



Groundwater Model Development for the Treasure Valley

Presented to the Southwest Idaho Ground Water Quality Forum
by Sean Vincent, P.G.

February 19, 2020



Overview

- What are we doing?
- Why are we doing it?
- Who is doing the work?
- How long will it take?
- Pass the baton

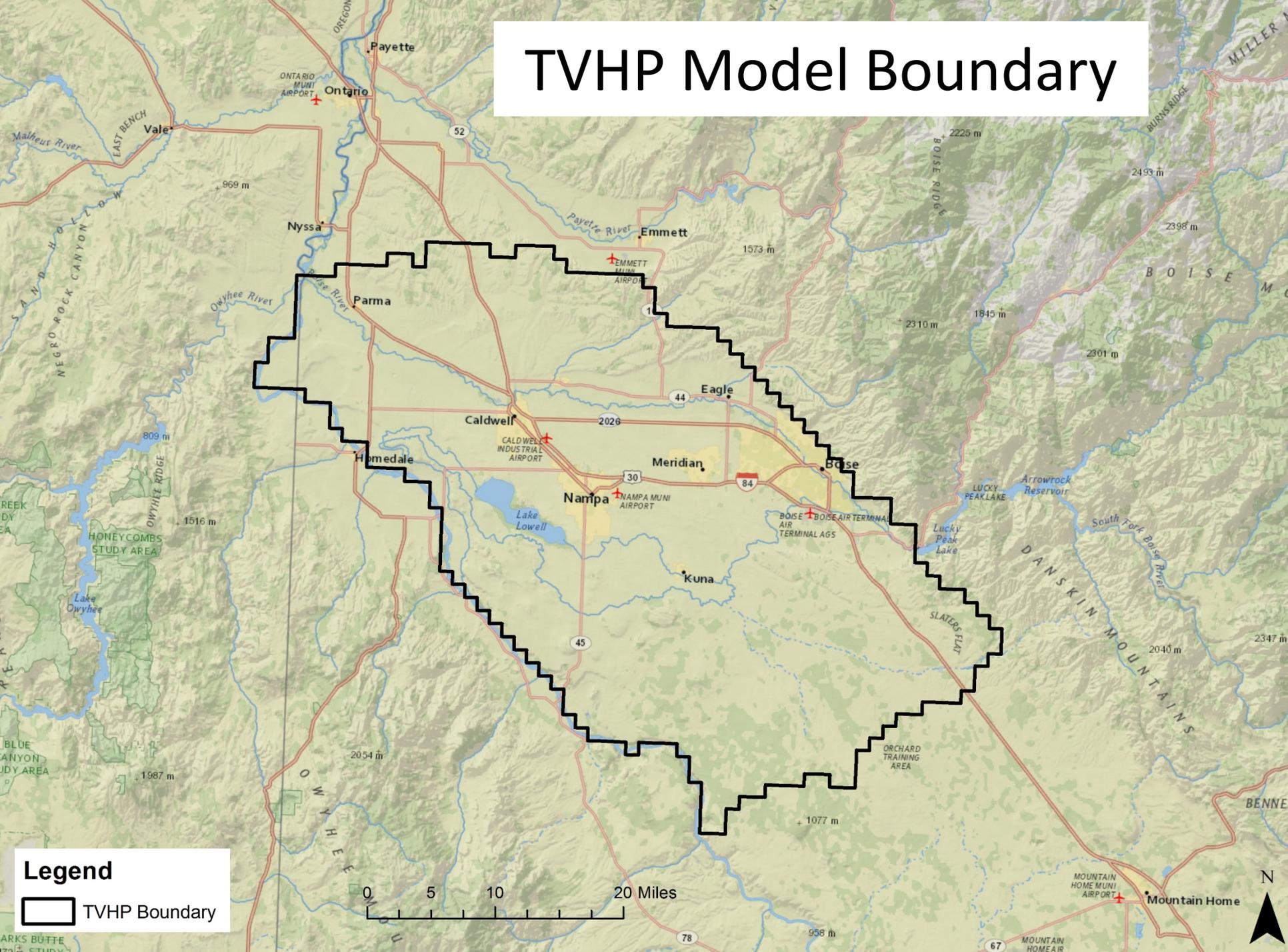
Model Development



What are we doing?

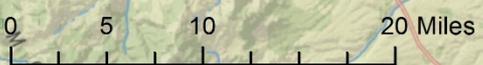
- Developing transient groundwater flow model
 - Builds on previous TVHP modeling effort

TVHP Model Boundary

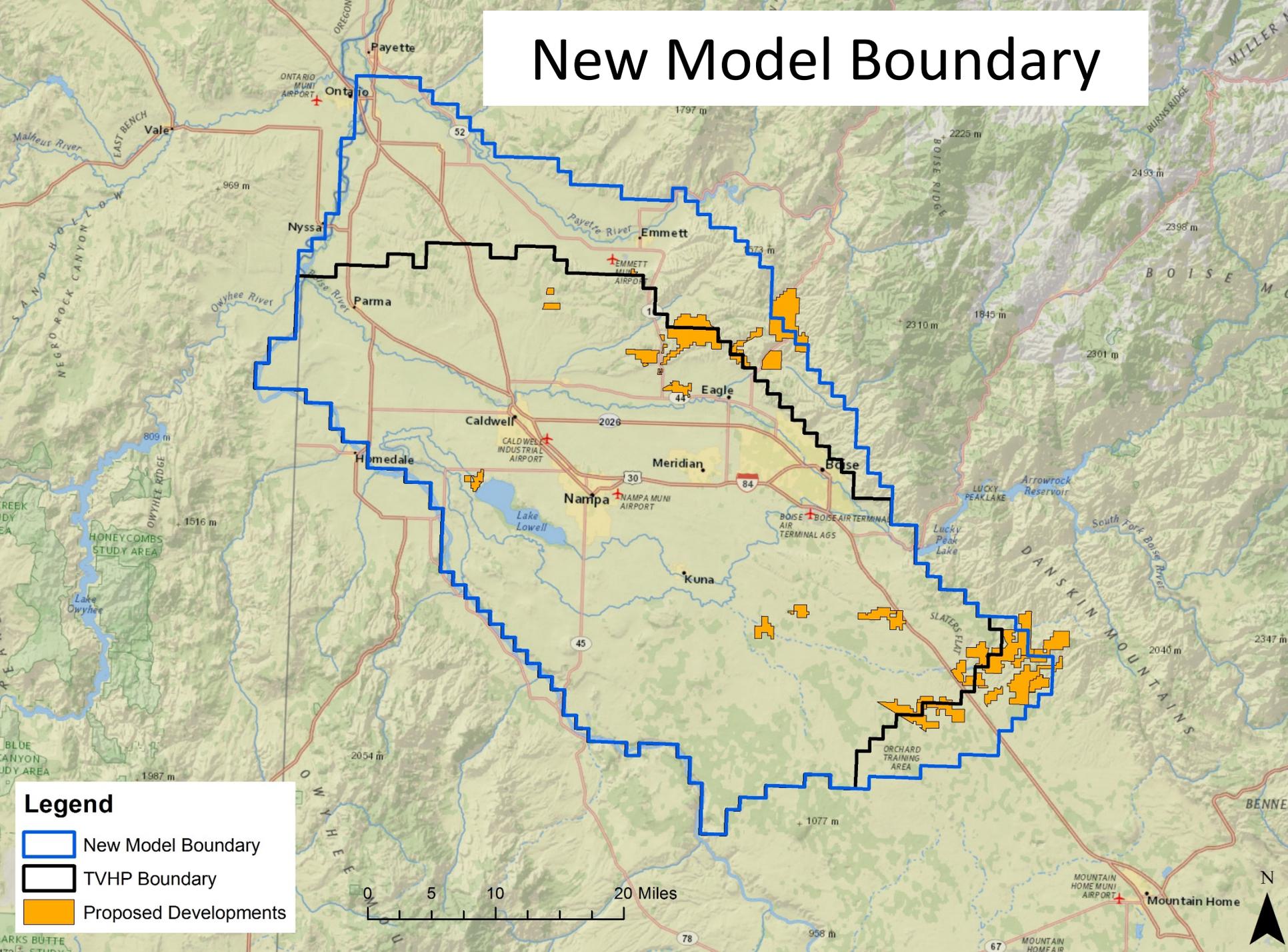


Legend

□ TVHP Boundary

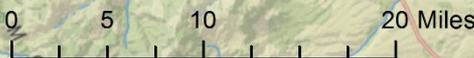


New Model Boundary



Legend

-  New Model Boundary
-  TVHP Boundary
-  Proposed Developments



What are we doing?

- Developing transient groundwater flow model
 - Builds on previous TVHP modeling effort
- Not a contaminant transport model but could be adapted for that purpose

Why build a groundwater flow model?

- Great way to integrate hydrologic and hydrogeologic data
- Tool for decision-making
 - Used to answer what-if questions (water management)

*HYDROLOGIC IMPLICATIONS OF
CONTINUED DROUGHT AND
POTENTIAL RECOVERY FROM
DROUGHT
“Drought Scenario”*

February 2005

By

B. A. Contor

D. M. Cosgrove

G. S. Johnson

Idaho Water Resources Research Institute,
University of Idaho

for the

Idaho Department of Water Resources

with guidance from the

Eastern Snake Hydrologic Modeling Committee

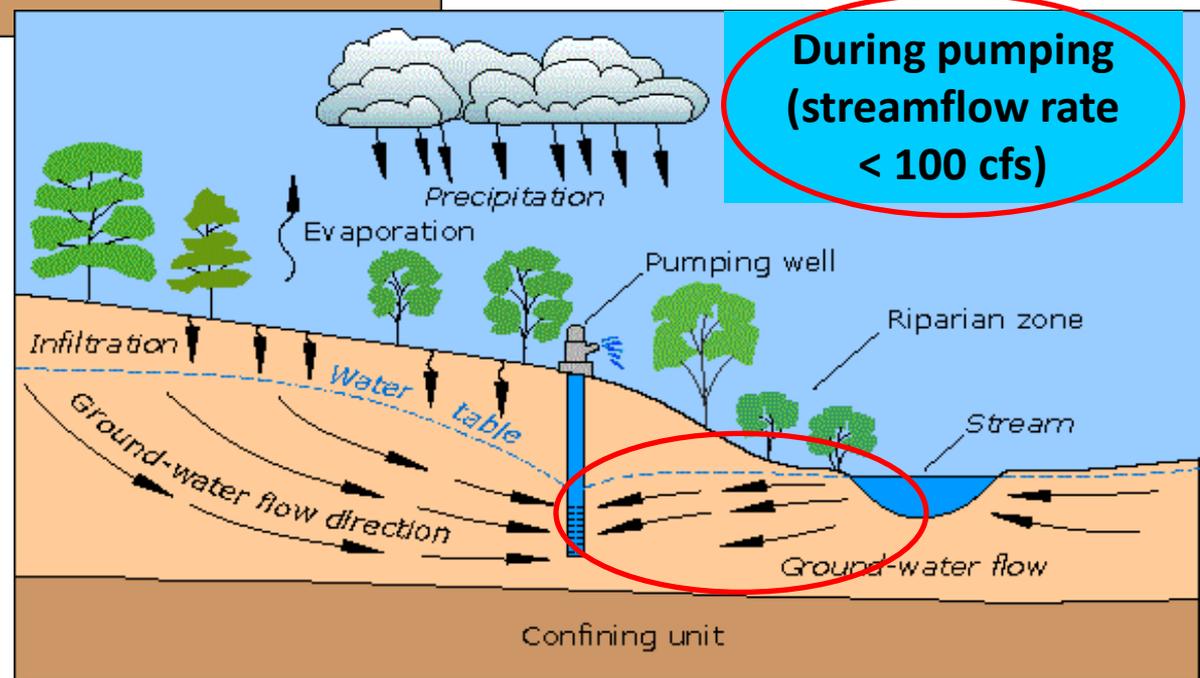
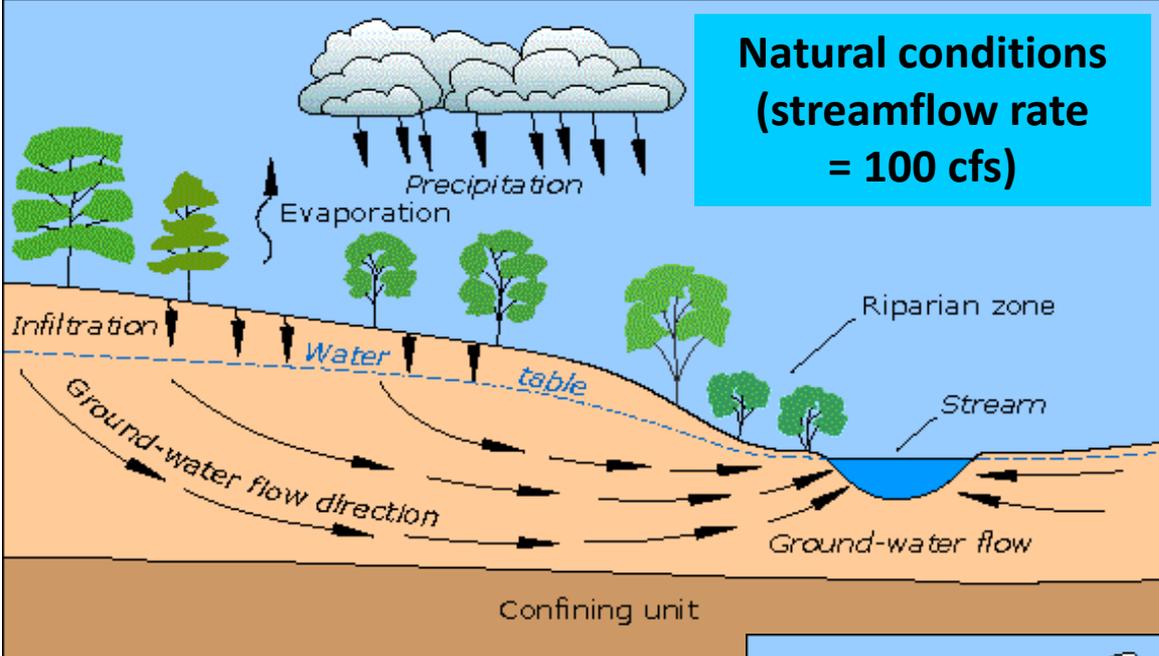
Design Document DDS-007

Idaho Water Resource Research Institute
Technical Report 05-004



Why build a model? (cont'd)

- Great way to integrate hydrologic and hydrogeologic data
- Tool for decision-making
 - Used to answer what-if questions (water management)
 - Used to quantify hydrologic impacts (water rights administration)



**Conceptual diagrams adapted from USGS Water Science School)

Why build a model? (cont'd)

- Great way to integrate hydrologic and hydrogeologic data
- Tool for decision making
 - Used to answer what if questions (water management)
 - Used to quantify hydrologic impacts (water rights administration)
- Legislative mandate

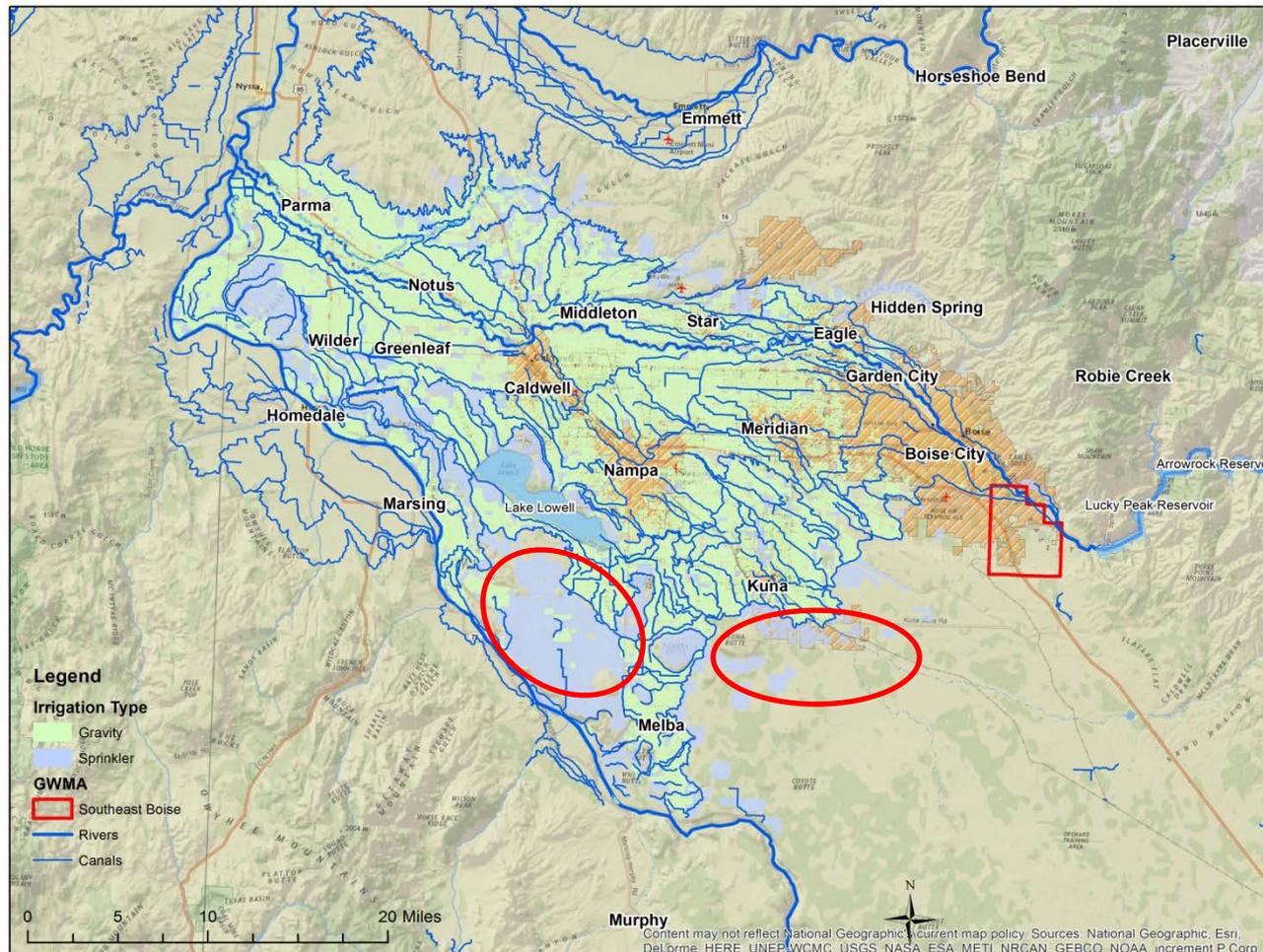
SCR #137 (signed 3/22/2016)

“A CONCURRENT RESOLUTION ...REQUESTING THAT THE IDAHO WATER RESOURCE BOARD ADDRESS STATEWIDE AQUIFER STABILIZATION AND SUSTAINABILITY...”

“BE IT FURTHER RESOLVED that the Idaho Water Resource Board conduct aquifer recharge studies and develop a ground water model, with all necessary measurement networks, for the Treasure Valley Aquifer.” (emphasis added)

Point of Clarification

- We have an effective incidental recharge system



Conceptual Water Budget

Generalized Treasure Valley Water Budget

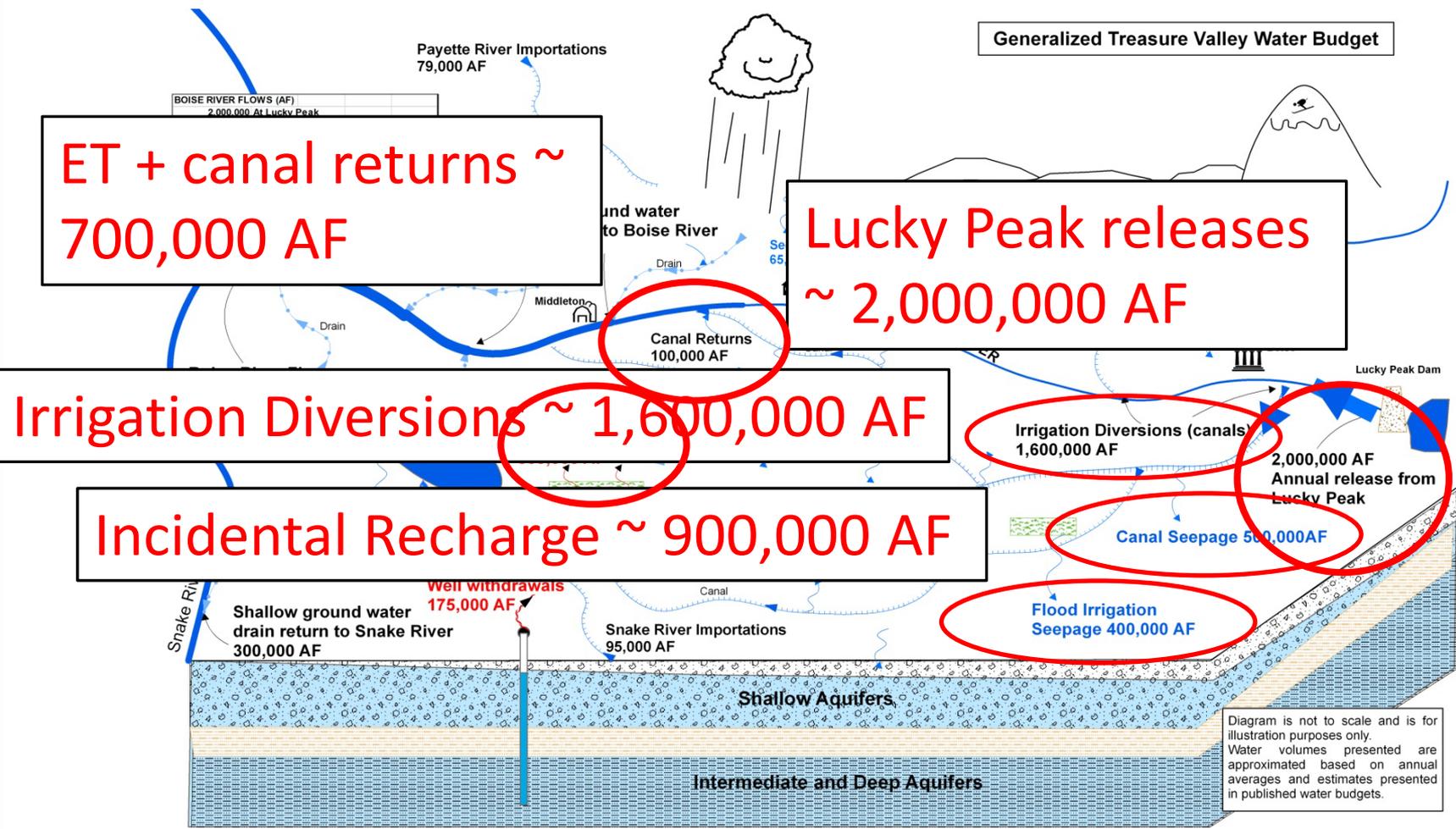


Diagram is not to scale and is for illustration purposes only. Water volumes presented are approximated based on annual averages and estimates presented in published water budgets.

Who is doing the work?

- Model development is collaboration between IDWR and USGS
 - USGS viewed as unbiased w/ reputation for quality science
 - IDWR involvement allows customization of tool for IDWR and IWRB uses
 - USGS and IDWR have history of successful collaboration

USGS/IDWR Final Reports

SVRP

WRV


science for a changing world

Prepared in cooperation with the
IDAHO DEPARTMENT OF WATER RESOURCES
WASHINGTON STATE DEPARTMENT OF ECOLOGY
UNIVERSITY OF IDAHO
WASHINGTON STATE UNIVERSITY





Ground-Water Flow Model for the Spokane Valley-Rathdrum Prairie Aquifer, Spokane County, Washington, and Bonner and Kootenai Counties, Idaho



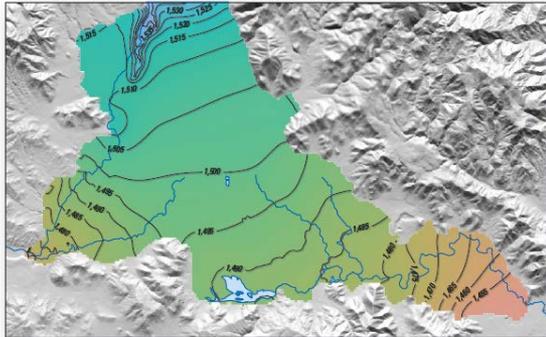
Scientific Investigations Report 2007–5044

U.S. Department of the Interior
U.S. Geological Survey


science for a changing world

Prepared in cooperation with the Idaho Department of Water Resources

Groundwater-Flow Model for the Wood River Valley Aquifer System, South-Central Idaho



Scientific Investigations Report 2016–5080

U.S. Department of the Interior
U.S. Geological Survey

Who is doing the work?

- Model development is collaboration between IDWR and USGS
 - USGS viewed as unbiased w/ reputation for quality science
 - IDWR involvement allows customization of tool for IDWR and IWRB uses
 - USGS and IDWR have history of successful collaboration
- University of Idaho also a partner
 - Develop evapotranspiration estimates and map irrigated lands
- MTAC helps guide model development
 - Meetings to solicit technical stakeholder input and provide forum for data sharing

MTAC meeting



How long will it take?

- ~5 years to complete project w/ MTAC
- 4 phases of work
 - Phase 1 project initiation (complete)
 - Phase 2 data collection = (throughout 5-yr project and beyond)
 - Phase 3 hydrogeologic framework (complete)
 - Phase 4 model development (years 1 through 5)



Acres of Irrigated Land Use for 2015

STATUS 2015



- Irrigated - 422,857 Acres
- Semi-irrigated - 193,788 Acres
- Non-irrigated - 837,519 Acres

