Fremont Madison Irrigation District Recharge Experience

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Outline

- Historical Background
- Recent Experience
- Candidate Locations
- Questions to Ask
- Discussion

History

- USGS 1902
  - Mud Lake highly variable in 1800s
  - Completely dry in 1891
- USGS 1939
  - "[There was a] great and progressive increase in the visible supply of water in the Mud Lake basin during the period 1900 to 1922."
  - "Nearly 5 years was required for the water from Egin Bench to have any visible effect on the Mud Lake basin, and about 23 more years for it to produce the maximum effect."

History

- USBOR/USGS recharge study circa 1962
- Idaho Dept. Reclamation recharge study 1969
- Idaho Water Resource Board/IDWR
  St. Anthony Pilot Project 1970-1974
- U of I Henry's Fork/Rigby Fan GW Model
  (Jetze Wytzes) 1980
- U of I/ IDWR Aquifer Model (SRPAM) 1980s - 90s
- IDWR Aquifer Model (ESPAM1.1) 2006

Recent Experience

- 2008 - 2010: Fremont Madison Experiment

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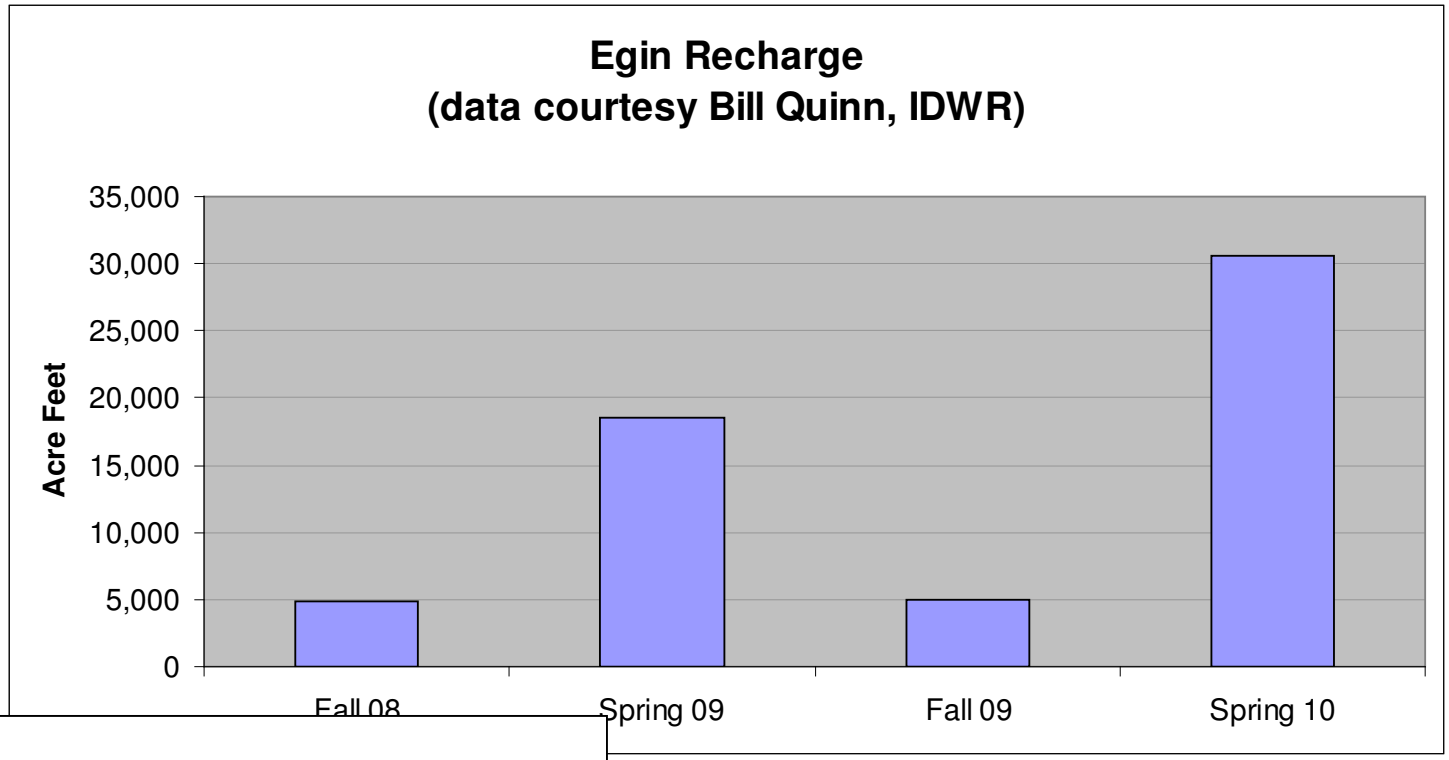

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these results

Recent Experience

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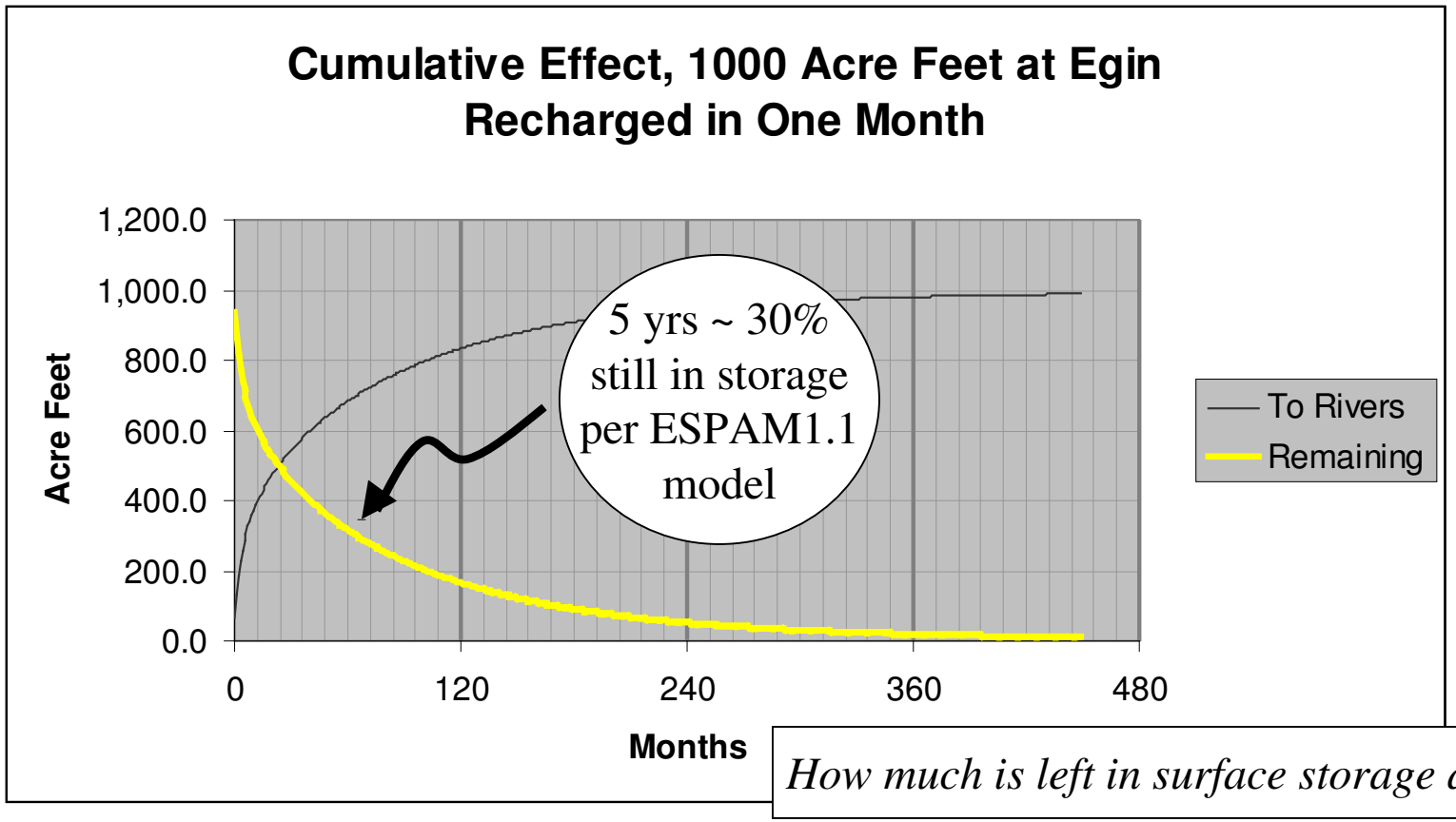
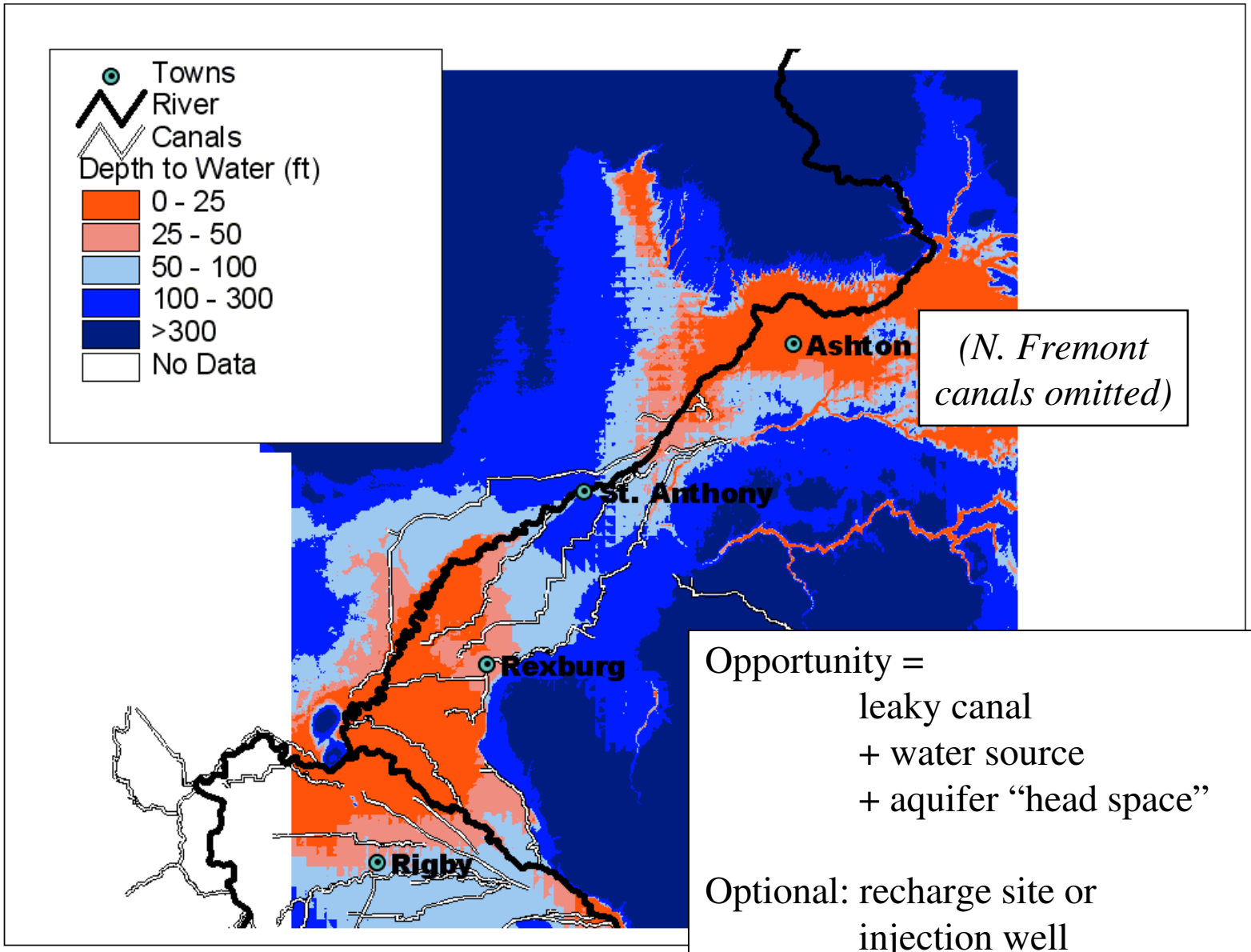
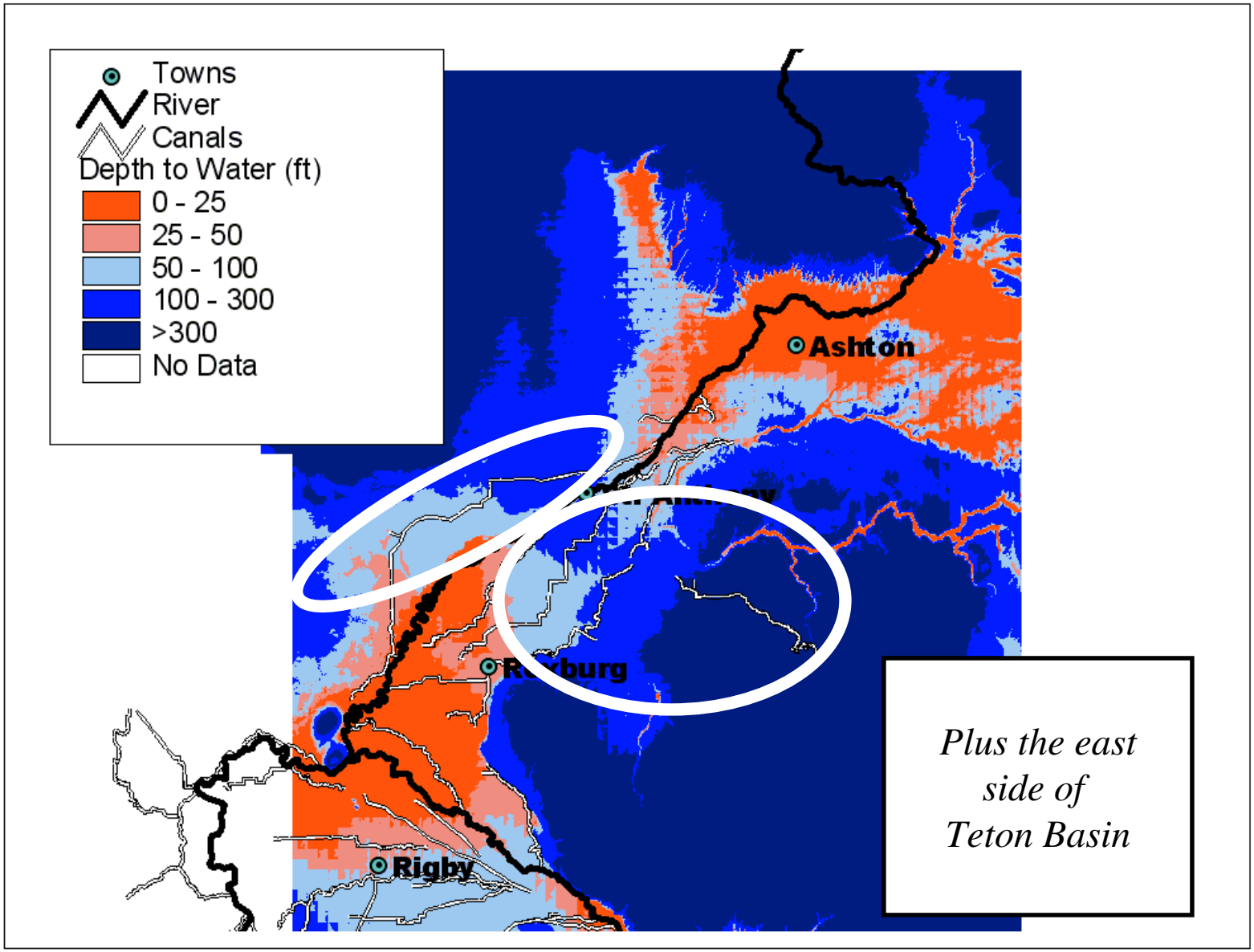


How much is left in surface storage after 5 yrs?

Candidate Locations



Candidate Locations



Potential

- Dr. VanKirk: 2.7 ft/day seepage,
  up to 3.7 ft/day in Teton Basin
  - 1 mile of canal 12 feet wide = 3 - 5 acre feet per day
- Dr. VanKirk: 463 miles of mapped canals
  - Egin 111 — *100 w/ good head space?*
  - Lower Valley 222 — *150 w/ good head space?*
  - N. Fremont 51 — *zero w/ good head space?*
  - Teton Valley 90 — *50 w/ good head space?*
- 300 x 4 = 1,200 acre feet *per day*

plus *recharge sites, injection wells*

Bottom Line

- The aquifer is a vast potential storage reservoir
- It is protected from evaporation and contamination
- Compared to other storage options it might be cost effective
- There are some things to think about
- Fremont Madison has shown it can be done
- Existing canals in the off season are attractive recharge mechanisms