



**SPOKANE COUNTY**  
WATER RESOURCES

# Groundwater Availability & Sustainability Criteria and Assessment Tools

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Spokane County Water Availability & Sustainability Advisory Group  
March 29, 2012

# Groundwater Availability Criteria

- Potential Criteria
  - Adequacy to supply proposed development
  - Impacts to existing water users
  - Impacts on surface water flows
  - Impacts to long term aquifer levels
  - Others?



# Matrix of Tools vs. Criteria

Potential Tools to Address Water Availability in Spokane County

Tools		Criteria Addressed			
Tools for Individual Sites		Current Water Availability	Impacts to Adjacent Users	Impacts to Surface Water	Long term Aquifer Sustainability
Geographic Zones	Create geographic boundaries for areas of water availability concern and require more rigorous testing and reporting requirements	X	X	X	X
Reporting Requirements	Require more detailed reports from applicants	X	X		
Testing Procedures	Require additional data collection methods, such as a longer pump test, use of more than one well, etc.	X	X		
County Analysis of Reports	Develop analysis techniques that will better assess reported results	X	X	X	
Water Availability Standard	Revise the current standard (1 gpm as demonstrated through a 4 hour pump test) for water availability determinations	X			
<b>Additional Tools for Multiple Sites/Subdivisions</b>					
Project/Site Description	Gather information about project location related to water supply, such as distance to surface water, sub-basin, proximity to other wells, etc.		X	X	
Hydrogeologic Characterization	Gather and report information such as aquifer description, depth to ground water, geologic formation, etc.	X	X	X	
Analysis & Conclusion by Professional	Provide analysis and a statement of water availability (based on established criteria) by professional such as a Professional Engineer or a Registered Hydrogeologist	X	X	X	
Would the combination of all tools adequately address criteria?		Yes	Yes	No	No
<b>Sub-Basin or Regional Tools</b>					
Groundwater Monitoring	Expand groundwater monitoring to determine changes in water levels and evaluate correlations with increased withdrawals.			X	X
Hydro-Geologic Characterizations	Complete additional hydro-geo characterizations in sub-basins to better understand aquifer conditions and connections to surface water.	X	X	X	X
Would the addition of these regional tools address criteria?		NA	NA	Yes	Yes

# Pump Tests

- Current Pump Test Procedure
  - Before the pump test can occur, the well will need to be stabilized. (less than 0.1 feet per hour)
  - Source shall be pump-tested for a continuous four hours after stabilization
  - Test will establish pump test rate. Must meet a minimum of 1 GPM
  - Submit pump test and well log



# Pump Tests

## III. TESTING AND SAMPLING PROCEDURES

### A. PUMP TEST PROCEDURE AND CERTIFICATION FORM

SUBJECT: Pump testing requirements for drinking water well sources

PURPOSE: To determine whether the well and aquifer are capable of supplying the water at the rate desired and to provide information necessary to determine the proper pump settings (depth) in the well.

1. Before the pump test can occur, the well will need to be stabilized. (Stabilization is defined as a drop in water level of less than or equal to 0.1 feet per hour.)
2. The proposed source shall be pump-tested for a continuous four hours after stabilization has been attained.
3. This test will establish the pump test rate, in gallons per minute. The rate must meet a minimum of one gallon per minute over the four-hour time period in order to meet the minimum daily demand requirement of 1440 gallons per single-family dwelling.
4. Following construction, a completed and signed copy of the SCHD's pump test form (this form) shall be filed with the SCHD - Environmental Health Division - along with the water well report form (well log).

I certify that the well located at 12710 S. Austin Rd  
and owned by Keith Owens meets the  
above-described minimum specifications. The actual pump test rate  
was 12.5 gallons per minute.

Larry Blain AAA Pump Service 6/17/05  
SIGNATURE OF WELL DRILLER/PUMP INSTALLER DATE

0029



# Pump Test

MAY-12-99 09:32 AM A.A.A. PUMP SERVICE, INC. 926 6216 P.01

A.A.A. PUMP SERVICE, INC.  
 8.17 WILLOW  
 SPOKANE, WA 99205  
 (509) 826-4552 (TOLL) 245-4104

NAME: Rich Cereyza DATE \_\_\_\_\_

PAGE 1 OF 1

1	2	3	4	5	6	7
STARTED PUMP	STOPPED PUMP	G.P.M.	P.S.I.	STATIC LEVEL	GALLONS PUMPED	COMMENTS
9:00		12		191	0	
9:30		12		286	360.00	
10:00		12		366	360.00	
10:30		10		441	300.00	
11:00		1		500	30.00	unable to sound
11:30		1		?	30.00	well past 500
12:00		1		?	30.00	
12:00		1		545	30.00	Pump suction
					1140 gal total pumped	
					in 4 hr	
					4 hr = 240 min	
					1140 gal ÷ 240	
					= 4.75 gal per	
					min for 4 hr	

Time	GPM	Static	Gallons Pumped
9:00	12	191	
9:30	12	286	360
10:00	12	366	360
10:30	10	441	300
11:00	1	500	30
11:30	1	?	30
12:00	1	?	30
12:00	1	545	30
			4 hr = 240 min
			1140 gal/240 = 4.75 gal per min for 4 hr

- 1140 gallons pumped
- 520 gallons from water stored in the casing
- Did well stabilize?
- GPM reported as 4.75 GPM but is actually 1 GPM or less



INVOICE

№ 13149



17 S. WILLOW · SPOKANE, WA 99206  
 SPOKANE PHONE (509) 926-4462  
 ST. MARIES, IDAHO PHONE (208) 245-4108  
 RATHDRUM, IDAHO PHONE (208) 687-3888

PHONE 448-8908  
 CUSTOMER Mike Senske  
 ADDRESS 5103 E Willow Springs  
 CITY Spokane STATE Wash ZIP 99223  
 WELL DIA. \_\_\_\_\_ DEPTH \_\_\_\_\_ YIELD \_\_\_\_\_

DATE 11/31/01 20\_\_

QTY.	ITEM	LIST/LABOR	CHARGE
	Job Site - 4720 E. Willow Springs		
	Time Static		
	10:00 57'		
	10 118' 20 gal Per min		
	20 156'		
	30 182'		
	42 213'		
	50 238' 15 gpm		
	11:10 257'		
	11:30 290'		
	45 321'		
	12:00 338'		
	15 354'		
	30 373'		
	45 382'		
	1:00 390' Samples Taken		
	1:15 396' 12 GPM		
	35 399'		
	45 401'		
	2:00 402' 12 GPM		
	Final yield after 4 hour running was 12 gal per min with a draw down to 402'		
	<i>Larry Blain</i>		

If using credit card for payment, add 4.5%.  
**TERMS: NET 10 DAYS FROM INVOICE DATE.**  
 A finance charge of 1 1/2% (21% corresponding annual percentage rate, \$1.00 minimum) will be charged on all unpaid accounts.

SUBTOTAL		
PUMP TRUCK/LABOR	250	00
SUBTOTAL		
S. SALES TAX	W	20 25
<b>TOTAL</b>	<b>270</b>	<b>25</b>

# Pump Test

- Drawdown slowed down, but never stabilized
- 506 gallons were from water stored in casing



# Pump Test

- If conducted and documented properly can yield:
  - Evaluate sustainable pumping rate of the well
  - Evaluate potential impact on nearby wells
- Requires more data analysis

