

DRY HYDRANT MANUAL

A Guide for Developing Alternative

Water Sources for Rural Fire Protection

From code originally developed for Summit County, Colorado

ALTERNATE WATER SUPPLY POLICY

SCOPE:

This policy is intended to offer guidance and assistance to the property owner, contractor and developer in meeting the requirements of the Uniform Fire Code and Chapter 14 (as amended) of the Uniform Building Code for the provision of adequate water supplies for rural firefighting. This policy does not necessarily meet ISO requirements for installation of a draft fire hydrant.

GOALS:

1. To reduce ISO ratings.
2. To design each installation with the capability of flowing 1,000 gpm.
3. To obtain points for fire mitigation.
4. To function to protect life and property.

DEFINITION:

A draft fire hydrant is a specially designed and constructed fire hydrant, which has been approved by the Fire Department having jurisdiction. This draft fire hydrant shall be connected to a year-round draft water source of sufficient capacity to meet the fire fighting needs of the property(s) involved. Fire hydrants which are connected to a pressurized municipal watercourse are not covered by this policy.

PERMITS

- A. A review of the draft fire hydrant plans shall be completed by the Fire Department having jurisdiction prior to issuing a grading permit to allow construction of a draft hydrant. A site plan review shall be used to determine site-specific requirements including, but not limited to depth of pipe, required insulation materials, backfill requirements, and draft site requirement. Additionally, information containing drought conditions for the past 50 years may be required to be submitted.
- B. A statement signed by the owner of the property on which the draft hydrant will be located, shall authorize access to and use of the draft fire hydrant by the Fire Department and its agents. The Fire Department having jurisdiction will be using water under the presumption of non-injury/non-consumption for fire emergency use.

ACCEPTANCE TESTING

- A. All draft hydrants shall be subject to acceptance testing approved by the Fire Department having jurisdiction prior to being accepted as a water source. Acceptance testing shall include GPM verification of the water source. Maintenance and testing will return water within 200 feet of its drainage.

MAINTENANCE

- A. Draft fire hydrants require bi-annual testing and maintenance. The hydrants should be tested with a pumper. Back flushing followed by a pumper test at a maximum designed flow rate, with records kept of each test, is required. Tests of this kind will not only verify proper condition, but also keep the line and strainer clear of silt and the water supply available for any fire emergency.
- B. Any homeowner utilizing the draft hydrant who has obtained points for mitigation or an ISO classification shall be responsible at all times for keeping the draft hydrant and its protective barriers free from obstruction by vehicles, materials, structures, snow, or other obstructions, and shall maintain the draft hydrant in a serviceable condition at all times.
- C. It shall be the responsibility of the property owners using the hydrant for mitigation of ISO classification purposes to immediately notify the Fire Department having jurisdiction of any draft hydrant which is obstructed, damaged, or out of service for any reason.

DESIGN REQUIREMENTS

- A. All draft hydrants shall be located within eight (8) feet of a road maintained year-round. Access to the system shall conform to the road and bridge standards in Appendix D "Access and Water Supply".
- B. All draft hydrants shall have a single draft connection located a maximum of 30" measured from the grade level of the roadway where the fire apparatus will be parked to the top of the draft hydrant's threaded connection. Additionally, life shall be determined by measuring from year-round low level of the water surface to the truck intake.
- C. All draft hydrants shall have a draft tube running horizontally from the water source to the base of the riser consisting of a minimum of four (4) inch PVC. PVC pipe meeting AWWA specification C9000 with a SDR

of 18 or less may be required through or under foundations and under driveways (Schedule 80 pipe or its equivalent may be deemed necessary in some instances). All joints must be sealed watertight, airtight and rootproof.

- D. The piping shall be placed in bedding material of $\frac{3}{4}$ " washed or screen rock or in native soils, providing that the native soils contain no sharp materials or stone larger than two and one-half ($2\frac{1}{2}$) inches that may damage the piping.
- E. The bedding material shall be placed to a depth of four (4) inches below the pipe and six (6) inches above the top of the pipe.
- F. The draft fire hydrant pipe extending from the water source to the rise pipe connection shall have a grade of minimum .5% to a maximum 2% toward the water source. (This excludes the riser section immediately preceding the fire department connection).
- G. All draft fire hydrants shall have a single draft connection consisting of an approved fitting and cap having a 6" male NST threads. (Size of connection shall be determined by the Fire Department having jurisdiction.)
- H. No more than two elbows are recommended. Elbows may be 90 or 45 degree bends.

INSTALLATION REQUIREMENTS

- A. All draft fire hydrants shall be painted red in color (oil base paint) with reflective tape, to protect PVC pipe from the adverse effects of sunlight and to assist in the rapid location and identification by the Fire Department.
- B. All draft fire hydrants shall be protected from damage by snowplows, motor vehicles, etc., by the installation of three (3) steel pipes buried three (3) feet into the ground with four (4) feet extending above the grade level of the roadway. The entire pipe shall be filled with concrete. The protective pipes shall be located in a triangle configuration approximately three (3) feet away from the draft hydrant. Steel pipes shall be painted with red oil base paint and reflective tape.
- C. All draft hydrants shall be required to have a sign stating "draft hydrant" in a location acceptable to the Fire Department having jurisdiction.

The above policy is subject to change or modification by the Fire Department having jurisdiction.

MAXIMUM LIFT CONSIDERATIONS

Definition: Lift shall be determined by measuring from the lowest level of the water surface to the truck intake, which is 36" above grade.

Maximum vertical lift recommendations:

<u>Elevation</u>	<u>Do Not Exceed</u>
4,000 ft	13 ft
5,000 ft.	12 ft.
6,000 ft.	11 ft.
7,000 ft.	10 ft.
8,000 ft.	9 ft.
9,000 ft.	8 ft.
10,000 ft.	7 ft.