

GROUNDWATER & WELLS IN COLORADO

Groundwater Administration in Colorado

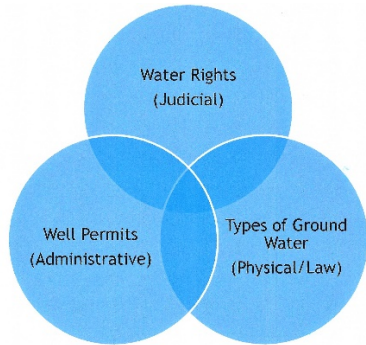
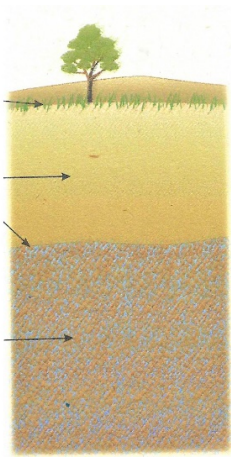


Image Courtesy of DWR Division 2

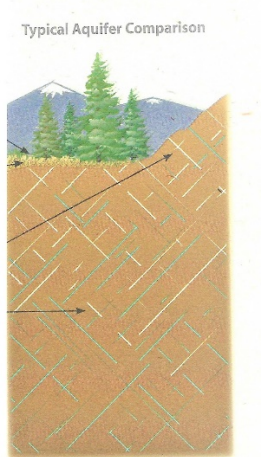
Hydrology & Groundwater Behavior: Aquifer Types

Alluvial (Sand & Gravel) Aquifers

- More water, easily pumped, recharged
- 5 gallons of sand/gravel = ~16 Cups Water
- Predictable connections to neighboring wells



Sand and Gravel Aquifer



Fractured Rock Aquifer

Typical Aquifer Comparison

Images courtesy of Jefferson County Planning & Zoning, 2002

Fractured Rock Aquifers (Granite, Limestone, Volcanics)

- Less water, low yields, may not recharge at a rate sufficient for use, more vulnerable to drought, drying, overpumping
 - 5 gallons of fractured rock = ~ 3 Teaspoons Water
 - Less predictable connections with neighboring wells
- WET WATER IS NOT A GUARANTEE!

Groundwater-Surface Water Connectivity

- Tributary – Connected to Surface Water
- Seasonal Connections – Gaining/Losing Streams

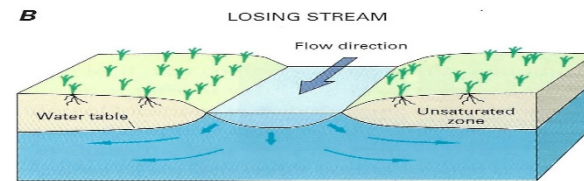
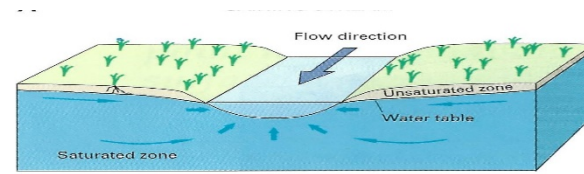


Image courtesy of USGS Circular 1186

- Nontributary – Not Connected to Surface Water



Images courtesy of Jefferson County Planning & Zoning, 2002

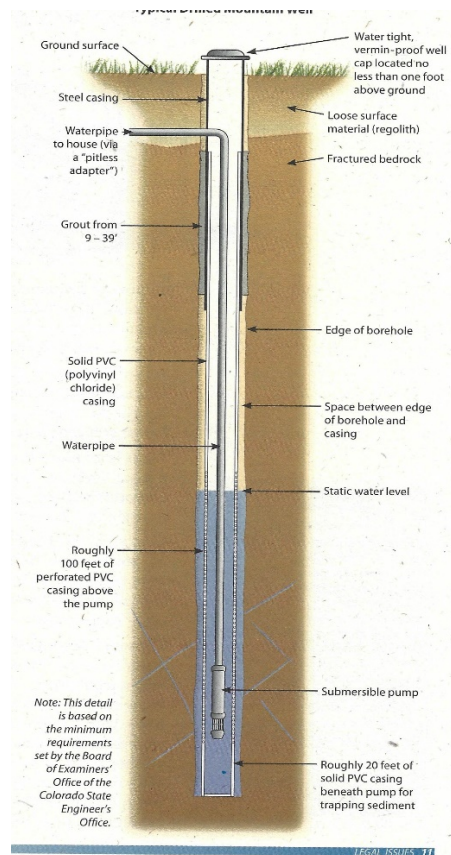
Water Rights – Judicial (Water Court)

Decreed Water Right or Augmentation Plan

- Issued by Water Court
- Conveyed by Deed
- Well Permit Required

Well Permits – Administrative (Division Engineer)

- Construct and/or Use a Well
- Issued by Division of Water Resources (DWR)
- Does NOT Convey a Water Right



Exempt Well

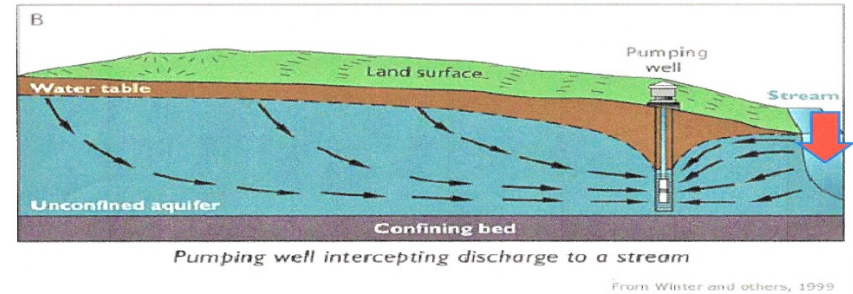
- Residential & Limited Commercial
- Not Administered in Priority
- Property Meets Qualifications
- Pre-1972 subdivision
- Post-1972 Household Use only
- Outdoor use needs Aug Plan
- 15 GPM (50 GPM pre-5/22/1971)
- No volume limit (Exc. Commercial)
- Administered by statute, DWR policy & guidelines
- Parcels < 35 acres = Household Use Only
- Parcels ≥ 35 acres = Irrigation (1 acre), domestic livestock,
- Up to 3 dwellings
- Commercial – Indoor drinking & sanitation, livestock, monitoring
- Registered historic wells (< May 8, 1972)

Non-Exempt Well

- Potential for Any Use
- Administered in Priority with Surface Water Rights
- New Use Needs Augmentation or Demonstrate Nontributary Water
- 600-ft spacing
- Uses: Irrigation, Municipal, Industrial
- Volume Limits & Metering

Augmentation Plan

Approved by Water Court – Describes how replacement water offsets depletions caused by junior withdrawals to prevent injury to senior (surface water) rights holders.



Replaces water in TIME, LOCATION & AMOUNT

Required where Water Shortages Occur – All or Part of a Year

Well Pumping Depletions can continue to impact surface water for days, months, or years

Replacement Water Sources:

- Reservoir rights decreed for augmentation/replacement
- Changed senior right (typically irrigation)
- Transmountain water (such as Fryingpan-Arkansas Project)
- Recharge accretions

Groundwater Concerns:

- Increases groundwater pumping, only replaces surface water for senior water rights holders along augmentation release path
- No mechanism to address injury to well permit holders
- Surface rights on unaugmented tributaries may not be satisfied



Sustainable Water Program
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