



# Innovative Groundwater Protection Programs of Marion County, Indiana



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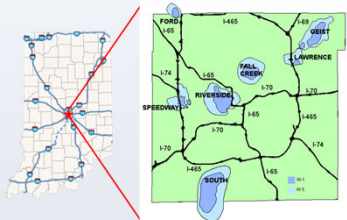


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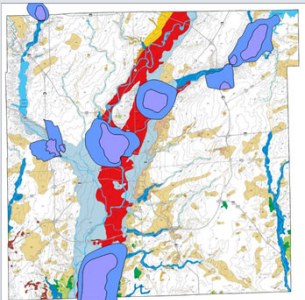
## Marion County and Groundwater

Marion County has a population of approximately 900,000 people spread over a 400 square mile area



There are seven active wellfields in Marion County, which pump a collective 11 billion gallons of water from 85 wells every year. This groundwater source constitutes 25% of the municipal water supply for Marion County. Three water utilities operate in Marion County – Citizens Energy Group, Speedway Water Works and Lawrence Utilities.

## Geology of Marion County Groundwater



### Hydrogeologic Settings

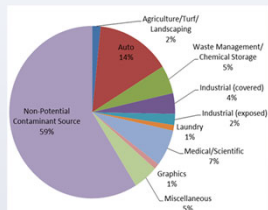
Thick sections of unconsolidated sand and gravel interstratified with a few small widely-scattered till units. This setting characterizes the axis of the White River Valley, which is the regional discharge area for all aquifers in the county.

Variable thickness of outwash overlying completely interbedded sand and gravel till. Thick sublinear sections of sand and gravel are present locally. Sand and gravel units at depth are typically confined or semi-confined by bodies of till, whereas the upper portions of the system are commonly unconfined.

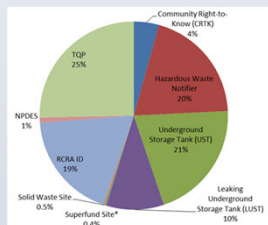
The geology of Marion County is dominated by glacial outwash and till material, with prolific sand and gravel dominated aquifers present along the White River and its tributaries in particular. The wellfields sit over these outwash aquifers, which are largely unconfined, meaning that they are prone to contamination.

## Potential Dangers to Marion County Groundwater

There are approximately 2,300 active businesses present in the seven wellfields in Marion County. Around 950 of them (41%) have been identified as Potential Groundwater Contaminant sources, meaning that they handle chemicals that pose a potential threat to groundwater quality.



Of the 950 Potential Contaminant Sources, close to 700 of them (73%) appear in a regulatory database.



As can be seen, there are active contamination concerns in the wellfields, most of which are the result of historic industrial activity prior to the introduction of modern regulations from the EPA, the State of Indiana and Marion County.

Marion County has developed three programs over time to address potential groundwater contaminants at business operations in the municipal wellfields. These programs are listed by date below and will be detailed in the following sections.

- 1995 City Wellfield Zoning Ordinance (TQP)
- 1996 MCWEC Outreach Program
- 2017 Health Department Wellfield Code

## City of Indianapolis Wellfield Zoning Ordinance Technically Qualified Person (TQP) Program

The Wellfield Protection Zoning Ordinance was established in 1995 and was initially overseen by a Wellfield Protection Officer, who was a qualified environmental professional. In 1998, the Wellfield Officer role was replaced with the Technically Qualified Person or "TQP" program. The TQP role is also fulfilled by qualified environmental professionals.

When a business wants to build a new facility or improve an existing facility, they must file for an Improvement Location Permit (ILP) with the City. ILPs within wellfields are passed to the TQP program for review to ensure the plans comply with the Wellfield Zoning Ordinance.

District	Liquids		Waste Soluble Solids	
	Single-Container	Aggregate	Single-Container	Aggregate
W-1 (limited)	1 gallon	2 gallons	5 pounds	6 pounds
W-4 (limited)	49 gallons	100 gallons	200 pounds	500 pounds

### 3. Secondary containment requirements

Secondary containment shall be required for any single container holding 40 gallons or more of liquid for more than 24 hours. Secondary containment shall be required for containers holding 40 or more gallons of liquid in the aggregate for more than 24 hours. All secondary containment areas shall comply with the following requirements:

- If unenclosed or located outside, the secondary containment shall be:
  - Covered;
  - Located on an impervious surface that is properly drained; and
  - Constructed to prevent entrance of precipitation.
- All secondary containment areas shall be constructed to meet at least one of the following requirements:
  - A containment area capable of containing 110% of the largest container and preventing any release from the container; or
  - A storage tank designed and built with an outer shell and a space between the tank wall and the outer shell that allows for and includes interstitial monitoring.

Of particular focus in a TQP review is chemical and waste storage and handling, in terms of having physical secondary storage built into the plans and having operational elements, such as emergency spill response plans.



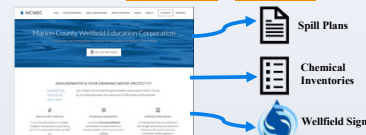
Over 400 ILP applications have been reviewed for wellfield ordinance compliance since 1995. The last revision of the ordinance in 2016 instituted a ban on underground storage tanks in all wellfield zones, as well as a ban on above-ground storage tanks over 1,000 gallons within the W-1 wellfield zones.

- Allows for groundwater protections to be built into a facility from the beginning, with city enforcement powers.
- Only sees new construction – no influence on existing businesses or facilities.

## Marion County Wellfield Education Corporation (MCWEC)

Not-for-profit corporation established in 1996 by the Marion County Wellfield Protection Zoning Ordinance with the goal of providing voluntary & confidential outreach and education to businesses in the wellfields to help them improve waste/chemical storage and handling.

Website: <http://indy1120.org> or <http://mcwec.org>



MCWEC Board has representatives from the city, health department, utilities, wellfield businesses and community representatives. The business outreach services are provided by qualified environmental professionals.

MCWEC site visits reveal the reality of chemical handling in the wellfields.



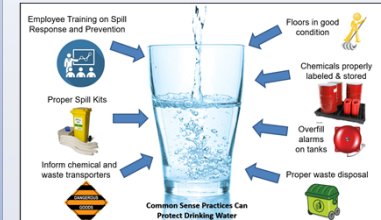
One of the most effective ways that MCWEC has assisted in improving chemical handling in wellfields is through the donation of spill containment and cleanup equipment through funds available as part of the MCWEC program.



- Business friendly voluntary approach; allows MCWEC to see what kind of chemical handling is out there in the wellfields.
- Only saw businesses that voluntarily approached MCWEC; could not report these voluntary business assessments to regulators.

## Marion County Public Health Department (MCPHD) Wellfield Health Code

The MCPHD has taken the approach that drinking water protection is a public health issue. The code was passed in 2017, with enforcement begun in 2018. All businesses in the wellfields, both existing and new, will have the same expectations under the code. MCPHD inspectors will visit and assess businesses for wellfield code compliance. Violators may receive notices of violation, fines, or legal action where appropriate.



The MCPHD Wellfield Code was based on the TQP City Wellfield Zoning Ordinance, in order to provide a more seamless and consistent regulatory experience for businesses.

Prior to the existence of the MCPHD Wellfield Code, MCWEC encountered a relatively small number of businesses. Once enforcement began in 2018, that number increased substantially. Businesses are invited by MCPHD inspectors to contact MCWEC for compliance assistance. MCWEC responded to this increase by making more funds available for donating spill and containment equipment. MCWEC also aids the MCPHD on technical issues when requested.



## Three-Pronged Approach to Wellfield Protection for Marion County

### TQP

City Wellfield Zoning Ordinance builds protection into new construction. Follow-up inspections of sites can lead to enforcement actions to ensure compliance.

### MCWEC

MCWEC voluntary program has proven most effective when providing free spill equipment to businesses. However, this program originally interacted with only a small number of businesses. After the MCPHD Wellfield Code came into effect, that number has increased substantially. MCWEC also provides technical support to the MCPHD.

### MCPHD Wellfield Health Code

MCPHD Wellfield Health Code is in its first year of enforcement. MCPHD inspections have prompted many more businesses to make use of MCWEC services.