

Vadose FLUTE Gas Sampling System

This is the oldest of the FLUTE systems. It has been in use since 1990. The Vadose FLUTE system has the following characteristics:

- Easily installed
- Seals the entire hole with a pressurized liner
- Draws the pore gas directly from the formation
- Easily removed
- Installed in holes drilled in many different ways.



The Vadose FLUTE liner is made of a rugged Nylon fabric with an impermeable polyurethane coating. The tubing in the liner is gathered in sleeves welded to the inside surface of the liner. Exterior permeable spacers over each port are welded to the liner to allow sampling from an area, rather than from a spot, on the hole wall.

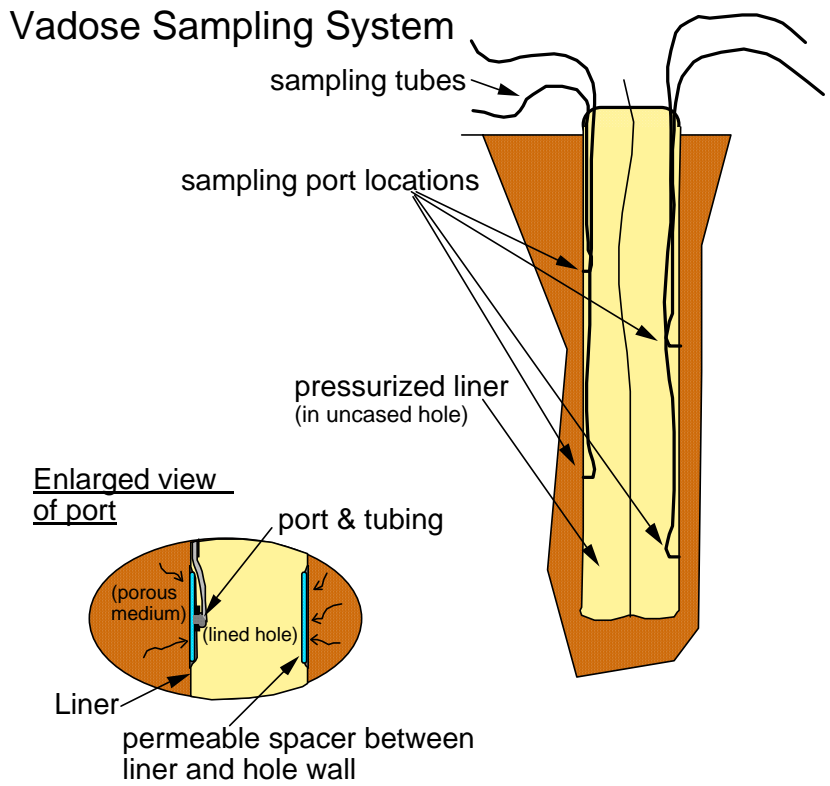
The Vadose FLUTE liner is normally installed by eversion (everting liner mechanism) from a pressure canister like that shown in the photo. However, many of these systems have been installed in unstable media through driven casing and filled with sand as the casing is withdrawn. A special procedure allows the sand fill to be matched inch by inch with the casing withdrawal. The sand filled liner can not be removed except by drilling out the hole. These liners are easily installed in any direction, even vertically upward.

As shown in the drawing, the interval to be sampled is defined by the spacer length on the outside of the sealing liner. The pore gas is drawn into the port, through the interior tube (on the inside of the liner), to the surface. Five to fifteen ports per liner are typical. The wellhead is usually built to the needs of the particular site.

In those situations where the liner is pressurized with air, a small solar panel and pump are provided to maintain the air pressure indefinitely. The air filled system is easily removed by the reverse of the installation procedure.

Vadose FLUTE liner sizes have ranged from 2-18" diameter and up to 800 feet in length. Some vadose liners have been in use for 10 years for tritium monitoring.

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Prices are available at [Vadose Prices](#). Ancillary equipment needs range from renting an air pressure canister to a “Slider”, depending upon the installation procedure to be used. Installation procedures are available at [Vadose Procedures](#). [Landfill monitoring](#) is an especially useful application of this system.

Experience

The Vadose FLUTE system has been used in the following states: NM, CA, WA, TX, AZ, NV, SC, ID, and UT. The system has been installed horizontally as often as vertically. The back fill materials range from air, and water to sand. Hole diameters range from 2-18 inches. Some installations were in place from 1991 to 2000 in Calif. for tritium sampling. Liner materials range from Nylon to silicon rubber, depending upon the application.

Contact us at 888-333-2433 for additional information.