



**RECOMMENDED PRACTICES:
Water Pipelines**



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1.1 Purpose

These recommended practices address relevant considerations and guidelines for Water Pipelines and they support the Marcellus Shale Coalition (MSC) guiding principles.

The responsible development of natural gas from shale formations involves both the use of fresh water and the return of water from underground formations. Water is often transported by pipeline to facilitate its initial use as well as for recycling and re-use.

2.1 General Guidelines

These Recommended Practices are underpinned by the following:

Water pipelines can produce both environmental and economic benefits by reducing truck traffic and by supporting cost effective use of fresh water as well as recycling and re-use of water;

Recycling and re-use of water reduces the demand for fresh water and is a recommended practice of the MSC;

Land disturbances can be minimized by placing water pipelines in gas pipeline or other existing corridors;

Above ground water lines may be more appropriate for short term use whereas below ground lines may be considered for longer term operations;

Water pipelines must comply with all applicable regulations;

Operator contact information should be prominently displayed at appropriate locations; and

All applicable MSC Recommended Practices should be used in conjunction with this document.

2.2 Optimal Route Selection

While each company or project team may develop a unique strategy for a variety of reasons, a general theme to embrace for successful route selection involves the following steps:

Identification – identify sensitive resources that may need to be considered along the pipeline route

Minimization / Avoidance – try to reduce or eliminate those activities that would impact the identified sensitive resources.

3.1 Pipe Materials

Several materials are available for water pipelines. The choice is determined by factors such as the type of installation, intended use, length of time the pipe may be in use, ease of construction, availability and potential future uses for the pipeline. Many pipe materials are capable of handling fresh water. Pipelines carrying saline water should be limited to Polyvinyl Chloride (PVC), High Density Polyethylene (HDPE), metal pipes with corrosion resistant liners, or other compatible pipe materials.

The diameter of the pipeline is determined by factors such as the required flow rate(s), pipeline length, terrain, and pipe material.

3.2 Valves

Valves are used for isolating segments of pipelines as well as for draining liquids and venting pockets of air.

The possibility of leaks should be considered when designing a pipeline. For example, a pipeline could develop a leak due to an unforeseen event like third party excavation damage. In order to control the volume of water released by a leak, isolation valves should be installed. Consider installing these valves at the source and discharge points. Additional valves may be located based on site-specific and regulatory requirements. For example, isolation valves may be appropriate on either side of a stream crossing.

Drain valves should be installed at or near low points to allow for decommissioning of the pipeline and / or draining during maintenance periods. High points of the pipeline should be equipped with air / vacuum valves to allow for removal of trapped air and to allow for draining of the pipeline.

3.3 Pipeline Restraints

Above and below ground pipelines should be installed with appropriate restraints to prevent unwanted movement of the lines.

3.4 Operational Considerations

Pipelines should be hydrostatically pressure tested prior to initial use to ensure there are no leaks.

Operators should consider the potential environmental consequence of a pipeline leak and apply risk-mitigation strategies as appropriate.

Pipelines should be monitored during operation.

For pipelines carrying water other than fresh water, consider placing secondary containment under drain valves. Air venting should be monitored to prevent liquids from spilling on the ground.

Above ground pipelines should be protected with appropriate cover material in areas where vehicular access is needed.

For valves on above ground installations, consider using removable handles or installing locks to prevent unauthorized opening or closure.

If above ground pipelines are to be inactive for a prolonged period of time, consider draining them to prevent freezing.

4.1 Deactivation

When it is determined that the pipeline is no longer needed for current or potential future use, it should be deactivated and, if practical, removed in its entirety.

Prior to deactivating a pipeline, all water remaining in the pipeline should be removed.

This document provides general guidance on recommended practices for the subject(s) addressed. It is offered as a reference aid and is designed to assist industry professionals in improving their effectiveness. It is not intended to establish or impose binding requirements. Nothing herein constitutes, is intended to constitute, or shall be deemed to constitute the setting or determination of legal standards of care in the performance of the subject activities. The foregoing disclaimers apply to this document notwithstanding any expressions or terms in the text that may conflict or appear to conflict with the foregoing.



24 Summit Park Drive • 2nd Fl. • Pittsburgh PA 15275
412.706.5160 • www.MarcellusCoalition.org

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