Items to Discuss

1. Introductions
2. Safe Yield
3. Priority Regulation and Subareas
4. Next Steps

What is Safe Yield?

- Multiple estimates in published reports:
  - 18,400 acre-feet/year (after including inter-basin flows)

    Budget report: USGS SIR 2017-5033
    https://pubs.usgs.gov/sir/2017/5033/sir20175033.pdf#page=36
  - 22,000 acre-feet/year

    Model report: USGS SIR 2017-5072
    https://pubs.usgs.gov/sir/2017/5072/sir20175072.pdf#page=68

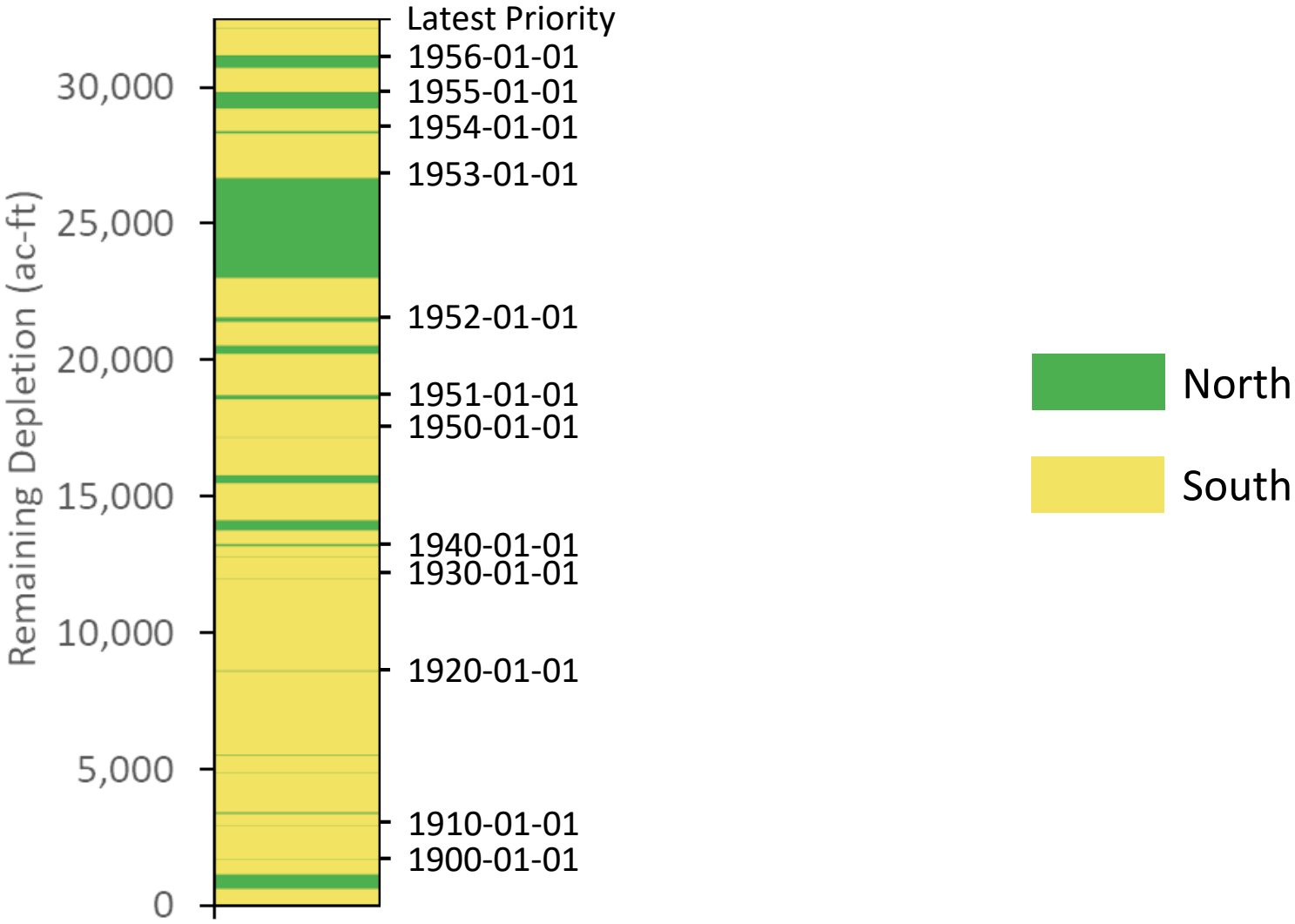
Safe Yield – Our Analysis

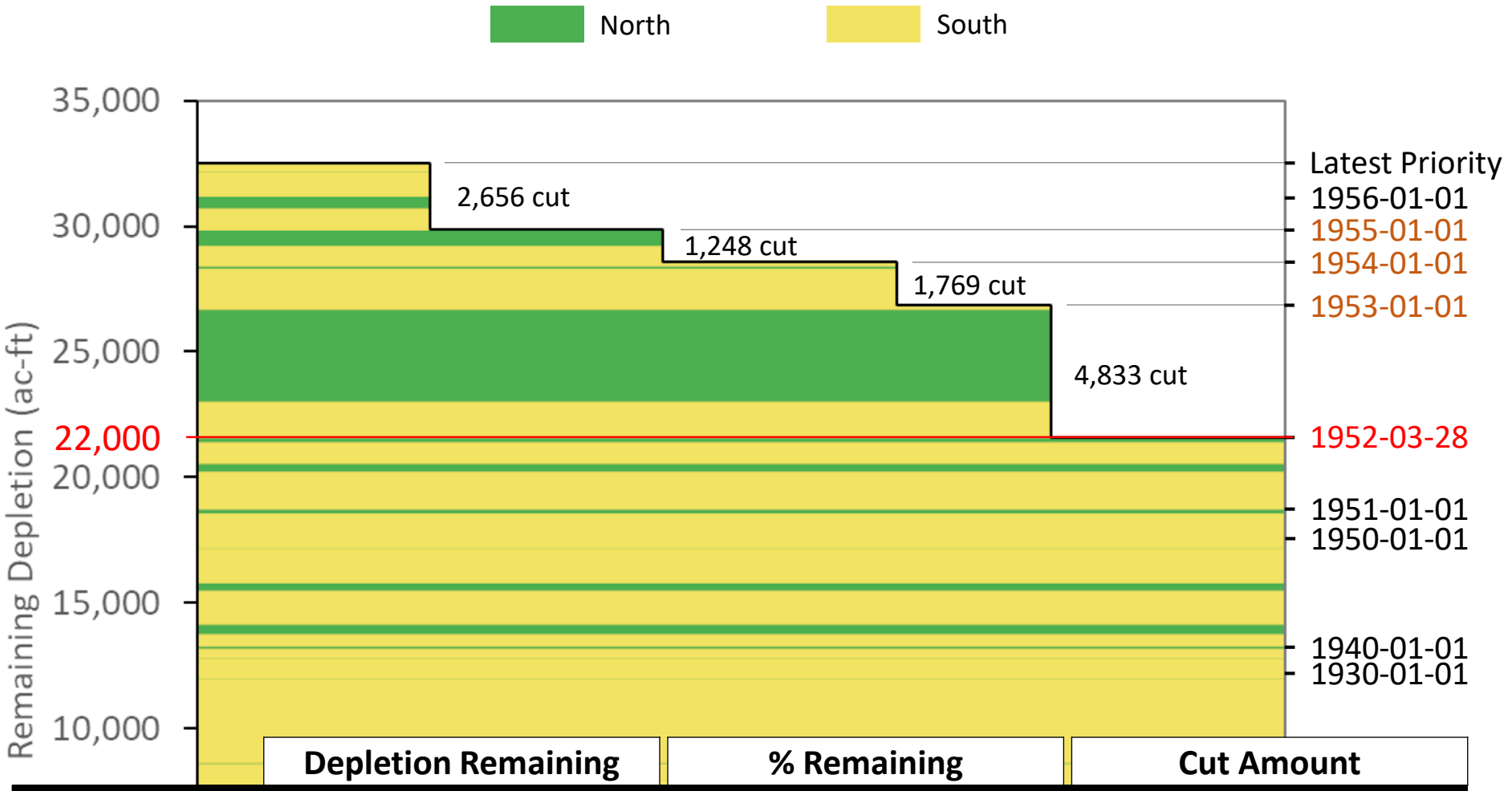
RECHARGE = DISCHARGE – ΔSTORAGE

2000-2018 Budget	**Amount (acre-feet/yr)**
Natural Discharge (ET)	200
Well Depletion (assuming 5% returns)	32,100
Change in Storage	10,900
R = D – ΔS	**21,400**

Safe Yield:
22,000 ac-ft

Priority Regulation & Subareas



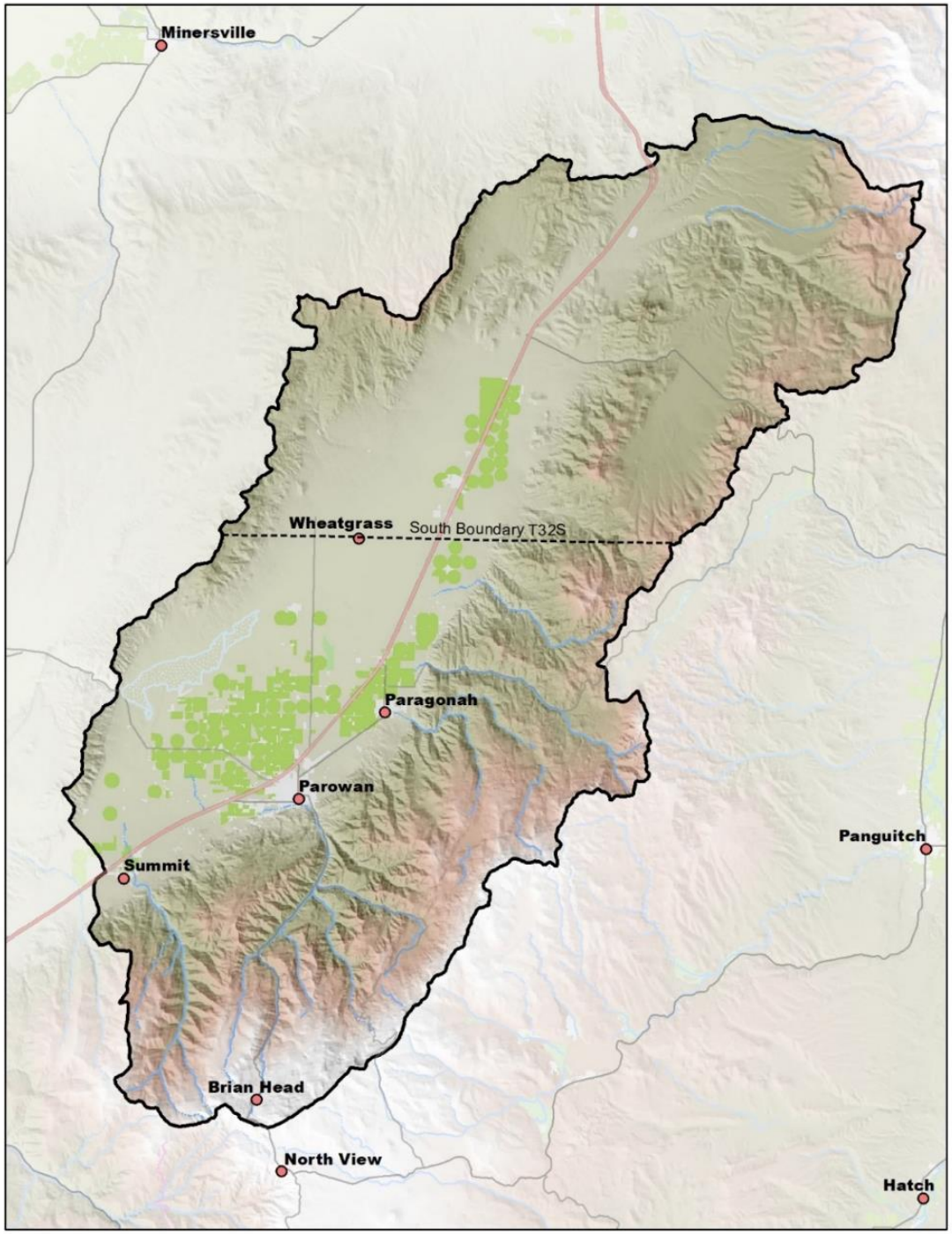


	Depletion Remaining			% Remaining			Cut Amount		
	Total	North	South	Total	North	South	Total	North	South
No Regulation	32,506	7,028	25,478	100%	100%	100%	-	-	-
1st Cut (1955-01-01)	29,850	6,522	23,328	92%	93%	92%	2,656	506	2,150
2nd Cut (1954-01-01)	28,602	5,904	22,697	88%	84%	89%	1,248	618	631
3rd Cut (1953-01-01)	26,833	5,806	21,026	83%	83%	83%	1,769	98	1,671
4th Cut (1952-03-28)	22,000	2,148	19,851	68%	31%	78%	4,833	3,658	1,175

How would the hydrologic system respond to this priority regulation?

Connection between North & South Subareas

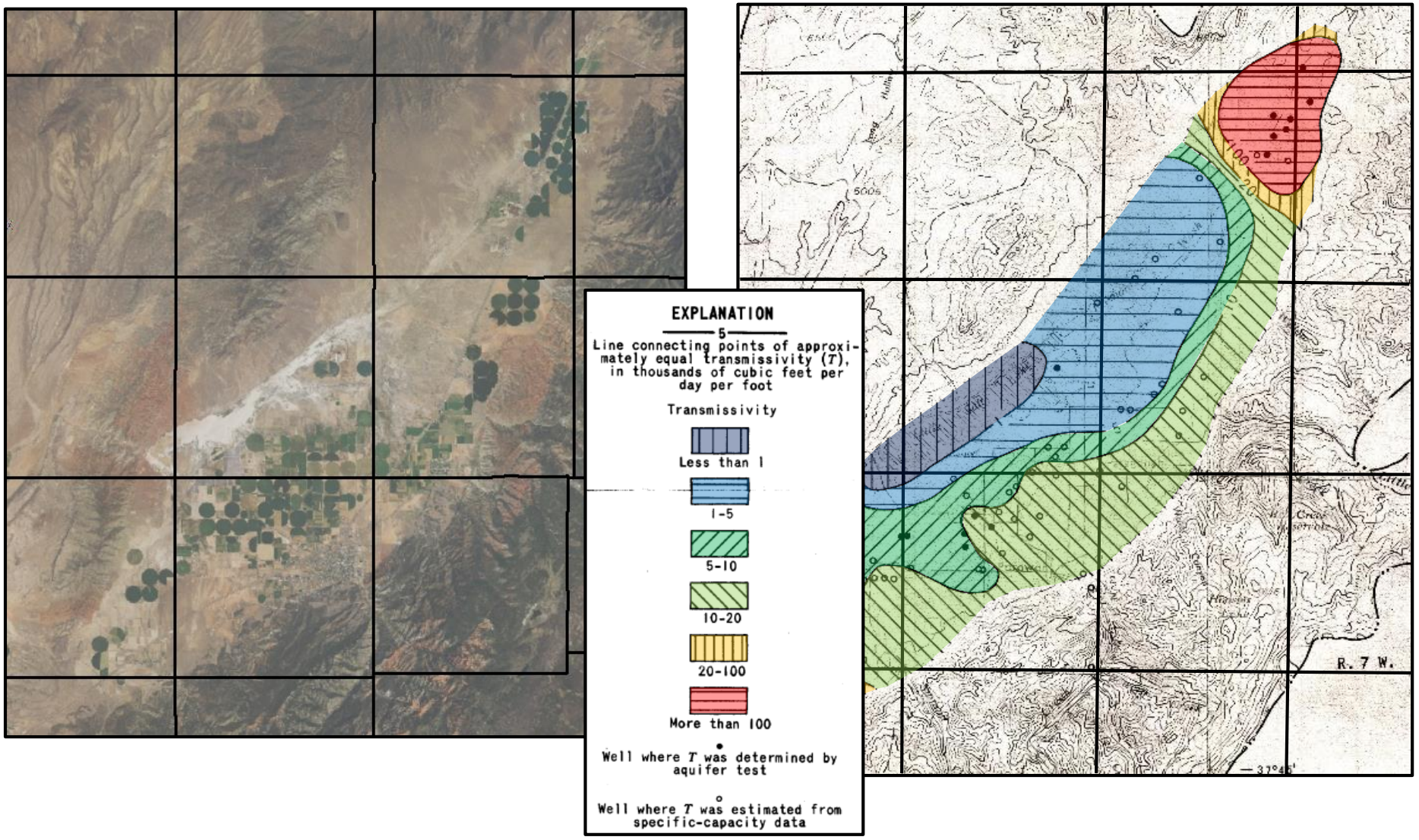
- Administratively divided by Southern Boundary of T32S
- No change applications between subareas are allowed
- But north and south subareas are hydrologically connected (to some degree)

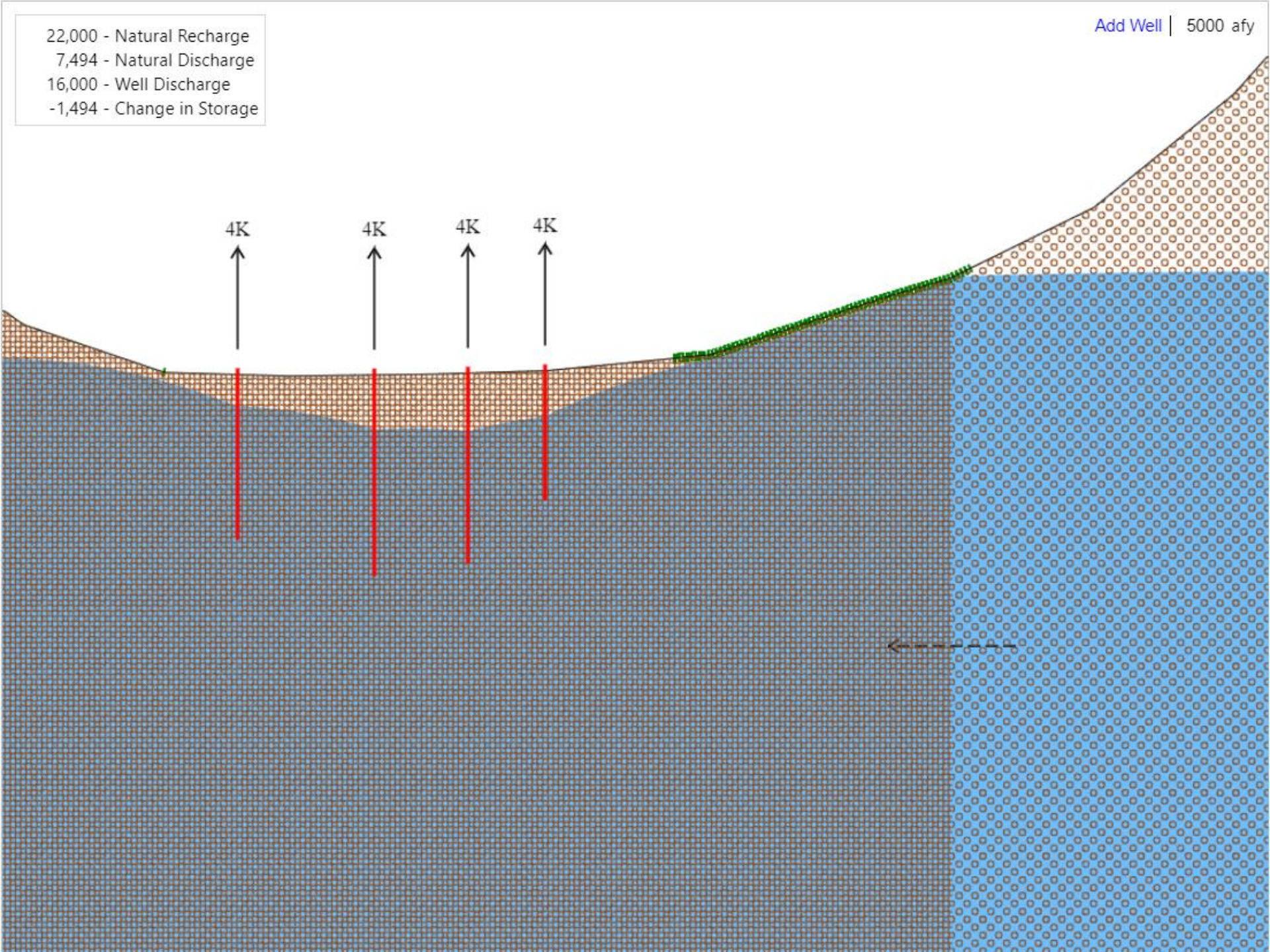


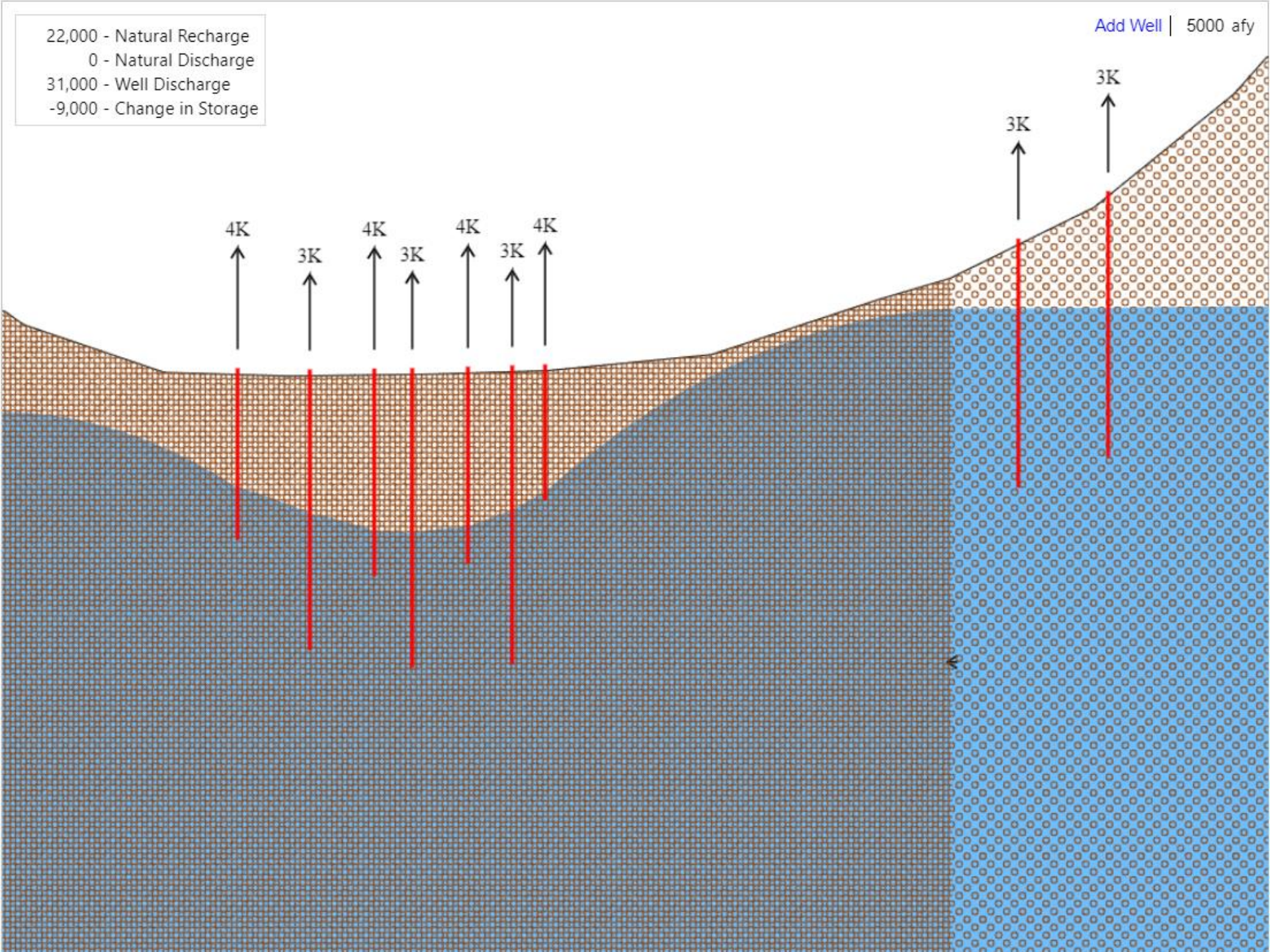
Degree of Hydrologic Connection

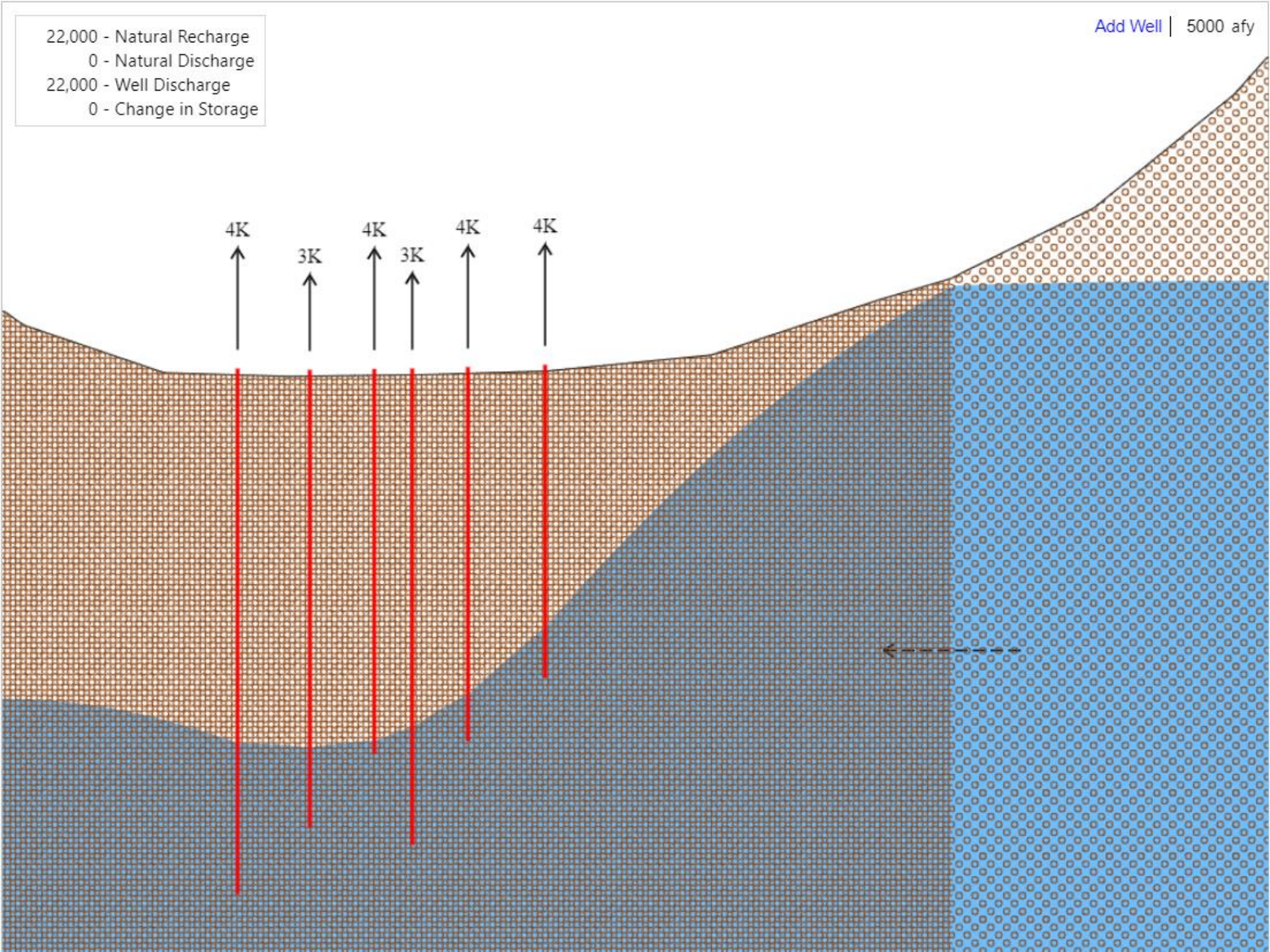
Satellite Map (for Reference)

Aquifer Transmissivity Map




22,000 - Natural Recharge
7,494 - Natural Discharge
16,000 - Well Discharge
-1,494 - Change in Storage
Add Well
5000 afy
4K
4K
4K
4K


22,000 - Natural Recharge
0 - Natural Discharge
31,000 - Well Discharge
-9,000 - Change in Storage
Add Well | 5000 afy
4K
3K
4K
3K
4K
3K
4K
3K
3K


22,000 - Natural Recharge
0 - Natural Discharge
22,000 - Well Discharge
0 - Change in Storage
Add Well | 5000 afy
4K
3K
4K
3K
4K
4K

How would the hydrologic system respond to priority regulation of entire basin together?

At first, water levels would:

- Continue to decline in the southern subarea
- Rise in the northern subarea (with possible temporary return of phreatophytes and springs)

Over time, water levels would stabilize.

- Time for stabilization may be long (unreasonably long?)
- Water level changes may be large (unreasonably large?)

Priority Regulation & Subareas – Summary:

Priority Regulation Issues	Entire Basin Together	North & South Separately
1st in time is 1st in right	Strictly Observed	Rights in south would be cut despite having a better priority than some unregulated rights in north
Risk of large groundwater level decline in south before eventually stabilizing	Higher Risk	Lower Risk
Risk of (temporary) return of phreatophytes and springs	Higher Risk	Lower Risk

Next Steps

- State Engineer Authority
- Collaboration with Local Community
- Forming a Local Community Group
- Future Meetings to Develop a Solution