Establishing Kansas as a Data Provider to the NGWMN

National Ground-Water Monitoring Network Data Providers Meeting December 6, 2016



Brownie Wilson Geohydrology Section Kansas Geological Survey University of Kansas

A Confession

A little apprehension at the start.

- Project coming from a federal agency
- Forms, acronyms, standards, etc....

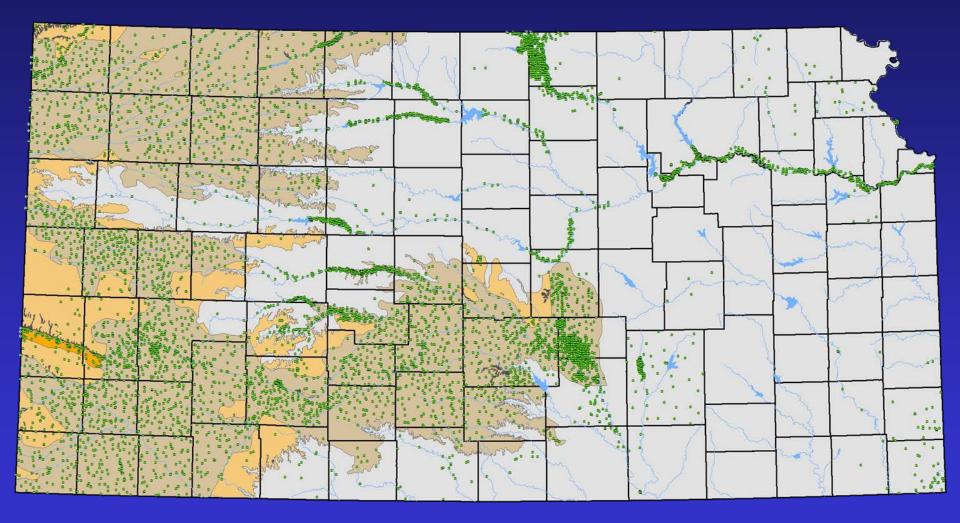




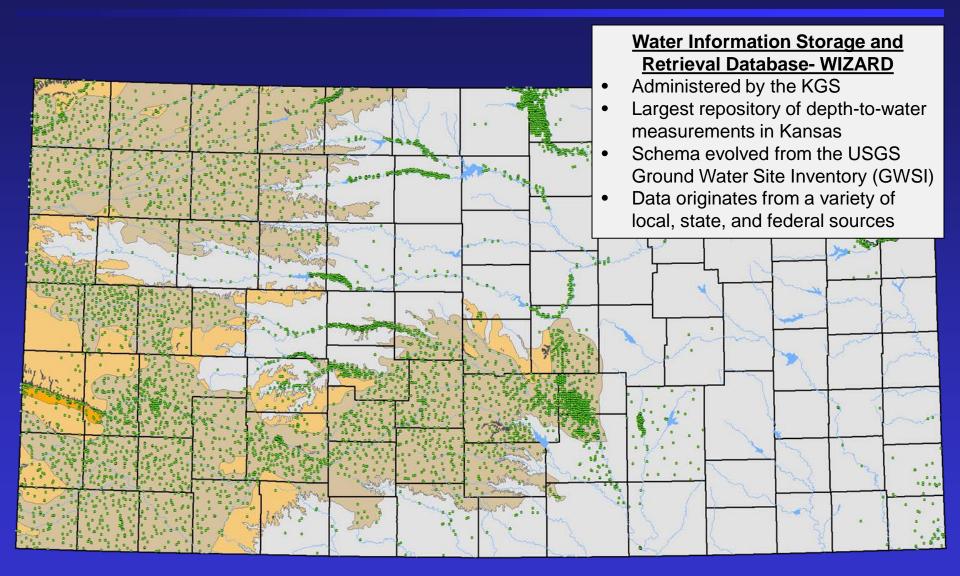
Fears were completely unfounded.

- Fantastic support
- Clearly defined objectives
- Tips sheets and examples from other states

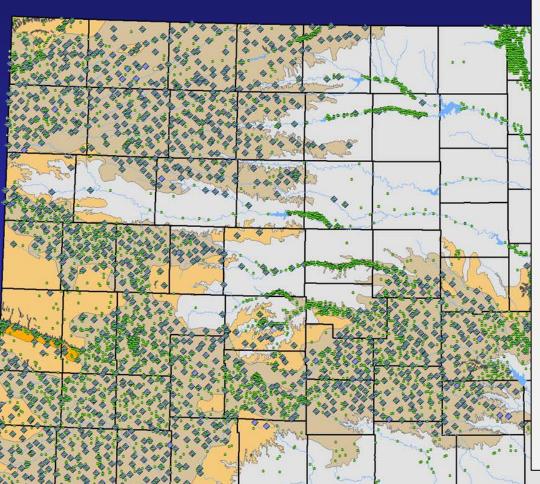
Water Levels



Water Levels- WIZARD



Water Levels- Cooperative Water Level Program



Cooperative Water-Level Network

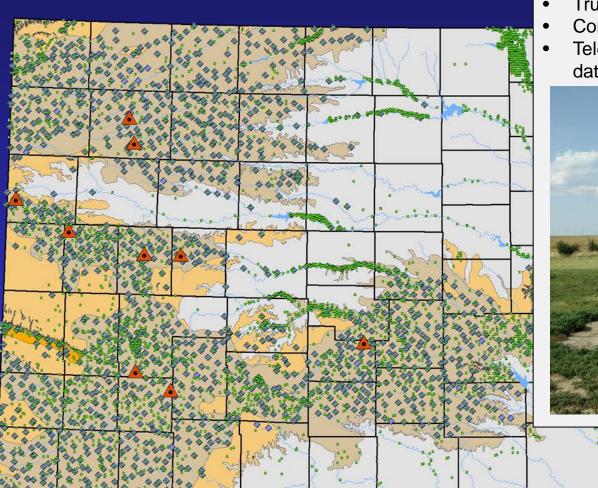
- KGS (administrator) and KS Department of Agriculture, Division of Water Resources
- Network of ~1,400 wells

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- Focused on the High Plains Aquifer
- Most are production (irrigation) wells
- Measured annually in the winter
- Lots of control and over sight



Water Levels- Kansas Index Wells

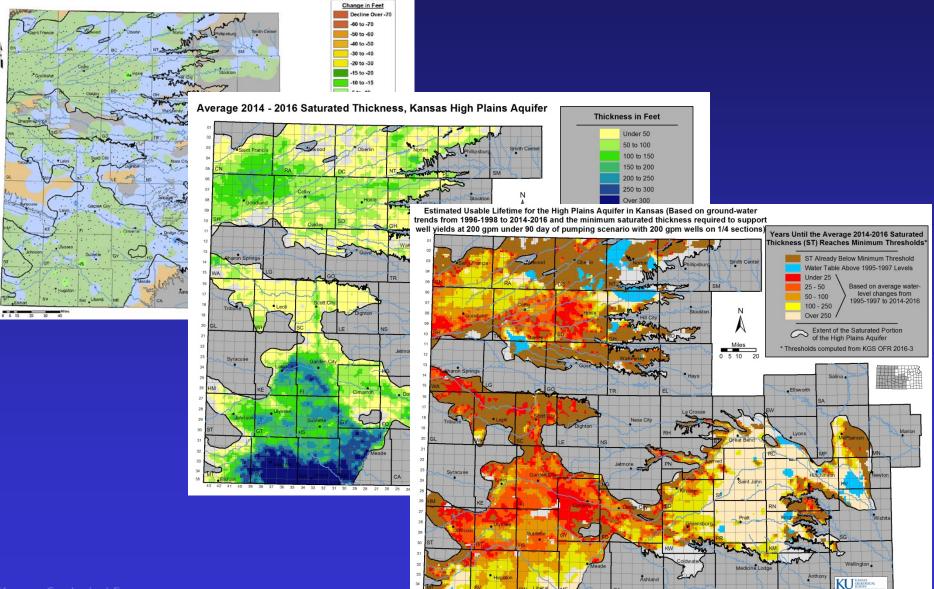


Kansas Index Well Program

- True observation wells
- Continuously monitored (hourly)
- Telemetry systems provide near real-time data access

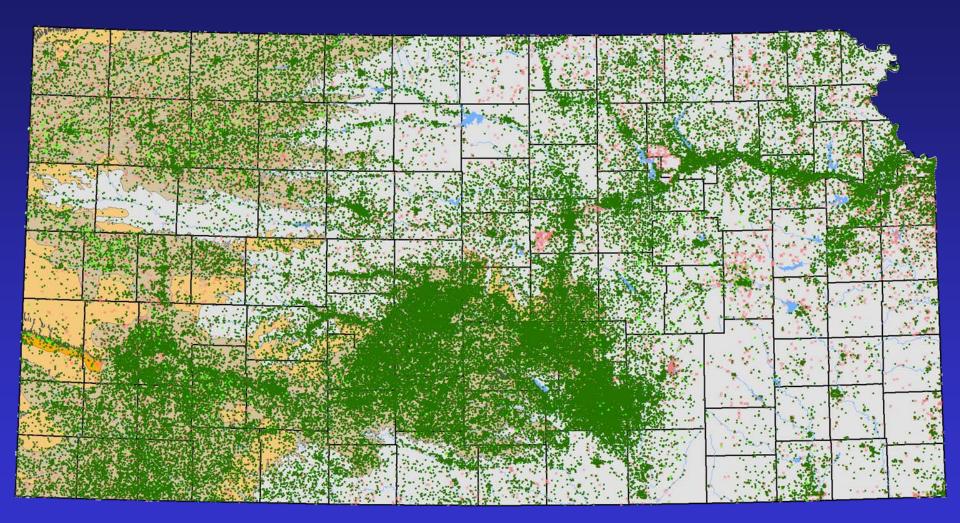


Water Levels- Applications

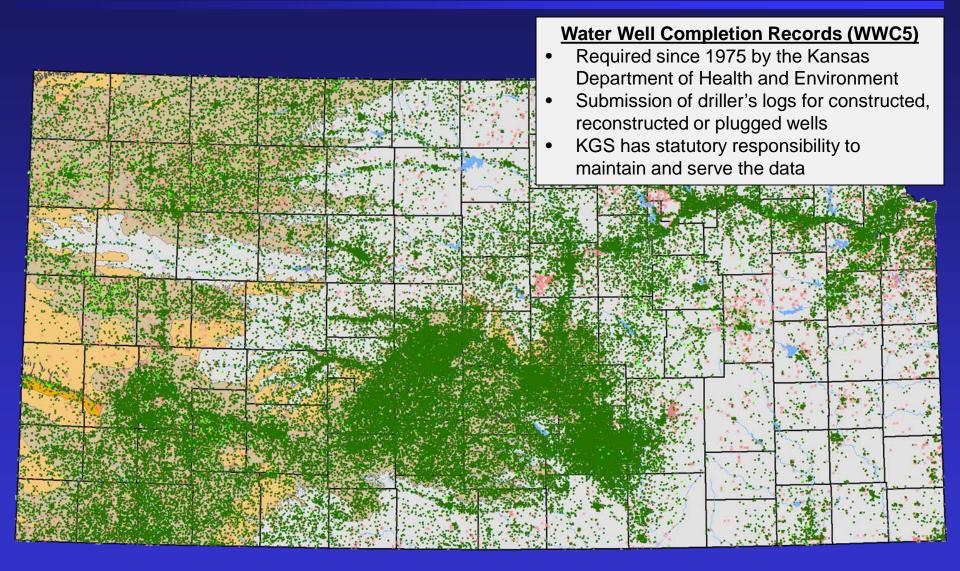


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Lithology- Water Well Completion Records



Lithology- Water Well Completion Records

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2 WATER WELL OWNER: John Ni	abtongolo								
2 WATER WELL OWNER: John Ni RR#, St. Address, Box # 2017 Ca	mous Dr.				Barret		Notelan at		
City. State. ZIP Code Garden	City, Ks.	67846				f Agriculture, D tion Number:	JIVISION OF	water Hest	urces
3 LOCATE WELL'S LOCATION WITH 4			200	6 5 5 4					
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		ATER LEVEL 1							
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	ELL WATER TO				8 Air condition		Injection v		
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SW SE	2 Irrigation	4 Industrial		d garden only					
	as a chemical/bac	teriological sample	submitted to	Department? Ye	BSNo	X; If yes,	mo/day/yi	r sample wa	s sub-
I s mit	tted				ter Well Disinfe			No .	
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Blank casing diameter XX. 5in.									
Casing height above land surface12		, weight						.psi	
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6 GROUT MATERIAL: 1 Neat cerr Grout Intervals: From			¥ Be	ft., Fror	n Other ft. From				
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Water Well Completion Records (WWC5) Required since 1075 by the Kansas USE TYPEWRITER OR BALL POINT PEN-PRESS FIRMLY. PRINT CLEARLY. WATER WELL RECORD Kansas Department of Health and KSA 82n=1201-1215 Environment-Division of Environment (Water well Contractors) Topeka, Karsos 66620 County ₩₩ Section number Township number Rance number NE Location of wells HASKELL 1/4 174 NW174 14 27 31 E/YZ 2. Distance and direction from negrest town or either Sm. EAST 12 mile North Suble He. 3. Owner of well: Floyd Frank. R.R. or street: Rt. 1 Box 42 1 Copeland, Kansas City, state, zip code: 67831 4. Locate with "X" in section below Sketch map 6. Bore hole dia. _____ Well depth _____0 /rt. tin. Completion date ______ ы 7. ____ Cable tool ____ Rotary ____ Driven ___ Dug Hollow rod ____ Jetted Bored ____ Reverse rotory NE -8. Use: X Domestic __ Public supply __ Industry __ Irrigation __ Air conditioning __ Stock ___Oil field water ___Other Lawn . SW 9. Casing: Material PILS_____ iteight: Above or below _____Welded gl_____Surface _____14 [breaded. 8/MP_ Dia. 5 in. to 100 ft. depth Wall Thickness inches or 1 Miles Dia. ____ in. to ____ ft. depth gape No. _0.258 5. Type and color of motorial From To 10. Screen: Magufacturer's nome fecriess Ove<u>R BURDEM</u> 0 90 Type P.V. 5in ___ Dia.__ _ Length _ LO' SAND + GRAVEN Slot/gauze_Vie 90 160 220 Set between _ __ft. and __ ft. end. Gravel pock? 42.3 Size range of material 18 00 11. Static water levels . Static water level: mo./day/yr <u>90_</u>ft. below land surface Date <u>6/28/78</u> 12. Pumping level below lond surfaces: ft. after _____ hrs. pumping g.p.m ft. ofter ____ ____ hrs. purpoing ______ g.p.m Estimated maximum yield _____ -9.p.n 13. Water sample submitted: mo./day/yr Yes 🔥 No Date 14. Well head completion: 14 Inches above grade Pitles adapter 15. Well grouted? ¥e.> 16. Nearest source of possible contamination Direction _____ _ Type . Well disinfected upon completion? X Yes 17, Pump: X Not installed Manufacturer's name Model number ____ HP Volts. (3[,] ength of drop pipe ____ft. expectly _____g.p.m. Type: _____ Submersible ____ Turbine ____ Jet ____ Reciprocating (Use a second sheet if needed) Centrifugal Other 18. Elevation: 12. Remarks 20. Water well contractor's certification: This well was drilled under my jurisdiction and this report 17. Well to be completed by s true to the best of my knowledge and belief. È T+ W Water well Service Tepography: Dunham DRILLING CO. 142 ___нп Address Box 816 F Copeland, Kanses LIBERAL Slope Signed CO. Vagreelles X Upland Dare 10/20/78 Ę _ Valley

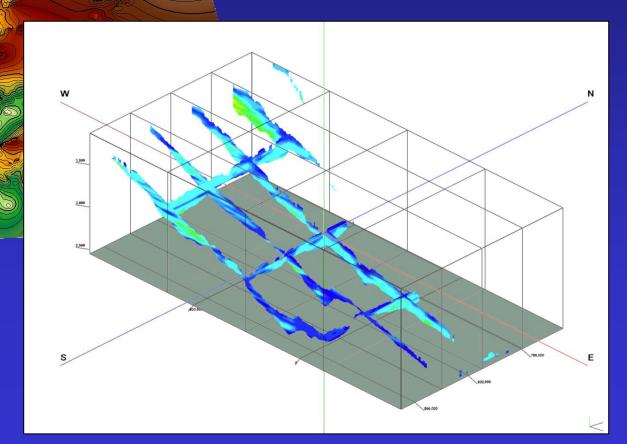
Forward the white, blue and pink copies to the Department of Health and Environment

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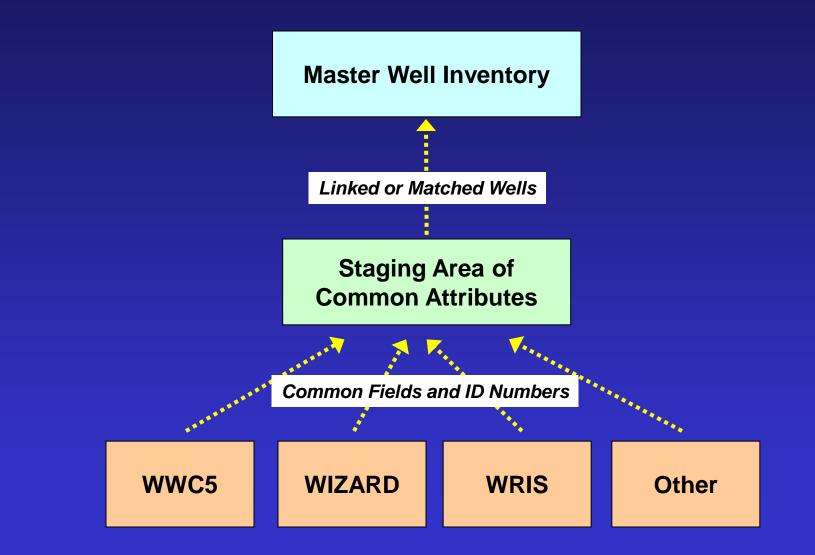
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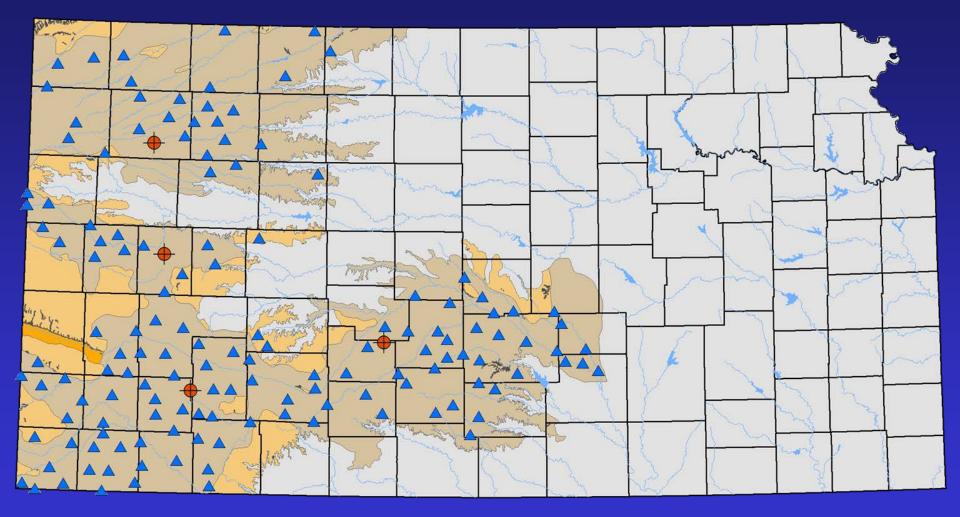
Lithology-Applications



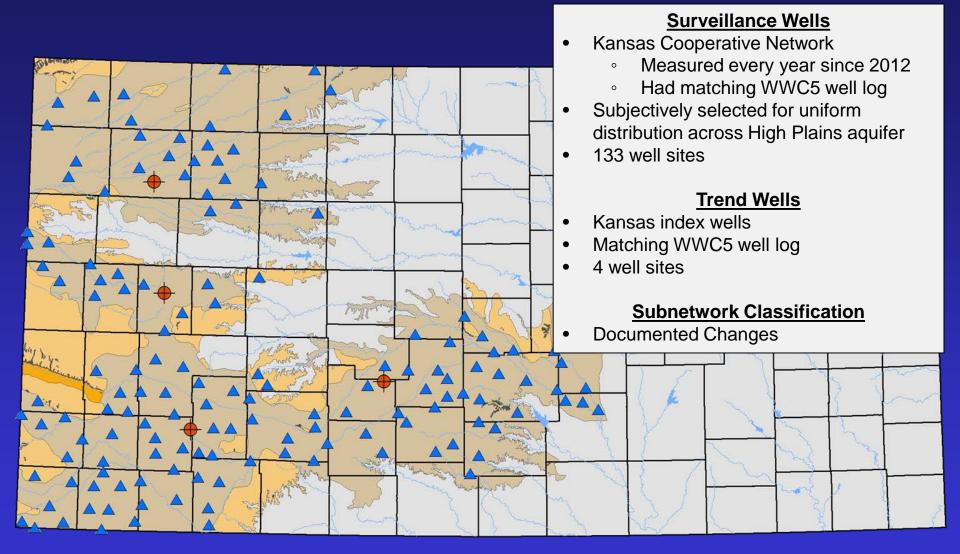
Kansas Master Well Inventory



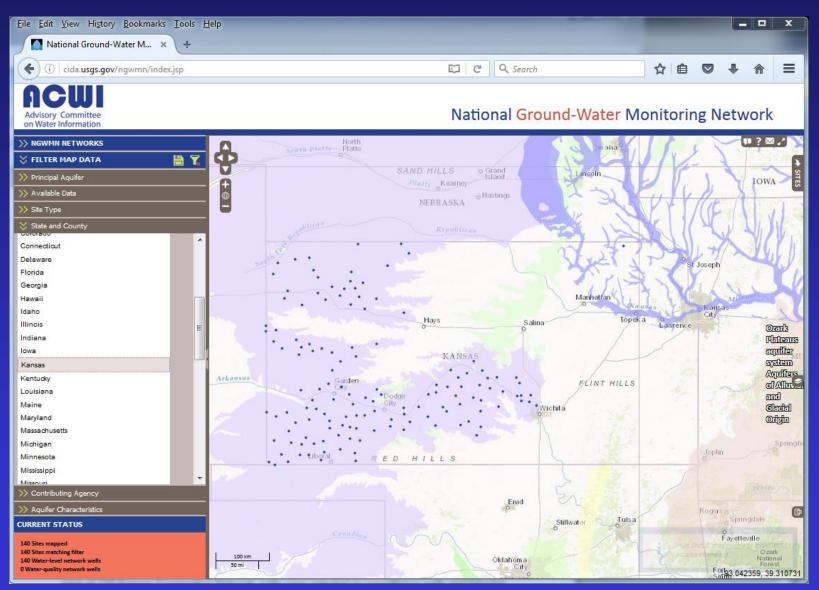
NGWMN Site Selection



NGWMN Site Selection



Snapshot of Kansas NGWMN Sites



Kansas Web Services to the NGWMN

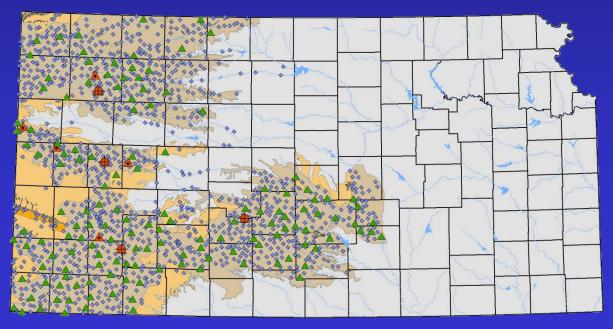
- Developed as an Adobe Coldfusion component
 - Seamless integration of existing SQL queries
 - Real-time data access to Oracle-based tables
- Stored on replicated Apache web servers
- One file with URL-based variables to specify the web service/method and well(s) to be selected

http://maps.kgs.ku.edu/geohydro/wizard/services/data.cfc?**method=WaterLevels**&sites=371237100455301 http://maps.kgs.ku.edu/geohydro/wizard/services/data.cfc?**method=Lithology**&sites=371237100455301 http://maps.kgs.ku.edu/geohydro/wizard/services/data.cfc?**method=Casing**&sites=371237100455301 http://maps.kgs.ku.edu/geohydro/wizard/services/data.cfc?**method=Screens**&sites=371237100455301

• Returns a XML formatted document

Future Plans

- Update the NGWMN well registry with changes from the 2017 Cooperative Water Level run
- Populate NGWMN well registry with new Index/Trend wells
- Review additional possible site locations based on minimum data standards and spatial distribution



Questions????

Kansas Geological Survey 1930 Constant Ave Lawrence, KS 66047 785-864-2118



Visit our site at http://www.kgs.ku.edu