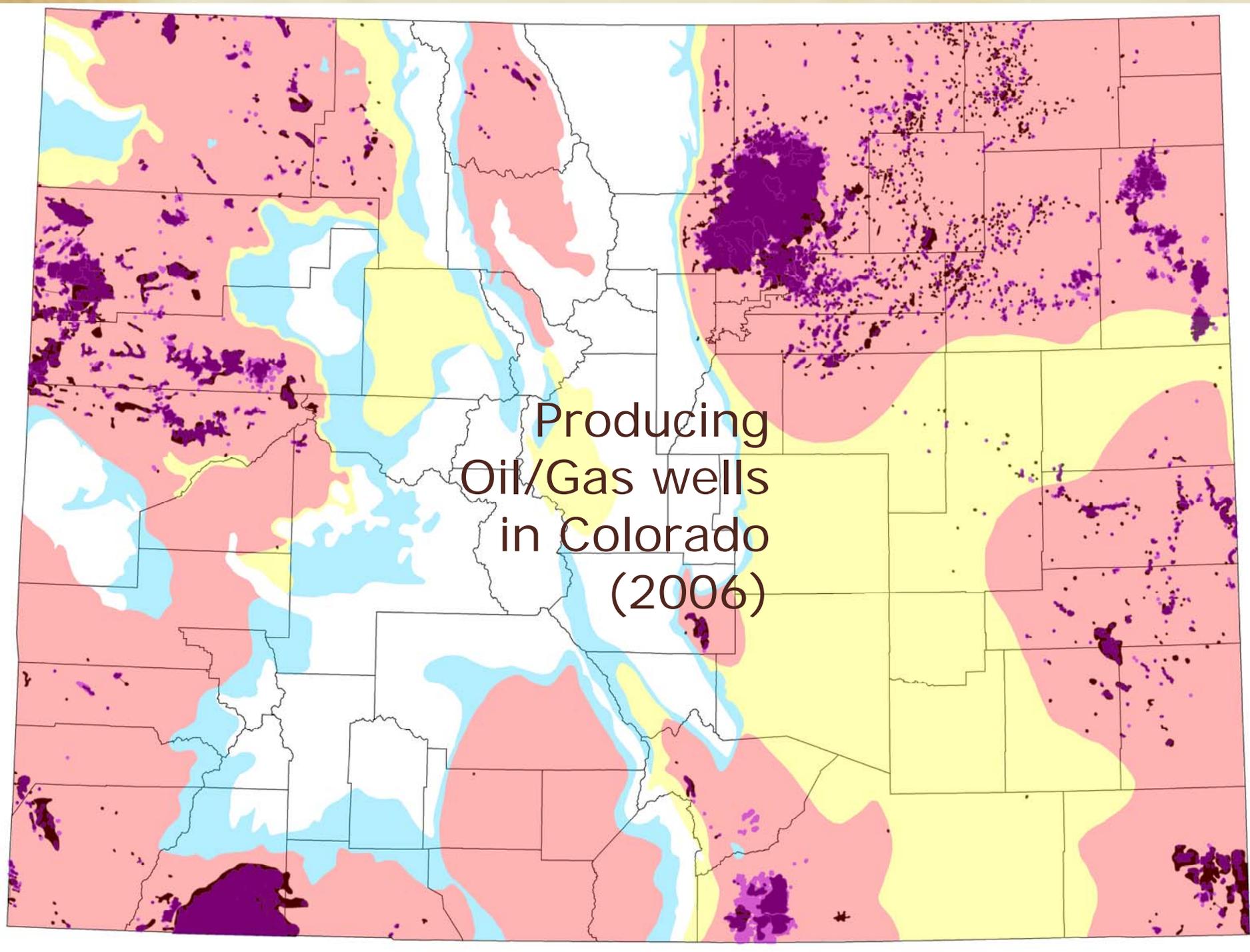
County Boundary





Drilled Oil/Gas
wells in
Colorado
(2006)

Producing
Oil/Gas wells
in Colorado
(2006)



CBM potential map for Colorado

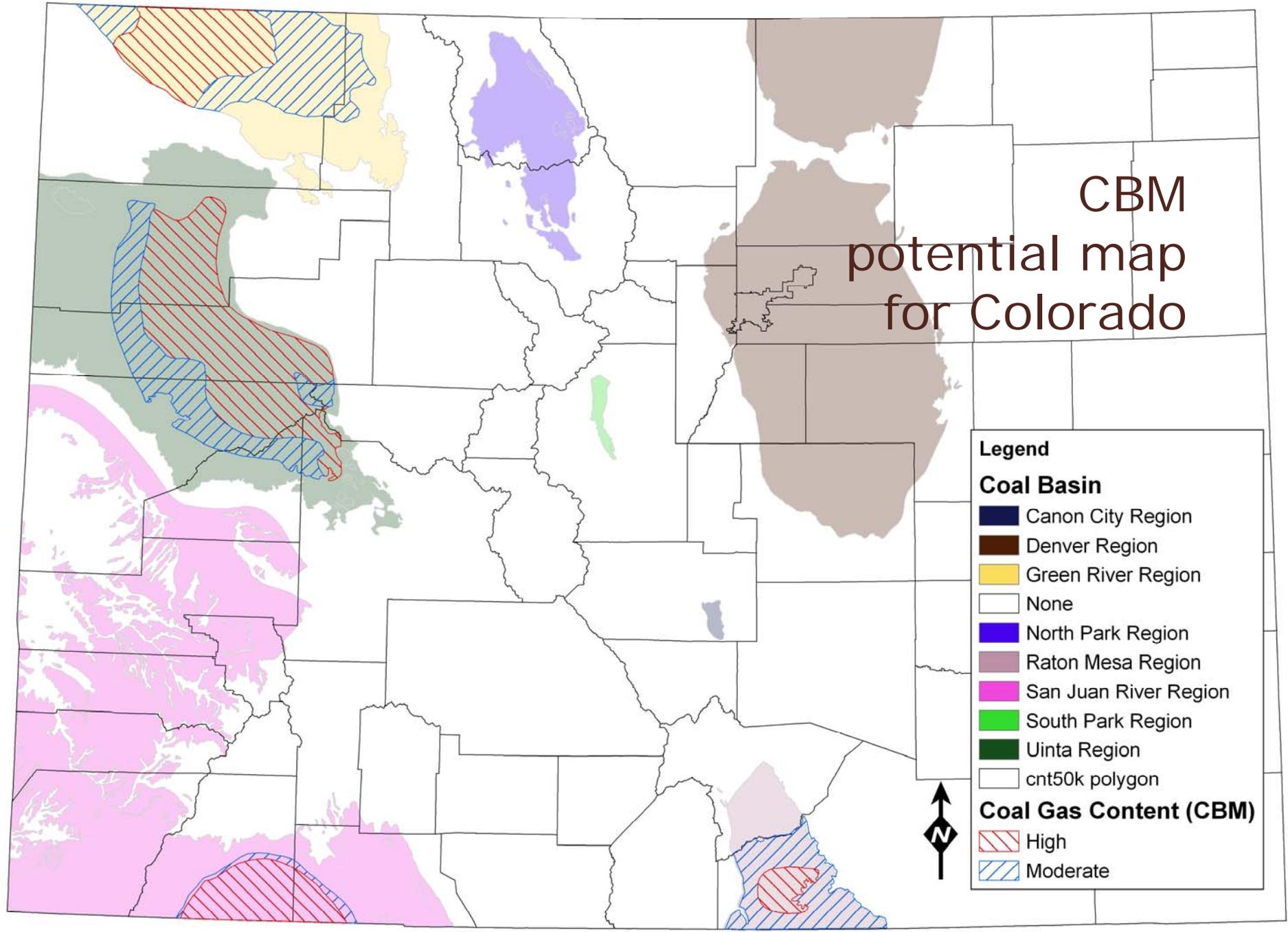
Legend

Coal Basin

- Canon City Region
- Denver Region
- Green River Region
- None
- North Park Region
- Raton Mesa Region
- San Juan River Region
- South Park Region
- Uinta Region
- cnt50k polygon

Coal Gas Content (CBM)

- High
- Moderate



Content of Minerals Assessment Report:

- Ultimate caution: An opinion that the *probability of {surface/ subsurface} mining is so remote as to be negligible* is NOT guaranteed. Perform this due diligence **EARLY!!!!**
- 1. Identification of mineral interest ownership using recent & thorough title commitment with Schedule B-2, Exceptions and supporting documents, including deeds, leases, and land patents with legal descriptions.

A scenic landscape featuring a vibrant rainbow arching across a blue sky with scattered white clouds. Below the sky, a range of dark, rugged mountains stretches across the horizon. In the foreground, a lush green valley with rolling hills and scattered trees is visible. The overall scene is bright and clear, suggesting a sunny day.

MA should research Locatable, Leasable, & Salable Resources (if severed)

“Remoteness” Opinion should be based on
geologic potential and potential for economic
quality & quantity.

Acceptable data include published U.S.G.S.
reports/maps; C.G.S. reports/maps; National Oil
Gas Assessment (NOGA) on-line; COGCC well,
facilities, and permit data; federal leasing activity
(BLM).

MINERAL ESTATE OWNERSHIP CAN BE VERY COMPLICATED!

- Different owners can own all the rights to specified minerals, a percentage of the rights to all the minerals, or a combination. Portions of a property can have privately reserved mineral rights or government-reserved rights. Sometimes only royalties are reserved.
- Private reservations are trumped by government reservations made when land was patented.





MAP IT OUT.

Address
 Mineral/
 mining
 potential for
 specific
 areas &
 types of
 minerals.

2. Summary of Key components of Leases

- **Lease Information.** Privately-owned minerals are leased by companies seeking to develop them. Leases may have a specific primary term which may be extended by mining operations or production, or may have a renewable fixed term.
- There is no standard form of mining lease for fee property. Lease terms and conditions are highly variable and often depend on the skill level of the negotiators.

In summary consider:

- Mineral(s) covered by the lease, those reserved by the lessor, and provisions relating to conflicting development;
- Term of the lease;
- Production royalties payable to lessor;
- Minimum royalties, if any, payable to lessor, and crediting of minimum royalties against production royalties;
- Restrictions on mining methods allowed; and
- Provision that requires the lessor's consent in connection with assignment or sublease.
- Provisions for pooling
- Terms for renewal
- Rights of Surface Uses

3. Key components of Surface Use Agreements

- Think of a SUA as a “development agreement” between the surface owner and mineral estate owners/developers.
- Content is totally variable.
- Varies by State. Several state courts have modified the reasonable use doctrine to require that mineral developers accommodate existing surface uses, and some states have limited the common law doctrine by statute. States also have varying statutes protecting the surface owner from certain damages relating to mineral development, such as subsidence.

3. Surface Use Agreements (cont'd)

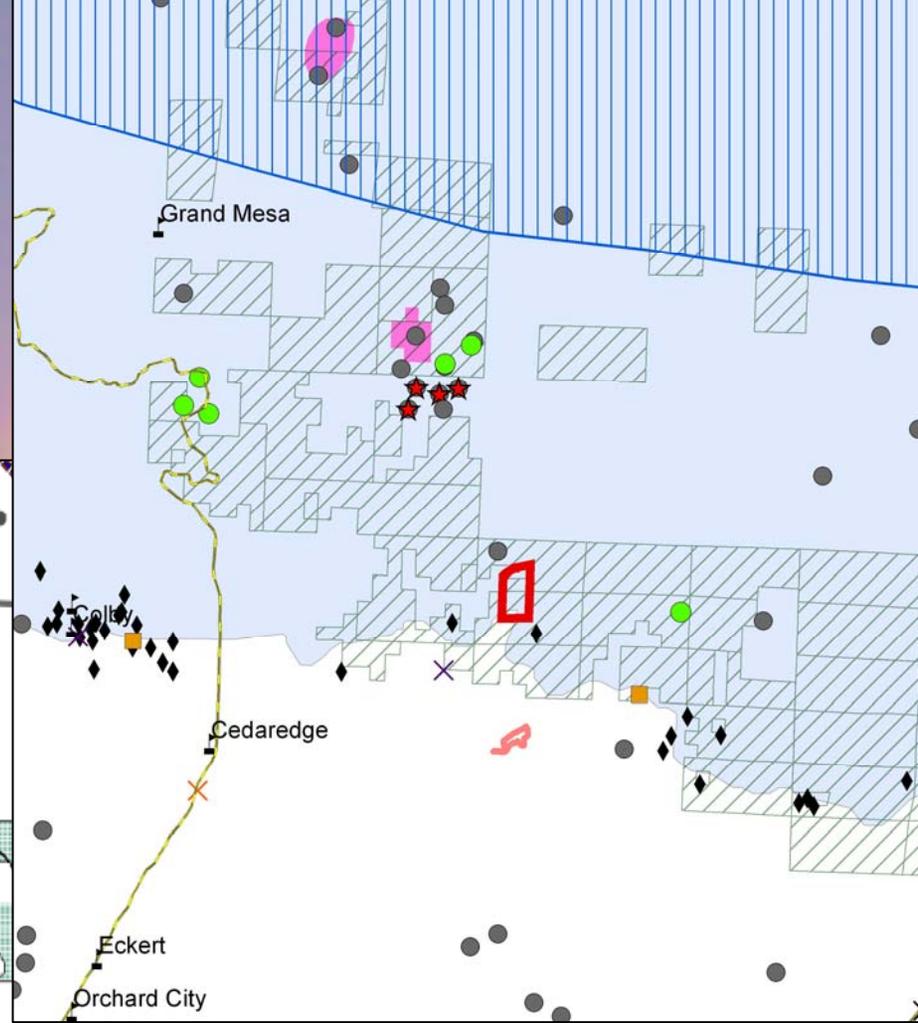
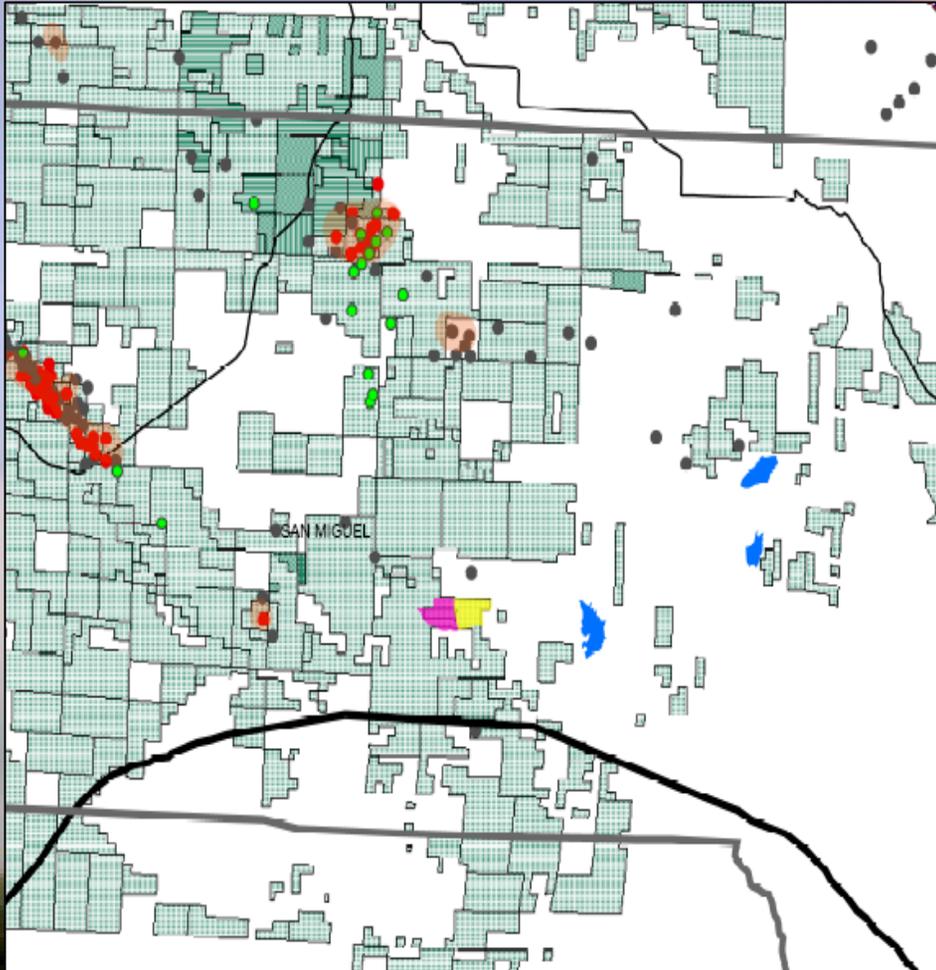
- Contract may arrange for timing of exploration and development, location/citing, best management practices, compensation for surface damages, reclamation, amount of advance notification of exploration/development activities, accepted rights of way, baseline studies (existing surface condition, surface and/or ground water quality and quantity, special habitats or features), fire plan, emergency plan, weed management plan, mitigation plan, noise control plan, dust control plan, fencing, lighting, worker sanitation, waste water disposal,...things that are important to all parties.
- Good information available from many surface owner rights advocate organizations. Consult with a knowledgeable attorney.
- http://www.earthworksaction.org/oil_and_gas.cfm (Oil and Gas Accountability Project)

4. Real Data:

- Review, discussion, analysis of geoscientific data.
(Will be publicly available data in most cases)
- Geologic maps
- Oil/Gas well databases
- Geochemical/Geophysical data
- Aerial photographs
- Site inspection
- Limited discussion of mining, economic, marketing, legal, environmental and other factors
- Remember, technology advances—what might not be extractable today may be extractable in the future!
- Maps that delineate areas of greater potential from areas of little to no potential
- Bibliography

Beware of Public Outcry, public/governmental policies argument

5. Figures



6. Statement of Potential/ "Remoteness"

* Essential elements of a hydrocarbon accumulation are: 1) Presence of reservoir, 2) Presence of trap, and 3) Source rock with appropriate timing of generation of migration.

RATING	Metallic	Coal	Oil & Gas	Industrial Minerals-Construction Materials
0.1 Little or no potential	Lacks rock types or structures that may contain metallic minerals.	Lacks strata that may contain coal; not in a coal basin.	Lacks all the essential elements of hydrocarbon accumulation*. Includes areas where intrusive rocks, metamorphic rocks, or a thin veneer of sedimentary rocks are exposed.	Lacks rock types or structures that may contain industrial minerals or construction materials.
1 Poor	Tract contains permissive rock types and structures to host metallic mineral deposits. No mineral occurrences within 5 miles.	Tract contains strata that may contain coal; in a coal basin. No coal occurrences within 5 miles.	Sedimentary rocks in the tract lack one or more of the essential elements*.	
1.5 Poor			All essential elements* exist in the tract; however, existing geological control is insufficient to determine presence of a local trap or reservoir. No production nearby/in areas with similar geo.	
2 Fair	Tract contains permissive rock types and structures to host metallic mineral deposits. No mineral occurrences within 1 mile.	Tract contains strata that may contain coal; in a coal basin. No coal occurrences within 1 mile.	All essential elements* exist in the tract; however, existing geological control is insufficient to determine presence of a local trap or reservoir. Some production nearby/in areas with similar geo.	Tract contains permissive rock types and structures to host industrial minerals or construction materials.

(modified from Colorado State Land Board Mineral (CSLB) Potential Rating System**)

6. Statement of Potential/”Remoteness”

RATING	Metallic	Coal	Oil & Gas	Industrial Minerals- Construction Materials
2 Fair	Tract contains permissive rock types and structures to host metallic mineral deposits. No mineral occurrences within 1 mile.	Tract contains strata that may contain coal; in a coal basin. No coal occurrences within 1 mile.	All essential elements* exist in the tract; however, existing geological control is insufficient to determine presence of a local trap or reservoir. Some production nearby/areas with similar geo.	Tract contains permissive rock types and structures to host industrial minerals or construction materials.
3 Moderate	Tract contains permissive rock types and structures to host metallic mineral deposits. May contain mineralization. <u>UNDISCOVERED RESOURCES</u> can be estimated.	Tract is in a known coal basin and contains known coal bearing strata. A <u>HYPOTHETICAL RESOURCE</u> can be estimated.	All essential elements* are present in the immediate area. Production within 1-2 miles or tract is on trend with existing production. Geological control is insufficient to determine presence of a local trap or reservoir.	
4 Good	Tract contains metallic minerals that can be classed as <u>IDENTIFIED RESOURCE</u> .	Tract contains coal beds that can be classed as <u>IDENTIFIED RESOURCE</u> .	Geological control strongly suggest all essential elements* exist. Production or strong show within a mile or along a geological trend.	Tract contains industrial minerals or construction materials that can be classed as <u>IDENTIFIED RESOURCE</u> .
5 Proven	Tract contains <u>DEMONSTRATED RESERVES</u> and is producing metallic minerals.	Tract contains <u>DEMONSTRATED RESERVES</u> and is producing coal.	<u>PROVEN DEVELOPED</u> or <u>PROVEN UNDEVELOPED RESERVES</u> .	Tract contains <u>DEMONSTRATED RESERVES</u> and is producing industrial minerals or construction materials.

(modified from Colorado State Land Board Mineral (CSLB) Potential Rating System**).

6. Statement of Potential/”Remoteness”

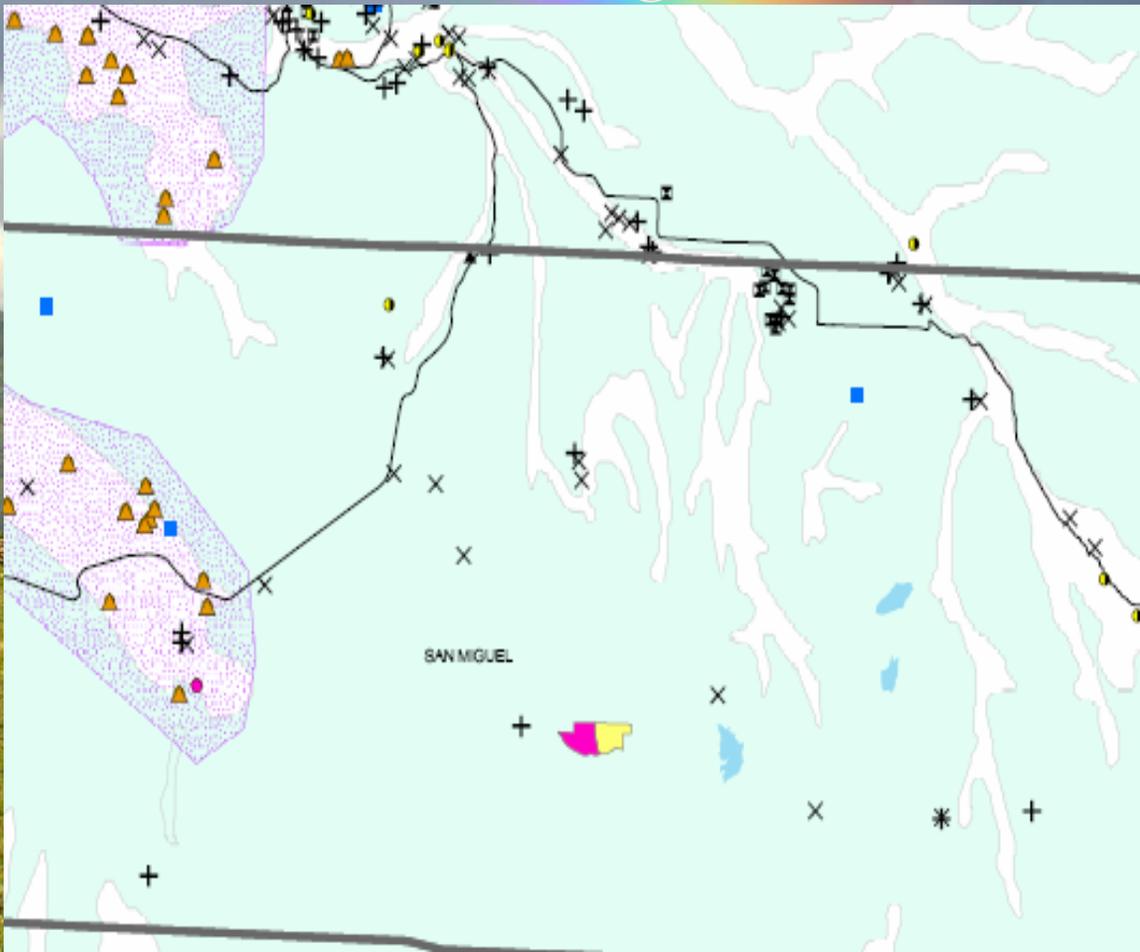
MAAs that find potential for oil/gas/CBM or subsurface mining of resources should:

- Explain their findings based on geologic data.
- Attempt to spatially delineate portions of the conservation easement having mineral potential and portions having remoteness if findings are mixed.
- Identify & summarize existing lease agreements.
- MAAs should leave the decision of whether the mineral/mining potential affects the specific conservation values to Biologists, Land Trust Staff, and Legal Council.

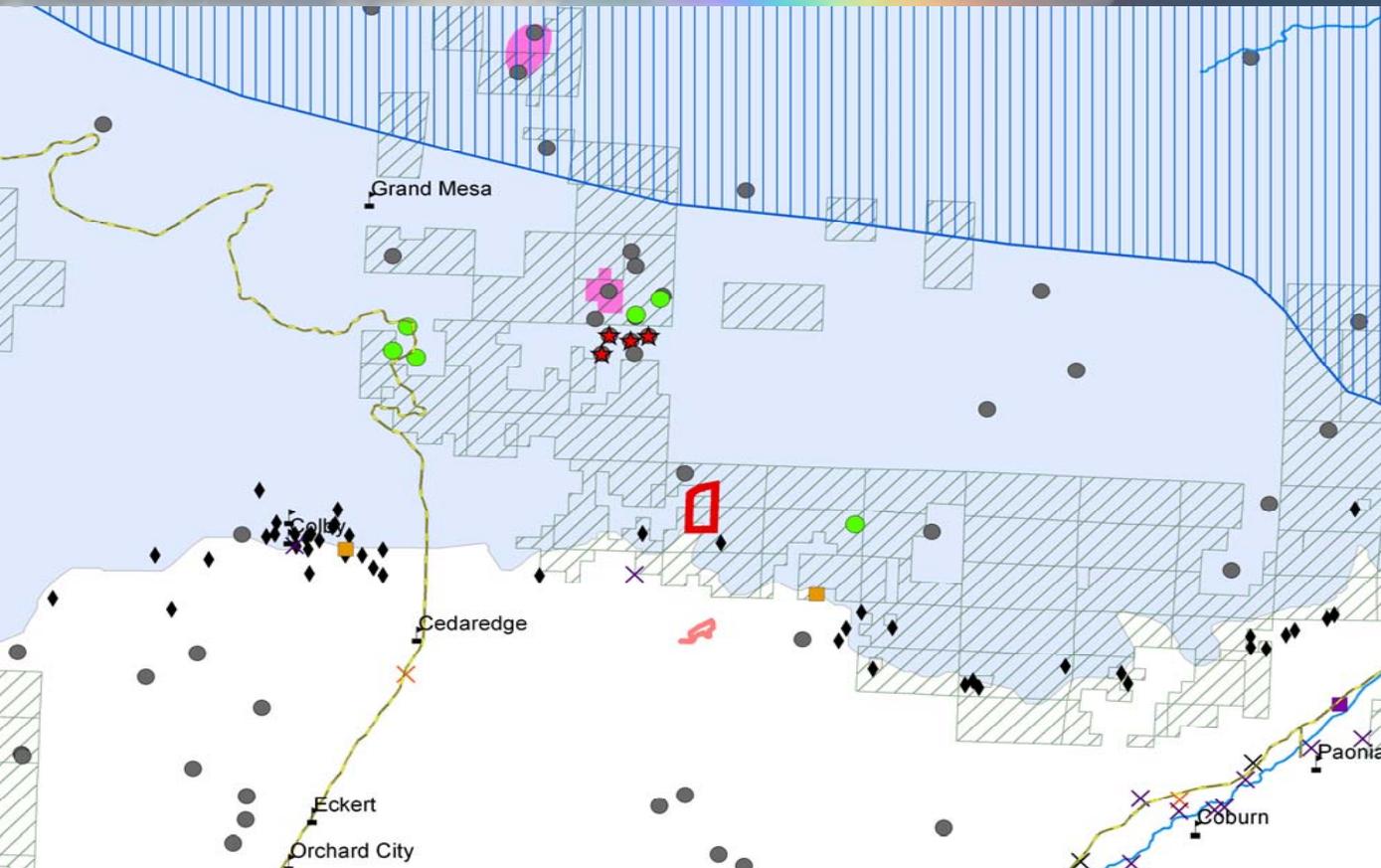
Tips for report reviewers:

1. Be familiar with the geology/mineral resources of your area

- GIS Map of a conservation property and solid mineral mining/mineral features
- Visit the “National Oil Gas Assessment” website to learn about your area (<http://energy.cr.usgs.gov/oilgas/noga/>)



2. Consider Mineral/Mining Potential early!
If there are severed mineral rights there is no guarantee of remoteness (implications for both donor and land trust if no perpetual protection of conservation values)

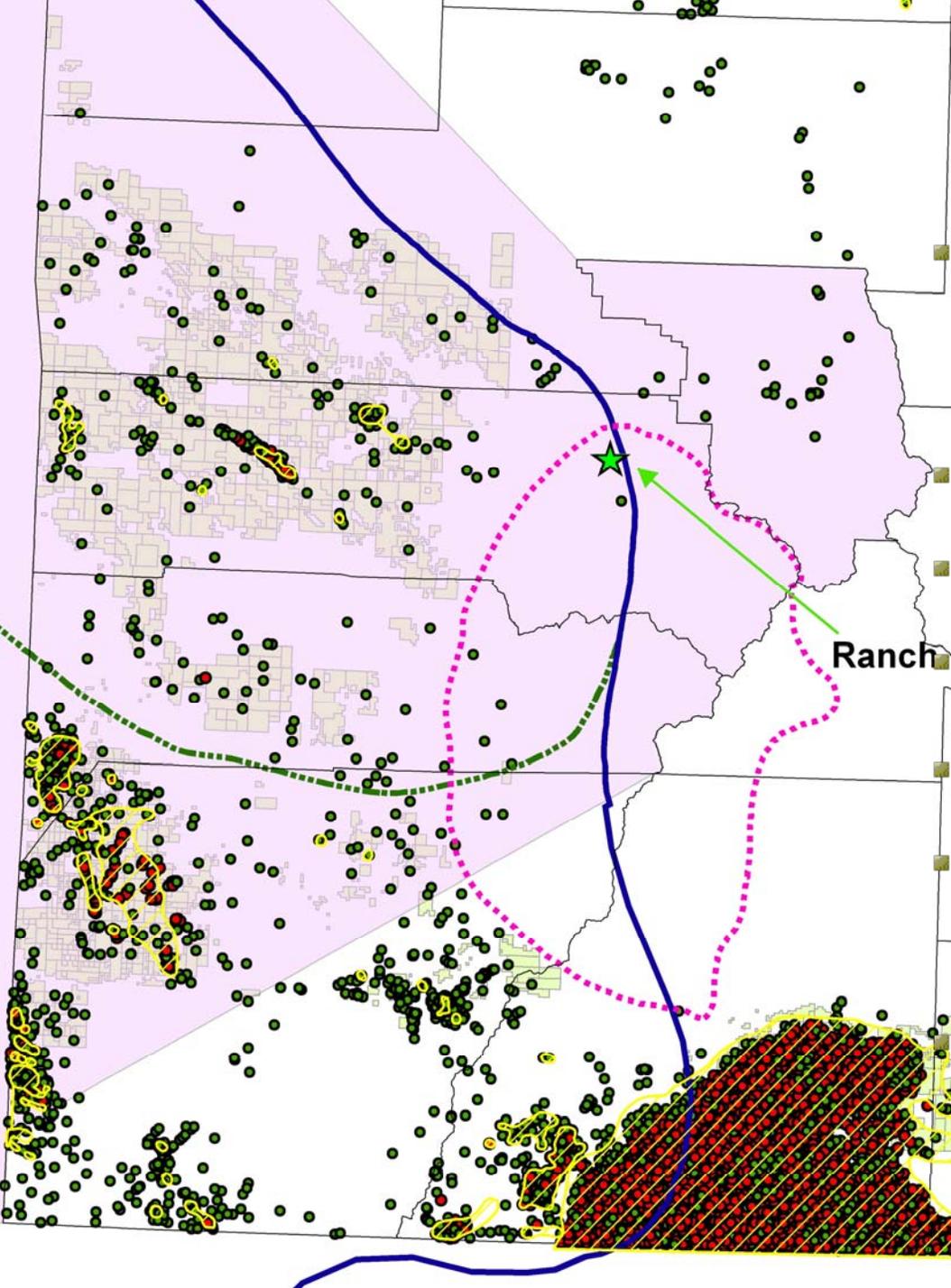


Mineral Due Diligence: Information Resources

- General information on minerals and mining policies
 - Federal Government
 - BLM, U.S. Geologic Survey, U.S. Bureau of Mines & Reclamation, U.S. EPA
 - <http://www.geocommunicator.gov>
 - Online GIS mapping utility with active & closed leases & permits for solid minerals, oil/gas/geothermal leases, mining claims, range allotments & rural school sale parcels.
 - http://www.blm.gov/bmp/Split_Estate.htm
 - BLM split estate brochure, slide show, & current policy updates
 - <http://www.blm.gov/bmp/goldbook.htm>
 - 4th Edition of BLM Gold Book
 - <http://energy.cr.usgs.gov/oilgas/noga/>
 - National oil/gas assessment program, descriptions of basins, plays and GIS data
 - <http://energy.er.usgs.gov/coalres.htm>
 - National coal assessment program and data
 - State Government
 - State Department of Natural Resources or environment; State Geologic Surveys; State Mineral Boards; State Oil & Gas Commissions
 - To find your state's geologic survey go to:
<http://www.stategeologists.org/> and use their map links.
 - Local Government
 - Land Use/Building/Environmental Health Departments of municipalities and counties.

Mineral Due Diligence: Information Resources

- **Mineral estate ownership:** Title Commitment with legal description of property showing Schedule B-2 (Exceptions to ownership). **ALSO** compare with:
 - **Federal Government**
 - BLM 1:100,000 Mineral Management Status Maps (\$4-\$7 at BLM field offices and/or State Office)
 - General Land Office Records (Patents). Can search online and download a copy of the patent in many cases at: <http://www.glorerecords.blm.gov/>
 - **State Government**
 - State land or mineral board maps
 - **Local Government**
 - County assessor's office, County/Municipality Recorder's office
- **Locations of mining operations and mineral resources**
 - All the above AND
 - Publications of professional geological associations such as GSA, AIPG, AAPG, RMAG, etc.
 - Interlibrary Loan, many publications are out of print. U.S. and state geological surveys have been downsized and many mining companies conduct proprietary investigations (unpublished).
- **Other useful GIS data sources**
 - www.geocommunicator.gov, www.charttiff.com sources of aerial photos (DOQQs) and topographic base maps (DRGs)
 - Public land Survey System: download township, section, government lot boundaries:
 - www.geocommunicator.gov/GeoComm/lisis_home/home/index.html
 - USGS Geo Data Explorer <http://geode.usgs.gov/>



November-December 2005

Ranch in San Miguel County.

Primary conservation value is Gunnison Sage Grouse habitat.

Ranch is located within the Paradox Basin (pink) and within 4 different oil/gas “plays”.

Very few wildcat wells within 3-10 miles, all 20 to 40 years old.

No oil/gas fields within 17 miles (yellow).

No leases on nearby federal mineral estate.

Remote?

December 2005-February 2006

About 40K acres up for auction in Feb 2006 in San Miguel County.

Proposed new leases encircle Placerville and include adjacent lands at request of speculators (about 7,300 acres deferred).

Wildcat wells, seismic studies possible.