

Water Policy Interim Committee  
January 15, 2008  
Hamilton, Montana

Update

Montana Bureau of Mines and Geology  
John Metesh



- ✓ Develop work plan  
case study  
report(s)

## Case Study

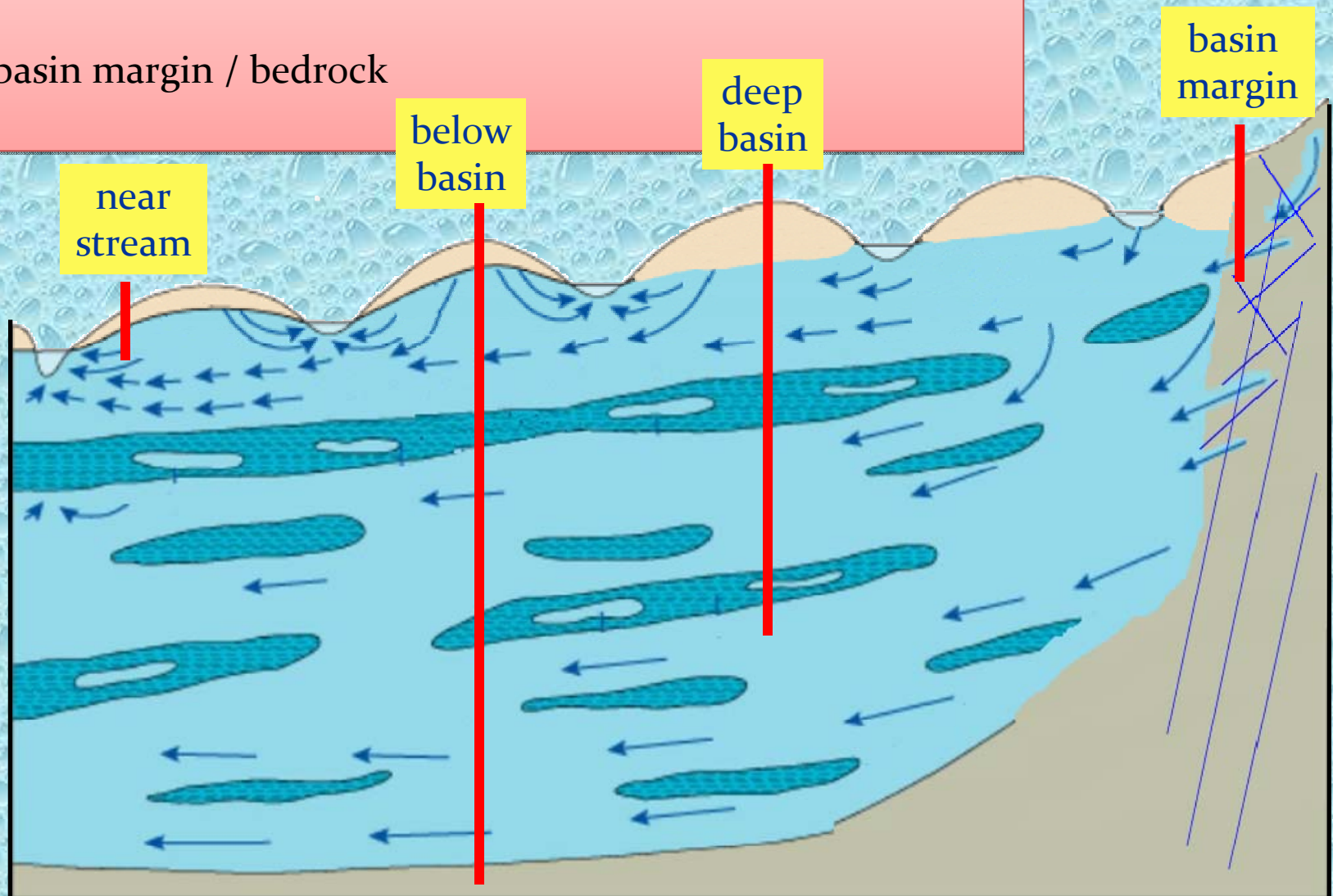
- ✓ review permits
- ✓ select field site(s)
- ✓ compile existing data
- ✓ develop conceptual model(s)
- ✓ design field experiment(s)
- collect / compile data
  - water levels
  - aquifer tests
  - chemistry

near stream shallow alluvial aquifer;

deep basin, confined or semi confined aquifer;

intrabasin or interbasin aquifers below the basin-fill aquifer

basin margin / bedrock



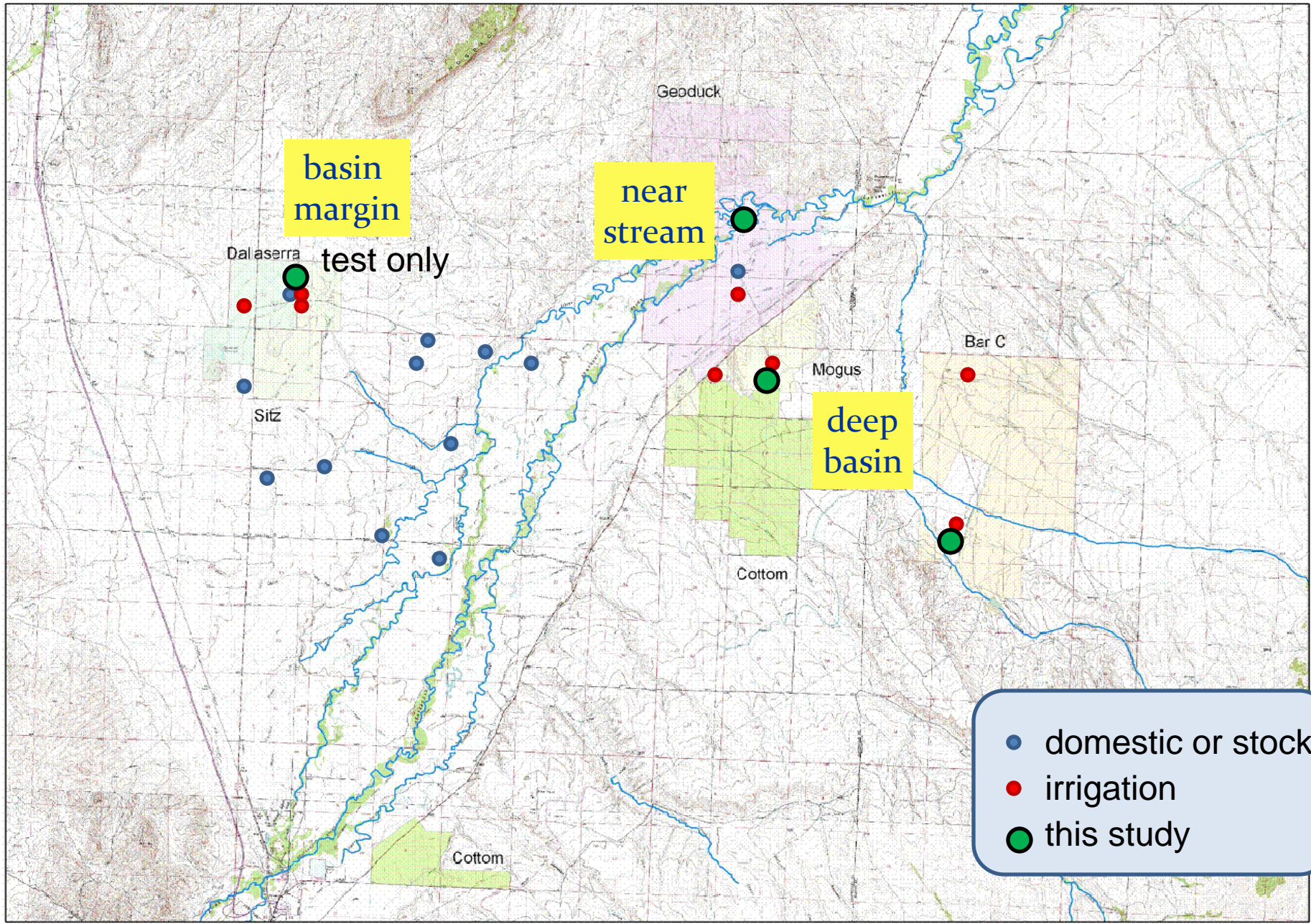
near stream

below basin

deep basin

basin margin





basin margin

near stream

deep basin

test only

- domestic or stock
- irrigation
- this study

0 5 Miles



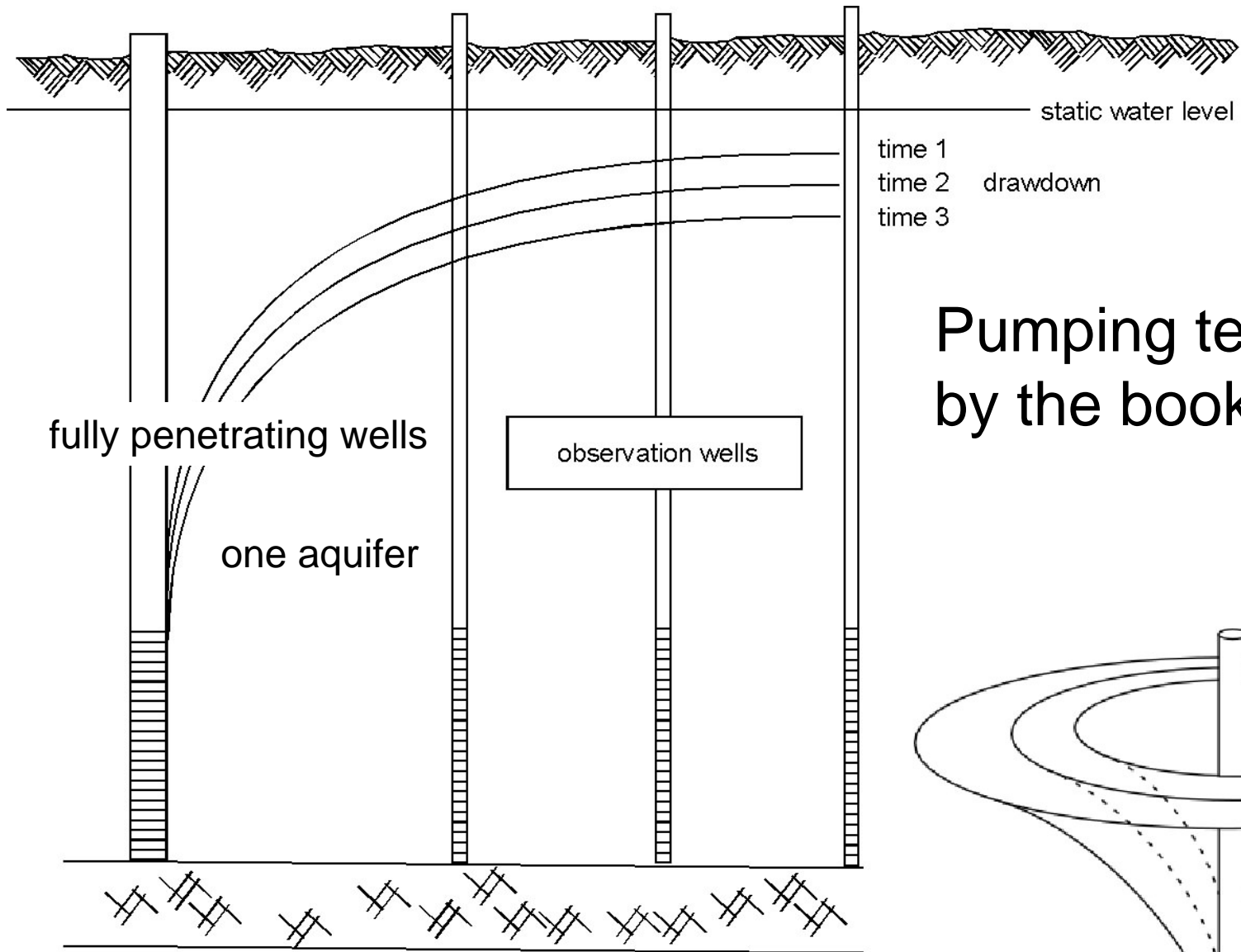


## Pumping Test Objectives:

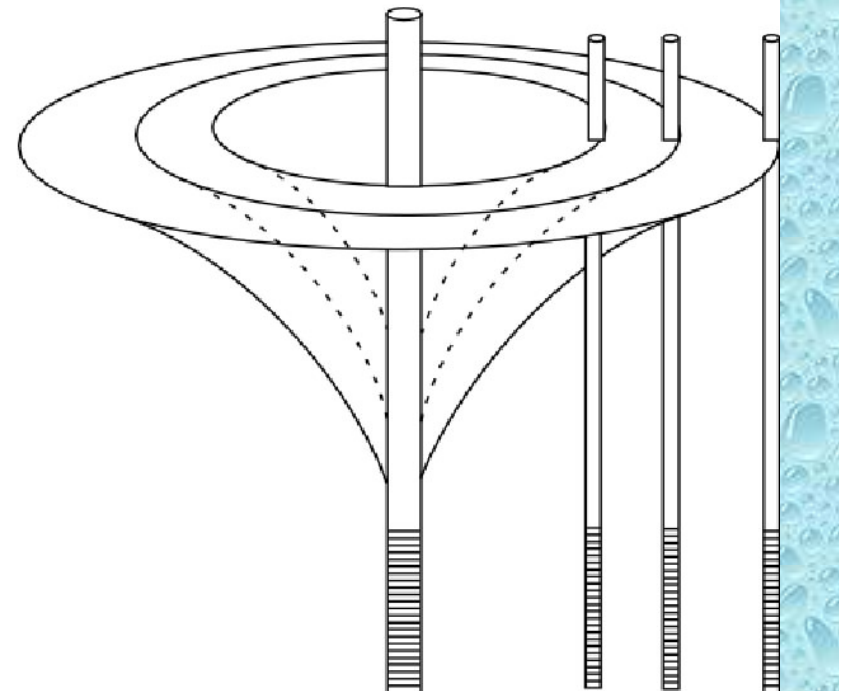
“measure” aquifer properties at  
near stream  
deep basin  
basin margin

observe/evaluate response in multiple aquifers

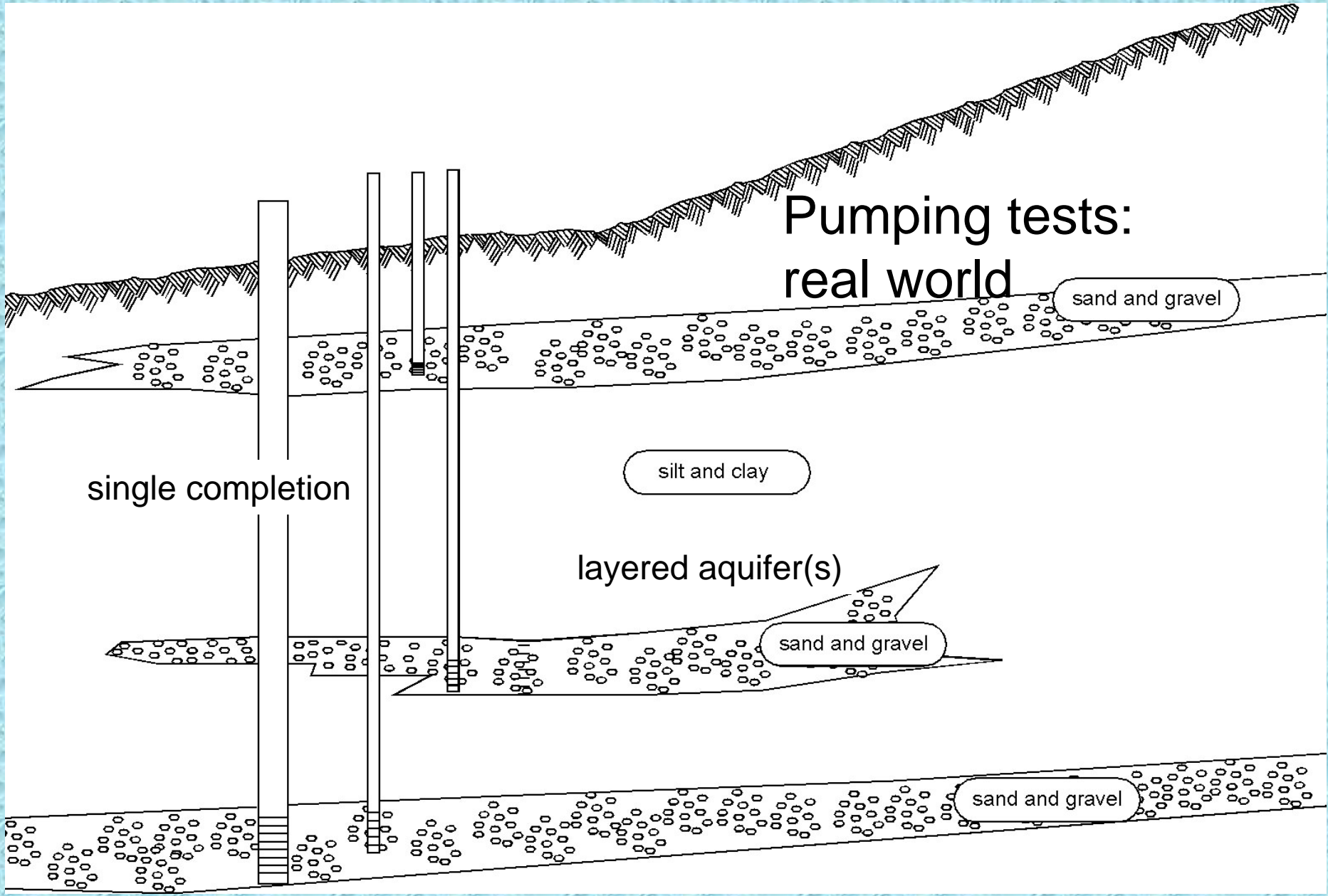
observe/evaluate response in multi-completion wells



## Pumping tests: by the book



# Pumping tests: real world



single completion

silt and clay

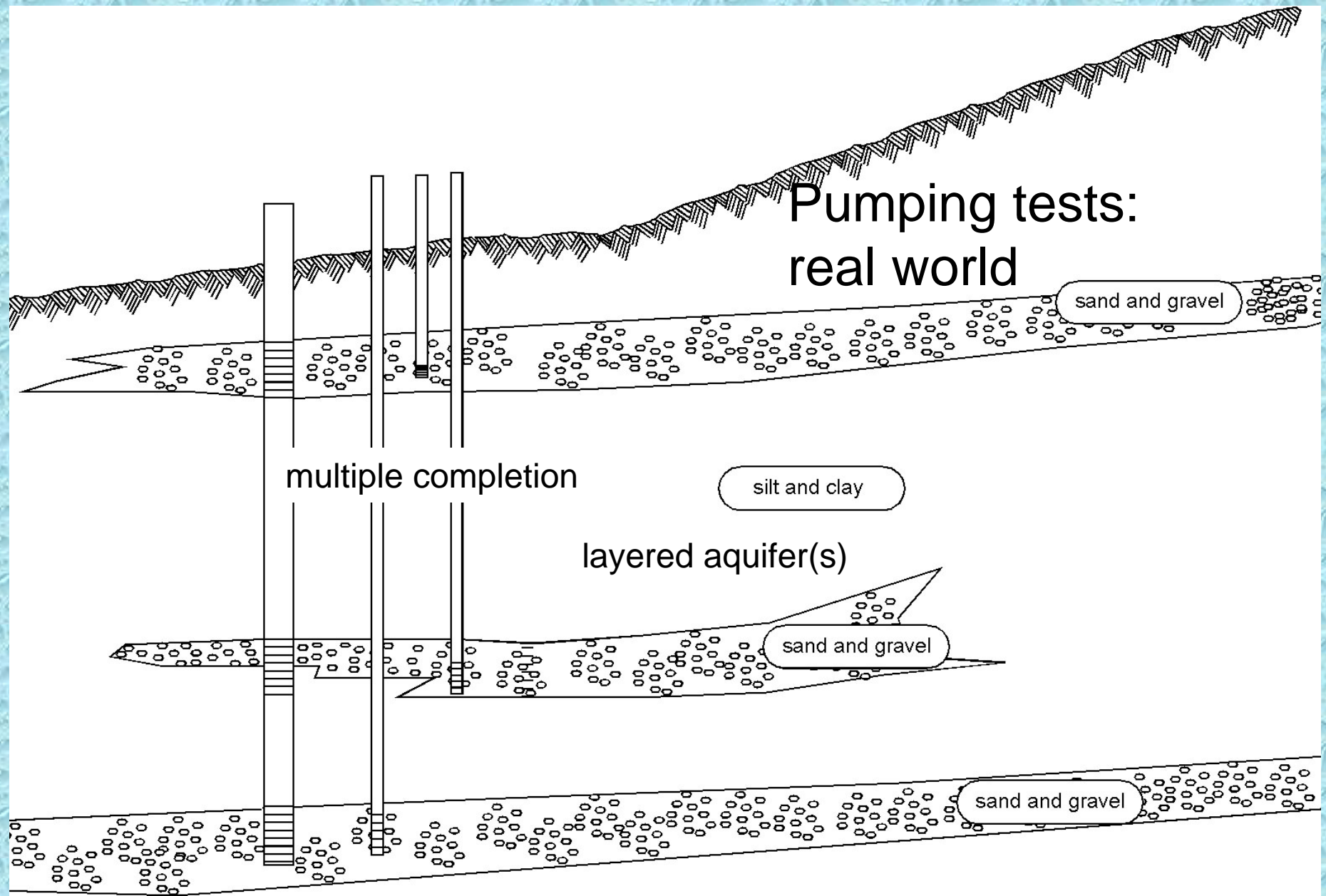
layered aquifer(s)

sand and gravel

sand and gravel

sand and gravel

# Pumping tests: real world



multiple completion

silt and clay

layered aquifer(s)

sand and gravel

sand and gravel

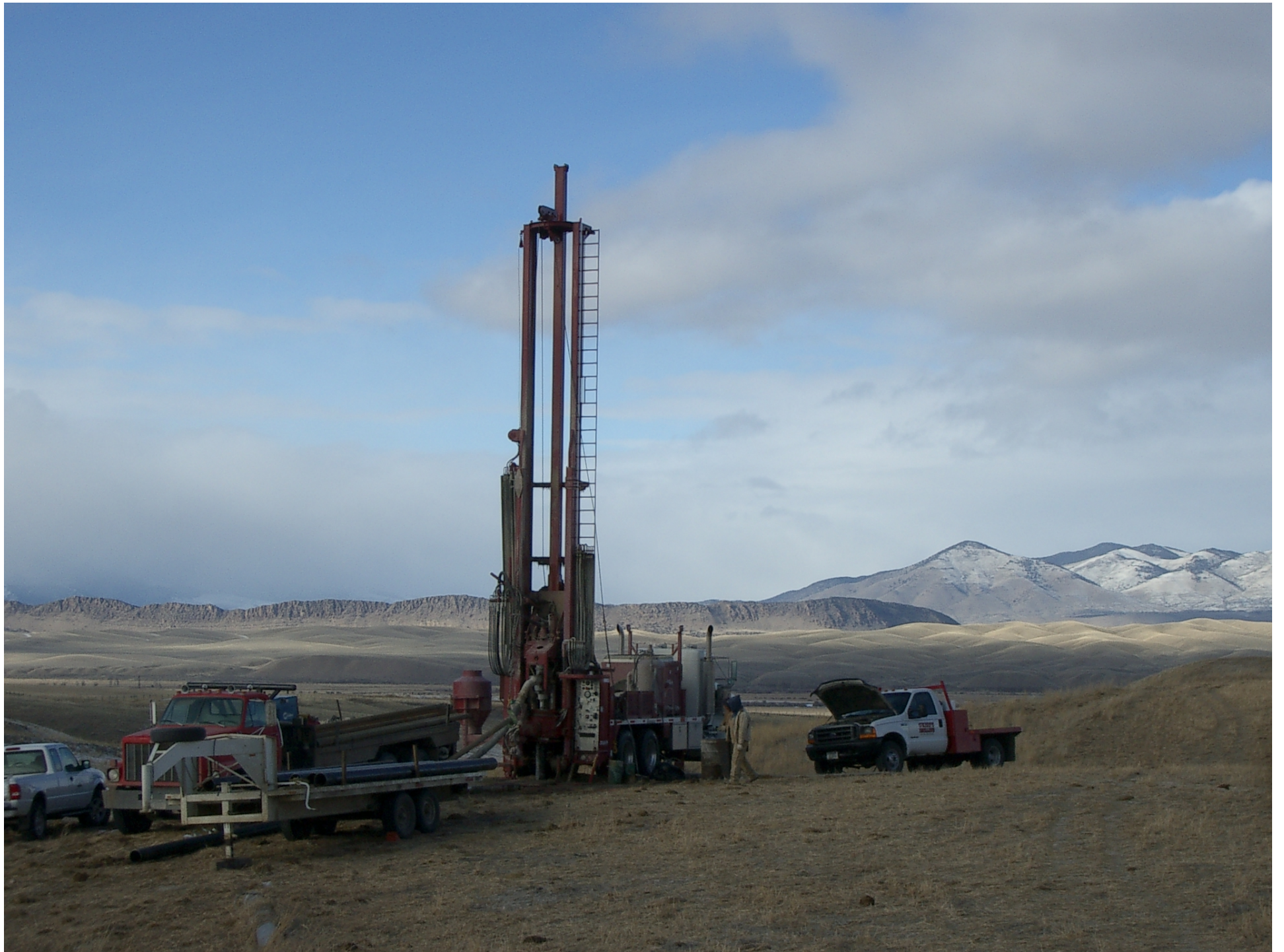
sand and gravel



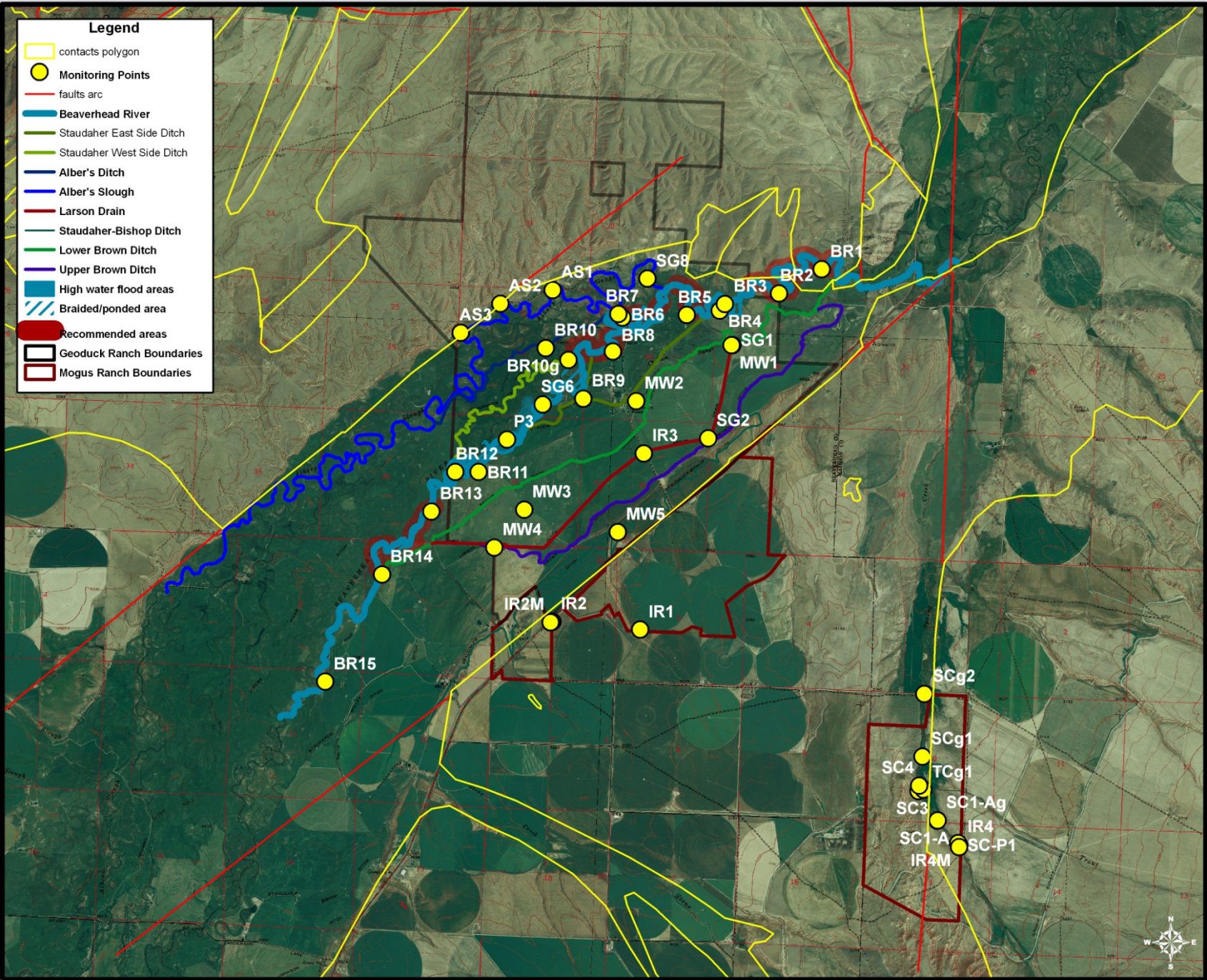
- ✓ Develop work plan  
case study  
report(s)

### Case Study

- ✓ review permits
- ✓ select field site(s)
- ✓ compile existing data
- ✓ develop conceptual model(s)
- ✓ design field experiment(s)
- collect / compile data
  - water levels
  - aquifer tests
  - chemistry
- revise (?) conceptual/mathematical model
- report of case studies  
(Beaverhead, West Gallatin, Gallatin)
- report to WPIC committee (including case studies)







**Legend**

- contacts polygon
- Monitoring Points
- faults arc
- Beaverhead River
- Staudaher East Side Ditch
- Staudaher West Side Ditch
- Alber's Ditch
- Alber's Slough
- Larson Drain
- Staudaher-Bishop Ditch
- Lower Brown Ditch
- Upper Brown Ditch
- High water flood areas
- Braided/ponded area
- Recommended areas
- Geoduck Ranch Boundaries
- Mogus Ranch Boundaries

