



Assigning Available GW Supplies when Supply Exceeds Demands

Agenda Item 6.9.2

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Overview

- Methodology for allocating Modeled Available Groundwater supplies to users
- Situation to address: A WUG's GW supply exceeds demands. How to allocate the "excess" supply?



Process for Allocating MAG Supplies to WUGs and WWPs

- Available groundwater supplies
 - Modeled Available Groundwater (MAG) when available
 - Divided by Aquifer – County – River Basin
 - Utilize estimates from 2016 Plan when no MAG available
 - Minor, local aquifers
 - Aquifers for which no MAG was determined
- Allocation of MAG to WUGs and WWPs
 - Within each county/basin, allocate MAG to Municipal WUGs/WWPs based on installed well capacity
 - WUG/WWP Supply = rated capacity * 0.5 (2.0 peaking factor) * 0.95 (assumes 5% downtime for maintenance)
 - County-Other Supply = 125 percent of 2010 use
 - Non-Muni WUGs
 - Steam-Electric and Manufacturing Supply = 130 percent of 2010 use
 - Irrigation, Mining & Livestock Supplies = projected demands
 - Supply is pro-rated down for all users if MAG would be exceeded
 - Trinity Aquifer constrained supply due to DFCs (large water level declines)
 - 2010 use assumptions will be re-evaluated to most reasonable estimate (2016?)



What if a WUG/WWP supply greatly exceeds demands?

- Groundwater is viewed largely as a “common resource” – users affect each other
- How to use the MAG that remains after the demands from **current users** are met?
 - Supply could be available for use by recommended water management strategies
 - Overall planning supply can be increased if supplies are reallocated differently
 - Current approach for allocating groundwater supplies:
 - » Allocating based on installed well capacity controls that portion of water, regardless of actual demands
 - » Allocated supply can greatly exceed demands for some WUGs and WWPs
 - » This “unused” supply is not made available for new groundwater supply strategies
 - Alternative approach:
 - » Assume some portion of “unused” supply is available under the MAG
 - » Allocate some of the surplus supply back to the “common resource” for use by recommended water management strategies
 - » Appropriate demand factor? – WUG/WWP retains 15%, 25%, 50%? greater than demands



“Unused” Groundwater Supplies

- Example: Texas A&M University (2016 Plan data)
 - Year 2040 supply: 13,632 acft/yr based on well capacities
 - Year 2040 demand: 6,309 acft/yr
 - Unused supply: 7,323 acft/yr
 - Some or all of the unused supply could be made available to new water management strategies

- Unused groundwater supplies in Brazos G (2016 Plan data)
 - Varies by county and aquifer
 - 60,976 acft/yr of supplies potentially available to water management strategies in 2040
 - Max: Brazos County – 9,963 acft/yr
 - Min: Milam and Palo Pinto – 12 acft/yr
 - Ave: 1,173 acft/yr per county
 - Total: 60,976 acft/yr of “unused” groundwater supplies in Brazos G



Approaches Used by Other Regions

- There is no single approach used by all the regions
- TWDB has not compiled a list of approaches
- Reviewed 15 regional water plans – in most, it was not possible to determine from the text of the plan (Chapter 3 or Chapter 4)
 - Region L: *“For cities using groundwater, supply is based on reported well capacities with adjustments to account for a peak to average day water demand ratio of 2:1. In cases in which the total demand on that portion (i.e., county and river basin) of the aquifer exceeds the total availability, supply is prorated downwards for every entity using that particular source.”*
 - Region H: *For counties with adequate groundwater supplies not in a subsidence district: “Groundwater from the appropriate source formation was allocated to each WUG in an amount not to exceed the lesser of the projected demand for each decade and the estimated groundwater production capacity.”*
 - Region N: *“For cities, groundwater supply was based upon projected water use or well capacity reported to TCEQ, whichever is less.”*



Question for Discussion and Recommendation

1. Can we reduce groundwater supplies to WUGs that don't utilize entire supply, and make the unused supply available as general groundwater available under the MAG for water management strategies?

Pros

- Makes fuller use of GW resources
- Doesn't limit available supplies based on unused well capacity
- Closer to how GW supplies are managed
- Eliminates some expensive water management strategies

Cons

- Removes one level of conservatism in the planning
- Doesn't consider capital investment made in supply capacities
- Doesn't consider that future growth might actually utilize the "unused" supply

2. If so, what portion of the unused supply should remain with the WUG?
 - Suggest total supply = 125% of demand

