



WATER MANAGEMENT PLAN APPROVAL/RENEWAL REQUEST INSTRUCTIONS (Unconventional Operations Only)

GENERAL INFORMATION

The following instructions are designed to assist the applicant in properly completing the *Water Management Plan Approval/Renewal Request* form 8000-PM-OOGM0087U. No person may withdraw or use water from water sources for drilling or hydraulic fracture stimulation of an unconventional well except in accordance with a Water Management Plan (WMP) as required by section 3211(m) of 58 Pa.C.S. sections 3201-3274 (relating to Development) ("2012 Oil and Gas Act") and 25 Pa. Code section 78a.69. Applicants are encouraged to contact the appropriate district oil and gas office regarding any questions concerning the completion of any part of a WMP.

I. APPLICANT AND PLAN COVERAGE INFORMATION

Provide the applicant name, DEP ID or OGO number (if available; only applicants that are unconventional well operators need to supply its DEP ID number), address, contact name and title, telephone number, and email.

Identify the oil and gas district where the water source is located and/or water will be used as described in this plan. Sources may be located in more than one DEP oil and gas district.

II. GENERAL WATER SOURCE INFORMATION

A. List of Proposed Water Sources

Provide a listing of the water sources proposed for withdrawal or utilization for drilling or hydraulic fracture stimulation of unconventional wells within the covered area. Only include sources that are proposed to be added as new sources, expired sources proposed for renewal, or sources where changes to the withdrawal or utilization are proposed.

- With respect to each source, identify the county, municipality, and major river basin where the source is located. Abbreviations are acceptable (e.g., DEL = Delaware River Basin; GL = Great Lakes River Basin (including the Genesee River Basin); OHIO = Ohio River Basin (including the Monongahela and Allegheny Rivers); POT = Potomac River Basin; and SUS = Susquehanna River Basin).
- With regard to each source, list anticipated 30-day average daily quantity of withdrawal in million gallons per day (MGD), and the proposed instantaneous maximum withdrawal rates in gallons per minute (gpm).
- Indicate the type and ownership details of the sources (the form uses check boxes).

Note: To reduce duplication, if a water source and amount are subject to approval by SRBC or DRBC, attach approvals [Docket approvals, Source 12 or Source 13 approvals, Inter-Basin Transfer approvals, and Approvals by Rule (ABRs)] or forward those approvals when issued.

B. Water Source and Use Monitoring Plan and Water Use Registration and Reporting

- For sources in Susquehanna River Basin, refer to a water withdrawal and consumptive use metering and monitoring plan meeting SRBC requirements. Water withdrawal and use monitoring plans approved meeting SRBC requirements may be incorporated by reference and are accepted by DEP.
- For sources in Delaware River Basin, refer to a water withdrawal and use monitoring plan meeting DRBC requirements. Water withdrawal and use monitoring plans approved meeting DRBC requirements may be incorporated by reference and are accepted by DEP.
- The plan should provide details of the recording, compilation, and maintenance of records regarding the daily amount of water withdrawn from each source and daily instream flow measurements, where applicable, and the monthly average amount of water withdrawn from each source. Water withdrawal data and instream flow measurements must be retained for a period of at least five years, and be available for review by DEP upon request.
- The plan should indicate that applicant will submit water withdrawal data to DEP on a quarterly basis utilizing the DEP GreenPort system, providing the daily water withdrawal values from each source. In order to allow for greater flexibility in reporting, applicant may also report daily water withdrawal values on a monthly basis.
- Coordination of Information Regarding Source Initiation: In order to assist in responding to public inquiries, DEP requests that those with approved WMPs to provide the DEP district office with notice prior to the first use of an approved source. This would be a one-time notification. The water source and use monitoring plan should include the procedure and a statement of intent by the applicant to provide oral or e-mail notice to the DEP district office prior to first use of each newly approved source, with the objective of providing such notice at least 48-hours prior to the first withdrawal. **This is intended as an information coordination process, not a permit condition.**

- For sources that are not subject to DRBC and SRBC approval, the water source and use monitoring plan should also:
 1. Identify the methods to be utilized for accurately monitoring the amount of water withdrawn from each source on a daily basis, and how such data will be recorded and maintained. Monitoring may utilize methods that can accurately measure the amount of withdrawal in accordance with the Section 78a.69 (e).
 2. Include a description of maintenance of the proposed measuring and recording devices to ensure accurate measurement of the water source.

Maximum Rate Compliance: Describe the methods proposed by the applicant for ensuring compliance with any maximum rate limitations on the withdrawal. Acceptable methods may include, without limitation:

- (i) physical constraints on equipment
- (ii) automatic limiters that cutoff or reduce pumping rates if maximum flow rates are exceeded
- (iii) flow monitoring and recording methods

Passby Flow Monitoring: Describe the method to be utilized to monitor compliance with any applicable passby flow conditions. Acceptable methods are:

- (i) utilization of an existing upstream or downstream gauging station
- (ii) utilization of a surrogate United States Geological Survey (USGS) or other established gauging station on another watershed in the geohydrologic area that would signal low flow conditions in the area
- (iii) installation and utilization of staff gauges or utilization of existing fixed water level markers (e.g., on bridges) that correlated to flow values
- (iv) other methods approved by DEP

Water Use Registration and Reporting

Will the total water withdrawn from listed sources and other sources operated by the applicant in same watershed exceed an average rate of 10,000 gallons per day in any 30-day period?

- If yes, the applicant must file a 25 Pa. Code, Chapter 110 Water Resources Planning Water Source Registration within 30 days of initiating a water withdrawal or use. Information on registering and reporting is available at: <http://www.pawaterplan.dep.state.pa.us/StateWaterPlan/WaterUse/WaterUse.aspx>

III. SPECIFIC WATER SOURCE INFORMATION

The WMP form requires specific information with respect to each source that varies depending on the type of source.

Surface water sources: provide the information required in section A.

Groundwater sources: provide the information required in section B.

Wastewater, cooling water, or mine water discharge sources: provide the information required in section C.

Note: Wastewater discharges include publicly owned treatment plants (POTWs) or acid mine drainage (AMD) treatment plants, and include other mine waters and cooling water sources.

Public water supply sources: provide the information required in section D.

A. Surface Water Sources

A.1. Source Identification and Notification

Describe location of proposed source relative to nearby roads or landmarks. Include GPS coordinates for the location of proposed source. Provide the latitude and longitude in decimal degrees (DD). This should be North American Datum of 1983 (NAD 83) and must meet the current DEP policy regarding locational accuracy. Check appropriate box for type of source approval (new, renewal or amendment). Attach a copy of a USGS 7.5-minute quadrangle map indicating location of proposed source.

A.2. River Basin Commission Approvals

When issued, a copy of the Susquehanna River Basin Commission (SRBC) or Delaware River Basin Commission (DRBC) approval must be supplied to the applicable DEP district office. If the source is subject to DRBC or SRBC approval, only complete the sections of the WMP form that are not subject to review and approval by DRBC or SRBC. DEP may rely upon the information gathered, data analyses performed, and expertise of the SRBC and DRBC regarding the proposed water source.

A.3. Operations Plan

The operations plan must include an intake design, a flow schematic showing how water is to be withdrawn, a site layout, and a footprint for each surface water withdrawal, as required by section 78a.69(c)(6)(i).

A.4. Stream Impact and Low Flow Analysis

Provide the method of computation for the low flow analysis of the source of water or submit copies of flow data (attach the explanation on separate sheet if necessary). For all run-of-stream sources, groundwater withdrawals that impact a stream and sources with limited storage, compute 7-day, 10-year low flow (Q_{7-10}) using low flow statistical data and appropriate hydrologic engineering techniques. Whenever an intake is located on an ungauged stream, the applicant must use an acceptable method for computing the Q_{7-10} . Such as, selecting a reference USGS gauging station and proportioning the yield based on drainage area, or utilization of information provided by StreamStats <http://water.usgs.gov/osw/streamstats/pennsylvania.html>

Any data provided should state the method used to measure the flow (current meter, weir, etc.), the dates of observation and the flow observed.

Notes:

- If using a reference gauging station and proportionate drainage area calculation, the selected gauging station must be on a watershed having similar geologic and climatic characteristics to those of the ungauged watershed. Other factors to consider are relative size of drainage areas and whether the reference gauging station is influenced by upstream reservoirs or other flow regulation activities. Up-to-date low-flow data for specific gauged watersheds may be obtained from the USGS district offices. Actual flow data collected at the project intake may be used to supplement the use of a reference gauging station.
- DEP considers StreamStats as one source of information for estimation of Q_{7-10} and average daily flow values, but in some cases it may not necessarily be the best source for determining such information. Attach StreamStats printout if used for Q_{7-10} determination.
- DEP encourages applicants to employ or engage professionals who are experienced with hydrologic issues to assist in evaluation of such flow issues.

A.5. Stream Classification and Uses

Identify designated water uses and existing water uses of the stream or other surface water body at the location from which the withdrawal is proposed.

Designated water uses are listed in 25 Pa. Code section 93.9 (relating to Designated Water Uses and Water Quality Criteria). A current copy of Chapter 93 of the Pa. Code can be obtained from the DEP district office or it can be viewed on the Legislative Reference Bureau website at:

<http://www.pacode.com/secure/data/025/chapter93/chap93ttoc.html>

A current list of existing water uses is maintained on the DEP website at:

<http://www.dep.pa.gov/Business/Water/CleanWater/WaterQuality/Pages/ExistingUse.aspx>

A current list of stream sections supporting natural reproduction of trout is located at:

<http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Pages/TroutWaterClassifications.aspx>

A.6. PA Natural Diversity Inventory (PNDI)

A PNDI search must be conducted prior to submitting a WMP. The PNDI database includes plant and animal species classified as threatened or endangered, special concern species, and rare and significant ecological features. The online PNDI Environmental Review and Project Planning Tool is available at <https://conservationexplorer.dcnr.pa.gov/>. If applicable, the applicant must provide documentation of resolution of any conflicts involving threatened or endangered species identified prior to submitting a WMP, if a sequential review was conducted. If a concurrent review is being conducted, the applicant must submit the PNDI Receipt, completed PNDI form and a USGS 7.5-minute quadrangle map with the project boundaries delineated on the map. If a source has a threatened or endangered species conflict, it should not be included in the WMP until resolution has been reached. If conflicts or concerns are identified for species other than threatened or endangered species, DEP will address these during their review of the WMP.

A.7. PA Historic and Museum Commission (PHMC)

The applicant must submit proof of consultation with the PHMC regarding the presence of historical or archeological site included on the National Register of Historic Places or Pennsylvania Register of Historic Places at the location of withdrawal.

A.8. County and Municipality Notification

The applicant must submit 1. a copy of correspondence notifying the county and municipal government of applicant's intention to submit a WMP and 2. evidence that the county and municipal government has received the notification. Acceptable forms of this evidence include certified mail receipt, proof of delivery from a commercial carrier, or written acknowledgement of the notification from the municipality.

Sources subject to SRBC and DRBC approval require notification to the county and municipality in accordance with SRBC and DRBC procedures. Sources not subject to SRBC and DRBC approval require a one-time notice letter provided to the county and municipality where the source is located prior to submission of the WMP or supplement to the plan first listing that source. The applicant needs to attach a copy of this notification letter along with the WMP application. Notification of the county and municipality is required for all new sources. Notification is not required for renewals or amendments to existing sources.

A.9. Withdrawal Impacts Analysis

Include a narrative impact analysis that addresses anticipated impacts (see specific impact questions in WMP form), and describes the methods proposed to avoid or mitigate impacts (i.e., proposed passby flow conditions or seasonal withdrawal scenarios). The description of anticipated impacts would include impacts after giving effect to the proposed avoidance or mitigation measures.

Certain agencies, including SRBC, have indicated Class A trout streams may be subject to the most limited impact on fish habitat applying a Pennsylvania Instream Flow Model (PIFM)-analysis, while other classes of streams may be subject to more liberal habitat impact criteria.

Note: If the proposed withdrawal is ≤ 10 percent of the Q_{7-10} flow at the point of withdrawal, there is a general presumption that impacts will be minimal and not significant, absent special circumstances. If there are no special circumstances, the applicant may reference the general presumption in the impact analysis, and avoid detailed responses to the following items. If special circumstances are not known, describe those circumstances, and address the questions listed in the form as applicable. Because applicants do not have access to detailed information on other withdrawals, DEP understands that applicants can only answer the question as to the relationship of their own withdrawal to the Q_{7-10} flow of the source. Situations involving cumulative withdrawal impacts may qualify as "special circumstances," and if DEP becomes aware of such a situation they may request further analysis of potential impacts if deemed necessary.

Notes for specific questions:

- a. The area of evaluation (e.g., distance downstream of the proposed withdrawal point) may vary depending upon the quantity and duration of the proposed withdrawal in relation to stream flow, and will be subject to an exercise of professional judgment.
- b. Indicate whether the applicant is aware of the particular items identified. It is recognized that DEP may have additional information on those items (i.e., regarding the location of downstream discharges) that will be considered during DEP's review of the plan.

A.10. Prevention of Rapid Movement of Invasive, Harmful, or Nuisance Species

Describe the measures to be taken to prevent the rapid movement of invasive, harmful, or nuisance species by vehicles, equipment, or other facilities from one site to another.

B. Groundwater Sources

B.1. Source Identification and Notification

Describe location of proposed source relative to nearby roads or landmarks. Include GPS coordinates for the location of proposed source. Provide the true latitude and longitude in DD. This should be NAD 83 and must meet the current DEP policy regarding locational accuracy. Check appropriate box for type of source approval (new, renewal, or amendment).

B.2. River Basin Commission Approvals

When issued, a copy of the SRBC or DRBC approval must be supplied to the applicable DEP district office. If the source is subject to DRBC or SRBC approval, only complete the sections of the WMP application that are not subject to review and approval by DRBC or SRBC. DEP may rely upon the information gathered, data analyses performed, and expertise of the SRBC and DRBC regarding the proposed water source.

B.3. Stream Impact and Low Flow Analysis

Prior to submitting a proposed groundwater withdrawal contained in a WMP, the applicant should conduct an aquifer test. Provide the method of computation for the low flow analysis of the source of water or submit copies of flow data (attach the

explanation on separate sheet if necessary). For all run-of-stream sources, groundwater withdrawals that impact a stream and sources with limited storage, compute 7-day, 10-year low flow (Q_{7-10}) using low flow statistical data and appropriate hydrologic engineering techniques. Whenever an intake is located on an ungauged stream, the applicant must use an acceptable method for computing the Q_{7-10} . Such as, selecting a reference USGS gauging station and proportioning the yield based on drainage area, or utilization of information provided by StreamStats <http://water.usgs.gov/osw/streamstats/pennsylvania.html>.

Any data provided should state the method used to measure the flow (current meter, weir, etc.), the dates of observation and the flow observed.

Notes:

- If using a reference gauging station and proportionate drainage area calculation, the selected gauging station must be on a watershed having similar geologic and climatic characteristics to those of the ungauged watershed. Other factors to consider are relative size of drainage areas and whether the reference gauging station is influenced by upstream reservoirs or other flow regulation activities. Up-to-date low-flow data for specific gauged watersheds may be obtained from the USGS district offices. Actual flow data collected at the project intake may be used to supplement the use of a reference gauging station.
- DEP views StreamStats as one source of information for estimation of Q_{7-10} and average daily flow values, but in some cases it may not necessarily be the best source for determining such information. Attach StreamStats printout if used for Q_{7-10} determination.
- DEP encourages applicants to employ or engage professionals who are experienced with hydrologic issues to assist in evaluation of such flow issues.

B.4. Stream Classification and Uses

Refer to section A.5 for directions to provide required stream classification and uses information.

B.5. PA Natural Diversity Inventory (PNDI)

Refer to section A.6 for directions to complete PNDI requirements.

B.6. PA Historic and Museum Commission (PHMC)

Refer to section A.7 for directions to complete PHMC requirements.

B.7. County and Municipality Notifications

Refer to section A.8 for directions to complete county and municipality notifications requirements.

B.8. Withdrawal Impacts Analysis

Because applicants do not have access to detailed information on other withdrawals, they can only answer this question as to the relationship of their own withdrawal to the Q_{7-10} flow of the source. Situations involving cumulative withdrawal impacts may qualify as "special circumstances" referred to in section A.9.

B.9. Well Report

Prepare and attach a Well Report explaining and including the following information as required by section 78a.69 (7)(i – v). This Well Report must include:

- A description of the methods and materials used to construct the well and a summary of the hydraulic characteristics of the aquifer. Information consistent with and sequenced in the same order specified in the Hydrogeologic Report requirements of the *Public Water Supply Manual - Part II Community System Design Standards*, Technical Guidance No. 383-2125-108; and the *Aquifer Testing Guidance for Public Water Systems*, Technical Guidance No. 394-2125-001 will satisfy this requirement.
- A detailed explanation of the proposed methods of well abandonment is consistent with Chapter 7 Well Abandonment Procedures of *Groundwater Monitoring Guidance Manual*, Technical Guidance No. 383-3000-001.

C. Wastewater, Cooling Water, or Mine Water Discharge Sources

C.1. Source Identification and Notification

Describe location of proposed source relative to nearby roads or landmarks. Include GPS coordinates for the location of proposed source. Provide the true latitude and longitude in DD of the location. This should be NAD 83 and must meet the

current DEP policy regarding locational accuracy. Check appropriate box for type of source approval (new, renewal, or amendment).

C.2. River Basin Commission Approvals

If obtaining water from a wastewater discharger located in the Susquehanna River Basin, complete and submit to SRBC the SRBC notice of intent (NOI) Approval by Rule Online Application. If obtaining water from a wastewater discharge located in the Delaware River Basin, complete and submit DRBC water withdrawal application. Attach a copy of the SRBC or DRBC's approval and insert the approval number and date issued in the appropriate place on the application. When issued, a copy of the SRBC or DRBC approval should be supplied to the applicable DEP district office. If the source is subject to DRBC or SRBC approval, only complete the sections of the WMP Application that are not subject to review, and have been approved by DRBC or SRBC. DEP will rely upon the information gathered, data analyses performed and expertise of the SRBC and DRBC regarding the proposed water source.

C.3. Operations Plan

The operator must submit an operations plan that includes an intake design, a flow schematic showing how water is to be withdrawn, a site layout, and a footprint for each surface water withdrawal as required by section 78a.69(c)(6)(i).

C.4. PA Natural Diversity Inventory (PNDI)

Refer to section A.6 for directions to complete PNDI requirements.

C.5. PA Historic and Museum Commission (PHMC)

Refer to section A.7 for directions to complete PHMC requirements.

C.6. County and Municipality Notifications

Refer to section A.8 for directions to complete county and municipality notifications requirements.

C.7. Wastewater, Cooling Water, or Mine Water Diversion Impact Analysis

If the proposed diversion of wastewater, cooling water, or mine water equates to ≤ 10 percent of the Q_{7-10} flow just below the point of the existing wastewater, cooling water, or mine water discharge; there is a general presumption that impacts will be minimal and not significant, absent special circumstances, and the applicant may reference the general presumption in the impact analysis and avoid detailed responses to the following items. If the applicant is aware of special circumstances, describe those circumstances and address the following items on the WMP form as applicable. Diverting of wastewater, cooling water, and mine water is not necessarily equivalent to withdrawing freshwater. In review of such sources, DEP may consider whether if and when a passby flow may be necessary where the diverted wastewater is > 10 percent of Q_{7-10} . Such a decision requires balancing of a number of factors, including the benefits derived from diverting the wastewater, cooling water, or mine water and thereby reducing the loadings and impacts of pollutants at the point they would otherwise be discharged, and the need for the wastewater, cooling water, or mine water flow in terms of supporting streamflow used for fish habitat and providing assimilative capacity for significant downstream discharges.

C.8. Prevention of Rapid Movement of Invasive, Harmful, or Nuisance Species

Describe the measures to be taken to prevent the rapid movement of invasive, harmful, or nuisance species by vehicles, equipment, or other facilities from one site to another.

D. Public Water Supply Sources

D.1. Source Identification

If obtaining water from a Public Water Supplier (PWS), provide the name of the PWS, the specific system name, the Pennsylvania Safe Drinking Water System (PADWIS) identification number, the location of the proposed withdrawal point, and a description of the withdrawal point. Include GPS coordinates for the location of proposed source. Provide the true latitude and longitude in DD of the location. This should be NAD 83 and must meet the current DEP policy regarding locational accuracy.

The description of the withdrawal point should include the type of water being withdrawn (raw or finished water), and the type of taking point (i.e., bulk water loading station, meter pit, direct customer connection). Check the appropriate box for type of source approval (new, renewal, or amendment).

D.2. River Basin Commission Approvals

Applicants seeking a WMP approval under this section in the Susquehanna River basin are to submit concurrently the appropriate authorization application to the SRBC pursuant to 18 CFR section 806.22(f)(12)(11).

D.3. Source Narrative

Section 3211(m)(2)(i) of the 2012 Oil and Gas Act requires that DEP make a determination that a proposed withdrawal will not adversely affect the quantity or quality of water available to other users of the same water sources, in this case a PWS. If obtaining water from a PWS, adverse impacts may include, but are not limited to:

- Diminution of the PWS's source(s) of supply
- A PWS exceeding its water allocation or Safe Drinking Water Act (SDWA) permit limits (thus causing adverse impacts to waters of the commonwealth, aquatic life, the environment, and other users of the water sources)
- Depletion of water storage
- Effect on system pressures or induce negative pressures
- Effect on fire flows
- Water outages
- Backflow or infiltration
- Tampering of a water supply
- Contamination of the water supply
- Depletion of disinfectant residuals
- Other adverse impacts to water quality

To aid DEP in making a determination, the applicant shall provide a description, in the application, of how the proposed activity will not adversely affect the quantity or quality of the PWS. The description may include, but is not limited to a discussion of the following:

- PWS's source and treatment plant capacity
- PWS's water allocation limits
- Operational controls and constraints
- Devices used at the proposed taking point

Applicants are encouraged to discuss how the proposed activity will not adversely affect the quantity or quality of the PWS. To facilitate that discussion with the PWS, the applicant should inquire about the PWS's responsibility to conduct an assessment that a withdrawal from its system related to the location and type of taking point, and volume and rate of withdrawal will not adversely impact water quantity or quality of the water available to other users of the water system, or to other users of the PWS sources. The PWS's assessment should include that it has:

- Obtained all necessary permits for bulk water loading stations
- Confirmed that meter pits and direct customer connections meet all design standards
- Provided cross connection control and backflow prevention
- Provided appropriate security measures to prevent unauthorized access or intentional/unintentional tampering
- Ensured compliance with all SDWA and Water Allocation permit conditions and operational limitations
- Verified monitoring and recording of all withdrawals or customer sales
- Ensured appropriate controls are in place to limit or suspend water sales due to operational needs or drought contingencies

To ensure on-going protection of the PWS, applicants should comply with any operational controls and constraints that are specified in bulk water or customer sales agreements. Applicants should also follow water loading instructions provided by the PWS. Bulk water customers should ensure that only permitted and approved bulk water loading stations are used for water withdrawals. The unauthorized taking of water from a PWS, the failure to comply with operational controls, or the taking of actions that cause adverse impacts to water quantity or quality may result in an enforcement action by DEP.

D.4. PA Natural Diversity Inventory (PNDI)

Refer to section A.6 for directions to complete PNDI requirements.

D.5. PA Historic and Museum Commission (PHMC)

Refer to section A.7 for directions to complete PHMC requirements.

D.6 County and Municipality Notifications

Refer to section A.8 for directions to complete county and municipality notifications requirements.

Major River Basins

