

# CHAPTER 3

## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

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### **Intended Use of Manual for INDOT and Local Projects**

**This manual has been written to set expectations for waterway permitting deliverables and review paths for projects developed by the Indiana Department of Transportation (INDOT). Other projects may also benefit from the guidance in this manual. Specifically, preparers of permits for local projects that receive federal funds and which follow INDOT standard specifications are encouraged to use this manual; however, INDOT does not review permits or other related deliverables for local projects.**

## CHAPTER 3

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

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### Introduction to USEPA Permitting

The United States Environmental Protection Agency (USEPA) is the primary regulatory agency for environmental quality in the United States. It administers most environmental protection laws, including the Safe Drinking Water Act (SDWA) and the Clean Water Act (CWA). There are two programs under these acts that may impact INDOT projects: Underground Injection Control and Sole-Source Aquifers.

### 3.1 Underground Injection Control

#### Background

The Underground Injection Control (UIC) program is authorized by the SDWA and protects drinking water quality by regulating the injection of waste fluids into the ground. The waste fluids originate from industries, municipalities, and small businesses during the process of mineral extraction. The purpose of the UIC program is to ensure that the hazardous and non-hazardous fluids are injected safely and cost effectively while fulfilling the mission to protect underground sources of drinking water (USDWs). These drinking water sources are protected from contamination by regulating the location, construction, operation, and closure of injection wells.

An USDW is an aquifer, or portion of an aquifer, that supplies any public water system (or contains a quantity of ground water sufficient to supply a public water system) and currently supplies drinking water for human consumption, or an aquifer that contains fewer than 10,000 mg/L total dissolved solids (TDS) and is not an exempted aquifer. There are five pathways to contamination from injection wells: (1) faulty well construction, (2) nearby wells that allow injected material to escape, (3) faults or fractures in confining strata, (4) direct injection, and (5) displacement of fluids from the injection zone to hydraulically connected USDWs.

There are six classes of injection wells:

- [Class I Wells](#) isolate hazardous, industrial, and municipal wastes through deep injection;
- [Class II Wells](#) injection wells associated with oil and gas production;
- [Class III Wells](#) minimize environmental impacts from solution mining operations;
- [Class IV Wells](#) prevent ground water contamination by prohibiting the injection of hazardous or radioactive waste above the lowermost USDW except as part of authorized cleanup activities;
- [Class V Wells](#) injection wells not included in Classes I, II, III, IV or VI; and
- [Class VI Wells](#) for geologic sequestration of gaseous, liquid or supercritical carbon dioxide (CO<sub>2</sub>) stream in subsurface geologic formations.

There are over twenty well subtypes included in the Class V category, the category that applies to some INDOT projects. These wells are typically used for safe injection of non-hazardous fluids through on-site disposal systems such as dry wells, septic systems, leach fields and similar types of drainage wells, and deeper wells (Figure 3.1). Most Class V wells depend on gravity to drain fluids directly below the land surface while others rely on gravity or use pressure systems for fluid injection. A Class V well is defined as any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an

improved sinkhole, or a subsurface fluid distribution system (an infiltration system with piping to enhance infiltration capabilities).



**Figure 3.1 Class V Wells**

INDOT activities that may fall under the Class V well regulations may include large-capacity septic systems (LCSS) in use at rest areas and for storm water drainage. An LCSS is an on-site method for partially treating and disposing of sanitary wastewater. The UIC regulations include septic systems that have the capacity to serve twenty or more persons-per-day.

Storm water drainage wells are used to remove storm water or urban runoff (includes rainwater and snow melt) from impervious surfaces such as roadways, roofs and other paved surfaces. Storm water drainage wells are primarily bored wells, dug wells, and improved sinkholes. It includes any subsurface drain field that releases fluid underground including French drains, tile drains, infiltration sumps, and percolation areas with vertical drainage. An improved sinkhole (a natural karst depression or open fracture that has been intentionally altered to accept and drain storm water runoff) is also included. EPA regulation over this type of well must be considered when working in the karst region in southern Indiana. See the INDOT Ecology Manual for more information on karst resources. Storm water drainage wells are vulnerable to spills or illicit discharges of hazardous substances due to their close proximity roadways, parking lots and facilities where the substances are handled. In addition, the runoff may be contaminated with sediments, nutrients, metals, salts, fertilizers, pesticides, and microorganisms.

There are two infiltrations systems that are not storm water drainage wells: infiltration trenches and surface impoundments or ditches. An infiltration trench is an excavated trench that is filled with stone to create an underground reservoir. It is usually wider than it is deep and may not contain any piping or drain tiles. A surface impoundment or ditch is an excavated pond, lagoon, or ditch with an open surface. The ditch can either be lined or unlined but it must not contain piping or drainage tile. If either of these systems contained a subsurface fluid distribution system is would be considered a Class V injection well.

#### Application Process

If the proposed INDOT project includes a Class V injection well, the project designer should verify with the INDOT EWPO what level of coordination is necessary with the USEPA. Storm water drainage wells

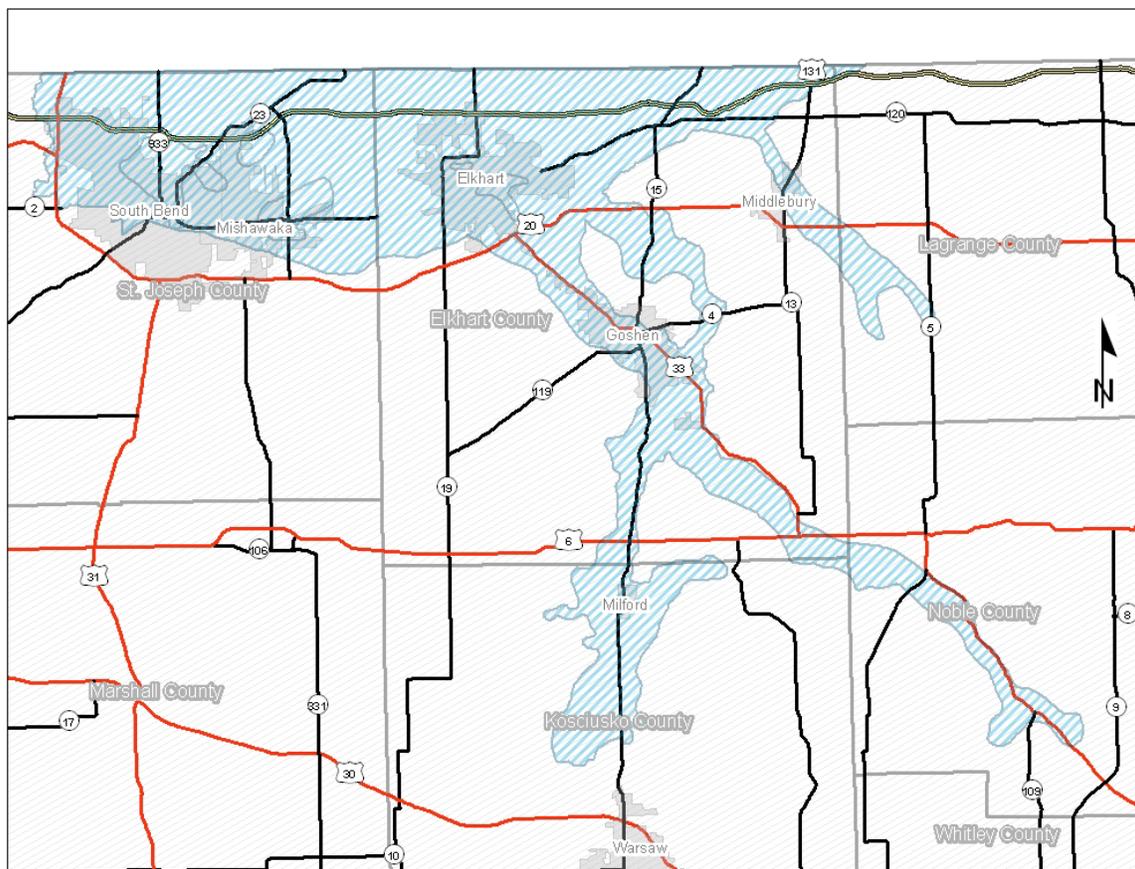
are “authorized by rule” (40 CFR 144). No permit is required if they do not endanger USDWs and they comply with the federal UIC program requirements. Endangerment would occur if the storm water contaminant resulted in a violation of drinking water standards or otherwise endangered human health.

### 3.2 Sole Source Aquifer

#### Background

An aquifer is a geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring. The Sole Source Aquifer (SSA) Protection Program is authorized by the SDWA (Section 1424(e)). USEPA defines a sole or principal source aquifer as one which supplies at least fifty (50) percent of the drinking water consumed in the area overlying the aquifer. These areas can have no alternative drinking water source(s) which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. All designated sole or principal source aquifers are referred to as "sole source aquifers" (SSA). A SSA is protected by requiring USEPA to review certain proposed projects within the designated area. All proposed INDOT projects receiving federal funds are subject to review to ensure that they do not endanger the water source.

Indiana’s only SSA is located in St. Joseph, Elkhart, LaGrange, Kosciusko, and Noble Counties (Figure 3.2). The St. Joseph Aquifer (53 FR 23682, published 06/23/88) is an unconfined aquifer that is open to contamination from the infiltration of surface water.



**Figure 3.2 St. Joseph Aquifer System**

The Memorandum of Understanding (MOU) between the Federal Highway Administration (FHWA), Region 5 and the U.S. Environmental Protection Agency (USEPA), Region 5, signed on April 18, 1989

states that FHWA will not “commit federal financial assistance to any project which EPA determines may contaminate a sole source aquifer through its recharge zone so as to create a significant hazard to public health.” The goal is to ensure that projects in the designated area that receive Federal financial assistance are designed in a manner that will prevent the introduction of contaminants into the aquifer in quantities that may create a significant hazard to public health.

The requirements of the MOU apply to any federally funded highway project that is wholly or partially within a sole source aquifer and to which one or more of the following criteria apply:

- Construction of additional through traffic lanes or interchanges, on existing roadways;
- Construction of a two or more lane highway on new alignment;
- Construction of a rest area or scenic overlooks with on-site sewage disposal facilities;
- Any project involving a new or existing well within a designated sole source aquifer area; and
- Any other project that FHWA, in consultation with USEPA, believes may have a potential to affect the designated aquifer through its recharge zone so as to create a significant hazard to public health.

### Application Process

When a project is within a SSA and meets any of the above criteria, INDOT must assure the USEPA that the project will not contaminate the aquifer. The project designer is required to perform this coordination, usually during the preparation of a project’s National Environmental Policy Act (NEPA) document. A *Sole Source Aquifer Screening* may be sufficient for the USEPA to prove that a project does not have the potential to adversely affect a sole source aquifer. The USEPA must approve a *Detailed Ground Water Impact Assessment* (GWIA) when they determine that the project has the potential to adversely affect the quality of the groundwater. USEPA may apply special conditions to such projects to assure that no contamination of the SSA occurs.

### 3.3 USEPA Coordination Scenarios

The following examples are provided to illustrate where coordination with the USEPA may be required. The final coordination need, and resulting project requirements, are determined by the USEPA.

- INDOT proposes a new rest area in Wayne County. All wastewater generated by this facility will be discharged to a septic tank system. Since this is a Class V injection well, coordination with the USEPA is required.
- INDOT proposes a resurfacing project in St. Joseph County. The project is located within the SSA and is federally funded. Work will be limited to the existing pavement. No coordination is required with the USEPA regarding potential SSA impacts.
- INDOT proposes a road widening project in St. Joseph County. The project is located within the SSA and is federally funded. Work will include added travel lanes and a new interchange. Coordination is required with the USEPA for potential SSA impacts.