



Considerations for Public Water Systems Prior to Providing Raw or Treated Water to Oil and Natural Gas Companies

As development of shale-based oil and gas resources continues to expand in Ohio, oil and natural gas service companies (O&G companies) face a growing need for reliable sources of raw and finished water. This water may be used for a variety of purposes such as consumption by employees, dust control on access roads or as the primary component used for hydraulically fracturing the production well. Many O&G companies are turning to public water systems (PWSs) in order to meet the growing demand. This fact sheet summarizes some of the issues for PWSs in Ohio to consider prior to providing raw or finished water to O&G companies, including capacity, registration and permit requirements, engineering, emergency preparedness and security.

Volume and Type of Water

A PWS' approved capacity is the allowable rate at which water may be processed by a component of the water-supply source or water treatment plant (WTP). The three types of approved capacities (i.e., water-supply source, WTP and source/WTP system) are determined by Ohio EPA after considering the components of the water-supply source (e.g., a river, intake structure, storage, well field, well pump or ground water aquifer) and the WTP (e.g., a unit-treatment process, disinfection facility or WTP pump). Each type of approved capacity is reported in the PWS' plan-approval letter.

Because the impact will differ depending on whether the O&G company is drawing water from the water-supply source or the WTP, the PWS should determine the type of water (i.e., raw vs. finished) being requested. The PWS can then determine if it can satisfy the O&G company's request and still remain below the respective approved capacity. PWSs should stay below their approved capacity in order to avoid a violation of plan approval and to prevent negative impacts to the public, on the adjacent ecosystem or on nearby wells (e.g., localized drawdown) depending on the source.

In addition, the length of the contract can potentially impact the source water (e.g., variations in water availability) and surrounding areas because a long-term contract may require a greater volume of water than a short-term contract. PWSs should consider the potential for water-use restrictions (e.g., drought) when developing contracts with O&G companies.

Therefore, a PWS must determine both the volume and the type of water being requested by an O&G company in order to prevent any approved capacity exceedances and to ensure an adequate supply of water continues to be available to meet customer demand.

Note: Ohio EPA requests that PWSs notify their Ohio EPA district office of water sales to oil and gas companies for hydraulic fracturing purposes.

Registration and Permit Requirements

PWSs with the capacity to withdrawal 100,000 gallons per day (i.e., approximately 70 gallons per minute) or more should contact the Ohio Department of Natural Resources (ODNR) Division of Soil and Water Resources to discuss water withdrawal registration requirements.

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The use of water for hydraulic fracturing is considered consumptive use which may require the PWS to obtain additional permits from the ODNR Division of Soil and Water Resources, particularly if the water is withdrawn within the Lake Erie Basin. For additional information on registration and permit requirements, please consult ODNR's [Water Withdrawal Regulations for Oil and Gas Drilling fact sheet](#) or contact ODNR directly.

Engineering

There are two main methods for a PWS to supply water to an O&G company. These methods include the use of a bulk loading station/conventional overhead fill station to fill tank trucks that will transport water to the site, or the establishment of a physical connection between the PWS and the O&G company's facility (e.g., adding a service connection).

In order to prevent possible contamination, both approaches require backflow prevention appropriate for the degree of hazard. The backflow prevention device(s) shall comply with all standards and requirements outlined in Ohio Administrative Code (OAC) Chapter 3745-95.

Bulk Loading Station

Bulk loading stations are required to have an air gap device at the connection. Figure 1 includes two examples of acceptable air gap devices for use at bulk loading stations where water-hauling tank trucks are filled with raw or finished water from a PWS. It should be noted that, in either case, an air gap device is necessary and the water haulers must provide their own filling hose in order to prevent cross-contamination between tank trucks.

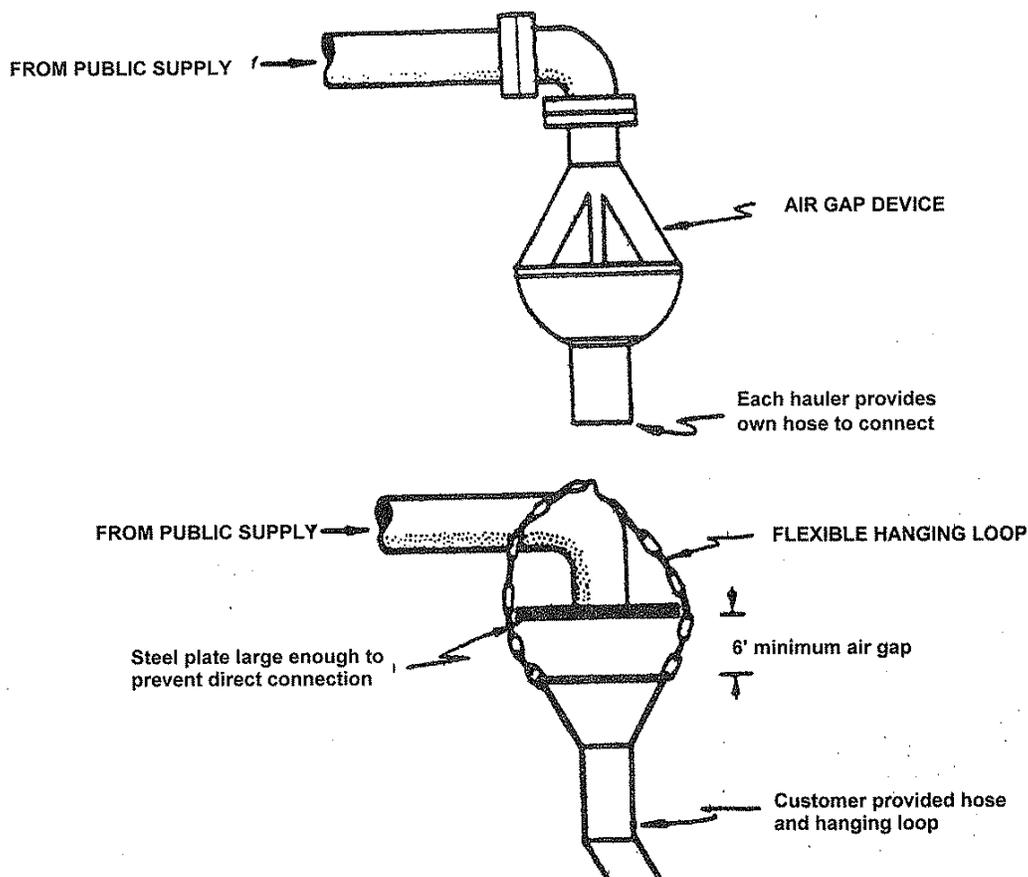


Figure 1. Examples of acceptable air gap devices at bulk loading stations (Source: Recommended Standards for Water Works, 2003, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers).

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Physical Connection

A PWS considering providing water to an O&G company through a service connection should determine the appropriate backflow prevention device for the degree of hazard, regardless of whether the connection is temporary or permanent. In most cases, Ohio EPA advises the use of a reduced pressure principle backflow prevention device.

Please note that a direct connection to a tank truck, which is or could be involved in transporting chemical solutions and other hazardous materials, poses a severe threat to the public water supply. Therefore, discharge to the tank must be through an air gap.

Ohio EPA discourages the use of fire hydrants as temporary bulk loading stations. PWSs should contact their Ohio EPA district office for additional information.

Detail Plan Submission

PWSs planning to install a new bulk loading station are required to submit detailed plans to their Ohio EPA district office for review. The plans should be prepared and submitted as specified by OAC Chapter 3745-91. Construction associated with the plans may not begin until the PWS receives plan approval.

PWSs planning to establish a new physical connection to supply water to an O&G company (new service connection, new distribution line, etc.) should contact their Ohio EPA district office to determine whether detail plan submission is required.

Emergency Preparedness and Security

In order to provide safe drinking water, PWSs must prepare their systems for emergencies and protect their systems from threats. All community PWSs are required to have a written contingency plan for providing safe drinking water to their service area under emergency conditions (OAC Rule 3745-85-01). When providing water to an O&G company, PWSs should update their contingency plan to include provisions for emergencies such as contamination incidents involving hazardous chemicals. PWSs should also consider the role of natural disasters (e.g., droughts or floods) and how they could impact the system's ability to provide a safe and adequate supply of water to its customers.

It is also recommended that PWSs consider additional security measures that may be necessary following any modifications to the WTP or distribution system. Completing a vulnerability assessment may also be helpful when identifying threats, prioritizing upgrades and making changes to reduce risks. Please consult the Resources section below for additional emergency preparedness and security references.

Resources

Emergency Preparedness and Security	
Reference	Description
Drinking Water Security for Small Systems Serving 3,300 or Fewer Persons	A guide for additional information on security, such as completing a vulnerability assessment at small PWSs (U.S. EPA, 2005, Publication No. 817-R-05-001).
A Water Security Handbook: Planning For and Responding to Drinking Water Contamination Threats and Incidents	Information about water security at all PWSs, regardless of size (U.S. EPA, 2006, Publication No. 817-B-06-001).

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Information on Shale-Gas Drilling in Ohio	
Reference	Description
http://epa.ohio.gov/MarcellusandUticaShale.aspx	Ohio EPA's webpage on shale gas and Marcellus Shale and Utica Shale
http://www.epa.gov/hfstudy/index.html	Information about U.S. EPA's study on the impact of hydraulic fracturing on drinking water
http://ohiodnr.com/tabid/23415/default.aspx	ODNR's webpage on shale production in Ohio
Water Withdrawal Regulations for Oil and Gas Drilling	ODNR's fact sheet regarding water withdrawal regulations associated with shale-gas drilling, including diversions and consumptive use in Ohio
Recommendations for Drinking Water Well Sampling Before Oil and Natural Gas Drilling	Ohio EPA's fact sheet for public and private drinking water well owners who are considering collecting samples prior to shale-gas drilling near their properties (2012)
Sources of Water for Hydraulic Fracturing Fluids	Ohio EPA's fact sheet to aid O&G companies in understanding Ohio's regulations regarding the withdrawal and use of various water sources for hydraulic fracturing purposes (2012)

Contacts

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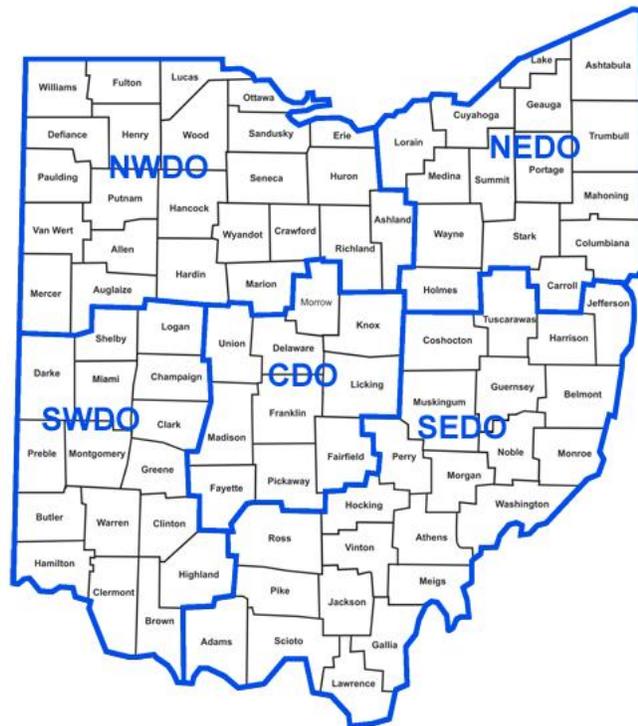
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