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January 11, 2016

Mr. Jason Coleman, P.E.
General Manager
High Plains Underground Water Conservation District
2930 Avenue Q
Lubbock, Texas 79411-2499

RE: Supplemental Data: HPWD portion of GMA 1

Dear Mr. Coleman,

As we discussed on January 6, 2016 and on January 11, 2016, I have completed the attached graphs that are similar to the graphs I prepared for GMA 2 in Technical Memorandum 15-01 for the Ogallala Aquifer.

The GMA 2 work involved running 15 predictive simulations using the new High Plains Aquifer System Groundwater Availability Model (HPAS GAM). The attached graphs are for three counties in GMA 1 that are within HPWD (Armstrong, Potter, and Randall). As we discussed, HPWD does not cover the entirety of any of these three counties, but to be consistent with the GMA 2 tech memo, these graphs cover the entire area of the counties.

The 15 simulations included five alternative pumping scenarios and three alternatives of saturated thickness threshold. The five alternative future pumping scenarios were based on factors of model-estimated 2012 pumping:

- 0.50 of 2012 pumping
- 0.75 of 2012 pumping
- 1.00 of 2012 pumping
- 1.25 of 2012 pumping
- 1.50 of 2012 pumping

For purposes of presentation, only Scenarios 6 to 10 are presented: the five alternative pumping scenarios that used the saturated thickness threshold used during model calibration.

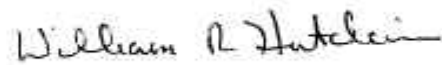
The first group of summary graphs includes 1) historic pumping (as defined in the HPAS GAM) from 1930 to 2012, five alternatives of future pumping in the upper graph, and the existing modeled available groundwater (MAG) for reference, and 2) county-averaged drawdown for each of the five scenarios, and the county averaged drawdown associated with the existing desired future condition for reference.

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The second group of summary graphs are the same as the first, except that the lower graph depicts storage volume remaining as a percentage of the storage in 2012 for each of the scenarios in place of the drawdown. The storage remaining that is associated with the desired future condition is also shown for reference.

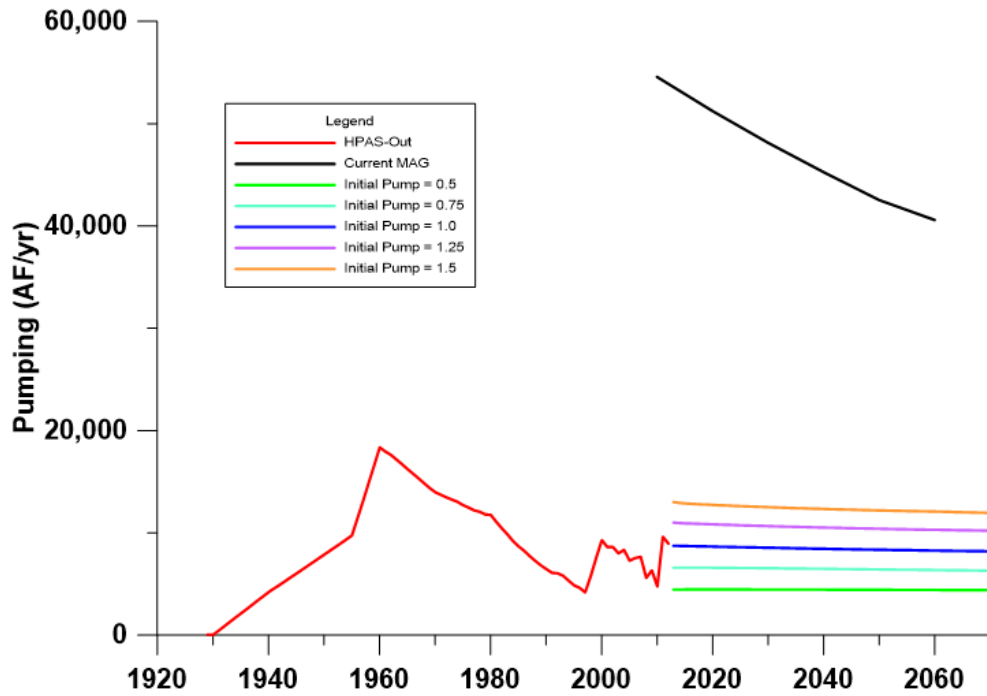
Thank you for the opportunity to respond with this additional information. Please feel free to call me at 512-745-0599 or email me at billhutch@texasgw.com if you have any questions or require any additional information.

Sincerely,

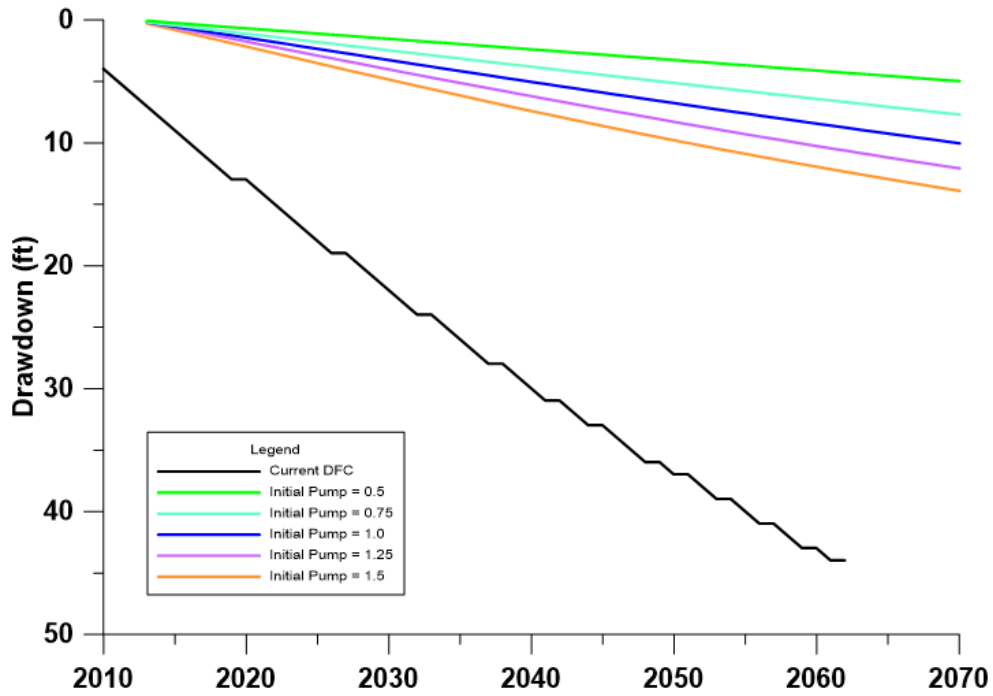
A handwritten signature in black ink that reads "William R. Hutchison". The signature is written in a cursive style with a prominent flourish at the end.

William R. Hutchison, Ph.D., P.E., P.G.

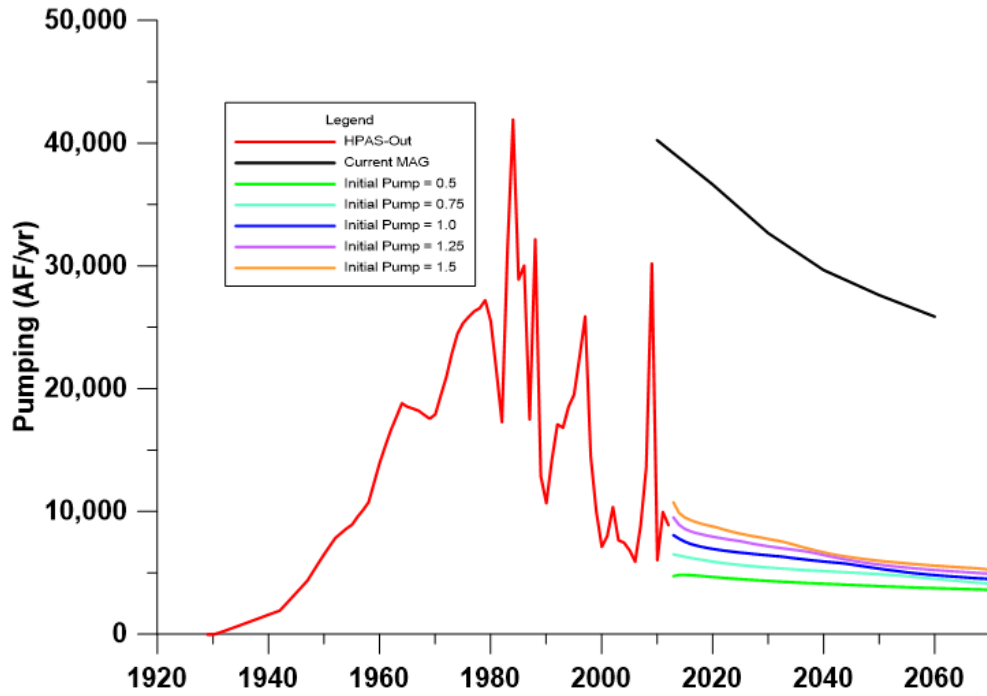
Armstrong County - Ogallala Aquifer Saturated Thickness Threshold = 30 ft



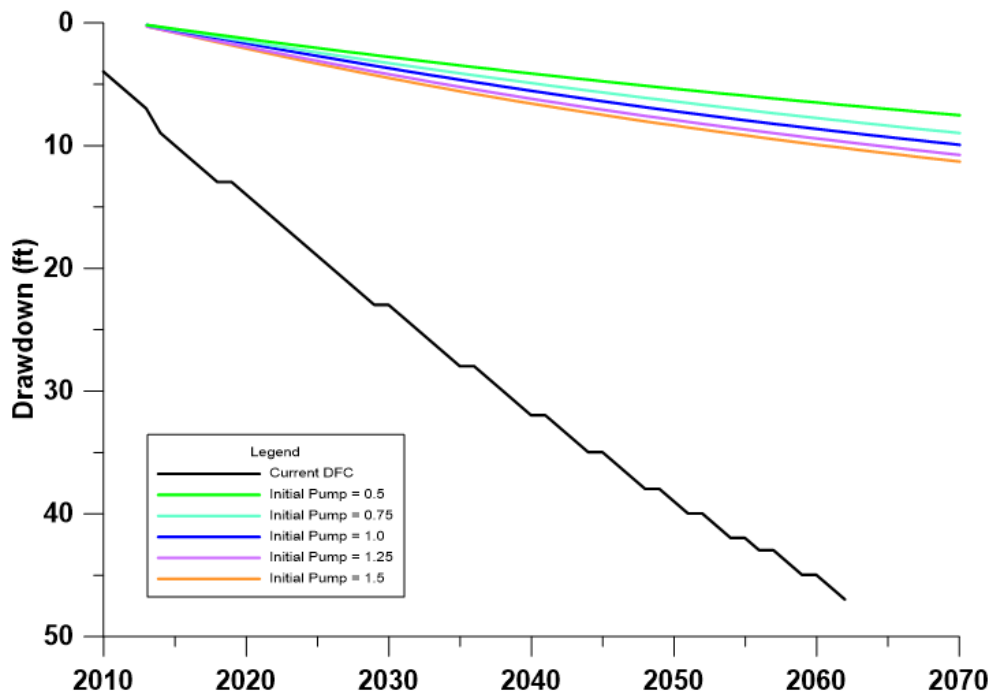
Armstrong County - Ogallala Aquifer Saturated Thickness Threshold = 30 ft

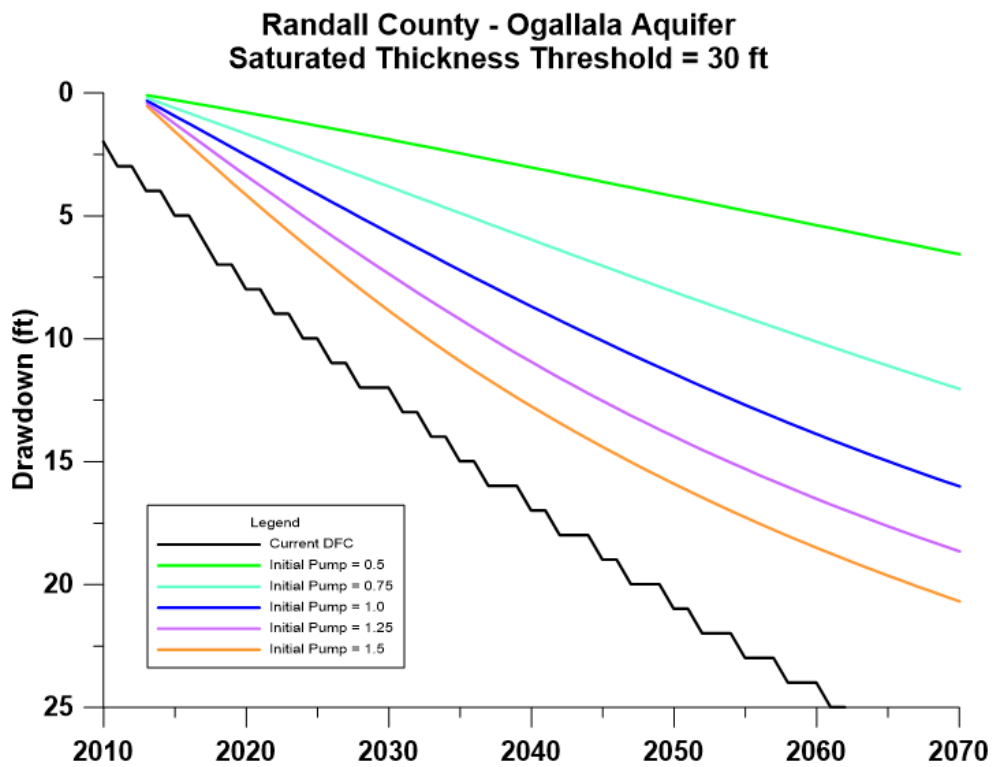
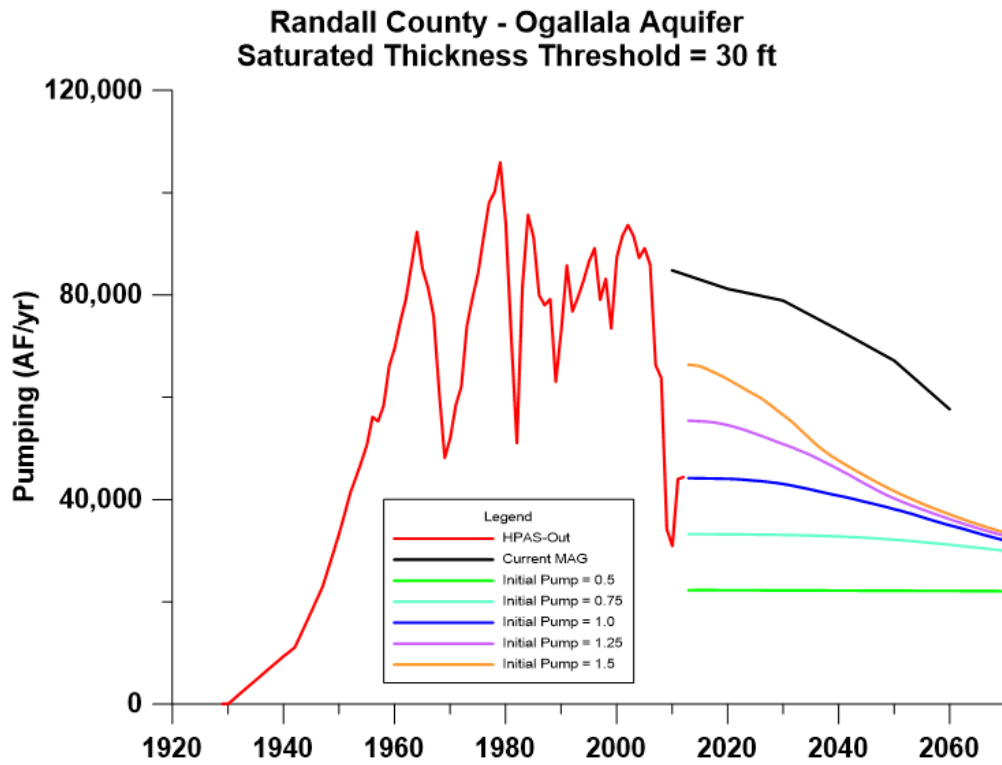


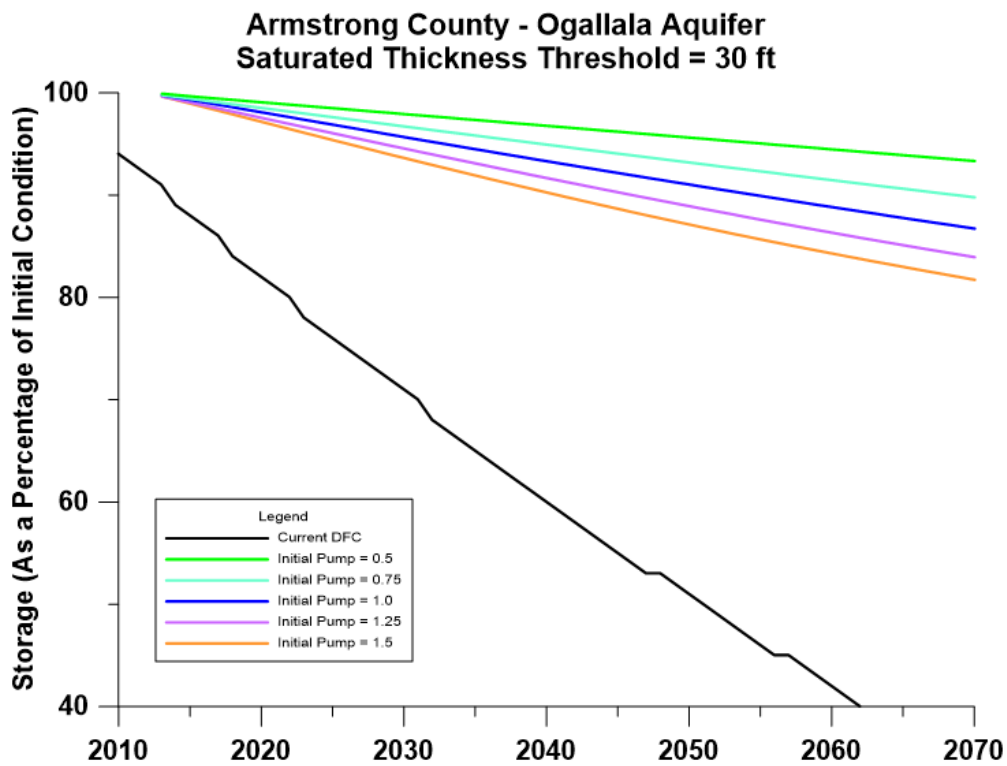
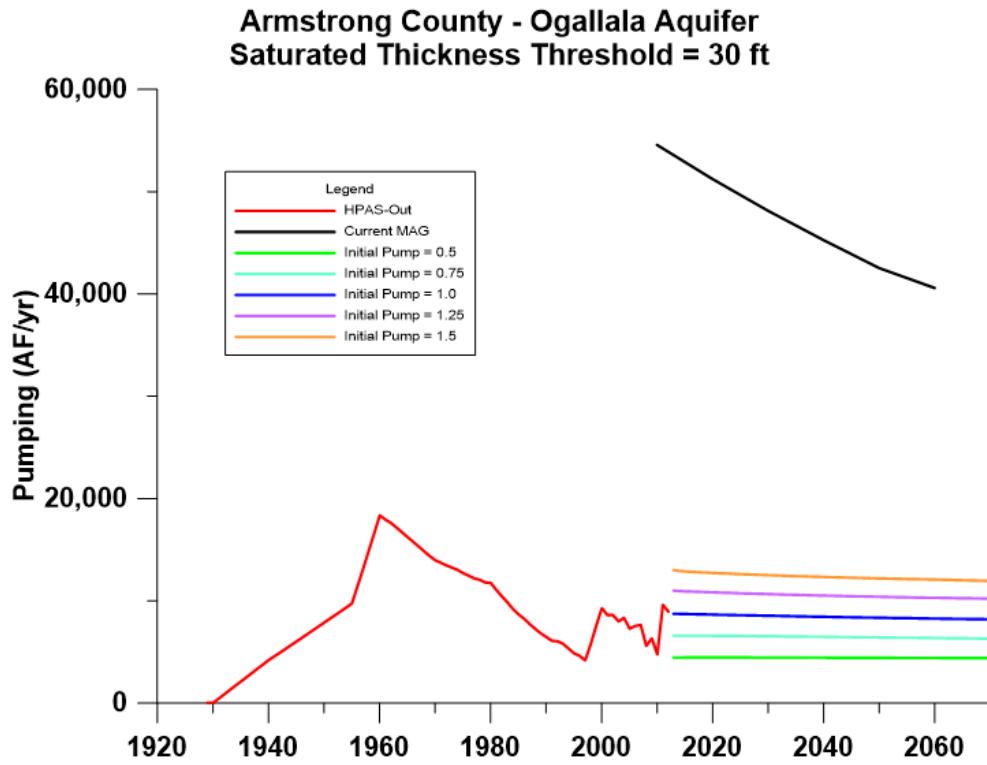
Potter County - Ogallala Aquifer Saturated Thickness Threshold = 30 ft



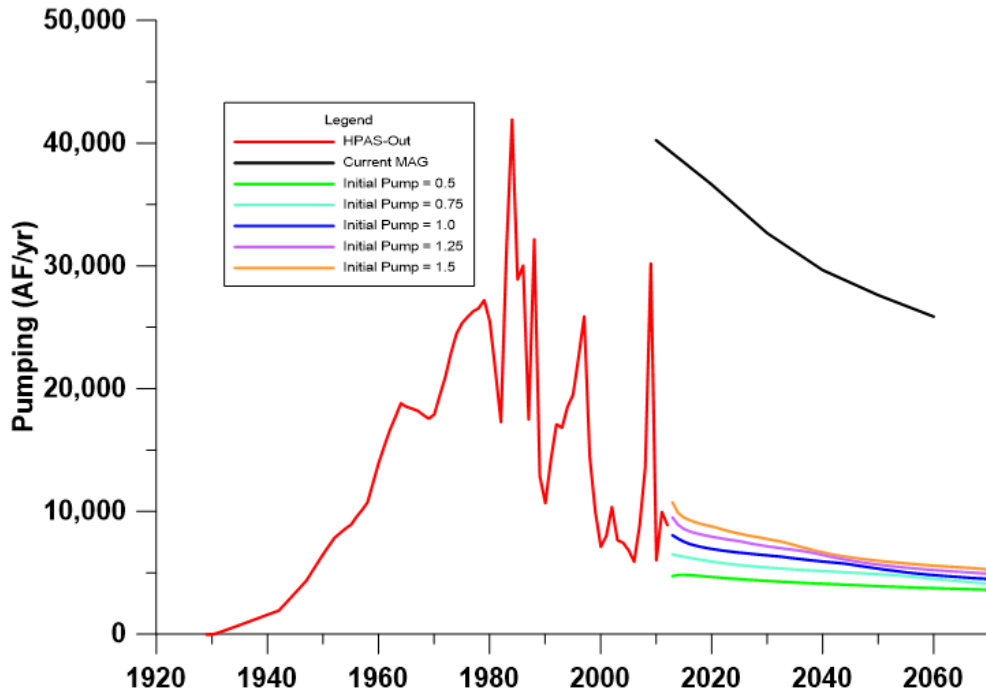
Potter County - Ogallala Aquifer Saturated Thickness Threshold = 30 ft



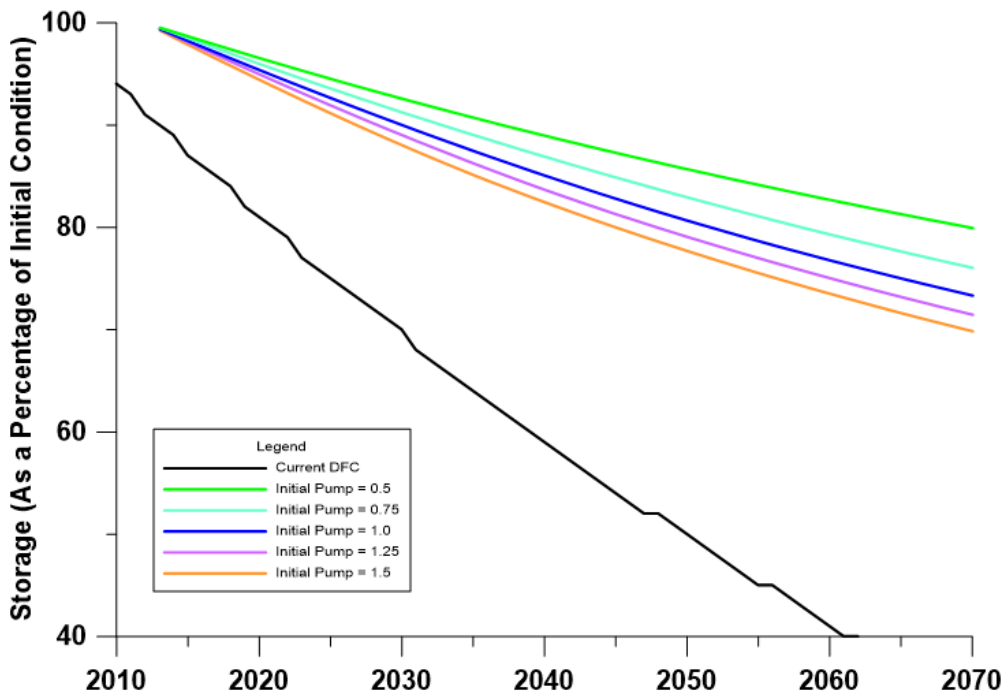




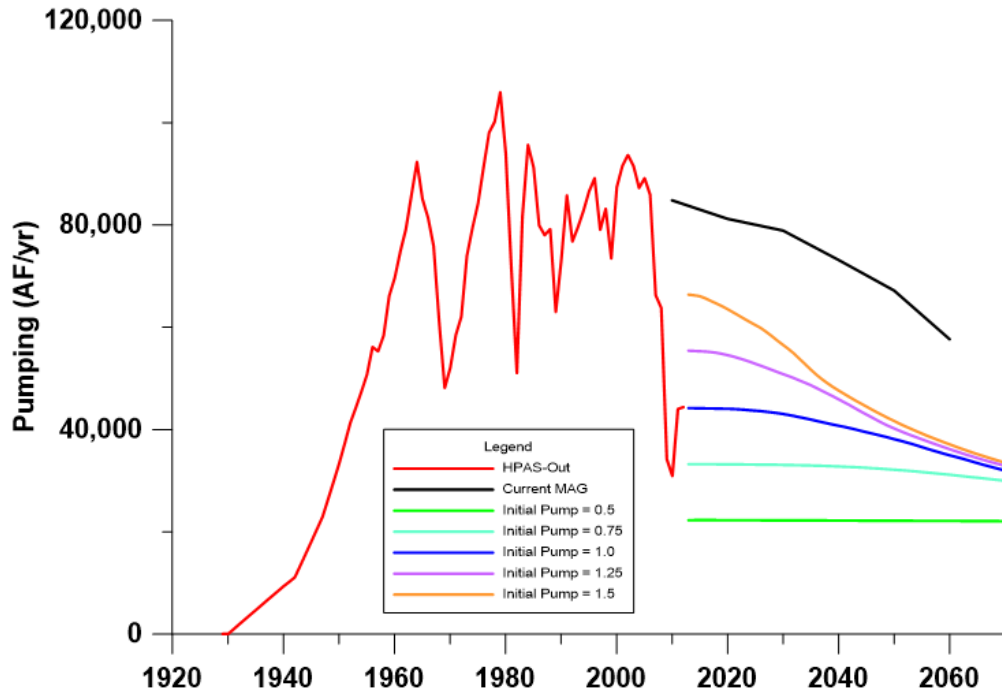
Potter County - Ogallala Aquifer Saturated Thickness Threshold = 30 ft



Potter County - Ogallala Aquifer Saturated Thickness Threshold = 30 ft



**Randall County - Ogallala Aquifer
 Saturated Thickness Threshold = 30 ft**



**Randall County - Ogallala Aquifer
 Saturated Thickness Threshold = 30 ft**

