

INDIANA GROUND WATER CONDITIONS

Ground Water Importance: Over one half of Indiana's population relies on ground water for drinking and household uses; supplied by both private wells and community public water supply systems. There are approximately 3700 public water supply systems that rely on ground water.

Where is it? Ground water is produced from sand and gravel aquifers, and bedrock aquifers through out the State. Ground water is produced for drinking water purposes from aquifers within a few feet of the surface to several hundred feet below the surface. A majority of ground water wells are concentrated in the northern 2/3 of Indiana.

How good is the water? The data characterizing the quality of Indiana's ground water is incomplete. More comprehensive information is needed before we have the true picture of the resource. However, existing data shows that, in general, ground water quality is good in Indiana. Natural constituents such as iron, manganese, sulfate, and hardness are common nuisances, but do not pose health threats. Barium and arsenic can be found above recommended health levels from natural sources throughout the state. Contamination from human activities is well documented in several parts of the state. Contaminants range from industrial chemicals, nitrates from agricultural applications and failing septic systems, and sodium chloride from salt piles and road applications.

Cost of Contamination: As with other States, millions of dollars have been spent in Indiana on cleaning up ground water or in added treatment cost at the point of use. In the city of Elkhart, IN, over one million dollars was spent on infrastructure to treat solvents in the late 1980s. The system has been in use for a decade at the cost of 100,000 dollars per year to operate. The city of South Bend is adding similar treatment infrastructure to save a wellfield. In Valparaiso, IN, the State of Indiana is cleaning up salt contamination in an aquifer used by the public water supply system. The projected cost of cleanup is over 1 million dollars and may exceed 3 million dollars. In the Town of Pines, two million dollars is being spent to connect 130 homes with contaminated private wells to a

public water supply. Millions more have been spent in characterizing and implementing cleanups at superfund sites, landfills, RCRA facilities and underground storage tank facilities.

Efforts to Protect Ground Water:

Responsibility for protecting and characterizing Indiana's ground water is spread among several state and federal agencies: Indiana Department of Environmental Management (Solid Waste Landfills, RCRA subtitle C facilities, CERCLA, Superfund, Leaking Underground Storage Tanks, Underground Storage Tanks, Spill Response, Voluntary Remediation Program, Brownfields Program, State Cleanup, Wellhead Protection, 319 ground water research initiatives, Ground Water Quality Standards, Source Water Assessment), Indiana Department of Natural Resources (Basin Studies - characterization of ground water within defined river basins, Water Rights, Ground Water Well Log Program, Coal Mine Reclamation Program, Oil and Gas Class II Injection Well Program) Office of the Indiana State Chemist (FIFRA), Indiana State Department of Health (Septic Tank and other Onsite Wastewater Treatment Programs), Indiana Geologic Survey (Geologic and Hydrogeologic Mapping, Environmental Studies, Resource Studies), United States Geological Survey (Aquifer Atlas, Ground Water Modeling, Mapping of Slag Fill Areas in Northwest Indiana, general water resource research), and the Environmental Protection Agency (Class I and Class V underground injection programs).

Indiana's Ground Water Quality Standards rule became effective on March 6, 2002. With the Ground Water Quality Standards in place, rules that regulate activities that have the potential to affect ground water are reviewed to "ensure that facilities, practices, and activities are designed and managed to eliminate or minimize, to the extent feasible, potential adverse impacts to the existing ground water quality" as required by the Ground Water Quality Standards rule.

With the standards in effect, agencies have worked to incorporate them into rules that regulate activities that may impact ground water quality. To date, the standards have been addressed in the Indiana Department of Environmental Management's rulemakings for

Wastewater Management; Land Application; Confined Feeding Operations; Solid Waste Management; and Hazardous Waste Management.

Additionally, the Indiana Department of Natural Resources has preliminarily adopted language that revises 312 IAC 25 (the regulatory requirements for coal mining and reclamation operations) which incorporates the ground water quality standards and the Indiana State Department of Health has preliminarily adopted language that revises 410 IAC 6 (the regulatory requirements for on-site sewage systems) which incorporates the ground water quality standards.

This signifies progress in protecting Indiana's ground water resource, but more work needs to be done.

What else is needed? Legislation passed in 1989 created an official Ground Water Task Force. This task force was designed, in part, to study ground water contamination in Indiana and coordinate, across agencies, the implementation of the Indiana ground water quality protection and management strategy. In 2002, the Task Force updated the strategy and identified major threats to Indiana ground water. The Task Force is prioritizing the threats and identifying steps to address the threats, but resources need to be dedicated to implement the steps.

The Indiana "Ground Water Program" gets about 760,000 dollars per year in 319 and 106 grant and State Revolving Fund set-aside money. Most of this money pays staff salaries. The available resources allow for administrative support of the Ground Water Task Force, basic coverage of a residential complaint response program, 305b ground water reporting, and the implementation of the wellhead protection and source water assessment programs. Indiana developed, and is now implementing ground water quality standards with some of this funding. Additional resources will be needed as Indiana moves from source water assessment to source water protection for the approximately 3200 ground water based public water supplies not subject to wellhead protection requirements.

The characterization of Indiana's ground water resources has been a work in progress. The

work needs to continue to provide a more complete picture: a variety of geologic mapping, modeling, resource evaluation, geochemistry, and contamination assessment must be done. Millions of dollars will be needed to do an adequate job of characterization and to set up the infrastructure to evaluate the information comprehensively. The existing levels of funding are not sufficient to accomplish this.

Currently, the ground water information in Indiana is disjointed and reflects a piece meal funding approach. However, Indiana retains the goal of integrating ground water information as resources allow.

