

CITIZENS' GUIDE TO FRACKING PERMITS IN WEST VIRGINIA



WEST VIRGINIA
RIVERS

INTRODUCTION

In recent years, natural gas extraction by hydraulic fracturing (“fracking”) within the Marcellus Shale has been expanding in West Virginia. In addition to well pads where fracking occurs, additional infrastructure is required to transport gas to market and dispose of the waste products generated at well pads. Natural gas extraction and associated infrastructure impacts the environment and people living in close proximity.

Before any construction can occur, companies must apply for various permits designed to protect the environment. This guide describes five permits required by the State of West Virginia and explains opportunities for citizens to get involved during the permitting process.

GENERAL TIPS FOR WRITING EFFECTIVE COMMENTS

- **Clearly state your interest in the permit.**
- **Be as specific as possible.**
- **Ensure that all information in the permit application is correct.**
- **Describe any resources that would be impacted by the proposed project.**
- **Focus comments on the applicant’s compliance or lack of compliance with regulatory standards.**

GAS FIELD



Permits discussed in this guide are issued by the West Virginia Department of Environmental Protection (WVDEP) and include:¹

- **Well Work Permits,**
- **Construction Stormwater Permits,**
- **State 401 Water Quality Certifications,**
- **Underground Injection Control (UIC) Permits, and**
- **Landfill Permits.**

Importance of Citizen Involvement

Citizen involvement helps to hold permitting agencies and companies accountable to the law.

It is also an important way to speak up for the value of our land, waters, and community well-being.

¹Additional permits, including the WVDEP Air Quality Permit and the USACE 404 permit, are not included in this report.



Each permit allows the public to submit written comments describing potential impacts or inadequacies of permit applications.

WVDEP must review and respond to all comments received during the permit's comment period.

DEP Public Notice

To be informed of projects seeking permits, members of the public can sign up to receive notifications of permit applications in a geographic area of their choosing through the WVDEP's Public Notice Mailing List. To sign up, visit:

www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx.

Additionally, depending on the permit, parties with certain affected interests may file an appeal.



TEMPORARY COMPRESSOR STATION ADJACENT TO MARK WEST GAS PROCESSING PLANT IN MOBLEY, WV

WELL WORK PERMIT

BACKGROUND

WV State Code: §22-6 (all oil and gas wells) and §22-6A (horizontal wells)
WV Code of State Rules: 35 CSR 8

Well Work permits are required for any and all work to be completed on a well site, including preliminary work, drilling, fracturing, conversion to an injection or storage well, and other activities. Well Work permits are valid for two years.

WELL WORK PERMIT REQUIREMENTS

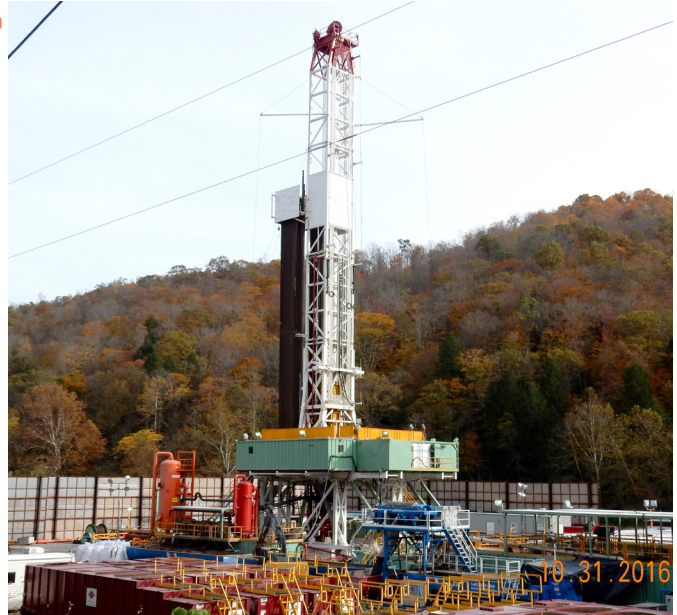
- description of well work to be completed, including depth of well, direction of the horizontal lines, and geological formations drilled;
- description of the process used to stimulate or fracture the well;
- details of the well casings to be used;
- an erosion and sediment control plan (see requirements in the West Virginia Erosion and Sediment Control Manual described in the Resources section);
- a site safety plan to protect persons on the site and the general public;
- a water management plan; and
- a waste disposal plan.

WATER MANAGEMENT PLANS

(35 CSR 8-5.6)

Any Well Work permit or related activity that requires water withdrawals also requires the permittee to submit a water management plan. This plan must include:

- details about withdrawal locations and volumes,
- anticipated additives to the water, and
- information about the disposal of the fluids following use.



EQT BIG 177: WELL PAD ON BIG RUN NEAR MOBLEY, WV

WASTE DISPOSAL PLAN

Fracking produces a variety of fluids that must be treated and/or disposed of properly. These fluids include flowback water (fluids that return to the surface within 15 days following injection), brine (fluids from the geologic formations crossed by the well that return to the surface following flowback), and drill cuttings. The disposal plan must include:

- anticipated volume of flowback water, and
- a disposal plan for all waste fluids and drill cuttings.

These materials can be disposed of in approved solid waste facilities (see the Landfill Permit section for more information) or, with approval of the surface landowner and WVDEP, onsite.

OPPORTUNITIES FOR CITIZEN INVOLVEMENT

PUBLIC NOTICE

Prior to filing an application for a Well Work permit, the applicant must publish a Class II legal advertisement in the county newspaper in which the well is located.

This notice will also be published on WVDEP's website: <https://apps.dep.wv.gov/MLists2/Archive/index.cfm?listID=1>

Affected parties—surface owners; coal owners; coal lessees and/or coal operators whose holdings will be impacted by the well; or surface owners or those who utilize water wells, springs, or streams within 1,500 feet of the proposed well for drinking water—must be notified individually. An operator can streamline this process by collecting waivers from all affected parties.

COMMENT PERIOD

WVDEP must consider comments filed by members of the public within 30 days of the last publication date of the legal advertisement.

PUBLIC HEARINGS

Public hearings are not held for these permits.

LEGAL ACTIONS

The general public cannot appeal these permits, and instead would need to pursue a claim in circuit court.

TIPS FOR WRITING COMMENTS

Per the state code, permits can be denied if:

- the proposed well work will constitute a hazard to public safety,
- the plan for soil erosion and sediment control is not adequate or effective,
- damage would occur to publicly owned lands or resources, or
- the proposed well work fails to protect water sources.

IMPORTANT THINGS TO DESCRIBE IN COMMENTS:

- Proximity to homes, schools, hospitals, and other places where the well could impact the public
- Proximity to public and private drinking water wells and surface water intakes. Any risk of contamination should be described
- Erosion and sediment control practices, especially if the well is within an area likely to affect a water body
- Storage plans for flowback or produced fluids. Determine whether flowback will be stored in a pit onsite or whether it will be hauled away by trucks. If stored onsite, assess containment plans. Storage pits pose greater risk of contaminating surface or groundwater
- Effectiveness of the Spill Response Plan to respond to a contamination event

UNDERGROUND INJECTION CONTROL PERMITS

BACKGROUND

WV State Code: §22-6 and §22-11

WV Code of State Rules: 47 CSR 13 and 47 CSR 58

Underground injection control (UIC) permits are required for wells that inject liquid waste underground. Within the natural gas industry, UIC permits for Class 2 injection wells are often associated with the disposal of flowback fluids generated at gas wells and are typically thousands of feet deep. The permits, regulated by WVDEP's Office of Oil and Gas, must ensure that measures are taken to protect surface and groundwater. Some contaminants of concern include volatile organic carbon compounds, metals, sodium, bromide, and radium. All UIC permit applications also require a Well Work permit application, covered on pages 3-4.

CLASS 2 UIC PERMIT REQUIREMENTS

- An extensive investigation within a one-quarter mile radius of the well—the Area of Review (AOR). All water supplies, public and private, within the AOR must be tested for a number of contaminants associated with oil and gas to establish pre-drilling baseline values for potentially affected wells
- A determination of the depth of all underground supplies of drinking water (USDW) to understand the potential for contamination. Fluids should only be injected deep underground in Class 2 wells if they will not contaminate drinking water sources near the injection site
- A model of the predicted path of the injection fluids
- A catalog and investigation of existing gas wells (active or abandoned) underground mines, and other features within the AOR for their potential to be impacted by injection fluids. If impacted by injection fluids, the permit applicant must propose corrective action and, once approved, complete that action
- Extensive geologic mapping demonstrating that the target formation will effectively confine the injected fluids
- Extensive mechanical testing of the well to ensure that it is sealed properly and able to withstand the pressures of injection



INJECTION WELL

AT MINIMUM, A UIC PERMIT MUST ANALYZE INJECTION FLUIDS FOR THE FOLLOWING:

Total Petroleum Hydrocarbons (GRO, DRO, ORO), BTEX, pH, Aluminum, Arsenic, Barium, Calcium, Chloride, Detergents (MBAS), Iron, Manganese, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Total Organic Carbon (TOC), Sulfate, Dissolved Methane, Dissolved Ethane, Dissolved Butane, Dissolved Propane, and Bacteria (total coliform).

OPPORTUNITIES FOR CITIZEN INVOLVEMENT

PUBLIC NOTICE

Citizens living near a proposed UIC well can find out about the well through a Class I legal advertisement in a local newspaper. Citizens who have signed up to receive notifications via the WVDEP mailing list for permits open to comment (see page 4) will be alerted to new UIC permit applications.

PUBLIC HEARINGS

A public hearing may be held if requested, but it is not required.

COMMENT PERIOD

A 30-calendar day public comment period will be held. The contact to submit comments to will be specified in the public notice.

LEGAL ACTIONS

Stakeholders may appeal the decision to grant or deny the permit at the West Virginia Environmental Quality Board.

TIPS FOR WRITING COMMENTS

IMPORTANT THINGS TO DESCRIBE IN COMMENTS:

- **Threats to water supplies, both surface and underground.** Look for ways injection fluids could enter water supplies. The permit application lists extensive requirements for cataloging and assessing public and private water supplies and for developing a plan to protect them. These sections should be reviewed for gaps. Constructive comments will discuss in detail the potential for contamination that the permit application may have omitted.
- **Risks for surface waters.** Surface water contamination could occur via spills on site; comments should address aboveground storage plans and spill response plans. Each stage of transfer of fluids has the potential to result in spills; therefore, it is important to examine the permit for methods used to capture fluids spilled during transfer. Understand onsite storage features (tanks, impoundments, etc.) and their relationship to surface waters. Craft comments that explore the risk of contamination from these features. Are proper measures being taken to avoid the release of contaminants?
- **Risks for groundwater.** The geologic assessment may provide opportunities to comment on the ability of the geology around the target formation to effectively confine the injected fluids. Review state and county geologic reports on the formations in question to help craft comments. Casing leakage due to faulty materials or corrosion has allowed contamination of groundwater. Review plans for ensuring casing stability.

STORMWATER PERMITS

BACKGROUND

WV State Code: §22-11

WV Code of State Rules: 47 CSR 10

When rain or melting snow (or “stormwater”) passes over disturbed surfaces, it collects pollutants—including sediment, chemicals, and debris—which can negatively affect stream health. WVDEP issued a General WV Water Pollution Control Permit (permit number WV0116815) to regulate stormwater associated with oil and gas development activities. Specific sites register under this general permit, which applies to natural gas infrastructure covering pipelines, compressor stations, storage pads (for tanks, equipment, etc.), and access roads to these facilities. Stormwater runoff from well pads and access roads to those well pads are covered by the Well Work permit.

This permit minimizes potential impacts to surface waters through best management practices (BMPs) to control stormwater runoff. While some erosion of exposed soil is unavoidable when it rains, proper BMPs will minimize the amount of sediment that reaches streams. All permit applicants must submit a plan for installation of BMPs with the permit application.

Projects disturbing greater than three acres are required to submit their registration materials 60 days before the project start date. Registration materials include:

- a Site Registration Application (SRA),
- an Erosion and Sediment Control Plan, and
- a Stormwater Pollution Prevention Plan (SWPPP).



CONSTRUCTION OF OHIO VALLEY CONNECTOR: A 30 INCH NATURAL GAS PIPELINE IN WETZEL COUNTY

Projects disturbing one to less than three acres have a simplified option for meeting stormwater permitting requirements, including:

- a notice of intent (NOI) form prior to starting construction;
- an SWPPP that must be kept onsite and provided upon request to WVDEP, but that is not subject to prior approval; and
- an SRA, if construction lasts longer than one year.

These permits do not specifically require monitoring, although WVDEP may request it.

STORMWATER PERMITS ON WVDEP WEBSITE:

Go to the website: www.dep.wv.gov

1. On bottom left under Permitting, click "Electronic Submission System"
2. Scroll down to bottom right, under Public click "Query"
3. Under Office, select "Water and Waste Management"
4. Under App Status, select "Open Applications"
5. Search by Applicant, Permit Number, or County

OPPORTUNITIES FOR CITIZEN INVOLVEMENT

PUBLIC NOTICE

Because these are registrations under a general permit, many of these permits do not require public notice, a comment period, or a hearing. But there are three important exceptions. Any natural gas project that meets any of the following criteria triggers public notice and a comment period:

- earth disturbance activities lasting one year or longer,
- disturbance of 100 acres or more, or
- discharges to Tier 3 (high quality) waters.

WVDEP keeps track of oil and gas projects and notes when projects connect to one another, effectively increasing in size. If a company applies for a permit to build a pipeline corridor that will disturb 40 acres and this disturbance will connect to an already-existing pipeline corridor that has disturbed 75 acres, the permit in question will be considered a modification of the original 75-acre permit and will cross the threshold at which public notice and comment periods are required.

PUBLIC HEARINGS

A public hearing will be held at WVDEP's discretion. If the permit is complicated, a project is thought to be controversial, or if there are substantial comments, a hearing may be scheduled; this hearing will be advertised and will open an additional 30-day comment period.

LEGAL ACTIONS

Stakeholders may appeal decisions at the West Virginia Environmental Quality Board.

COMMENT PERIOD

A 30-calendar day public comment period will be held, if triggered as described above.

TIPS FOR WRITING COMMENTS

IMPORTANT THINGS TO DESCRIBE IN COMMENTS:

- **Steep slopes.** Erosion and sedimentation is more difficult to contain during construction on steep slopes. Note any steep slopes in the proposed work area. Proposed BMPs should be adequate for the slope. Will the proposed BMPs handle the maximum estimated volume of sediment to be released?
- **Gaps in proposed BMPs.** Inadequate maintenance is the primary reason that BMPs fail (silt fences, for example). Straw and hay bales often are not sufficient. Does the SWPPP require maintenance for BMPs with appropriate schedules?
- **Stream crossings and stream impact areas.** Each stream crossing must have individual site plans that clearly define BMPs for controlling stormwater runoff.
- **Time frame for the construction.** Ideally, construction would be completed during dry seasons. Projects should be timed so that vegetation is planted during the spring and established before the bulk of runoff will occur; however, vegetation should be planted immediately regardless of the season. Examine the proposed schedule of events with these factors in mind.
- **Hazardous materials.** Hazardous substances, such as diesel fuel, must be stored with proper containment. Does the SWPPP properly prevent and/or contain spills? Is there reason to believe that hazardous substances will be released? The permit should not allow stormwater discharges containing hazardous substances.

STATE 401 CERTIFICATIONS

BACKGROUND

WV State Code: §22-1-6(d)(7) and §22-11-7(a)
WV Code of State Rules: 47 CSR 5A

WVDEP provides Section 401 Water Quality Certifications to complement Section 404 permits issued by the United States Army Corps of Engineers (USACE)² for projects that will result in discharge of dredged material to waters of the state. 401 certifications ensure that proposed activities will not harm water quality and that the project is in compliance with state water quality standards. Federal 404 permits must receive the state 401 certification before the federal permit can be approved.

401 certification applications must include:

- a detailed description of the project,
- identification of all wetlands in the project area,
- a description of waterways and watersheds that will be impacted,
- the area of wetlands and/or waterways that will be filled,
- dredge and fill materials (type and quantity),
- ways streams and wetland impacts have been avoided and minimized,
- an agreement to compensate for or lessen impacts if unavoidable impacts will occur, and
- a stream restoration plan.

OPPORTUNITIES FOR CITIZEN INVOLVEMENT

PUBLIC NOTICE

Applicants for projects requiring individual State 401 Certifications are required to publish a public notice in the local newspaper.

COMMENT PERIOD

The notice announces a 30-day public comment period.

PUBLIC HEARINGS

A hearing is not required; however, the public can request a hearing. If WVDEP decides to hold a hearing, all parties requesting the hearing must be notified and a Class I legal advertisement must be published.

LEGAL ACTIONS

Any person whose property is directly impacted may request a hearing to appeal the State 401 Certification decision within 15 days of the decision. WVDEP must then decide whether there are grounds for an appeal hearing.

² See resources section for more information on USACE 404 permits; federal permits are beyond the scope of this report.



WELL PAD GRADING: SITE PREPARATION FOR STONE ENERGY BOYERS WELLPAD NEAR NEW MARTINSVILLE

TIPS FOR WRITING COMMENTS

IMPORTANT THINGS TO DESCRIBE IN COMMENTS:

- Ensure all information (size of the project and streams and wetlands to be impacted for example) provided by the applicant is correct and complete.
- Assess whether the extent of wetlands and/or the length of streambed to be impacted were properly measured.
- Review the length of stream that would be impacted, duration of impacts, types of fill to be used, and cumulative impacts due to proximity to other similar projects.
- Suggest strategies to minimize and avoid impacts.
- Permit applications must include restoration plans. Review these plans, and evaluate the likelihood that these plans will restore the impacted waterways to their original condition.
- Evaluate methods used to cross streams, if any streams will be filled or culverted, and erosion and sediment control methods.
- Discuss alternative crossing methods that can reduce impacts to water quality.
- Note methods that, although possibly more costly, would lead to a final result that more closely resembles the waterway prior to impacts.

LANDFILL PERMITS

BACKGROUND

WV State Code: §22-15

WV Code of State Rules: 33 CSR 1

The relevance of landfill permits to the natural gas industry is somewhat indirect—a landfill permit is never required for any typical natural gas infrastructure—but the steep uptick in natural gas production, and especially the high volumes of wastes associated with fracking, has dramatically increased the need for waste disposal. Regulatory elements of fracking waste in West Virginia include:

- per USEPA guidelines, drilling wastes and associated materials are considered to be non-hazardous and as such may be accepted by a municipal solid waste (MSW) landfill;
- drilling wastes will not count toward the monthly waste limits normally imposed on Class A (30,000 tons per month) or Class B (9,999 tons per month) MSW landfills if those wastes are placed in separate cells constructed specifically for that purpose, but construction of these cells for the purpose of storing drilling wastes will require a minor permit modification from the WVDEP, an action that does not automatically trigger a public comment period;
- a Class B facility may apply for a permit modification to become a Class A facility; and
- exceedance limits and testing procedures for landfills to account for a variety of pollutants associated with drill cuttings.

Landfills accepting drilling waste have not had their permits modified to account for new drilling-related pollutants at their primary effluent discharge. Therefore, monitoring at landfills may not reliably document impacts of drilling wastes.



WETZEL COUNTY LANDFILL: DISPOSAL OF DRILL CUTTINGS

There are a number of requirements for a new landfill permit application, which are similar regardless of landfill class or type, including:

- complete designs of the facility;
- an operations plan;
- information about the service area;
- descriptions of anticipated waste streams and volumes of waste;
- a waste characterization assessment for certain classes of waste; and
- information about the proximity to various features such as homes and businesses, gas wells, underground mines, roads, and waters of the state.

A waste characterization assessment of the potential for pollution from the waste is a strict requirement for all Class F/Industrial facilities, including landfills that would accept solid by-products from water treatment plants that treat brine from gas wells.

Landfills will also need to secure an NPDES permit for compliance with the Clean Water Act. This permit provides another opportunity for comment.

OPPORTUNITIES FOR CITIZEN INVOLVEMENT

PUBLIC NOTICE

There are two public notices for landfill permits. The first begins with a “pre-siting notice,” and the second is held after WVDEP issues a draft permit.

COMMENT PERIOD

Two 30-day comment periods will be held: one during for the pre-siting notice and one after the WVDEP issues a draft permit.

PUBLIC HEARINGS

A public hearing is mandatory for pre-siting notice.

LEGAL ACTIONS

Stakeholders may appeal the decision to grant or deny the permit at the West Virginia Environmental Quality Board.

TIPS FOR WRITING COMMENTS

Landfills are unique in that they serve a public need (waste disposal), so in addition to the environmental concerns (below), anyone wishing to comment should look closely at the statements of need for the establishment of the facility. Will the facility address solid waste issues within the community? This question is central to the mission of the local solid waste board.

New landfills must address a number of environmental issues in their permit applications, including:

- Air quality, water quality, and the suitability of the underlying geology for long-term storage of waste. Each of the descriptions addressing these issues should be screened for errors and omissions.
- Nearby sensitive waterways should be identified, and the permit application should be assessed for plans to avoid impacts to those waterways.
- Likewise, air-quality restrictions where air quality already is unable to meet standards should be investigated.

Landfills are also subject to some level of oversight from both a local solid waste authority as well as the state Solid Waste Management Board, providing additional resources for engagement as well as information.

Presently, existing landfills are more likely to pursue a minor permit modification in order to construct cells for storing drilling waste.

There is no draft permit or public notice for a minor permit modification (per 33 CSR 1-3.18.b.1); therefore, opportunities for citizen involvement in this process are lacking.

These cells, however, may introduce new pollutants to the facility not covered under any existing NPDES outlet, providing a potential pathway by which citizens can request an NPDES permit modification to address these pollutants.

RESOURCES

The following resources provide information that may be useful when drafting comments and reviewing permit documents.

WVDEP OFFICE OF OIL AND GAS INTERACTIVE MAP

This interactive web map allows users to search for specific well pads and view all oil and gas wells across the state and provides production data and other information for active wells.

<http://tagis.dep.wv.gov/oog/>

WV WATER RESOURCES MANAGEMENT PLAN MAPPING TOOL

Drinking water source protection areas (zones of critical concern, zones of peripheral concern, and wellhead protection areas) across the state can be viewed on this interactive web map, which also includes WVDEP permitted facilities—oil and gas wells and mines for example—and environmental resources.

<http://tagis.dep.wv.gov/WVWaterPlan/>

MOUNTAIN VALLEY PIPELINE AND ATLANTIC COAST PIPELINE WEB MAPS

These two interactive web maps show the proposed routes of the Mountain Valley and Atlantic Coast pipelines along with a variety of environmental spatial data. Users can create custom maps and export images to be submitted with comments.

Mountain Valley Pipeline (Indian Creek Watershed Association):

<http://indiancreekwatershedassociation.org/mountain-valley-pipeline-information>

Atlantic Coast Pipeline (Dominion Pipeline Monitoring Coalition):

<http://pipelineupdate.org/>

WVDEP SECTION 303D LIST

This resource lists waters of the state identified as impaired by one or more contaminants.

http://www.dep.wv.gov/WWE/WATERSHED/IR/Pages/303d_305b.aspx

TOTAL MAXIMUM DAILY LOAD (TMDL) LISTS

TMDLs are strategic plans to restore water quality in waterways that have been identified as impaired. All new sources of contamination must be in accordance with the TMDL for a receiving stream.

<http://www.dep.wv.gov/WWE/watershed/TMDL/Pages/default.aspx>

WVDEP ANTIDEGRADATION TIER 3 WATERS

Tier 3 waters are those that have been identified as outstanding natural resources and, thus, receive special protections. Water quality in these waters must not be degraded.

WV State Code of State Rules §47-2A:
<http://apps.sos.wv.gov/adlaw/csr/readfile.aspx?DocId=22334&Format=PDF>

List and maps of streams:

http://www.dep.wv.gov/WWE/Programs/wqs/Documents/Tier%203%20Info/WV_Tier_3_Maps_20101006.pdf

WV EROSION AND SEDIMENT CONTROL FIELD MANUAL

This document outlines best management practices for erosion and sediment control. While reviewing permits, this resource will be helpful in determining whether planned erosion and sediment control methods will be sufficient to protect water quality.

<http://www.dep.wv.gov/oil-and-gas/Documents/Erosion%20Manual%2004.pdf>



RAW GAS FLARING NEAR EQT PLANT IN MOBLEY, WV

CODE OF STATE RULES

The Title-Series drop down list is helpful if you have a reference for a rule of interest. Otherwise, the page allows users to search on a number of attributes including agency, rule name, and effective dates. The WV Code of State Rules is hosted by the Secretary of State's office:

<http://apps.sos.wv.gov/adlaw/csr/>



HYDRAULIC FRACTURING IN PROGRESS: STONE ENERGY'S BOWYERS WELL PAD IN WETZEL COUNTY, WV

FREEDOM OF INFORMATION ACT (FOIA) REQUEST

WVDEP maintains information that must be made available to the public upon request according to the FOIA. Information that may be requested includes permit files and monitoring data required to be collected by permittees. When submitting a FOIA request, be as specific as possible—for example, a list of all coal mining permits issued in Monongalia County during 2012.

FOIA requests can be submitted to WVDEP here:

<http://www.dep.wv.gov/pio/Pages/FOIA.aspx>

WV STATE CODE

If you have a reference for a specific chapter and article, you can use the drop down list at the upper left of the page to select the chapter, and then the list at the left of the page to navigate to the article of interest. Alternatively, the search box at the upper right can be used to search on key terms. The WV State Code is posted by the WV Legislature website.

<http://www.legis.state.wv.us/wvcode/Code.cfm>

PHOTO CREDITS

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ABOUT

WV Rivers is a statewide organization dedicated to conserving and restoring West Virginia's exceptional rivers and streams.

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ACKNOWLEDGEMENTS

This document was funded with support from The Fracking Fund of the New World Foundation.

Downstream Strategies, LLC
(www.downstreamstrategies.com)
assisted in the development of this document.

This document is a project of the West Virginia Rivers Coalition (WV Rivers) to provide citizens with information on the state permits required for drilling, pipelines, and wastewater disposal facilities, with emphasis on the public's role in the permitting process.

**Downstream
Strategies**



Ideas that sustain.



**WEST VIRGINIA
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