

Water Use Data and Research Program Workplan
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Division of Water
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Indiana's Significant Water Withdrawal Facility Registration and Water Use Reporting Program

Since 1985, owners of Significant Water Withdrawal Facilities (SWWFs) in Indiana have been required to register and report water use to the Indiana Department of Natural Resources (IDNR) under the provisions of the Water Resources Management Act (IC 14-25-7-15). A SWWF is defined in the statute as *“the water withdrawal facilities of a person that, in the aggregate from all sources and by all methods, has the capability of withdrawing more than one hundred thousand (100,000) gallons of ground water, surface water, or ground and surface water combined in one (1) day”*. There are 4101 SWWFs currently registered with the IDNR representing 7251 wells and 1326 surface water intakes. Each SWWF is assigned to one of the following six water use categories: Energy Production (EP); Industry (IN); Irrigation (IR); Public Supply (PS); Rural Use (RU); and Miscellaneous (MI). Water use data submitted over the past thirty years by SWWF owners has been utilized for a variety of purposes including the assessment of Indiana's ground water and surface water resources, the investigation of ground water rights issues, and Indiana's implementation of the Great Lakes Compact. Locations of all registered SWWFs and associated annual water use data reported for the past three years is available for review on the IDNR, Division of Water webpage at <http://www.in.gov/dnr/water/4841.htm>.

Water use reports for registered SWWFs are collected on an annual basis. Report forms and instructions are mailed to owners and operators of facilities at the end of each reporting year. The report forms are generated based on the registration information for the facility so owners and operators are able to report monthly water use for each individual ground or surface water source. An online reporting option is also now available for the submittal of water use reports. The online reporting tool automatically calculates if a reported water use total and indicated time of operation exceed the registered capacity of the withdrawal source. If the reported total exceeds the capacity of the source, the user receives an error notification to review the totals and make corrections where needed prior to the final submittal of the report. If a report is submitted with usage that exceeds the capacity of the facility, the report is flagged in the system and must be reviewed by DNR staff before the data can be added to the water use database. Withdrawals are not estimated for SWWFs that fail to submit a water use report or for ground or surface water withdrawals not required to register and report water use under IC 14-25-7-15.

Compliance with Baseline Standards

A description of Indiana's current compliance with the Baseline Standards as outlined by the USGS for each major water use category is provided in Table1: Compliance with Baseline Standards (p. 6).

Priorities for Water Use Data Improvement

Indiana's Water Resources Management Act requires the IDNR to: 1) conduct a continuing assessment of the availability of the water resource; 2) take and maintain an inventory of significant uses of water withdrawn from the surface or ground; and 3) Plan for the development, conservation, and use of the water resource for beneficial uses. The assessment of Indiana's ground and surface water resources is dependent upon accurate water withdrawal and well and intake locations. Recent work completed by

the Indiana Finance Authority (IFA) revealed substantial discrepancies between actual and IDNR posted locations of public water supply wells and intakes throughout the state. These SWWF well and intake location discrepancies have been identified in all six water use categories. In addition, ground and surface water withdrawal points with pumping capabilities requiring registration as a SWWF have also been identified by the IDNR. **Rectifying currently registered SWWF well and intake locations is considered the top priority for improving water use data in Indiana. Identifying unregistered ground and surface water withdrawals that meet the requirement for registration as a SWWF is considered a secondary priority.**

Collaboration to Address Water Use Data Improvement

Senate Bill 347 enacted by the 2016 Indiana Legislature instructs the IDNR to collaborate with the Indiana Geological Survey to *“perform a quality review of the water resources data compiled from the reports submitted by owners of significant water withdrawal facilities for all calendar years since 1985”*. SB 347 becomes effective July 1, 2016, and requires the review and verification of water resources data with the goal of ensuring its reliability. The review is to be performed by the Indiana Geological Survey (IGS), using their established objectives, principles, and policies to ensure data consistency and accountability for the scientific community and the public. It was determined that the quality review will initially evaluate the accuracy of assigned locations for the approximately 8600 ground water wells and surface water intakes registered as SWWFs. Much of this work will be performed by Geological Survey staff and will require detailed map review and extensive field verification. Because the water resource data is currently maintained by the IDNR, SB 347 calls for collaboration between IDNR and the IGS and requires the results be provided to the Department upon completion of the review. The following scope of work for spatial analysis of SWWF withdrawal points has been developed by the IGS:

- Public Water Supply well and intake locations in IDNR SWWF database will be assessed and rectified with GPS-located withdrawal points provided in Indiana Department of Environmental Management (IDEM) database.
- IGS and IDNR personnel will develop and conduct a survey for identified registered SWWF owners to determine accuracy of their reported well and intake locations. Surveys will be provided to SWWF owners by US postal service or email.
- Reported geographic coordinates from the IGS and IDNR survey, as well as the existing IDNR SWWF database, will be assessed and compared to actual well and intake locations using the following analysis elements:
 - 1) Reported locations will be plotted
 - 2) Visual inspection of each point will be compared to high-resolution imagery
 - 3) If visual confirmation can be made, the reported location will be accepted or refined
 - 4) If visual confirmation cannot be made, the well or intake location will be verified by the owner or field located by IGS staff using a GPS unit.
- IDNR staff will coordinate with the IGS to identify additional unregistered SWWFs located throughout the state. Identification of these facilities will be made through high-resolution

imagery and/or by field investigation, and owners of unregistered SWWFs will be contacted by IDNR staff.

Staff from the IDNR, IGS and IFA have met on two occasions (4/12 and 6/7 of 2016) to discuss the provisions of SB 347 and the proposed work plan developed by the IGS. A principal investigator from IGS will manage the project and coordinate with IDNR. The investigator will train project personnel, conduct location calculations and final analysis of location errors, and ensure benchmarks are met. The project is anticipated to be completed by June 30, 2018.

Table 1: Compliance with Baseline Standards

Category	Tier 1	Tier 2	Tier 3	Current Tier Level
Public Supply	<p>Monthly withdrawals reported by system, water source, and water type.</p> <p>Deliveries to domestic users from public-supply systems, and populations served.</p> <p>Report system information relevant to HUC-8 and county, and groundwater withdrawals with aquifer designation.</p>	<p>Site-specific annual and monthly withdrawals (by intake, well, or well field) reported by water source, and by water type.</p> <p>Quantity of water purchased between systems, and source(s) of purchased water.</p> <p>Quantity of water sold between systems.</p> <p>Reporting and/or verification of water deliveries for domestic, commercial, industrial, thermoelectric and other use.</p>	<p>Interbasin transfers.</p> <p>System uses (internal and other non-revenue uses) and losses.</p> <p>Improve estimates of populations served by site (for example, by surface-water intake, well or well field).</p> <p>Use of reclaimed wastewater for public or landscape irrigation.</p>	<p>Tier 1/ Tier 2- Public supply SWWFs report site-specific monthly withdrawals by intake, well, or well field. Facilities are not required to report to the DNR quantities of water sold between systems.</p>
Industrial	<p>Annual withdrawals by facility, reported by water source, by water type, and industry classification.</p> <p>Groundwater withdrawals reported with reference to aquifer.</p>	<p>Site-specific (by intake and/or well) annual and monthly withdrawals reported by water source, by water type, and industry classification.</p> <p>Deliveries from public supply to industrial facility, and deliveries from other sources, such as treated wastewater.</p>	<p>Site-specific consumptive use estimates.</p> <p>Site-specific discharges to surface water, or land application.</p>	<p>Tier 1/ Tier 2- Self-supplied industrial SWWFs report site-specific monthly withdrawals by water source and are assigned an industry classification (SIC).</p>

Irrigation- Crop	<p>Aggregate annual withdrawals reported by water source, by water type, acres irrigated, and method of irrigation.</p> <p>Aggregate areas may be sub-county levels, but are feasible to summarize to county or HUC8.</p>	<p>Site-specific monthly withdrawals by well and/or diversion from surface-water feature, or delivery from reclaimed wastewater.</p> <p>Monthly withdrawals reported by water source, water type, with associated acres irrigated and crop type, and method of irrigation system.</p>	<p>Consumptive use and conveyance loss estimates by aggregate area (sub-county, county, HUC8, or up to HUC12.</p> <p>Site-specific return flows.</p>	<p>Tier 2/ Tier 3- Irrigation SWWFs report site-specific monthly withdrawals by well or surface water source. Some facility-specific consumptive use estimates have been made for facilities within the Great Lakes Basin.</p>
Thermoelectric	<p>Site-specific, annual and monthly withdrawals, and net power generation reported by cooling-system type (once-through or recirculating), by water source and by water type, and the source of the information (plant, govt. agency, etc.).</p> <p>Site-specific return flows.</p>	<p>Site-specific annual and monthly consumptive use.</p>		<p>Tier 1/ Tier 2- Site-specific monthly withdrawals for each source are reported to the DNR by registered thermoelectric SWWFs. Some CU estimates and cooling system type information is available for SWWFs in the Great Lakes Basin.</p>
Self-Supplied Domestic	<p>Self-supplied domestic populations, by HUC8 and county, and by water source.</p>	<p>Studies of actual metered domestic withdrawals, monthly by source.</p> <p>Improve estimates of self-supplied populations by utilizing property data and/or public water supply service areas, or other methods.</p>		<p>If a self-supplied domestic facility does not meet SWWF threshold for registration, they are not required to report water use.</p>

Irrigation – Golf Courses	Site-specific annual and monthly withdrawals reported by water source, by water type, and acres irrigated. Groundwater withdrawals designated by aquifer.	<p>Consumptive use estimates, by course, reported by month or annual.</p> <p>Acres irrigated by system type, by course.</p>		Tier 1/ Tier 2- Irrigation SWWFs report site-specific monthly withdrawals by source, including aquifer designation. Some CU estimates available for SWWFs in Great Lakes Basin.
Livestock	Annual withdrawals for major facilities, reported by water source and by water type.	<p>Site-specific annual and monthly withdrawals for all facilities reported by source of water, and by water type.</p> <p>Site-specific animal counts and animal type.</p>	<p>Improved and verified coefficients for water use per head for animal type, confined or open-range, seasonal variability, and other variables.</p> <p>Water withdrawals from sources supported by USDA programs to protect streams.</p>	Tier 2- Livestock SWWFs report site-specific withdrawals by source.
Mining	Annual withdrawals reported by HUC-8 and county, by source of water, and by water type.	Site-specific annual and monthly withdrawals. Site-specific commodity identified.	<p>Evaluation/reporting on water use by process (commodity processing, dewatering, dust suppression, etc.).</p> <p>Reporting on return flows/discharge of water from dewatering.</p>	Tier 2- Site-specific monthly withdrawals for mining SWWFs are reported to the DNR. Commodity is identified (SIC code) upon initial registration as SWWF.

Aquaculture	Annual withdrawals reported by HUC-8 and county, by source of water, and by water type.	Site-specific annual and monthly withdrawals. Site-specific facility information (method, species cultured, etc.)		Tier 2- Aquaculture SWWFs report site-specific monthly withdrawals.
Commercial	Annual and monthly deliveries from public supply for commercial use.	Site-specific annual and monthly withdrawals for self-supplied establishments.		Tier 2- Self-supplied commercial SWWFs report monthly withdrawals by source.
Hydroelectric Power	Site-specific, annual and monthly water use (water use to spin turbines) by water source and water type, and the source of the information (plant, govt. agency, etc.).			In-stream hydroelectric facilities not required to register as SWWF or report water use to DNR.
Wastewater Treatment	Annual and monthly deliveries from wastewater treatment plants to other users. Specify category delivered to (i.e. industrial, thermoelectric, irrigation, etc.)			Only SWWF withdrawals from original ground or surface water source required to register and report water use.