

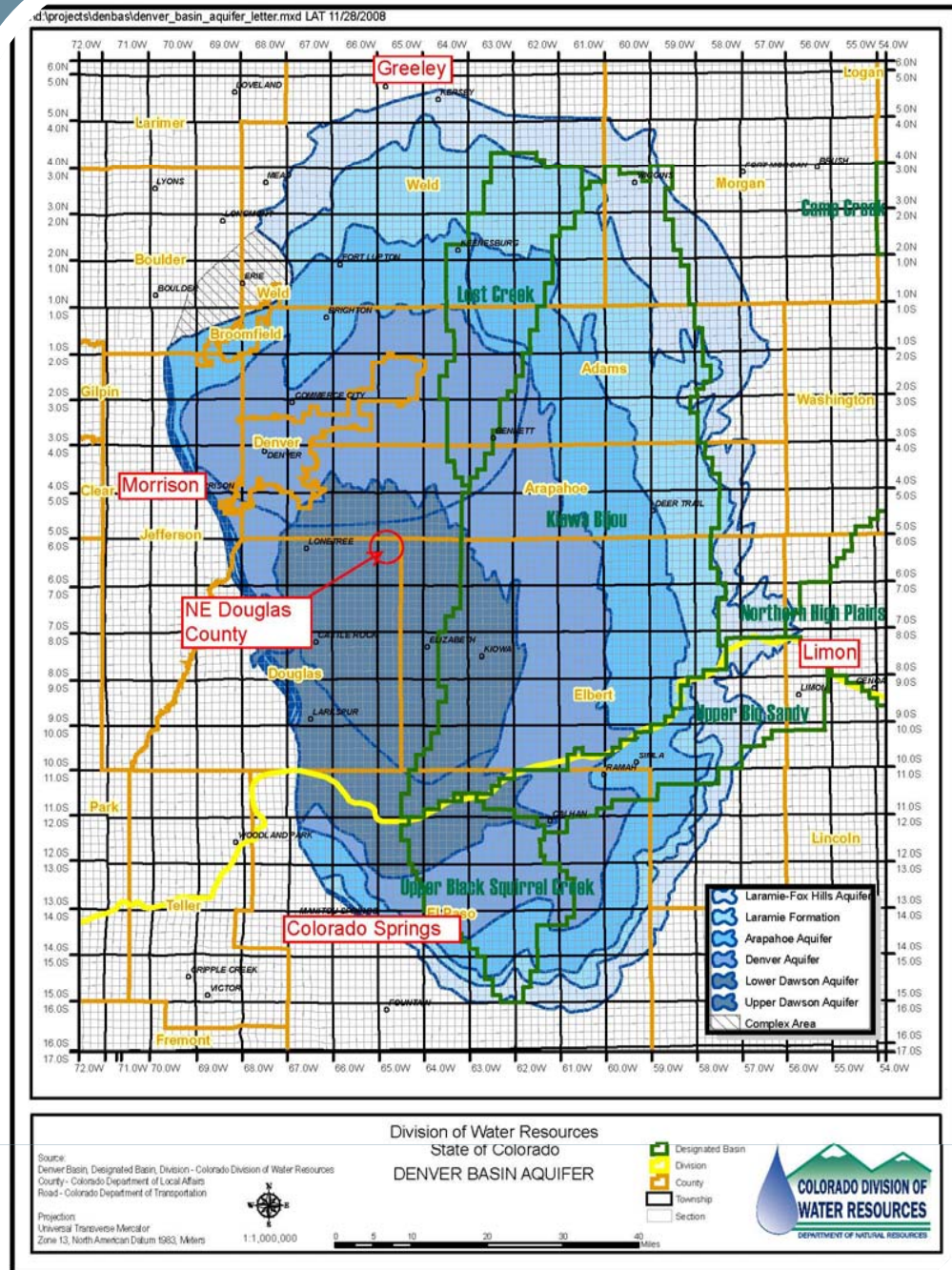
Why should I consider testing my well water?

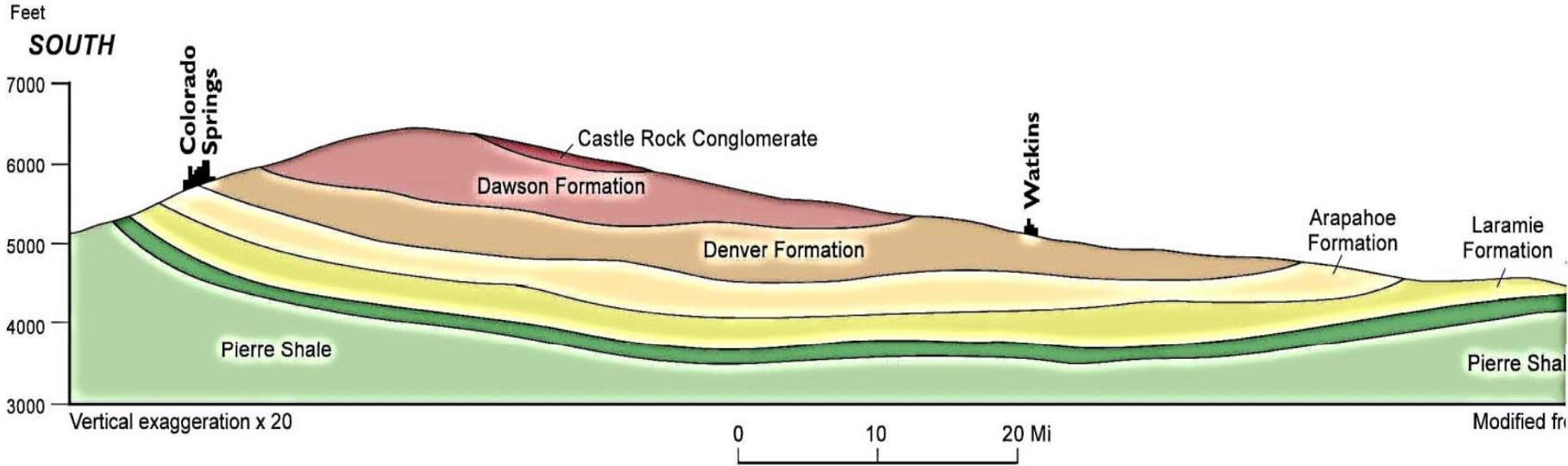
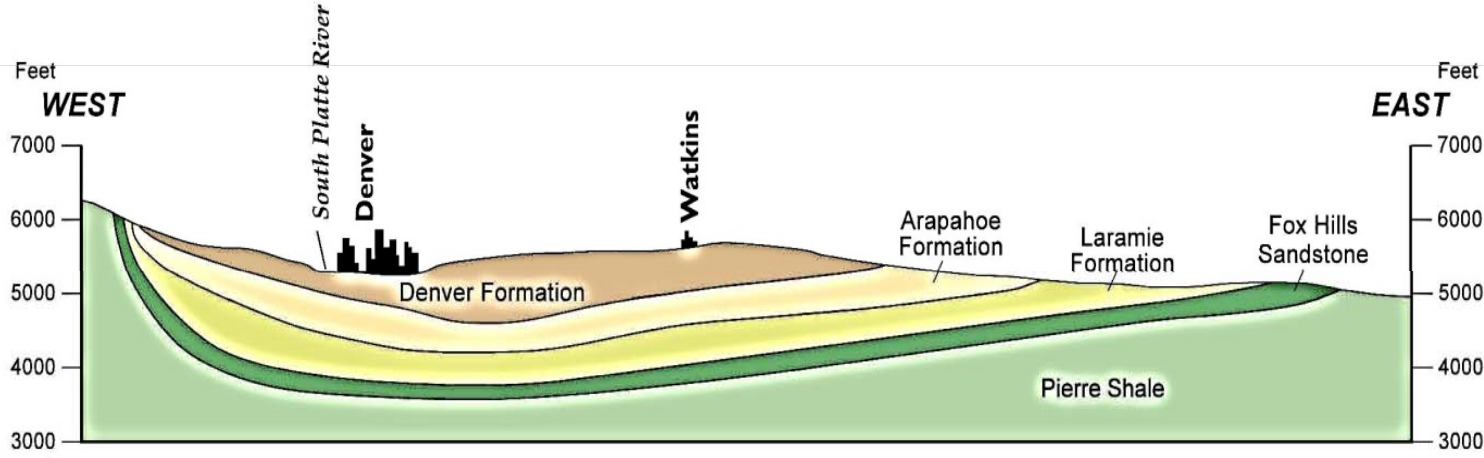


Denver Basin
Douglas County, CO

Richard J. Hirsch, PG, PHG
Hirsch★Gibney, Inc.

Denver Basin Aquifer System





RURAL WATER PROVIDERS SERVING DOUGLAS COUNTY, COLORADO

- DOMESTIC WELLS (EXCLUDING WELLS IN EXCLUDED AREAS)
- INCLUDED PRIVATE WATER PROVIDERS**
 - A. Beverly Hills Mutual Water Company
 - B. Sierra Vista Douglas Mutual Water Company
 - C. Titan Road Industrial Park Water Association Inc.
 - D. View Ridge Mutual Water Company
- MAP ID NUMBER, TAX AUTHORITY NAME**
 - 1. Consolidated Bell Mountain Ranch Metro Dist
 - 2. Castleton Center Water and San District
 - 3. Chatfield South Water District
 - 4. Louviers Water & Sanitation District
 - 5. Ravenna Metro District
 - 6. Sedalia Water and Sanitation District
 - 7. Silver Heights Water and San District
 - 8. Thunderbird Water and Sanitation District
 - 9. Westcreek Lakes Water District

- EXCLUDED FROM RURAL WATER PROVIDERS
- MAJOR ROADS
- RURAL LAND PARCELS
- RURAL WATER DISTRICTS

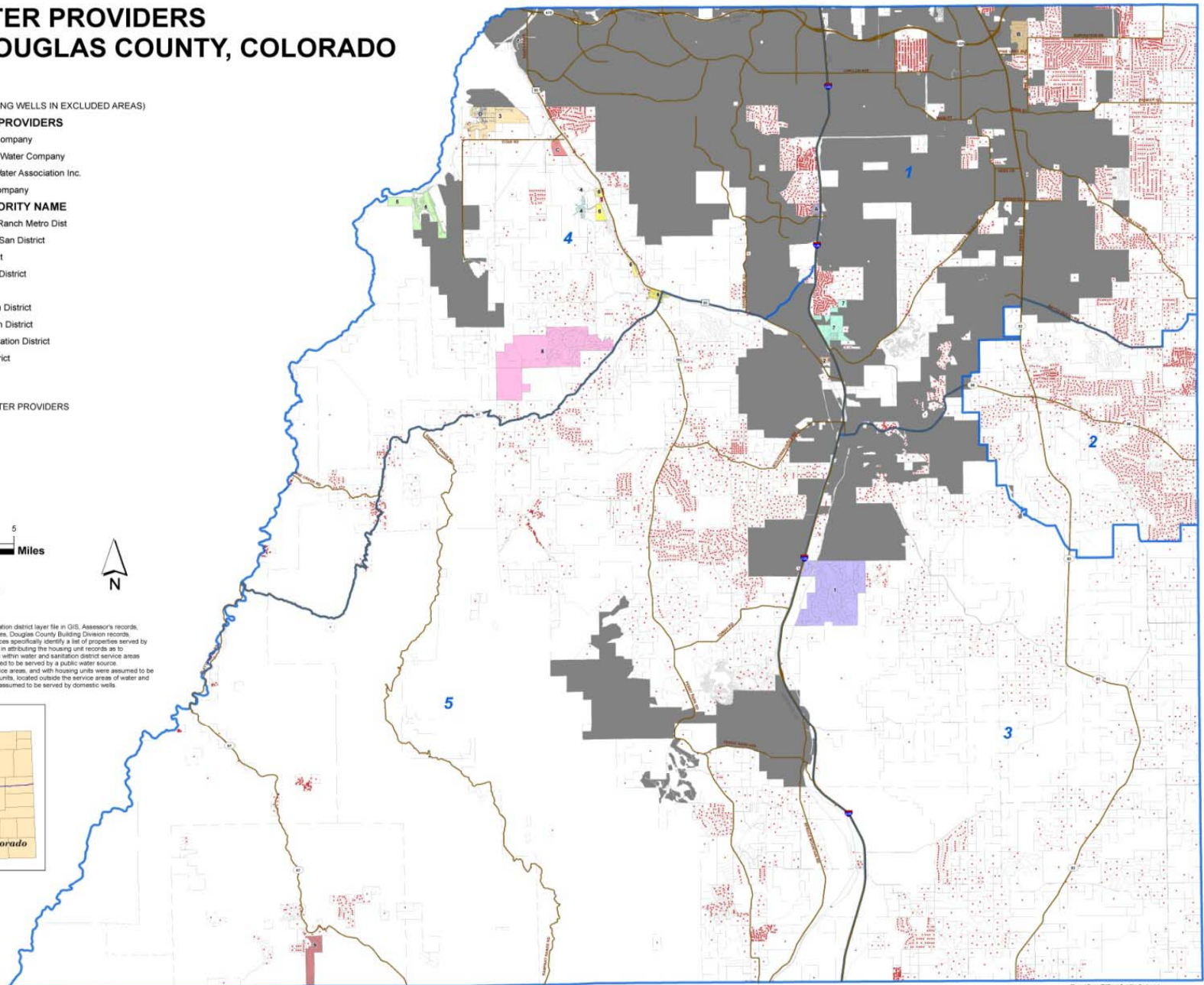


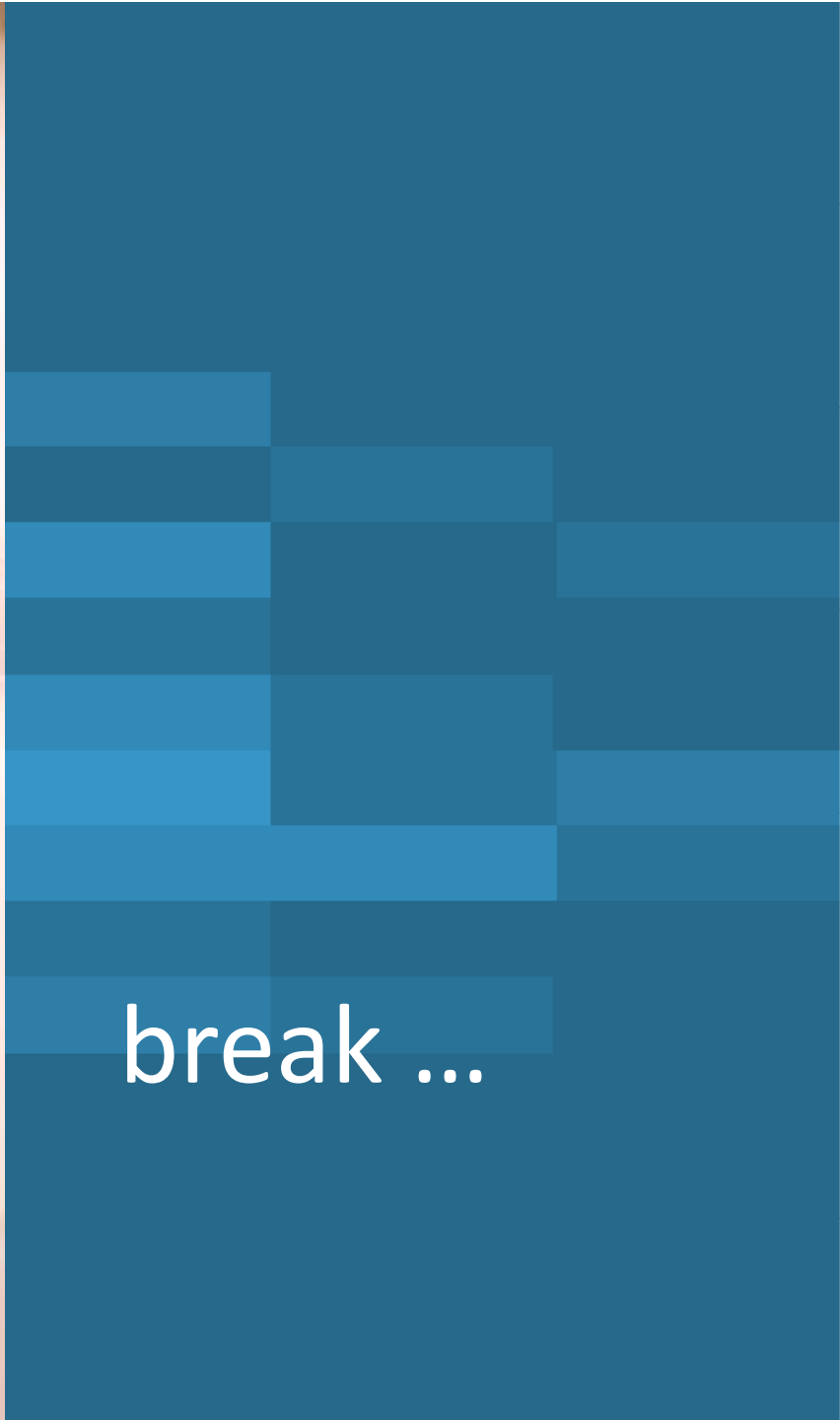
MAP GENERATED AUGUST 2015
PREPARED BY
DOUGLAS COUNTY COMMUNITY PLANNING &
SUSTAINABLE DEVELOPMENT DEPARTMENT

Sources:
The sources for the report include the water and sanitation district layer file in GIS, Assessor's records, Douglas County Information Resource Group databases, Douglas County Building Division records, and City and Town building records. None of the sources specifically identify a list of properties served by domestic wells so some assumptions were also made in attributing the housing unit records as to water service. All platted properties with housing units within water and sanitation district service areas and mutual water company service areas were assumed to be served by a public water source. Some metes and bounds properties, within those service areas, and with housing units were assumed to be served by domestic wells. All properties with housing units, located outside the service areas of water and sanitation districts and mutual water companies were assumed to be served by domestic wells.

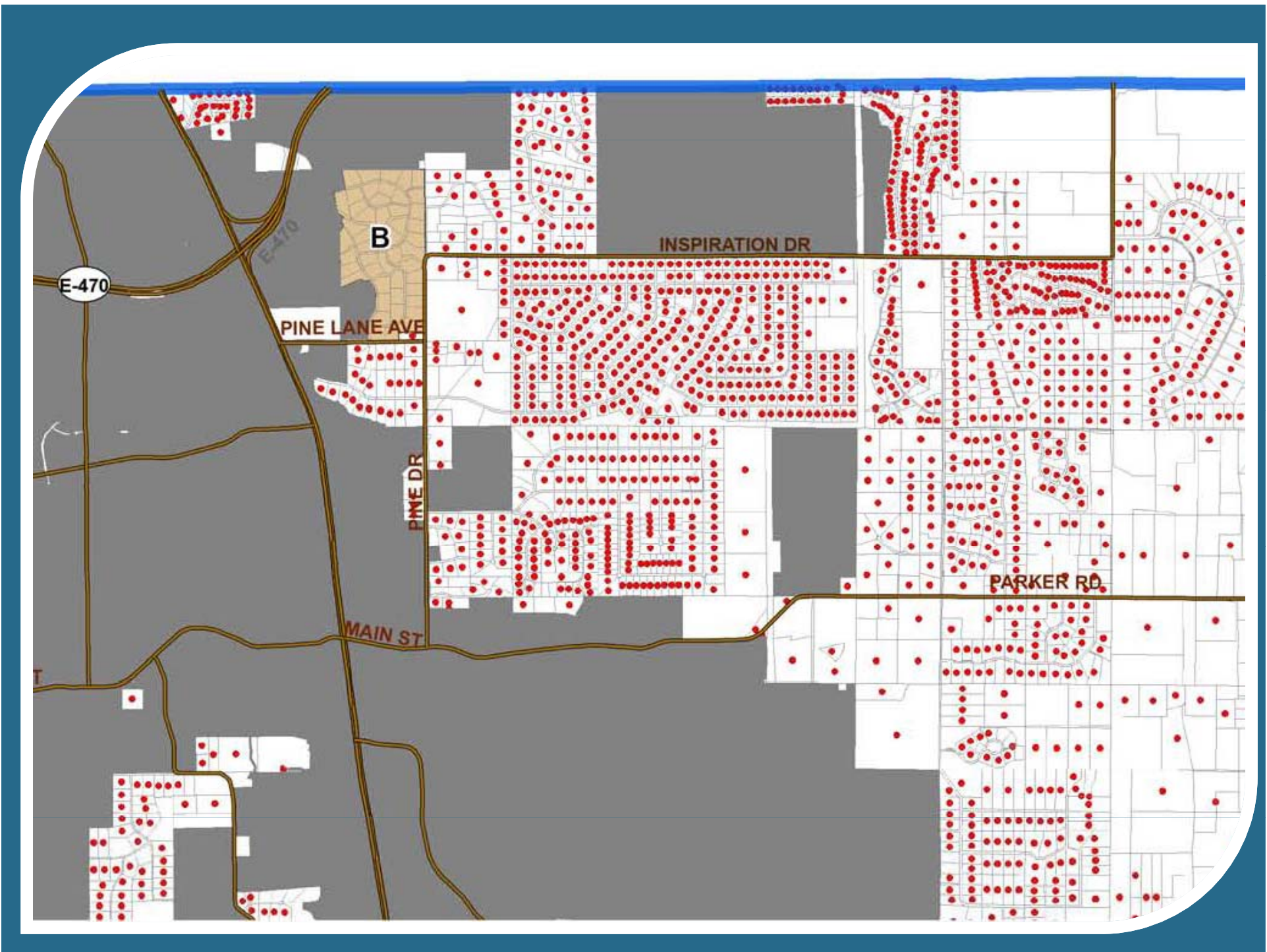


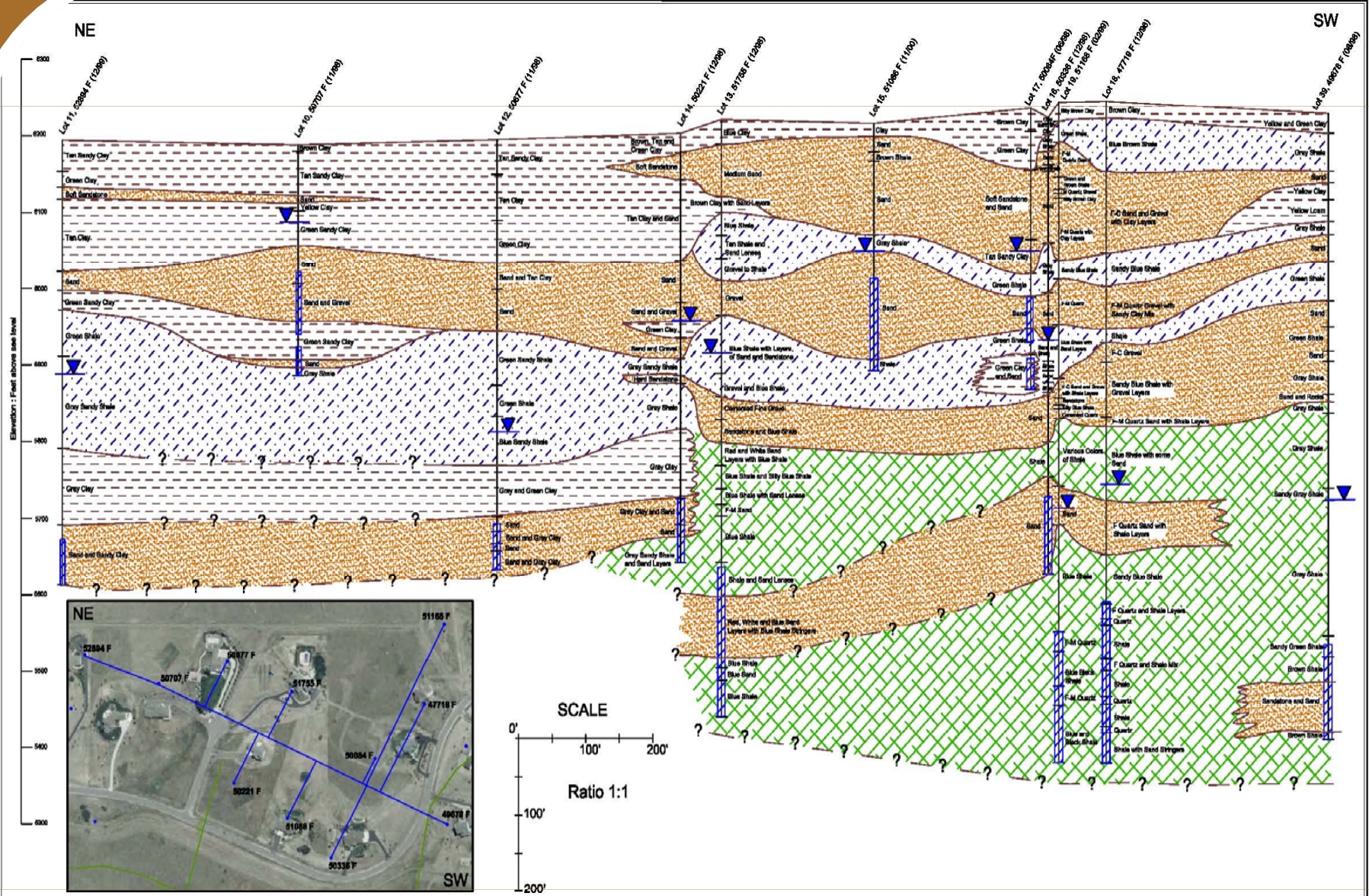
DISCLAIMER:
All data and information presented on this map were obtained from public records and are for informational purposes only. Although such Providers are believed to be accurate as of the date of printing, Douglas County does not warrant that such information is correct. Douglas County assumes no liability for any use of the information presented on this map, other than as a general reference. Douglas County does not warrant that the use of such information will result in any specific action. Douglas County does not warrant that the use of such information will result in any specific action. Douglas County does not warrant that the use of such information will result in any specific action. Douglas County does not warrant that the use of such information will result in any specific action.





break ...





	Perforated Intervals	Primarily Clay	Primarily Shale	Elevation of Potentiometric Surface at the Time the Pump was Set (12/98) Date Pump was Set in the Well Note: Lithologic Information Projected onto Line 51755 F- Well Permit Number, Division of Water Resources	Geologic Cross Section of Water Yielding Bedrock Portion of Ponderosa Summit Subd ^h Northeast Douglas County, Co ^l
	Primarily Sand or Sandstone	Interbedded Shale and Sand			

Depths of various aquifers beneath NE Douglas County - DWR

LOWER ARAPAHOE -----
 LARAMIE-FOX HILLS 195.0 223.9 65.5 -----

LOCATION: NW1/4 OF NE1/4 OF SEC. 7, T.6S., R.65W. (100 NSL, 2100 ESL)

Ground Elevation: 6110

Number of Acres: 0

AQUIFER	ELEVATION		NET SAND	DEPTH TO		ANNUAL APPROP A-F
	BOT.	TOP		BOT.	TOP	
UPPER DAWSON	5921	5949	13.9	189	161	0.00
LOWER DAWSON	5627	5727	65.6	483	383	0.00
DENVER	4681	5623	225.5	1429	487	0.00
UPPER ARAPAHOE	4170	4666	285.9	1940	1444	0.00
LOWER ARAPAHOE	-----	-----	-----	-----	-----	-----
LARAMIE-FOX HILLS	3501	3848	227.2	2609	2262	0.00

note: E indicates location is at aquifer boundary and values may be more approximate.

Documents

download

free

keep on file

permits

reports

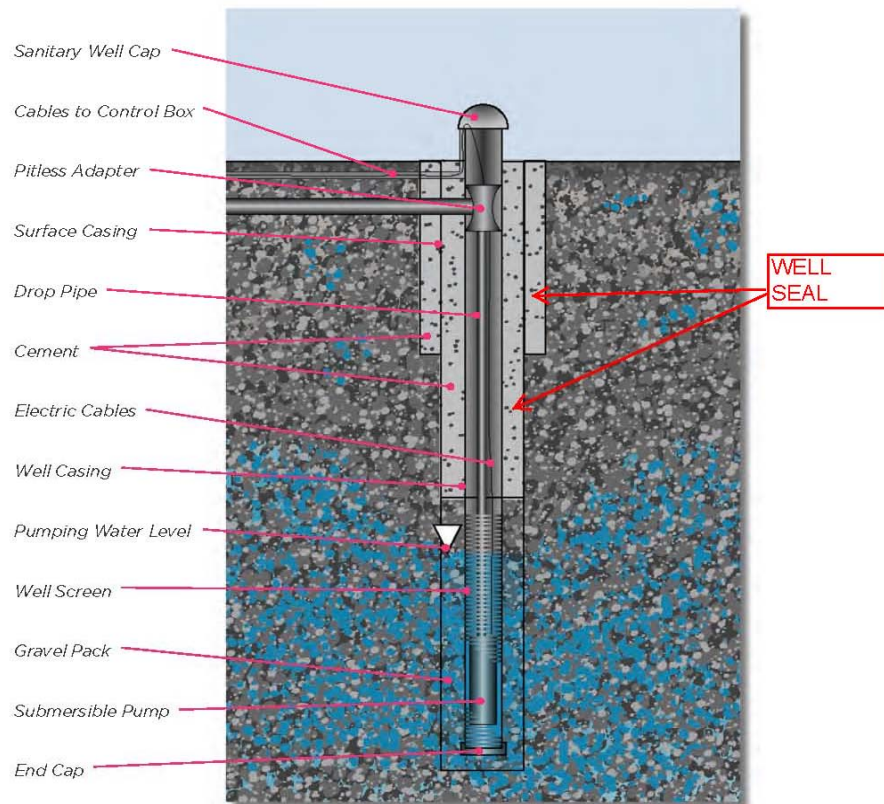
Division of Water Resources

www.dwr.stat.co.us/groundwater/gwadmin/denverbasin/pages/denverbason.aspx

FORM NO. GWS-31 10/98		WELL CONSTRUCTION AND TEST REPORT STATE OF COLORADO, OFFICE OF THE STATE ENGINEER 1313 Sherman St., Rm 818, Denver, CO 80203		For Office Use only RECEIVED JAN 28 1999 WATER RESOURCES STATE ENGINEER COLO.	
1. WELL PERMIT NUMBER		28VE519-51755-F			
2. OWNER NAME(S)		Douglas Hanes			
Mailing Address		Box 432			
City, St. Zip		Parker, CO 80134			
Phone (303) 840-0991		DB			
3. WELL LOCATION AS DRILLED:		NW 1/4 SE 1/4, Sec. 7 Twp. 6 S Range 65 W			
DISTANCES FROM SEC. LINES:		2380 ft. from South Sec. line and 1530 ft. from East Sec. line. OR (north or south) (east or west)			
SUBDIVISION:		Ponderosa Summit LOT 13 BLOCK FILING(UNIT)			
STREET ADDRESS AT WELL LOCATION:					
4. GROUND SURFACE ELEVATION		ft. DRILLING METHOD Mud Rotary			
DATE COMPLETED		11/25/98 TOTAL DEPTH 780 ft. DEPTH COMPLETED 780 ft.			
5. GEOLOGIC LOG:		6. HOLE DIAM. (in.) From (ft) To (ft)			
Depth	Description of Material (Type, Size, Color, Water Location)				
0-32	Blue clay	8 3/4	0	20	
32-60	Med. white sand	6 1/4	10	780	
60-100	Med. white sand				
100-120	Light brown clay & sand layers				
120-150	Blue shale				
150-180	Tan colored shale & lenses sand				
180-210	Gravel to shale				
210-255	Gravel				
255-270	Blueshale				
270-300	Blue shale w/ layers of S.S.				
300-330	Blue shale odd sand layers				
330-360	Gravel & blue shale				
360-390	Cemented fine gravel				
390-420	Consolidated sand stone & hard blue shale				
420-450	Layers of red sand & white silica sand & layers of blue shale				
450-480	Blue shale odd stringer & silty blue shale				
480-500	Blue shale sand lenses				
500-510	Quartz sand fine to med.				
REMARKS: 510-515 Quartz sand lenses					
515-540	Blue shale				
540-570	Blue shale				
7. PLAIN CASING		8. FILTER PACK:			
OD (in)	Kind	Wall Size	From(ft)	To(ft)	Material
6 5/8	Steel	.188	+1	20	Gravel
4.5	Steel	.188	10	584	Size 1/4" Rock
PERF. CASING: Screen Slot Size:		Interval 20-535&555-780			
4.5	Steel	.188	584	780	Depth
9. PACKER PLACEMENT:		10. GROUTING RECORD:			
		Material Amount Density Interval Placement			
		Cement #94 X 6gal. 7-20 Poured			
		Grout 20% 100#X40gal 535-555 Pumped			
11. DISINFECTION: Type		(Continued) Amt. Used 10 oz.			
HTH					
12. WELL TEST DATA:		<input type="checkbox"/> Check box if Test Data is submitted on Form No. GWS 39 Supplemental Well Test.			
TESTING METHOD		Airlifted			
Static Level		300 ft. Date/Time measured 11/25/98, Production Rate 11 gpm.			
Pumping level		600 ft. Date/Time measured 11/25/98, Test length (hrs.) 4			
Remarks					
13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13) (a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.]					
CONTRACTOR		Can-America Drilling, Inc. Phone (719) 541-2967 Lic. No. 1149			
Mailing Address		Box 416 Simla, CO 80835			
Name/Title (Please type or print)		Signature		Date	
Wayne Arde V.P.		<i>Wayne Arde V.P.</i>		11/25/98	

How Well Do you know Your Water Well? Matheson and Bowden , 2011

TYPICAL COMPONENTS OF YOUR DOMESTIC WATER WELL
THE PRIMARY DIFFERENCE BETWEEN THIS ILLUSTRATION AND YOUR WELL WOULD BE THAT MOST ALL OF YOUR WELLS ARE COMPLETED IN BEDROCK AT MUCH GREATER DEPTHS



Anatomy of a Domestic Water Well

How will this help me?

Division of Water Resources, DWR, has scanned in these documents and they are readily available , free of charge. You can go to their website to download. If you have not done this already, do so and keep them on file. You should get copies of your well permit, well construction and test report, pump installation and test report, water rights documents et al.

download
free
Documents

keep on file
permits
reports

The information in these documents will provide you with a basis for, evaluating the general water quality conditions of your aquifer, evaluating well productivity and developing an annual well maintenance program.

The DWR records will provide you with : your well permit number and conditions of approval and info regarding into which aquifer your well is completed. The method used to drill/install your well is also included. The total depth of your well, the length/type of solid casing and perforated casing or screen used to construct your well, the type, amount of filter pack and the grouting record.

The general geology of the aquifer across which your well is screened, brand, model and horsepower of your pump, the depth in the well where your pump was set, the initial depth of water in your wells and the productivity of your well when it was completed, in some cases – initial water quality analyses

Division of Water Resources

www.dwr.stat.co.us/groundwater/gwadmin/denverbason/pages/denverbason.aspx

no water bill = self reliance

In Colorado, private well owners are responsible for:

- Quantity
- Quality
- Treatment

GOOD NEWS ! There are many well written documents readily available from public and private sources - via the internet - that do a **good job** explaining water quality issues and providing an overview of how you can test your well.

please see handout

How Well Do You Know Your Water Well?

Groundwater and Water Wells in Colorado



Prepared by:

Michael Matheson, PG, Plateau Environmental Services, Inc.
Joe Bowden, PhD, CDS Environmental Services, LLC

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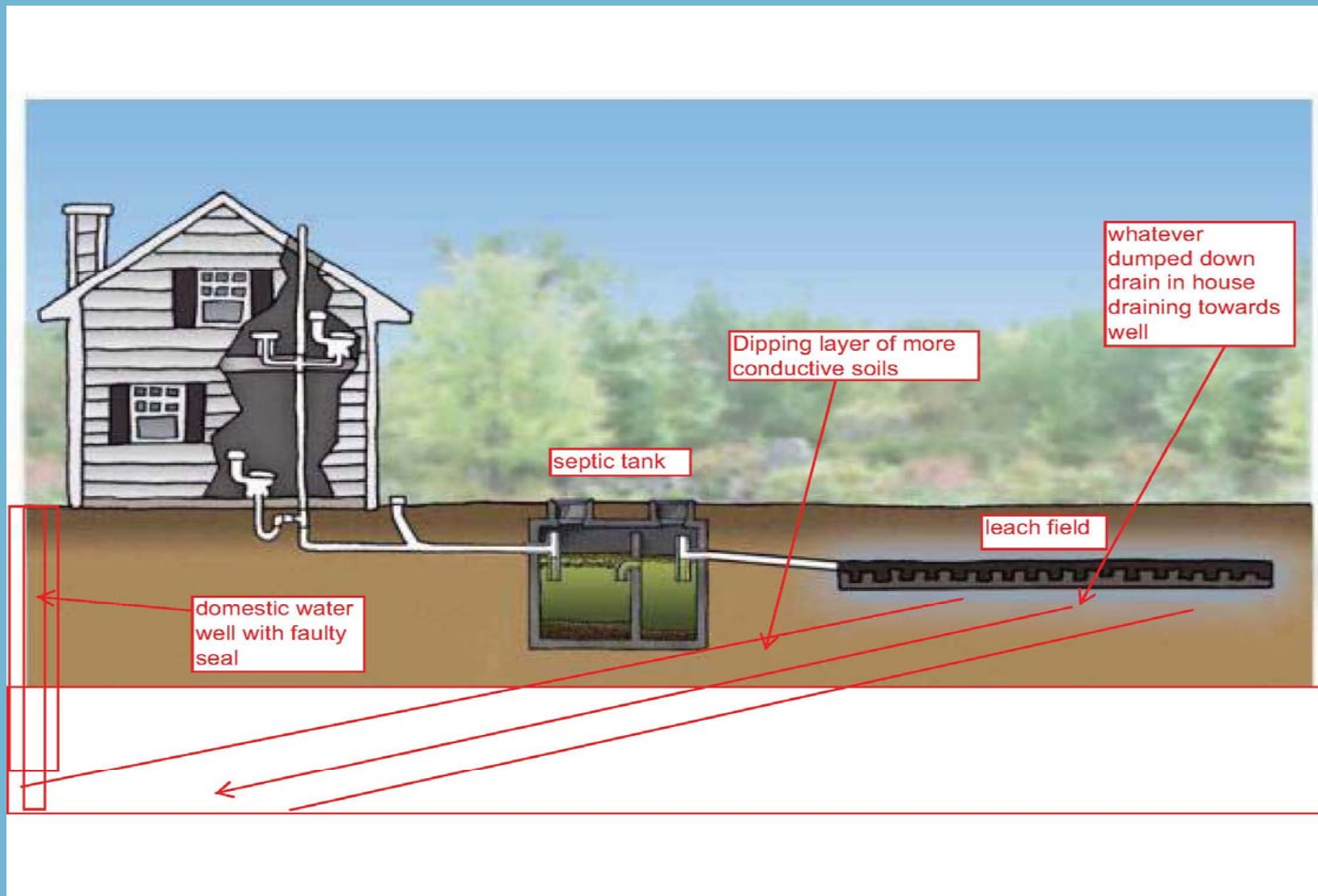
In cooperation with the following agencies:

Colorado Division of Water Resources
Colorado Department of Public Health and Environment
Colorado Oil & Gas Conservation Commission

Some Sources of Poor Water Quality

Naturally Occurring	Self Inflicted
arsenic	septic system –bacteria, virus, household chemicals
fluoride	fertilizers
manganese	pesticides
selenium	insecticides
methane	fuel tanks
radon	private ranch landfills
uranium	abandoned oil wells

Example of How Septic System Can Impact Water Well



What May Prompt You to Test Your Domestic Well?



Change

Taste

Odor

Appearance

What to do?



Time: 07:00

Date: May 2, 2012



Smells like rotten eggs, sulfur
with cloudy, rusty appearance.

Record all of your
observations

Sampling Your Well Water

Based on your situation and working with your lab analytes may include:

- Total coliform/nitrate/nitrite
- Major Ions (e.g. sulfate)
- Trace Elements (e.g., arsenic)
- pH, TDS, specific conductance

Potentially:

- Volatile Organic Compounds
- Others

Annual Well Maintenance Check List

- ✓ Water chemistry
- ✓ Bacterial test
- Static water level
- Well yield test

Thank you



Hirsch★Gibney, Inc.

Environmental Engineering and Consulting

Richard J. Hirsch, PG, PHG

President and Principal Hydrogeologist

11023 Pikes Peak Drive

Parker, CO 80138

303.841.7171-office

www.hirschgibney.net

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