

ATTACHMENT G:
WATER AVAILABILITY STANDARD PRESENTATION
FEB. 29, 2012 ADVISORY GROUP MEETING

Spokane County Water Availability & Sustainability

Background Information and Problem Definition

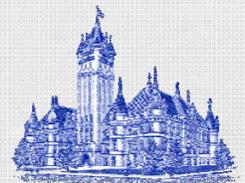


SPOKANE COUNTY
WATER RESOURCES



Water Availability & Sustainability for Land Development

- Presentation Overview
 - Problem Definition
 - Background Information
 - Physical Availability & Legal Availability
 - Water Supply and Land Use Law & Regulations
 - Hydrogeologic concepts



SPOKANE COUNTY
WATER RESOURCES

Problem Definition

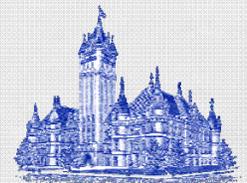
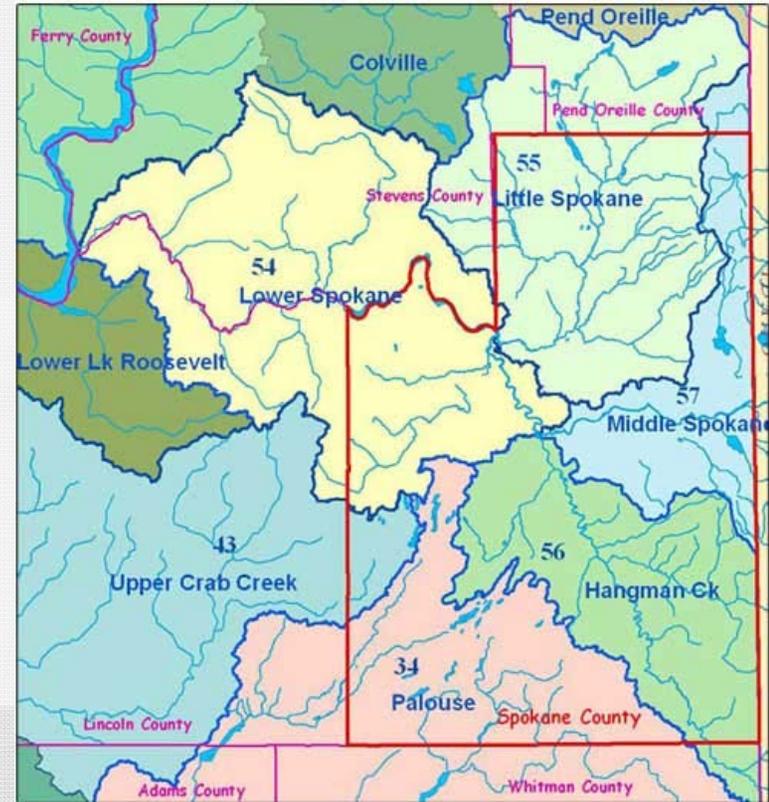
- Are there hydrogeologic investigation methodologies that can be used to evaluate water availability and sustainability for land development that are cost effective, technically sound, and legally defensible?

Background – Watershed Planning

- Issue was identified in Spokane area watershed plans.
- Project funded by Watershed Plan Implementation Grant from Department of Ecology
- Watershed Planning:
 - Watershed Planning is a process developed by the legislature and authorized by RCW 90.82
 - Purpose is for local stakeholders to develop plans that evaluate existing water supply and future water demand in a watershed, and develop a plan to meet that future demand.

Background – Watershed Planning

- Spokane County has six WRIA's
 - WRIA 57 Middle Spokane
 - WRIA 56 Hangman
 - WRIA 55 Little Spokane
 - WRIA 54 Lower Spokane
 - WRIA 34 Palouse
 - WRIA 43 Upper Crab Creek
- Water supply for rural development was identified in Watershed Plans for WRIA 55/57, 56, & 54.



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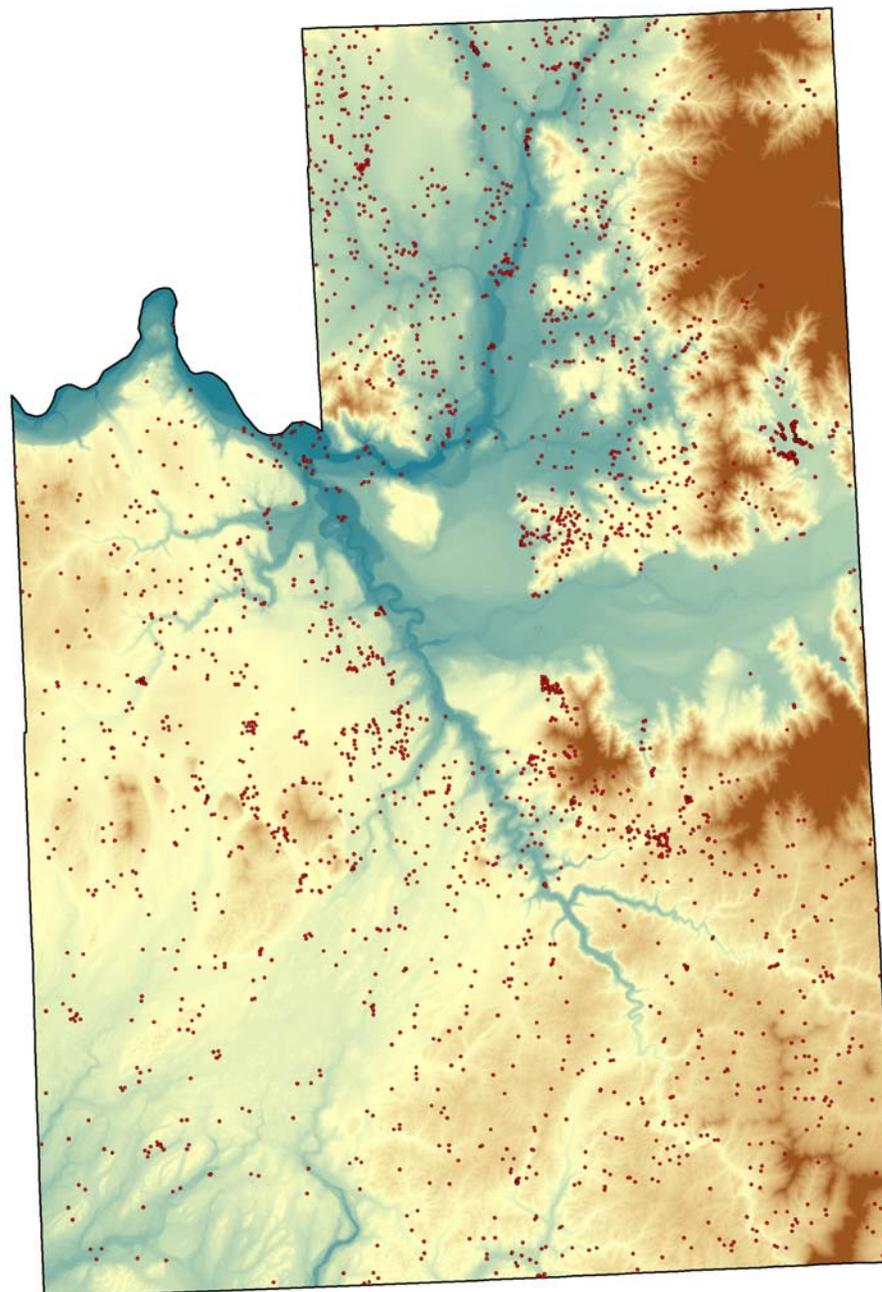
Permit Exempt Wells

- Permit exempt wells are used for rural development outside water service areas
- RCW 90.44.050 – After June 6, 1945 no withdrawal of public groundwaters of the state shall be begun, nor shall any well or other works for such withdrawal be constructed, unless an application to appropriate such waters has been made to the department and a permit has been granted. EXCEPT, HOWEVER...

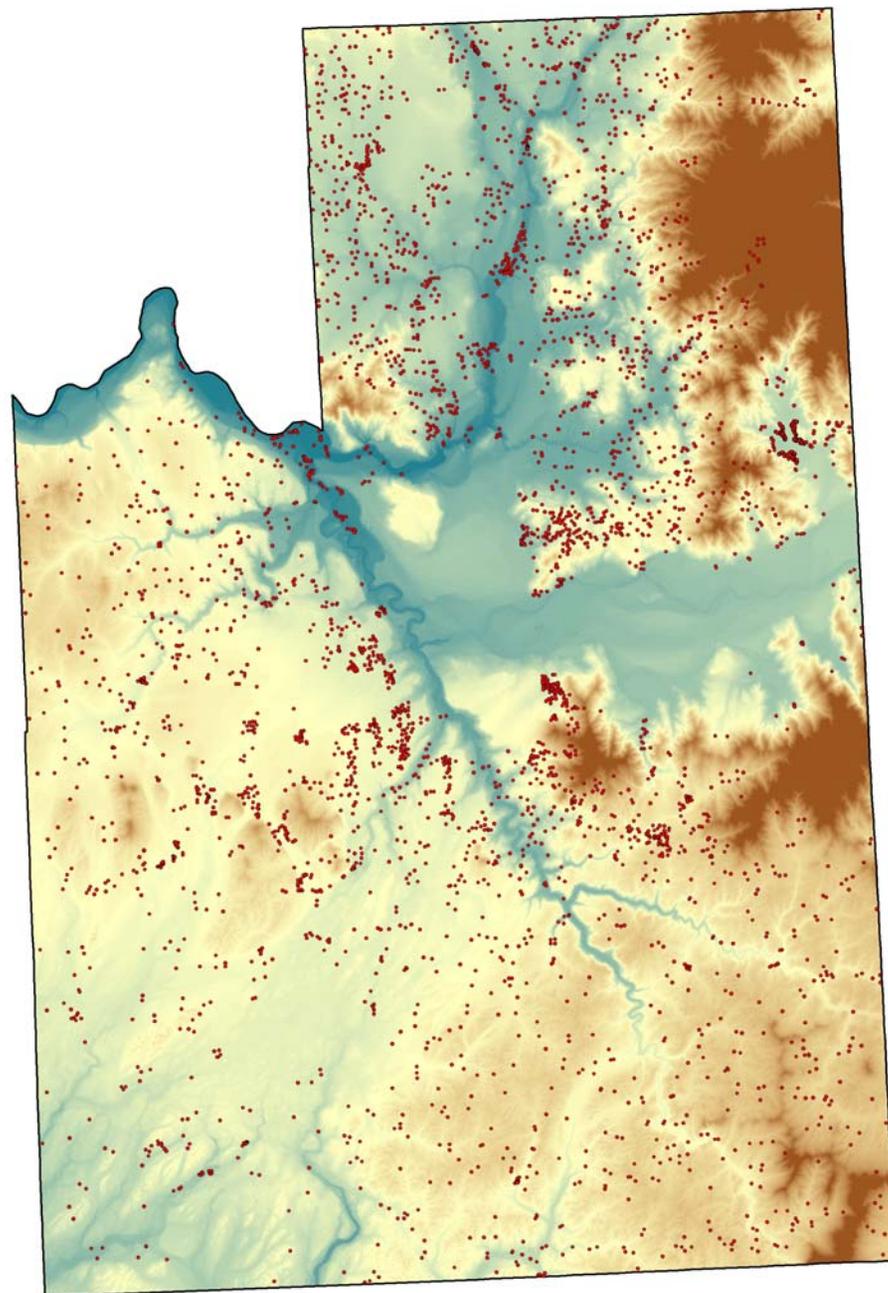
Permit Exempt Wells

- Withdrawals for the following are exempt:
 - Stock-watering
 - Watering a lawn or noncommercial garden not exceeding one-half acre in area
 - Single or group domestic uses in an amount not exceeding 5000 gallons per day
 - Industrial purposes in an amount not exceeding 5000 gallons per day
- Exempt from permit, but not prior appropriation doctrine:
 - First in time is first in right
 - Use it or lose it

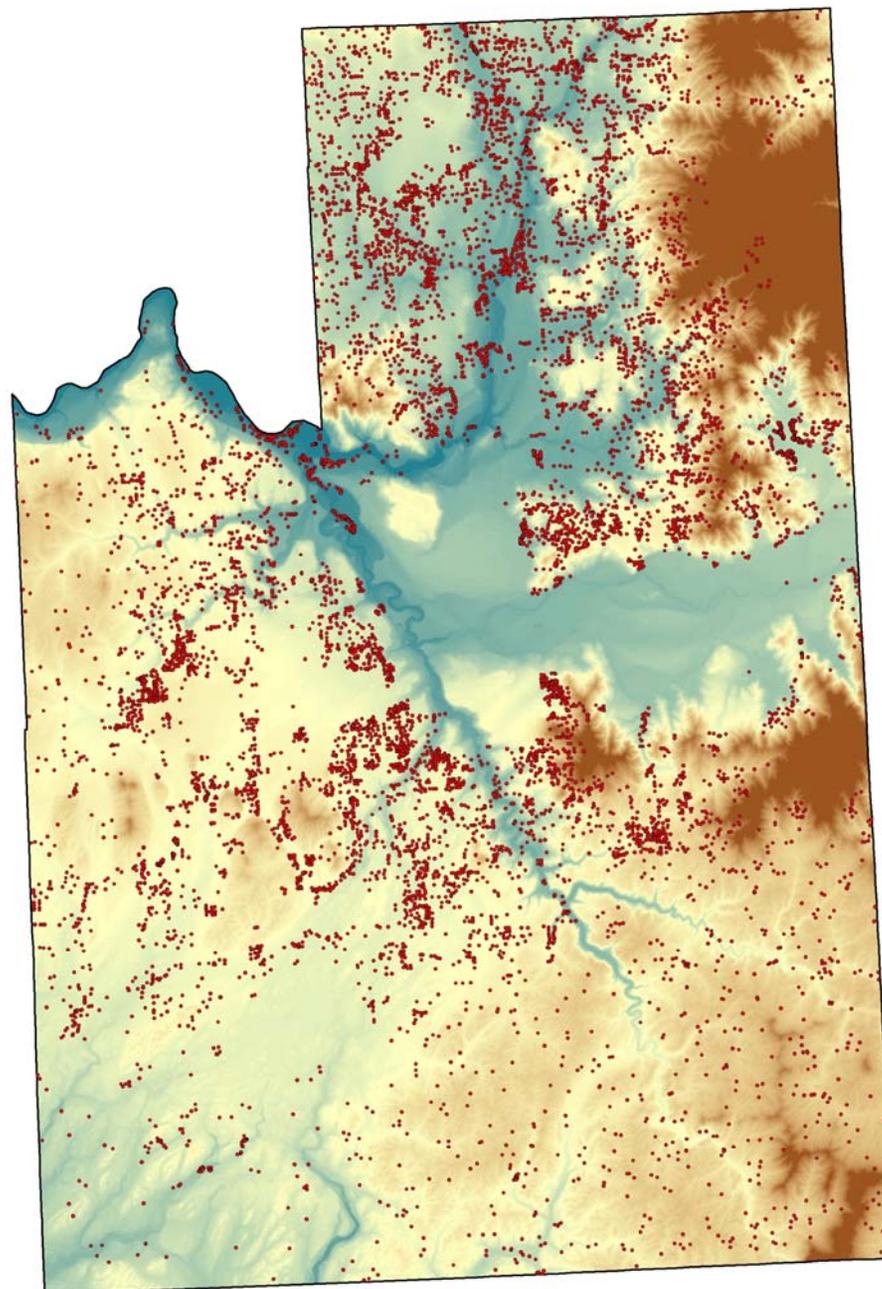
Estimated Permit Exempt Wells - 1945



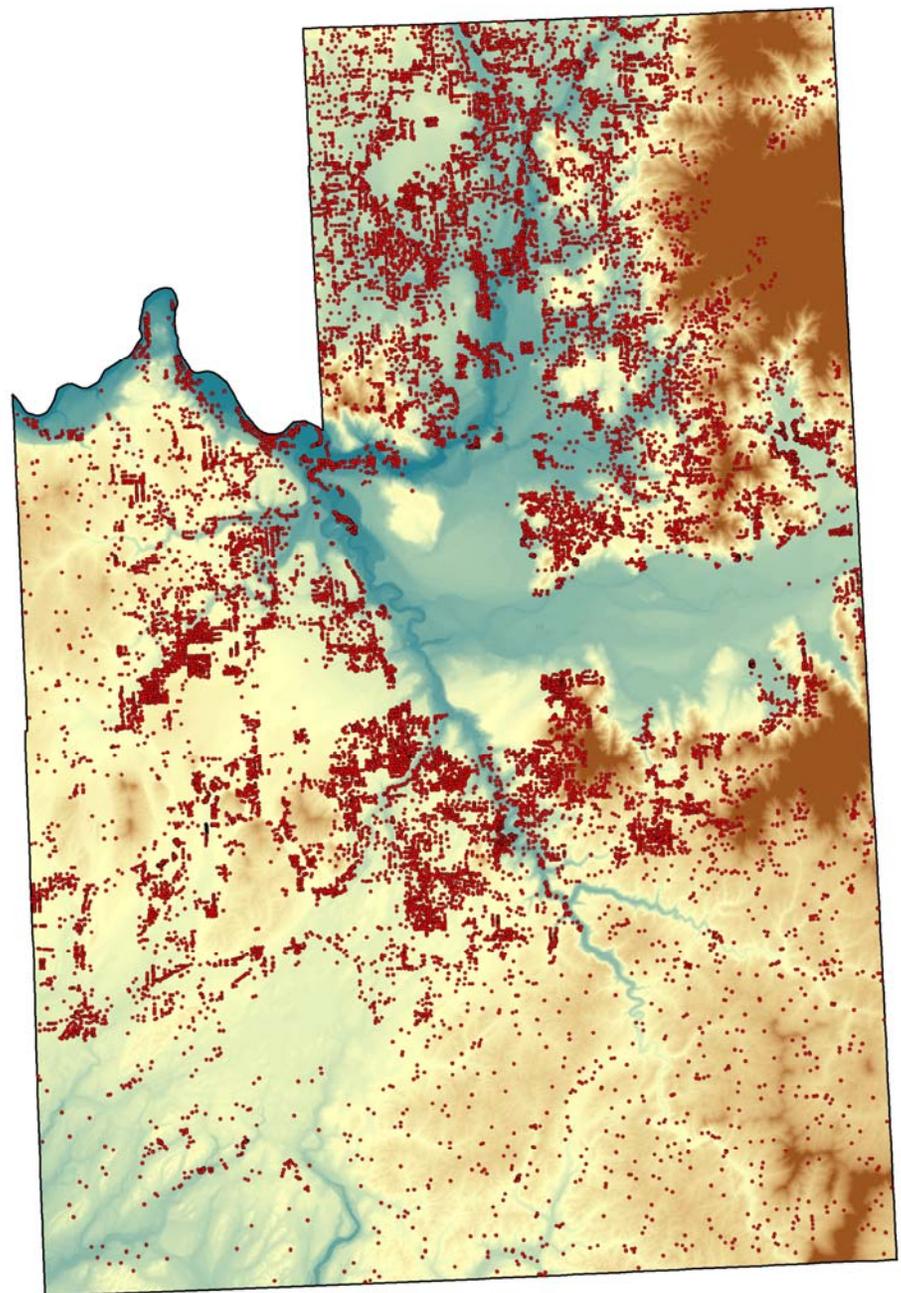
Estimated Permit Exempt Wells - 1965



Estimated Permit Exempt Wells - 1985



Estimated Permit Exempt Wells - 2011



Legal Availability vs. Physical Availability

- Legal Availability – The right to use water
- Physical Availability – Is there any water to use
- The focus of this project is physical availability.

Legal Availability vs. Physical Availability

- Legal availability and exempt wells is a significant statewide issue.
 - Prior to 2002 permit exemption was often interpreted to mean
 - one lot, one exemption
 - 2002 Supreme Court Decision - Campbell & Gwinn –
 - one development, one exemption
 - Other issues as well
 - stockwatering

Legal Availability vs. Physical Availability

- Kittitas County

- Permit exempt wells still subject to water law
- Petition to close basin to permit exempt wells based on impairment to senior water rights and instream flows
 - Instream flow like a water right for a stream
- Currently no new permit exempt wells that are not mitigated
 - Mitigated: no new net water use, often purchase of a portion of an existing water right

- Spokane County – Little Spokane Basin

- Instream flow adopted in 1976
- 1976 to 2009 junior water rights interrupted in 21 years due to low stream flow

Water Supply and Land Use Law & Regulations

- RCW 36.70A Growth Management
- Spokane County Comprehensive Plan
- RCW 58.17 Plat-Subdivisions-Dedications
- RCW 19.27 State Building Code

Water Supply and Land Use Law & Regulations

- RCW 36.70A Growth Management
 - The following goals are not listed in order of priority and shall be used exclusively for the purpose of guiding the development of comprehensive plans and development regulations:
 - (10) Environment. Protect the environment and enhance the state's high quality of life, including air and water quality, and the ***availability of water***.

Water Supply and Land Use Law & Regulations

- Spokane County Comprehensive Plan
 - Goal NE.18 Secure adequate water quantity for the residents of Spokane County
 - NE.18.1 Manage surface- and ground- waters throughout the county to stay within recharge capabilities.
 - NE.18.2 Define the limits of all aquifers in Spokane County, together with their primary source of recharge, as soon as possible.
 - NE.18.3 Identify and map those aquifers, if any, from which annual withdrawals exceed annual water recharge and implement density control limitations, water importation or other means to prevent further depletion of the water resource.

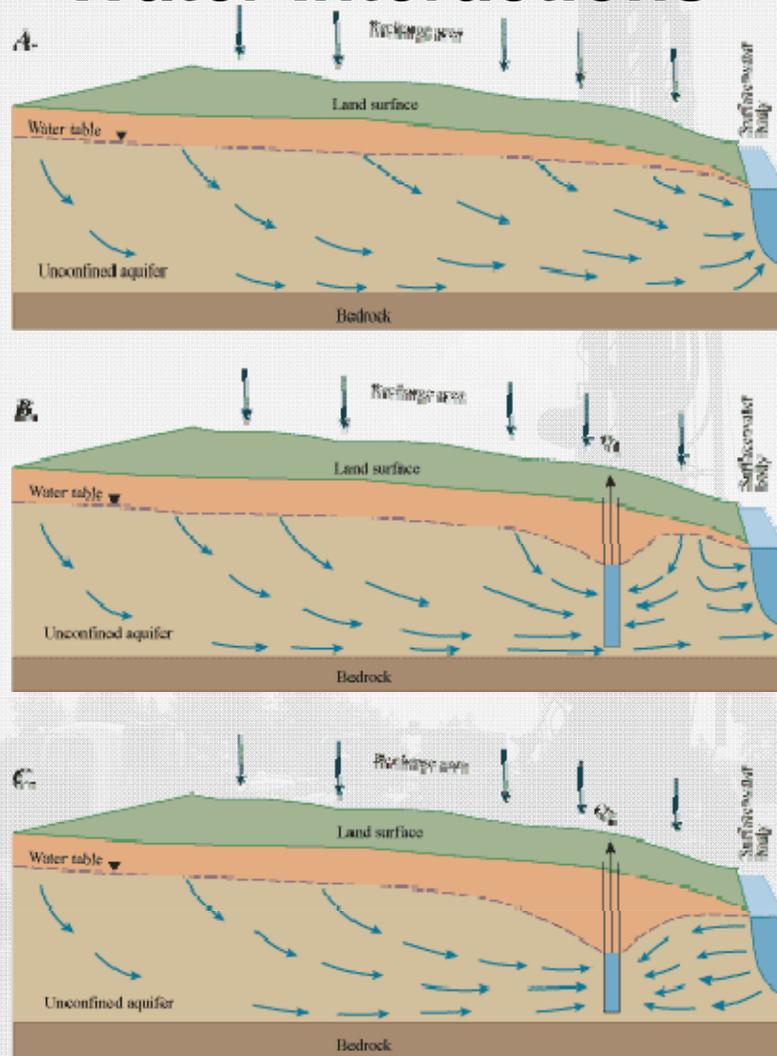
Water Supply and Land Use Law & Regulations

- RCW 58.17 Plat-Subdivisions-Dedications
 - (1) (a) **If appropriate provisions are made for**, but not limited to, the public health, safety, and general welfare, for open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, **potable water supplies**, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, and shall consider all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school

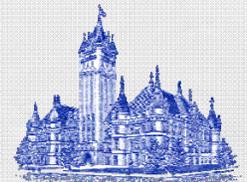
Water Supply and Land Use Law & Regulations

- RCW 19.27 State Building Code
 - Each applicant for a building permit of a building necessitating potable water shall provide evidence of an adequate water supply for the intended use of the building. Evidence may be in the form of a water right permit from the department of ecology, a letter from an approved water purveyor stating the ability to provide water, ***or another form sufficient to verify the existence of an adequate water supply.***

Hydrogeologic Concepts: Groundwater/Surface Water Interactions



Schematic diagrams illustrating



Hydrogeologic Concepts - Well Interference

Home owner A – house built 1970

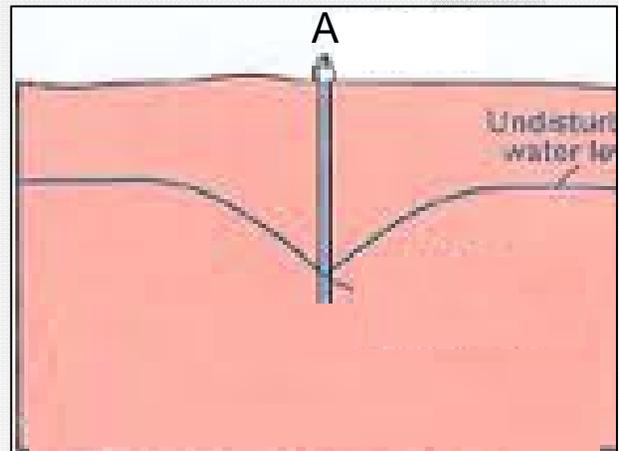
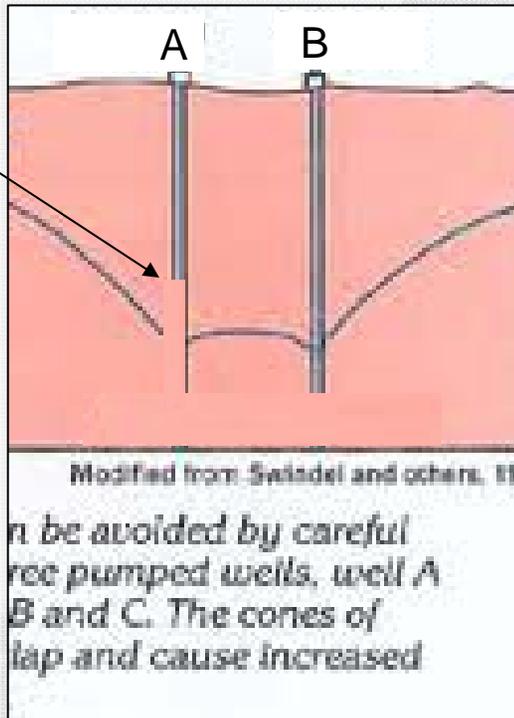


Figure 101. Well interference design and spacing of wells. If the well is properly spaced in relation to wells B and C, the drawdown or decreased yield or both will be minimized.

Hydrogeologic Concepts - Well Interference

Homeowner B builds house in 2005

Homeowner A
now needs to
deepen their well



Hydrogeologic Concepts – Seasonal Fluctuation

Well Drilled in late
May/early June

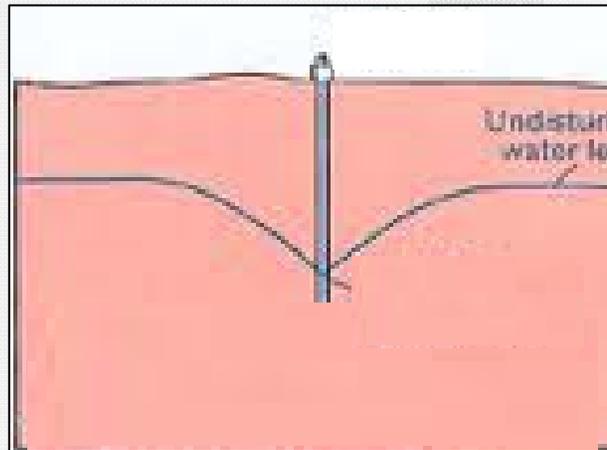
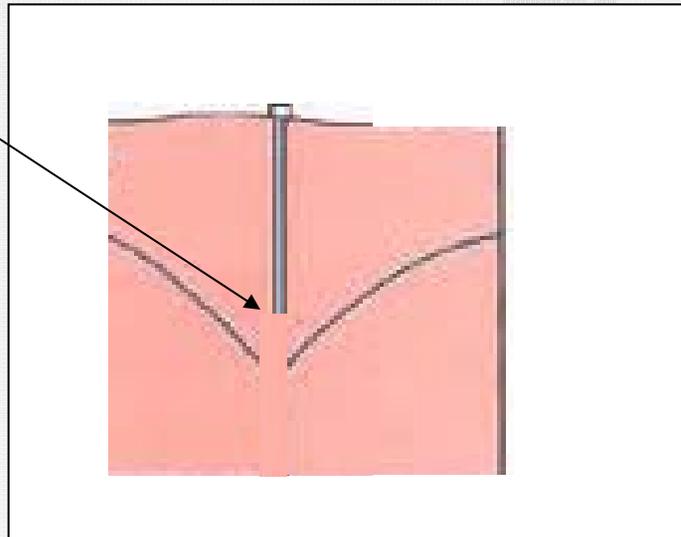


Figure 101. Well interference design and spacing of wells. Of the is properly spaced in relation to we depression around wells B and C of drawdown or decreased yield or bo

Hydrogeologic Concepts – Seasonal Fluctuation

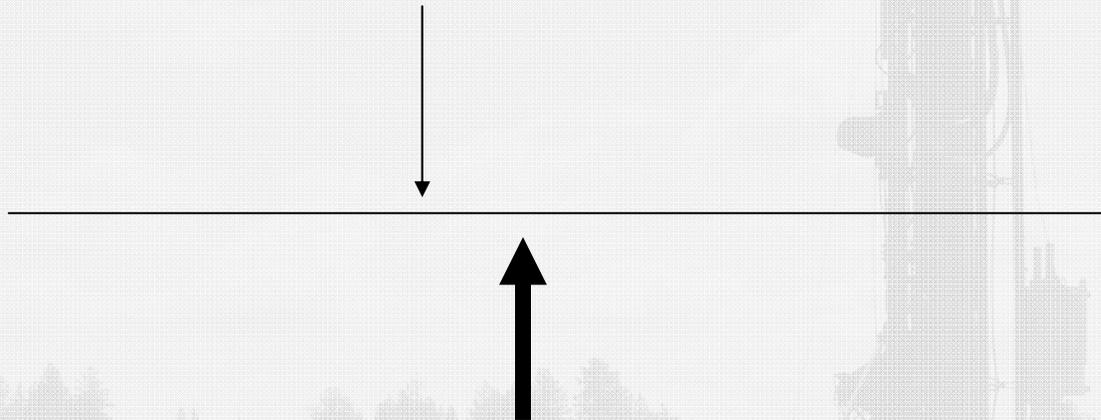
Late August/Early
September

Well is not deep
enough



Hydrogeologic Concepts – Aquifer Mining

- Withdrawal is larger than recharge



Project Challenges

- Hydrogeologic systems are:
 - Complex
 - Where does the recharge come from?
 - What are the boundaries of an aquifer system?
 - What are the aquifer hydraulic properties?
 - Are there multiple layers?
 - What are the connections?
 - Dynamic
 - Seasonal
 - Year to year
 - Expensive to study
 - Drilling
 - Aquifer tests/pump tests

What do we have to work with

- Some drilling often associated with project
- Regional studies
 - USGS
 - Spokane Valley Rathdrum Prairie Aquifer
 - Little Spokane River Basin Study
 - EWU Masters Theses
 - West Plains
 - North Spokane Aquifer
 - Watershed Planning Studies
 - Spokane Conservation District Studies
 - Latah Watershed Groundwater Study
 - Spokane County Studies
 - Deer Park Ground Water Study
 - West Plains Study
- Ecology Well Log Database

Current Standards

- A private well is to be developed for each unimproved lot
 - Constructed by a licensed well driller
 - 4 hour pump test showing the well produces 1440 gallons per day (1 GPM)
 - Analyze water sample for coliform and nitrate

Current Standards

- Report from geohydrologist
 - Completed by a person meeting the qualification of an Ecology geohydrologist II
 - Description of geological formation(s) which are adequate to provide potable water
 - Well construction requirements
 - One representative well for each formation
 - Coliform and nitrate test results
 - Four hour pump test
 - Well log analysis
 - A statement on the adequacy under present conditions in regards to sufficient recharge to this plat and the surrounding area on the same water bearing formation. This will be based on existing well logs and other information as required to make a determination of adequacy or recharge



Deviations from Current Standards

- Language from a plat-
 - The sponsor or lot owner shall present evidence (via a 24 hour pumping report) prior to issuance of a building permit that a well on each lot is capable of producing 5 gallons per minute
 - Notice to lot owners: Limited groundwater may exist