



Standard Practice for Monitoring Well Protection¹

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INTRODUCTION

This practice for monitoring well protection is provided to promote durable and reliable protection of installed monitoring wells against natural and man caused damage. The practices contained promote the development and planning of monitoring well protection during the design and installation stage.

1. Scope

1.1 This practice identifies design and construction considerations to be applied to monitoring wells for protection from natural and man caused damage or impacts.

1.2 The installation and development of a well is a costly and detailed activity with the goal of providing representative samples and data throughout the design life of the well. Damages to the well at the surface frequently result in loss of the well or changes in the data. This standard provides for access control so that tampering with the installation should be evident. The design and installation of appropriate surface protection will mitigate the likelihood of damage or loss.

1.3 This practice may be applied to other surface or subsurface monitoring device locations, such as piezometers, permeameters, temperature or moisture monitors, or seismic devices to provide protection.

1.4 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

2. Referenced Documents

2.1 ASTM Standards:

C 150 Specification for Portland Cement²

C 294 Descriptive Nomenclature of Constituents of Natural

Mineral Aggregates³

D 5092 Design and Installation of Ground Water Monitoring Wells in Aquifers⁴

3. Terminology

3.1 Definitions:

3.1.1 *barrier*—any device that physically prevents access or damage to an area.

3.1.2 *barrier markers*—plastic, or metal posts, often in bright colors, placed around a monitoring well to aid in identifying or locating the well.

3.1.3 *barrier posts*—steel pipe, typically from 4 to 12 inches in diameter and normally filled with concrete or grout that are placed around a well location to protect the well from physical damage, such as from vehicles.

3.1.4 *borehole*—a circular open or uncased subsurface hole created by drilling.

3.1.5 *casing*—pipe, finished in sections with either threaded connections or bevelled edges to be field welded, which is installed temporarily or permanently to counteract caving, to advance the borehole, or to isolate the zone being monitored, or a combination thereof.

3.1.6 *casing, protective*—a section of larger diameter pipe that is emplaced over the upper end of a smaller diameter monitoring well riser or casing to provide structural protection to the well and restrict unauthorized access into the well.

3.1.7 *riser*—the pipe extending from the well screen to or above the ground surface.

3.1.8 *sealed cap*—a sealable riser cap, normally gasketed or sealed, that is designed to prevent water or other substances from entering into, or out of the well riser.

3.1.9 *vented cap*—a cap with a small hole that is installed on top of the riser.

4. Significance and Use

4.1 An adequately designed and installed surface protection

¹ This practice is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.21 on Ground Water and Vadose Zone Investigations.

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² *Annual Book of ASTM Standards*, Vol 04.01.

³ *Annual Book of ASTM Standards*, Vol 04.02.

⁴ *Annual Book of ASTM Standards*, Vol 04.08.