Hydraulic Continuity in Washington Water Law

University of Idaho School of Law
One Source Symposium, April 15, 2011
Source of Water Derived From Wells

From Heath, 1983
Longstanding recognition of “hydraulic continuity” in Washington statutes
Groundwater Code of 1945

• RCW 90.44.060 (1945)
  – To the extent any groundwater is part of or tributary to any surface stream or lake, or that the withdrawal of groundwater may affect the flow of any surface water body, the right of the surface water appropriator shall be superior to any subsequent right hereby authorized to be acquired in or to groundwater.

• First in time principles apply to groundwater rights
Water Resource Act of 1971

• Water Resources Act of 1971
• RCW 90.54.020(9)
  – Full recognition shall be given in the administration of water allocation and use programs to the natural interrelationships of surface and ground-waters
• RCW 90.54.020(3)
  – Perennial flows shall be maintained to protect fisheries, navigation, recreation, and other public uses
Washington Water Resources Inventory Areas (WRIAs)
WRISA Rules

• Rules adopted in 18 (out of 62) WRISA
• Establish minimum instream flows
  – Min. flows are a form of water right
  – Priority date, quantity, place of use (reach of river)
• Basin closures
• Discussion of hydraulic continuity
  – But, inconsistent
Washington Water Resources Inventory Areas (WRIAs)
WRRIA Rules

• Colville
  – If future development of groundwater affects surface waters, then groundwater rights shall be subject to the same conditions as affect surface rights
Washington Water Resources Inventory Areas (WRIAs)

Snohomish
WRIA Rules

• Snohomish
  – The natural interrelationship of surface and ground waters shall be fully considered
Washington Water Resources Inventory Areas (WRIAs)

Okanogan
WRIA Rules, cont.

- Okanogan:
- If there is significant hydraulic continuity between surface water and proposed groundwater source, any permit shall be subject to the same conditions as affected surface waters
Washington Water Resources Inventory Areas (WRIAs)

Green-Duwamish
WRRIA Rules

• Green-Duwamish
• Groundwater permits shall not be affected unless the withdrawal would clearly have an adverse impact upon the surface water system.
Little Spokane

- Rule-based summer season instream flow
- Annual curtailment orders to ~ 200 surface water right holders 9 out of last 10 years
- “measurable effect on streams” protected by minimum flow rule

Map: Spokane County Conservation District
The Struggle between Science and Policy

• 1960 Water Bulletins and USGS studies identify ground and surface water connections in several basins

• 1980 Hydraulic Continuity Guidelines
  – Limitations on groundwater permit only if proposed withdrawal
    • Is within certain distance of stream in unconfined system, or
    • Capture 5% or more of the stream flow
• 1985 – Washington Ecological Commission identifies need for
  – “analytical procedures and standards for determining hydraulic continuity”
• 1988 – Joint Select Committee on Water Resources Policy (Steven Shupe Report)
• 1989 Centennial Accord
  – government-to-government relationship between state and tribes re natural resource management
Science & Policy - 3

• 1989 Chelan Agreement
• 1992 Water Resources Forum
• 1989 Ecology-Dept Fish & Wildlife interagency MOU
• 1993 Procedural Guidelines for Hydrogeologic Investigations
• 1994 Initial Watershed Assessments (16 basins with instream flow rules)
Base Flow & Stream Impact Examples

Percentage of Total Stream Flow made up of Ground Water

90% of the total streamflow is supplied by ground water flowing into the stream.
The Courts Weigh In

  – Ecology may condition groundwater permits on rule-based minimum instream flows
  – “Significant” hydraulic continuity means connection exists, not the quantity
The 1998 Capture Report

• Draft Report on Capture of Surface Water by Wells
  – In the long run, any groundwater withdrawal will reduce surface water flow
  – The questions are: how much, where, when, how long
  – No “one size fits all” technical approach
The “Statewide Appeals”

• 1996: 600 groundwater decisions
  – 300-plus denials based on HC
  – 130 appeals

• Postema v. PCHB (2000)
  – Groundwater permits may be denied based on impacts on instream flows
  – “Measurable” means ascertainable
  – Ecology may use new scientific methods as they become available
Synclinal Basin in Yakima Fold and Thrust belt

Figure 3. The Three Principal Aquifer Systems in the Yakima River Basin

From U.S. Army Corps of Engineers, 1978, Yakima Valley Regional Water Management Study
Yakama Nation v. Ecology

• 1993 - 43 appeals of deep basalt groundwater permits
• Six years of litigation
• 1999 Settlement
  – Groundwater permitting moratorium
  – USGS study of river-aquifer interaction
    • Results released in 2010
    • Wells intercepting 200 cfs in stream flow
Groundwater levels of the Columbia Plateau have declined over the past 25 years in about 80 percent of the nearly 500 wells measured.
Figure 21.—Generalized ground-water-flow pattern in the Columbia Plateau aquifer system.

• 2006 Columbia River Water Management Program (RCW 90.90)
• Legislates zone of hydraulic continuity with Columbia River
  – 1 mile on each side
Spokane Valley-Rathdrum Prairie (SVRP) Aquifer

The Spokane Valley-Rathdrum Prairie Aquifer Atlas
2009 Update

Spokane County, et al., 2009
Colored lines indicate the range of surface water – aquifer interactions simulated as baseflow during a typical run.
A line that is below 0.0 m³/s (right side y-axis) indicates that river water is infiltrating and recharging the aquifer (losing river reach).
Lines above 0.0 m³/s indicate that groundwater is discharging to surface water (gaining river reach).

Note: Results shown are from run for WY 1995-1997

FIGURE 9.10
SIMULATED SPOKANE RIVER BASE FLOWS
WRIA 55 & 57/WATERSHED PLANNING/WA
Springs, TJ Meenach Bridge
Spokane River 7-day Low Flow (1891-2008)

7-Day Low Flow recorded between June 1 and October 31 each year

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WA Dept. of Ecology
Groundwater Development
Over Time
Kittitas Valley Closure

- Permit-exempt well development fueling rural sprawl
- Yakima basin junior surface users curtailed as hundreds of new wells are drilled.
- Petition to Ecology to close the basin to all new well drilling (with and without permit)
- 2010 Rule closes basin to all new “unmitigated” groundwater development
A Few Observations
Thank You!