"Administrative Considerations for the Future of Water Management in the Eastern Snake Plain Aquifer, Idaho"

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September 13, 2010
Prediction...

Relative to water delivery in Idaho...

*Change*

is coming
between now and 2020
Outline

- Water administration basics
- Evolution of surface water management in Idaho
- Evolution of ground water management in Idaho
- Implementation of conjunctive administration in the Eastern Snake Plain Aquifer
- Rapid advances in technology
- Thoughts about recharge
In Idaho the *appropriation doctrine* is used for the delivery both surface water rights and ground water rights—

“first in time is first in right”
Administered by a State of Idaho Water District which hires a Watermaster.

Mr. Black
Irrigation of
60 acres
1.2 cfs
6/17/1887

Mrs. Adams
Irrigation of
50 acres
1.0 cfs
6/16/1887

Mrs. Clark
Irrigation of
500 acres
10.0 cfs
6/16/1982

1 miner’s inch = .02 cubic feet per second = 9 gallons per minute
Surface Water Evolutionary Cycle – Snake River

- Initial Diversions – 1860’s
- Initial Decrees – Turn of the century
- Initial Water District – 1920’s
- Addition of Storage – 1900’s – 1950’s
- Instream Requirements – 1980’s
- Rental Pool – 1990’s
Ground Water Evolutionary Cycle – ESPA

- Initial Domestic Wells – 1860’s
- Initial Municipal Wells – 1890’s
- Initial Irrigation Wells – 1940’s
- Surge of Supplemental Wells – 1977
Implementation of Conjunctive Administration
Problem

Water deliveries must consider connections between ground water and surface water (conjunctive administration) if fair delivery is to be achieved.
Additional Drivers of Change

- Increased efficiencies of irrigation have led to reduced deep percolation
- Increasing urbanization
- Increased recognition of instream values
- Water needs for energy production
- Impacts of climate change?
- A need to coordinate land use planning with water use planning
Implementation of Conjunctive Administration

All but a few recommendations resolved

Recommended water rights in ESPA

Snake River Basin Adjudication initiated in 1987

Creation of water rights from surface water and ground water

ESPA is the first aquifer in the state To undergo post-SRBA Implementation of Conjunctive Administration
Eastern Snake Plain Aquifer Experience
Will state cut off water Friday?

SHORTAGE

Water supply evaporating

Water dispute hangs over irrigation season

Dairies receive well curtailment notices

Cuts in water hit cities

Water board, others tour Minidoka Dam on eve of study to solve state’s water shortage

Studies say climate change could lead to more conflicts

Reaction mixed to latest IDWR order

16,600 acres could lose water
Advances in Technology
Geographic Information Systems

Recommended Places of Use
Modeling

Ground Water Interface with Ground Water Models

Figure 1.1 Simplified schematization of the MIKE BASIN model network
Idaho Water Engineering, LLC
MIKE BASIN Model Data Sets

Legend:
- Free from Internet
- Acquired from Literature
- Acquired from Blaine County with non-sharing agreement
- Shared by IWE
- Proprietary at IWE – not shared

GIS Layers From IDWR – Assembled
Streamflow Information from USGS – Assembled
Water Rights Info POD, POU, etc From IDWR – Assembled
Blaine County Land Use Info – Fall 2009
Existing Reports And Literature – Fall 2009

Historic Transfers – Winter 2009
Private Water Right Assessments – Ongoing

Watermaster Records – Winter 2009
Field Investigations Of Streams and Diversions Photos, GPS – Ongoing
Flow Measurements, Certified by USGS And coordinated With IDWR – Ongoing
Predicted Impacts From Ground Water – Winter 2009

County Property Ownerrships -- Assembled
Streamflow Measurement
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Gaging Stations
Recharge
Basalt in drainage channel after the wetting front from Egin Lakes outlet