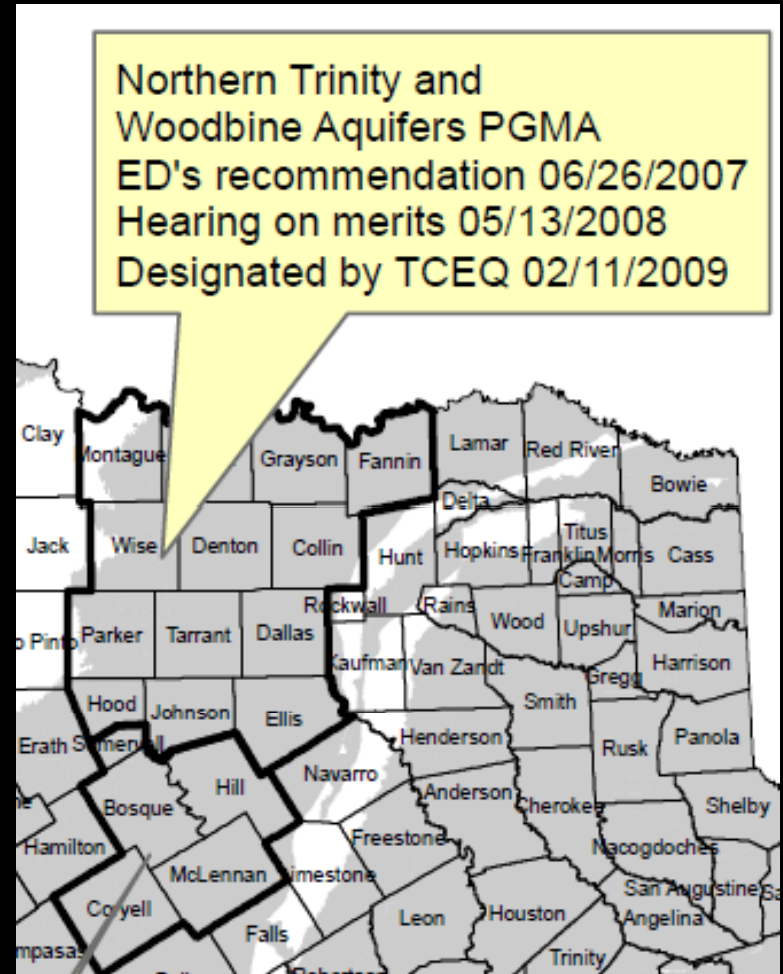
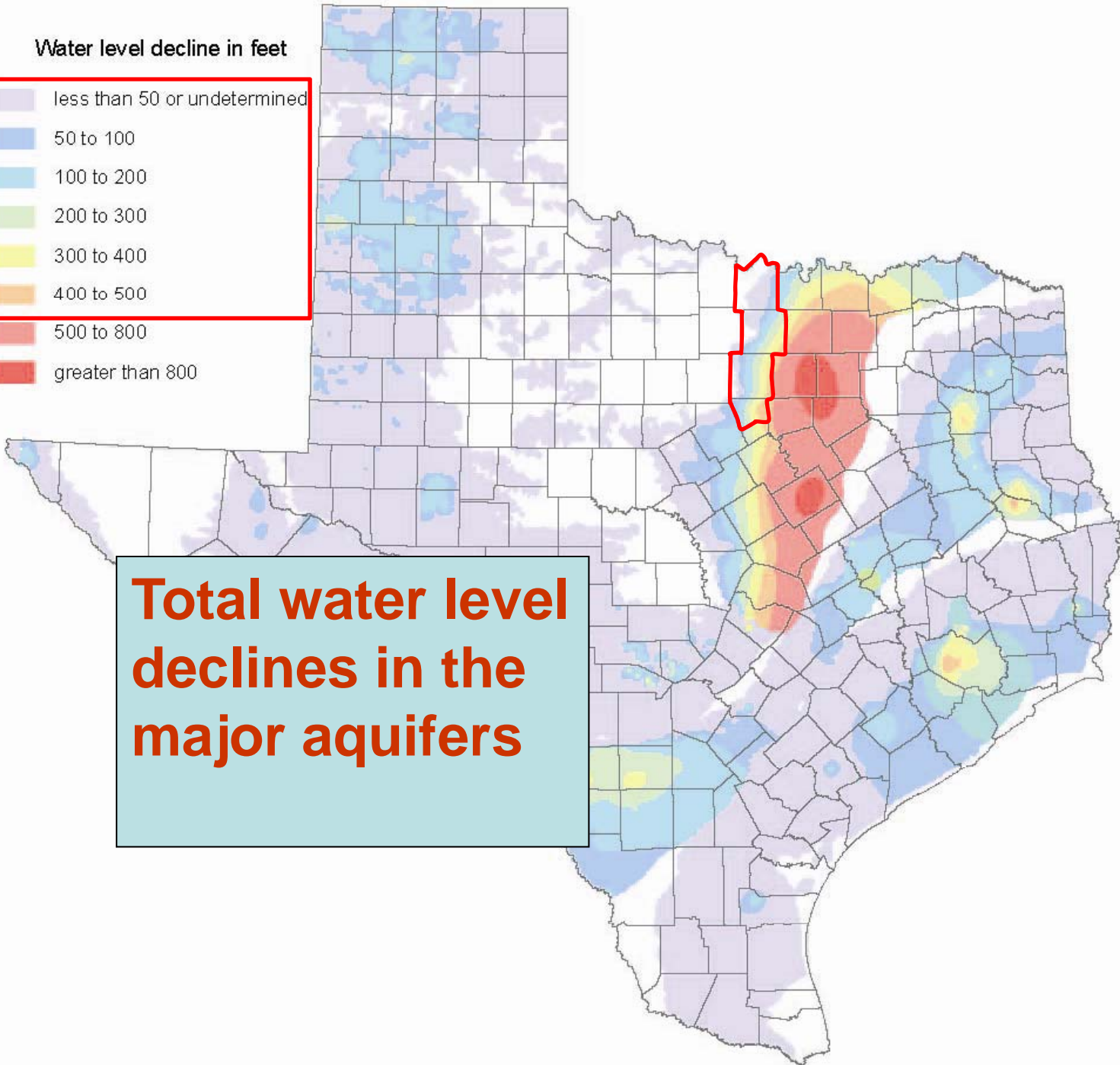


# Background

- A Priority Groundwater Management Area (PGMA) “is an area designated by TCEQ that is experiencing, or is expected to experience, within 25 years, critical groundwater problems...”.

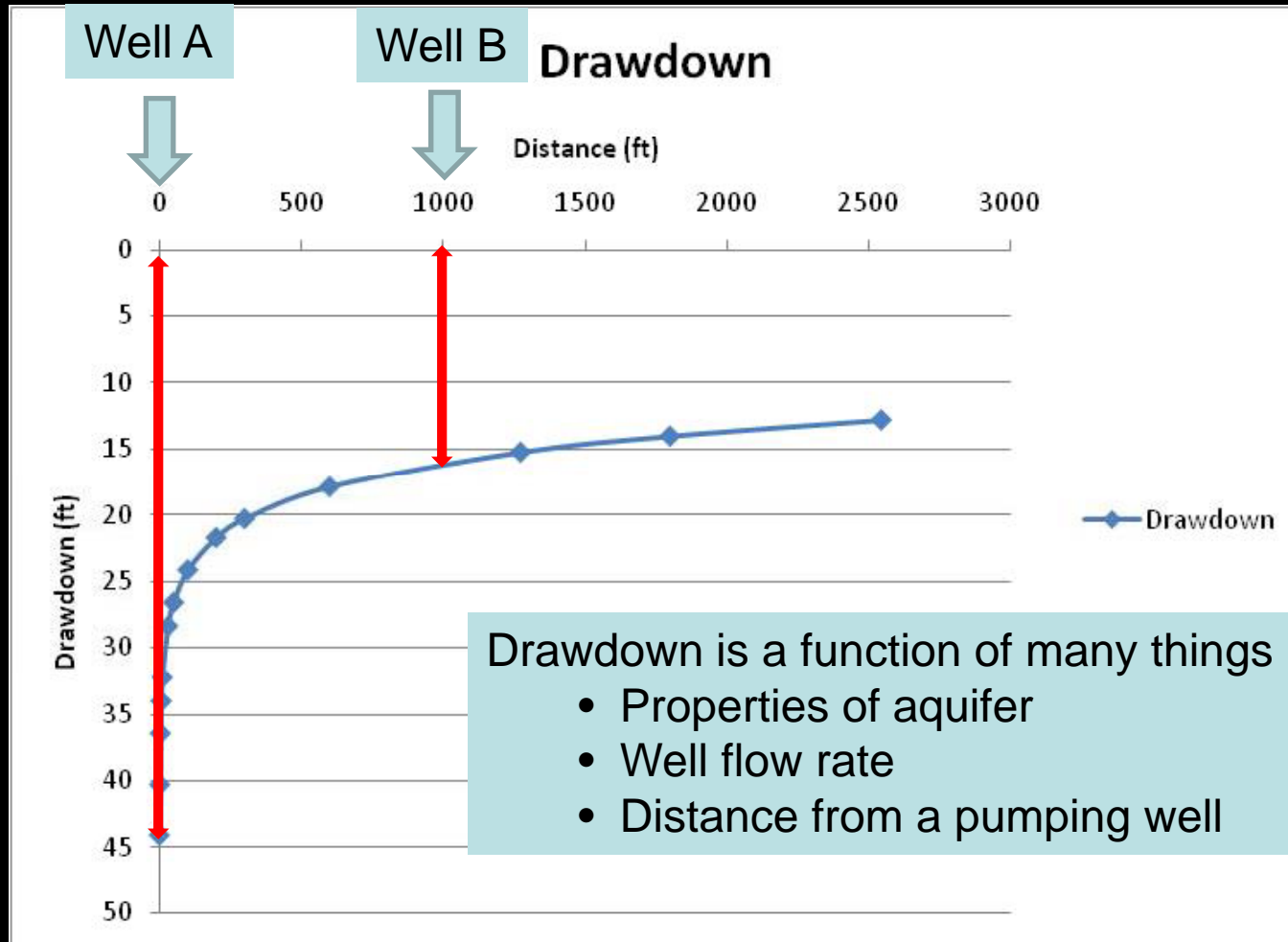


Water level decline in feet

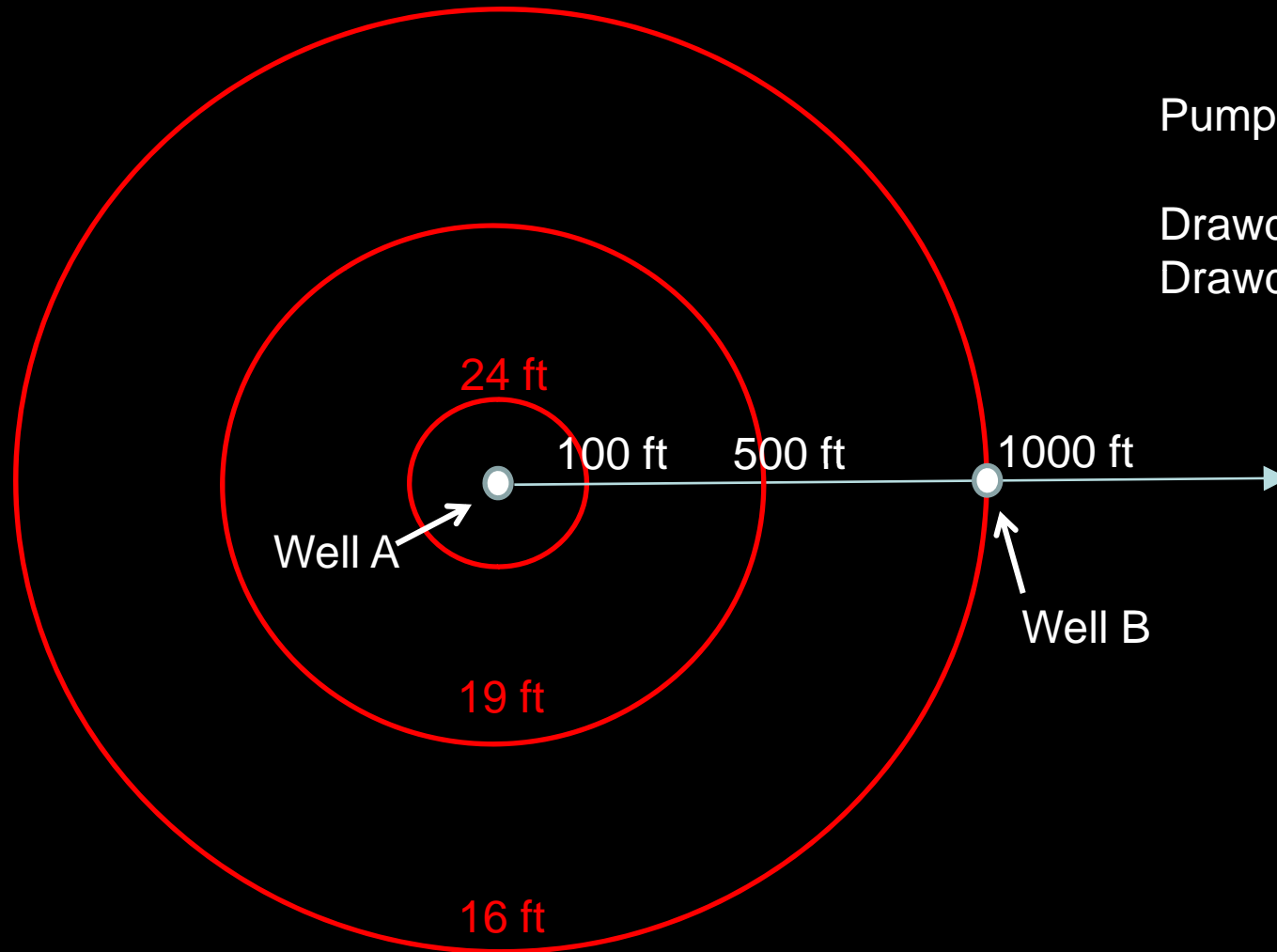


**Total water level declines in the major aquifers**

# Drawdown at a Well



# Impacts to Nearby Wells

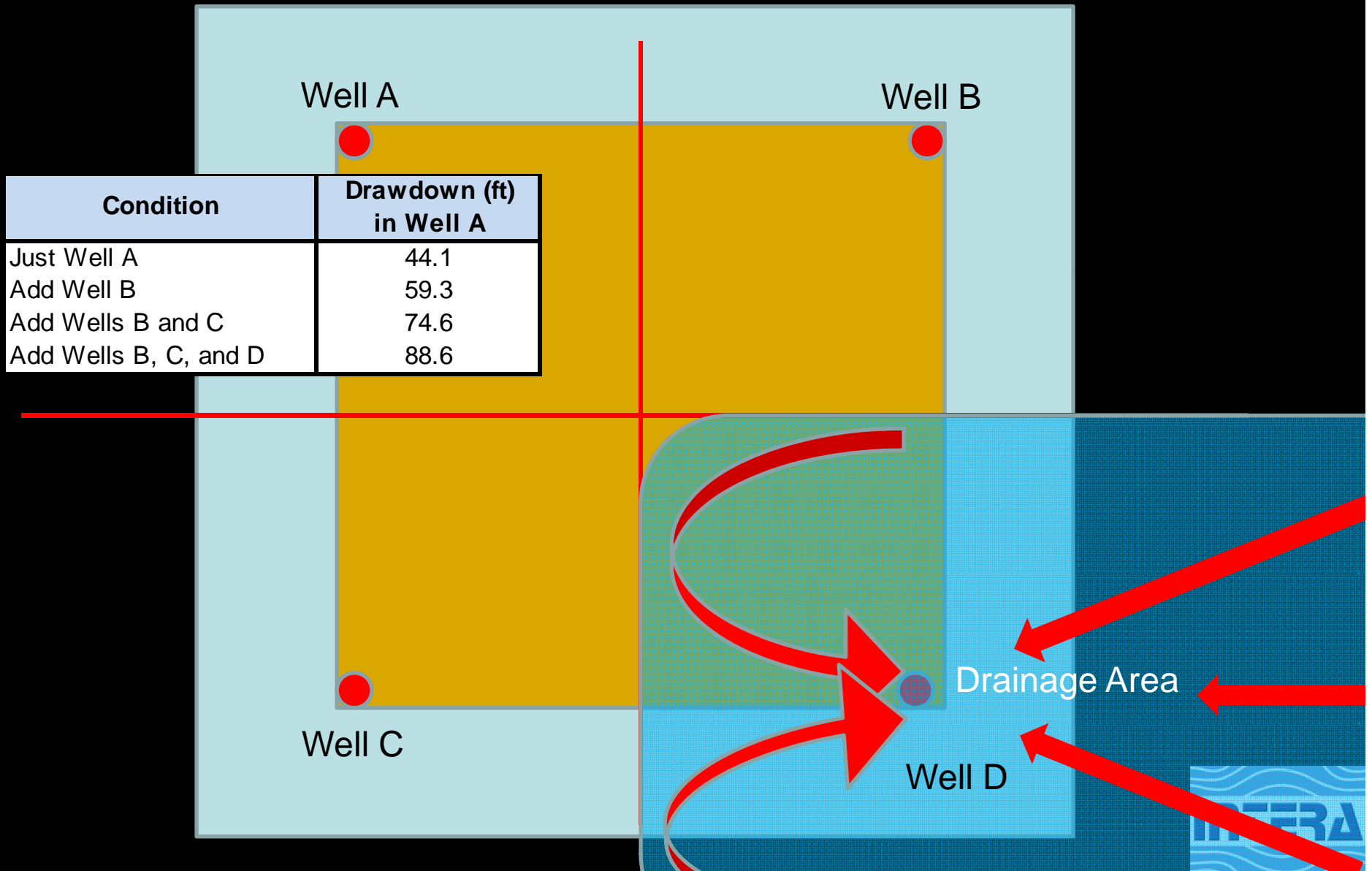


Pump Well A at 40 gpm

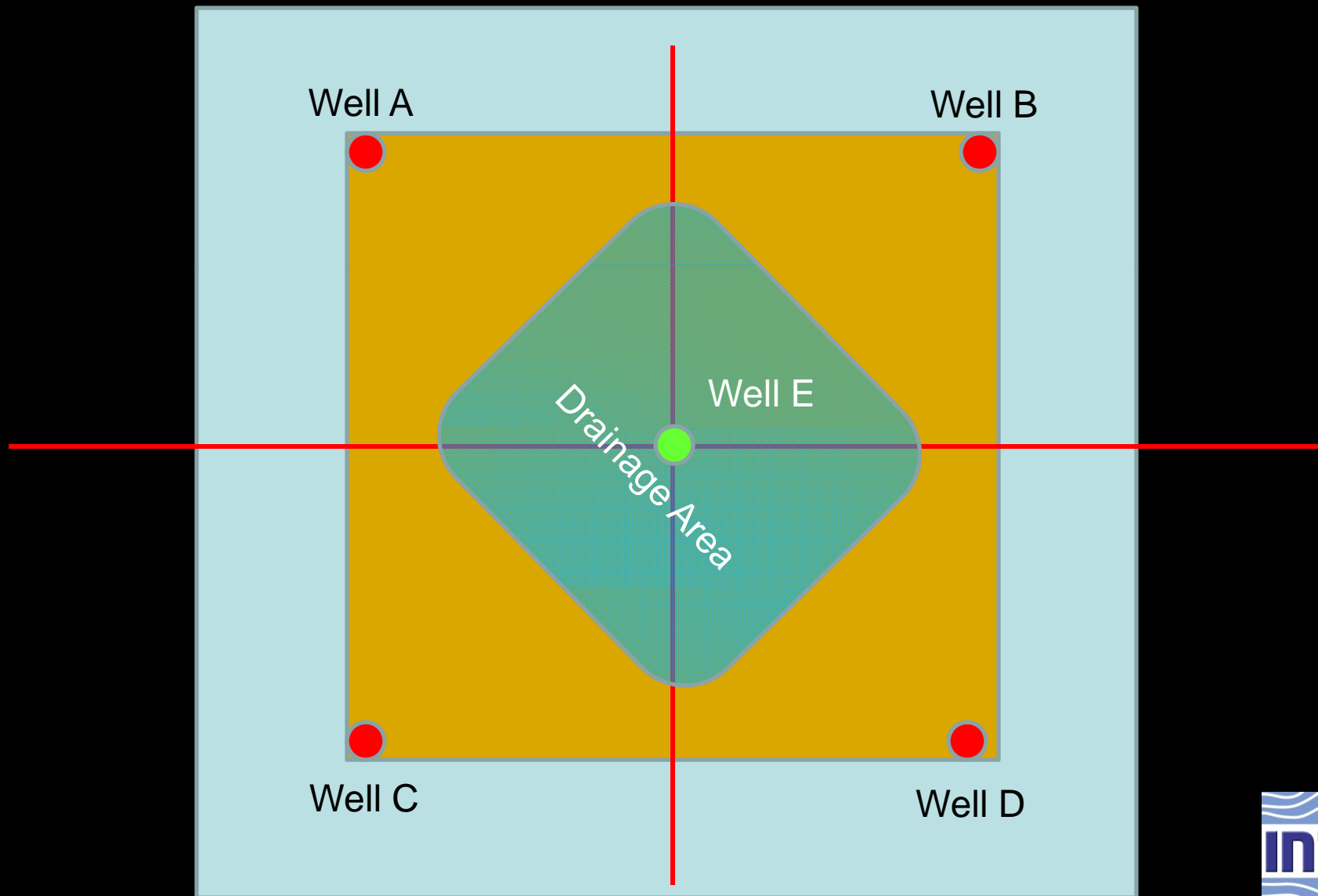
Drawdown at well A = 44 ft

Drawdown at well B = 16 ft

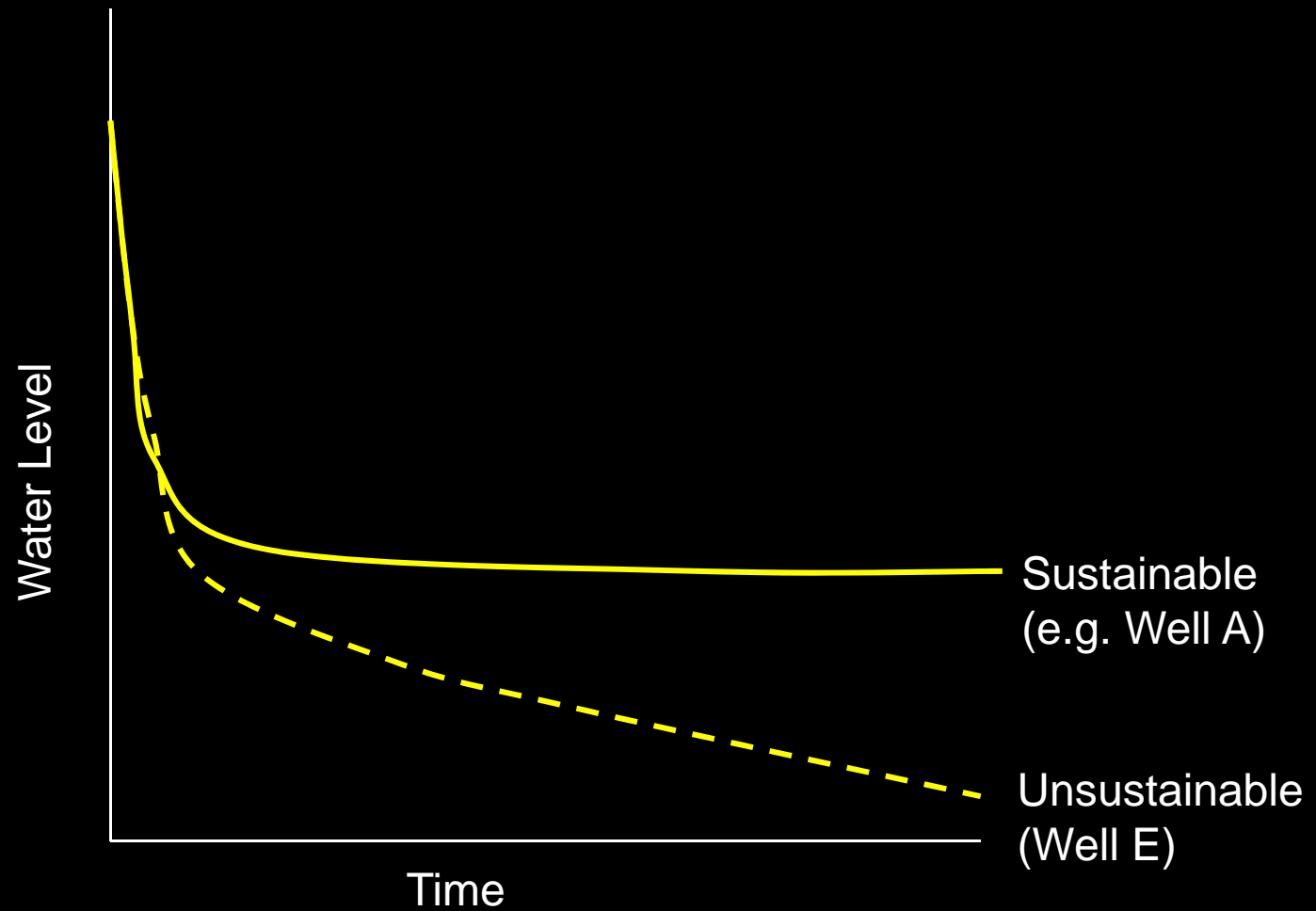
# Impacts to Nearby Wells



# Spacing Rules Protect the Owner of Well E



# Impacts to Well Owner E



# Approach

- Collect aquifer properties applicable to the region
- Develop representative well and flow rate scenarios
- Define guideline criteria
- Perform drawdown calculations
- Propose spacing rules

# Aquifer Properties

- Literature review performed
- Yielded 48 pump test results

Statistic	Transmissivity (ft <sup>2</sup> /day)	Hyd. Cond (ft/day)
Count	48	36
Average	891.3	7.6
Median	832.2	6.1
Minimum	260.4	1.1
Maximum	2,245.8	30.6

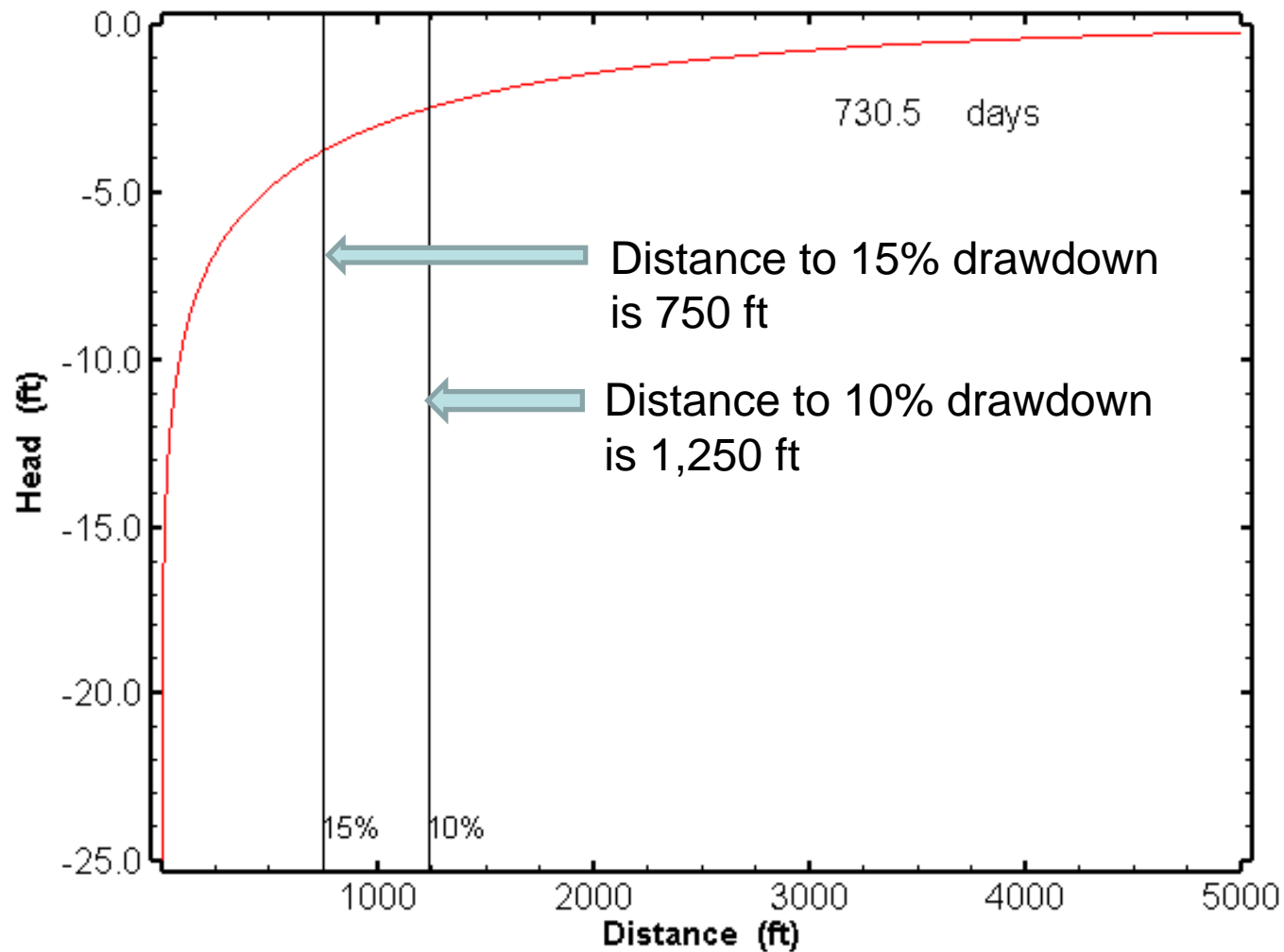
# Scenarios Evaluated

Well Screen Diameter (inches)	Annual Average Flow Rate (gpm)	Flow Rate Capacity (gpm)	Screen Length (ft)	Transmissivity (ft <sup>2</sup> /day)
5 inch or less	5	17.4	50	350
More than 5 but less than 8	21	40	80	560
8 inch or larger but less than 10	40	80	100	700
10 inch or larger	60 to 100	120 to 200	130 to 150	910 to 150

# Drawdown Guideline Criteria

- Objective is to reasonably limit the impact to a neighboring well
- Estimated the distance to 10% and 15% maximum drawdown
- This implies that one would not want pumping at a neighbor's well to contribute more than 10% to 15% of the drawdown observed

# Drawdown Distance Plots



# Proposed Spacing Rules

Flow Rate Capacity (gpm)	Spacing (ft)
17.4 (25,000 gpd)	150
40	1,200
80	1,800
Greater than 80	2,400