

ISWS Groundwater Database Description and Policies and Procedures Regarding Access

May 2009

Background

The Illinois State Water Survey (ISWS) has a long history of conducting applied scientific research and providing products and service to the citizens of Illinois and the nation. Over time, the mission has changed in response to evolving needs and opportunities. It is anticipated that this flexibility and responsiveness will continue to be a hallmark of the ISWS.

Illinois legislation mandates the ISWS “to act as the central repository and research coordinator for the State in matters related to water and atmospheric resources” (ILCS, pt 801/1-25, par 16). Executing this mandate requires that the ISWS collect and maintain data on Illinois water and atmospheric resources.

The rapid advance of technology, particularly the emergence of the Internet, allows water and atmospheric resources data and information to be made available quickly within the public domain. Many data sets and products result from ISWS research and data collection. The ISWS has made significant strides in making many of its data sets and reports available from the ISWS web page. However, additional resources are needed to make all large data sets digitally accessible.

This is especially true of water-well records archived by the ISWS. The Illinois Groundwater Protection Act of 1987 requires the Department of Natural Resources to “*develop a coordinated groundwater data collection and automation program. The collected and automated data shall include but need not be limited to groundwater monitoring results, well logs, pollution source permits and water quality assessments. The Department shall act as the repository for such data and shall automate this data in a manner that is accessible and usable by all State agencies*” (415 ILCS 55/7). However, State funds are not available to support all groundwater information services.

Three full-time equivalent State-funded positions currently contribute about two-thirds of the resources needed to operate the well-record program. The other third of the resources comes from a revolving account that is funded on a cost-recovery basis from charges for records-access services. The leveraging of limited State funds to more fully support the comprehensive natural-resources data needs of Illinois is a basic operating approach for the Scientific Surveys.

ISWS Water-Well Records

As part of the Survey’s mandate, the ISWS has been collecting, archiving, and disseminating records of water wells drilled in Illinois since the early 1900s, long before the 1987 Groundwater Protection Act. ISWS paper and electronic files contain records for more than 370,000 water

wells spanning more than 170 years. Water-well construction reports are the single largest data source and are generated by water-well contractors (i.e., drillers). Under the Local Health Protection Grant Rules, a private land owner must obtain a well-construction permit from the local health department prior to drilling a well (this is often done by the driller as part of his fee). Upon completion of the well, the driller must submit a well-construction report to the local public health department. The local health department is then required to submit originals of all water-well construction permits and construction reports to the ISWS (77 ILL ADMIN CODE 615.320(b), par 7 & 12). Permitting fees for water-well construction are assessed by the local health department, but none of those funds are made available to the ISWS for data entry, processing, archiving, distribution, or interpretation. Once the permit and construction reports have been processed through the ISWS, a copy of the construction report is sent to the Illinois State Geological Survey (ISGS), and the original construction report is filed in the ISWS archive. The ISWS is not required to archive well construction permits or water-well sealing affidavits. The ISGS has created a web application, [Illinois Water and Related Well Data](http://www.isgs.illinois.edu/maps-data-pub/wwdb/launchims.shtml), containing geologic information that the ISWS Wells Database does not, see: <http://www.isgs.illinois.edu/maps-data-pub/wwdb/launchims.shtml>.

The ISWS annually processes approximately 12,000 water-well records and more than 2,000 requests for water-well information. The water-well data are used extensively by a wide variety of users, including individual homeowners, industries, lawyers, government agencies, drillers, scientists, students, teachers, and engineering consultants. The records provide valuable data regarding geology, groundwater levels, and well yields. Such data are used to determine the locations and depths of wells near a site of concern, the depth to water, the depth to and type of aquifers beneath a site, and the contamination potential of underlying aquifers. Engineering consultants are required by the Illinois Environmental Protection Agency to report all wells within a certain proximity to leaking underground storage tanks. Interpretation of the data contained within these records is important for assisting decision-makers regarding the management and protection of groundwater resources.

In addition to the ISWS paper archives, a digital database called the Wells Database has been created and contains selected elements of the original paper records for all known water wells in Illinois. The Wells Database is comprised principally by over 340,000 private household, domestic well records and another ~10,000 wells classified as high-capacity industrial, commercial, and irrigation wells, and all community wells. The database has more than 80 fields including, well location (by county, tier, range, section, and 1/4-, 1/4-, 1/4-section), owner name, driller name, date drilled, depth, record type (e.g., water-well construction report, chemical analysis report, and water-well inventory report), well use (e.g., domestic, monitoring, irrigation, noncommunity, or community), well type (e.g., dug, bored, drilled, or driven), aquifer type (e.g., sand and gravel, bedrock), reported static-water level, pumping-water level, and pumping rate (see Table 1). Wells entered into the database since 1997 contain an ISGS identification number. Newer well entries now also may contain latitude and longitude location obtained by the driller via global positioning system (GPS).

Due to security considerations following 9/11, only data about domestic wells are provided to the public via the web. Data for any community, industrial, and commercial wells must be accessed by office visit or upon request (see records access section below).

The high-capacity (≥ 70 gpm) well records in the database are linked to another database containing annual water withdrawal data collected through the Illinois Water Inventory Program (IWIP). IWIP was originally funded principally through a cooperative agreement with the U.S. Geological Survey (USGS). However, the USGS no longer financially supports the ISWS for IWIP data collection or database maintenance. Because of the value of the data that IWIP collects, the program was not terminated, but instead, is now partially supported by State resources which must be leveraged to obtain additional external support.

ISWS Groundwater Quality Database

The ISWS also has a Groundwater Quality Database (GWQDB) with over 66,000 samples dating back to the late 1890s. Samples are from public and private wells, springs, and test holes. Sample analyses are primarily from the ISWS Public Service Laboratory (PSL) or the Illinois Environmental Protection Agency's (IEPA) Ambient Water Quality Database, with a small number of samples from other agencies, such as the Illinois Department of Health and some county health departments. The IEPA samples are primarily from community supply wells, and date back to the early 1970s. Most of the ISWS samples are from private wells. The PSL provides inorganic water quality analyses to private well owners in the state of Illinois (contact Brian Kaiser at 217-333-9234 or briank@illinois.edu for more information). ISWS samples also include samples collected by ISWS scientists for various research projects. Data are continually being added to the GWQDB, from new PSL analyses, updates to the IEPA database, and data being identified and collected from other agencies and private sources. There are data for over 300 different analytes in the GWQDB, although most samples have data for only a small percentage of these. Analytes include inorganic, organic, and radioactive chemical compounds, and several physical parameters, such as temperature, turbidity, and pumping rate. Each sample has location information, sample date, and well depth, and most have information identifying the source aquifer. The database is searchable by several variables, including location (including individual municipalities), date, depth, and source aquifer, and searches can be limited to a single analyte or groups of analytes. Search results are output as either Excel or text files. These data are not currently accessible via the internet and must be requested from the ISWS. A fee for GWQDB access will be incurred – see price structure in following section.

ISWS Groundwater Records Access: Policies and Procedures

The following section outlines policies and procedures regarding public access to the ISWS groundwater records. These include a new charging policy effective May 18, 2009, updating the policies last updated on July 1, 2001. Questions regarding these policies should be directed to Allen Wehrmann, Head, Center for Groundwater Science, at 217-333-0493 or alex@illinois.edu.

- 1. Access to original records.** All original groundwater records can be viewed free of charge by visiting the ISWS Champaign office (2204 Griffith Drive) during regular working hours. No appointment is necessary; however, if it is contemplated that a large volume of data will be viewed, please call Sandy Osterbur at 217-333-8465 or Patti Hill at 217-333-4300 in advance to make arrangements. See #5 below for requesting copies of original records.
- 2. Cost recovery.** Costs incurred from the allocation of state funds will not be passed on to the user. Costs of non-state-supported activities related to document processing, data entry, database maintenance, computer database printouts, identification and creation of paper copies of original well records, and digital file preparation will be passed on to all users on a cost-recovery basis. There will be no charge for requests from individual well owners or public agency requests related to Intergovernmental Cooperative Agreement – see Table 2.
- 3. Information requests.** Requests for groundwater-records information should be directed to Ken Hlinka at the ISWS by mail (2204 Griffith Drive, Champaign, IL 61820), phone (217-333-9043), e-mail (khlinka@illinois.edu), or fax (217-244-0777). Descriptions of the area of interest should be by Public Land Survey System (PLSS) description and at a minimum include the county, township/tier, range, section, and ¼-, ¼-, ¼-section. For information regarding the PLSS, see http://nationalatlas.gov/articles/boundaries/a_plss.html.
- 4. Requests for database printouts.** ISWS staff can search the Wells Database for multiple locations, thereby providing a more efficient search than is available by free internet access. For a printout of selected water well data, a request can be submitted to the ISWS (see #3 above). All requests for printouts of data from the Wells Database and for paper copies of the original well records will incur a charge. Charges for database access and printouts will be as set forth below. Because of the sensitive nature of some high-capacity well data, such data is not publicly accessible via the Web; therefore, requests requiring high-capacity well data must be conducted by the ISWS. A database access fee is assessed for every four tier/range locations requested. Whole counties and multiple counties are now available – a fee structure for whole-county requests is provided in Table 3 below.
- 5. Requests for copies of original records.** For paper copies of original water-well records, the charge for identifying and pulling the requested records from the files will be on a sliding scale depending on the number of records to be copied – see following pages for charging structure. For requests for locations containing greater than 20 records, all records will be copied, and the requestor will be charged according to the sliding scale. In other words, the ISWS will *not* be responsible for identifying which records to copy just to keep a request below 20 records.

6. **First-come, first-served, and need basis.** Responses to requests will be handled on a first-come, first-served, and need basis. There will be no charge for a request that can be handled quickly verbally on the telephone (e.g., a few well records read aloud on the phone).
7. **Web access.** Free viewing of the domestic well information is available on the web at: <http://www.sws.illinois.edu/data/gwdb>. However, due to 9/11, access is granted through an assigned log-in that must be obtained by filling out a Web Access Request Form and sending (by mail or fax) to Patti Hill (ISWS, 2204 Griffith Drive, Champaign, IL 61820). Response with a log-in is by regular mail ONLY. Web access is limited to *domestic wells* in only one section (1 square mile) per session. The web-page is updated at least weekly. The following list contains the database fields that are provided on the web:

Table 1. Selected Database Fields Provided on ISWS Web-Page

p-num - ISWS permanent well-identification number
sgs_num - ISGS geologic database identification number
twm - Township or Tier, North or South
rng - Range, East or West
sec - Section
plot - ISWS 10-acre plot designation within the Section
owner - Owner of well at the time well was drilled
driller - Drilling company that drilled the well
date_drilled - Date well was drilled
depth - Total well depth
record_type - Paper record type used to generate the database record (e.g., construction report, geologic log, chemical analysis report, or water-well inventory report)
well_use - Water-supply use (e.g., domestic, monitoring, irrigation, noncommunity, or community)
well_type - Well construction type (e.g., dug, bored, drilled, or driven)
aq_type - Aquifer type identifier (e.g., unconsolidated or bedrock)
stat_level - Nonpumping or static water level measured when the well was drilled
pump_level - Pumping water level measured when the well was drilled
pump_gpm - Pumping rate when pumping water level was measured
pumping_hrs - Length of time pump was on when pumping water level was measured

8. **Prepayment policy.** Users of the groundwater records services must pay for the data before it will be sent out. Credit card or check is acceptable, although credit card will likely result in a quicker turnaround due to delays incurred by mailing a check. American Express, Discovery, MasterCard, and Visa are accepted.
9. **Charging policy review.** The following table lists charges for hard-copy printouts, well record photocopying, preparation of digital files, and shipping & handling.

ISWS GROUNDWATER DATABASES CHARGING POLICY

Effective May 18, 2009

All requests for groundwater data must be paid prior to release of the data. Prepayment must be made by check or credit card.

Description of Service

Charge

Paper Media

Original Paper Document Identification & Photocopying

1 - 20 Records	\$15 fee + \$0.20 per page
21 - 60 Records	\$40 fee + \$0.20 per page
61 – 200 Records	\$60 fee + \$0.20 per page
> 200 Records	\$0.50 per page

Database Search & Hard-Copy Computer Printout (Wells, IWIP, and GW Quality Databases):

\$35 query fee per database + \$0.20 per page

Electronic Media

Preparation of digital files (e.g., CD-ROM or e-mail): \$35 query fee per database + \$0.10/line

Shipping & Handling (all mailings, including e-mail)

\$5.00

Table 2. Charging Policy for Requesting Entity

Requesting Entity	Charge for Services?	
	Yes	No
Engineers/Consultants	X	
Drillers*	X	
Federal/State/Local Gov. Agencies**	X	
Individual Well Owners***		X
Industries	X	
Students/Teachers	X	
Attorneys	X	

Note:

*For copying/faxing more than six well records

**Except under Intergovernmental Cooperative Agreement.

***For copy of individual owner's well record.

Table 3. Estimated Charges for Whole Counties
- based on the number of wells in the database on March 3, 2009 -

County	County Query Fee	No. of Private Wells in County	No. of Public Wells in County	Total No. of Wells in County	Estimated Total at \$0.10/well + County Query Fee
Adams	\$490	1786	124	1910	\$681.00
Alexander	\$210	805	40	845	\$294.50
Bond	\$280	2148	31	2179	\$497.90
Boone	\$140	5276	83	5359	\$675.90
Brown	\$210	523	11	534	\$263.40
Bureau	\$490	4523	159	4682	\$958.20
Calhoun	\$350	600	39	639	\$413.90
Carroll	\$280	2375	89	2464	\$526.40
Cass	\$350	1985	62	2047	\$554.70
Champaign	\$630	10018	298	10316	\$1,661.60
Christian	\$490	2465	96	2561	\$746.10
Clark	\$350	1466	52	1518	\$501.80
Clay	\$280	1457	8	1465	\$426.50
Clinton	\$280	2584	115	2699	\$549.90
Coles	\$420	2110	46	2150	\$635.00
Cook	\$630	17287	1121	18408	\$2,470.80
Crawford	\$350	1335	42	1377	\$487.70
Cumberland	\$280	1548	21	1569	\$436.90
De Witt	\$280	2345	102	2447	\$524.70
DeKalb	\$350	3532	124	3656	\$715.60
Douglas	\$350	2407	70	2477	\$597.70
DuPage	\$210	16652	711	17363	\$1,946.30
Edgar	\$490	2274	22	2296	\$719.60
Edwards	\$280	507	5	512	\$331.20
Effingham	\$280	2946	52	2998	\$579.80
Fayette	\$420	2731	83	2814	\$701.40
Ford	\$280	2702	68	2770	\$557.00
Franklin	\$280	1210	8	1218	\$401.80
Fulton	\$490	1725	80	1805	\$670.50
Gallatin	\$280	997	51	1048	\$384.80
Greene	\$420	1555	19	1574	\$577.40
Grundy	\$210	3721	197	3918	\$601.80
Hamilton	\$280	925	8	933	\$373.30
Hancock	\$490	1359	41	1400	\$630.00
Hardin	\$210	586	19	605	\$270.50
Henderson	\$280	1361	64	1425	\$422.50
Henry	\$490	3234	168	3402	\$830.20
Iroquois	\$770	3259	150	3409	\$1,110.90
Jackson	\$420	1460	41	1501	\$570.10
Jasper	\$350	1382	32	1414	\$491.40
Jefferson	\$280	1339	15	1354	\$415.40
Jersey	\$280	816	39	855	\$365.50

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County	County Query Fee	No. of Private Wells in County	No. of Public Wells in County	Total No. of Wells in County	Estimated Total at \$0.10/well + County Query Fee
Jo Daviess	\$490	3186	104	3290	\$819.00
Johnson	\$210	900	10	919	\$301.90
Kane	\$280	15528	461	16043	\$1,884.30
Kankakee	\$490	7364	224	7588	\$1,248.80
Kendall	\$210	5135	109	5244	\$734.40
Knox	\$350	2421	59	2471	\$597.10
La Salle	\$350	7667	293	7960	\$1,146.00
Lake	\$350	27513	752	28265	\$3,176.50
Lawrence	\$280	1327	36	1363	\$416.30
Lee	\$420	3493	131	3624	\$782.40
Livingston	\$560	3493	79	3572	\$917.20
Logan	\$420	3326	73	3399	\$759.90
Macon	\$420	4538	105	4643	\$884.30
Macoupin	\$420	1900	34	1934	\$613.40
Madison	\$420	6541	406	6947	\$1,114.70
Marion	\$280	1594	15	1519	\$431.90
Marshall	\$280	794	62	856	\$365.60
Mason	\$490	3272	146	3418	\$831.80
Massac	\$210	1205	82	1287	\$338.70
McDonough	\$280	1885	63	1948	\$474.80
McHenry	\$350	23577	500	24077	\$2,757.70
McLean	\$700	7616	209	7825	\$1,482.50
Menard	\$350	1308	35	1343	\$484.30
Mercer	\$350	2441	74	2515	\$601.50
Monroe	\$350	2972	33	3005	\$650.50
Montgomery	\$420	3050	52	3102	\$730.20
Morgan	\$350	2001	51	2052	\$555.20
Moultrie	\$210	1066	42	1108	\$320.80
Ogle	\$490	6163	159	6322	\$1,122.20
Peoria	\$420	5935	223	6158	\$1,035.80
Perry	\$280	1583	28	1611	\$441.10
Piatt	\$280	3309	56	3365	\$616.50
Pike	\$490	1016	79	1095	\$599.50
Pope	\$280	670	6	676	\$347.60
Pulaski	\$210	1154	20	1174	\$327.40
Putnam	\$140	1203	50	1253	\$265.30
Randolph	\$420	2581	77	2658	\$685.80
Richland	\$350	1868	33	1901	\$540.10
Rock Island	\$420	4535	287	4822	\$902.20
Saline	\$210	823	21	844	\$294.40
Sangamon	\$630	4200	76	4276	\$1,057.60
Schuyler	\$350	667	31	698	\$419.80
Scott	\$210	578	32	610	\$271.00

Table 3. Estimated Charges for Whole Counties
- based on the number of wells in the database on March 3, 2009 -

County	County Query Fee	No. of Private Wells in County	No. of Public Wells in County	Total No. of Wells in County	Estimated Total at \$0.10/well + County Query Fee
Shelby	\$490	2951	73	3024	\$792.40
St. Clair	\$420	5181	123	5304	\$950.40
Stark	\$140	1246	11	1257	\$265.70
Stephenson	\$350	3726	120	3846	\$734.60
Tazewell	\$420	6561	327	6888	\$1,108.80
Union	\$280	1702	58	1760	\$456.00
Vermilion	\$630	6004	141	6145	\$1,244.50
Wabash	\$280	836	52	888	\$368.80
Warren	\$280	1692	38	1730	\$453.00
Washington	\$350	1459	17	1476	\$497.60
Wayne	\$490	1873	35	1908	\$680.80
White	\$420	1129	90	1219	\$541.90
Whiteside	\$420	4581	182	4763	\$896.30
Will	\$490	23029	754	23783	\$2,868.30
Williamson	\$210	1004	29	1033	\$313.30
Winnebago	\$280	13510	432	13942	\$1,674.20
Woodford	\$350	3231	110	3341	\$684.10

***Estimated total cost for whole state using
no. of wells in database as of 3/3/2009***

\$76,450.30