

## SOIL VAPOR / SUB-SLAB VAPOR SAMPLING

DPA has the knowledge, experience, and resources you need to ensure your soil vapor / sub-slab vapor sampling work is done correctly. The presence or absence of the Vapor Intrusion pathway is generally determined by sampling for soil vapor in up to two (2) areas on a subject site, depending on current or future site configurations. If sampling is targeted for exterior or near slab areas outside of a structure, or in areas where a future building will be located, it is simply referred to as **soil vapor sampling**. Sampling done immediately beneath building slab or foundation is referred to as **sub-slab**. Some key points outlining the installation of soil vapor & sub-slab vapor sample points, along with the advantages of each, are discussed below. Scroll down this page to see some important considerations that are often overlooked during the fieldwork!

Post Run Tubing (PRT) (Very efficient for grab sampling) – PRT is a familiar technology in which a tool string is advanced to the target depth and the sampling interval is exposed. An o-ring adaptor with pre-measured length of ¼ tubing is fed down the rod and connected to the inside of the tooling string at the sample interval depth, which can then be sampled, or left in place while another location is installed, so that no delays are incurred waiting for equilibrium times. PRT is quick, simple, and involves minimal tubing connections.



Soil Vapor Wells (Grab samples or seasonal monitoring) - Involves advancing a 2.25-inch diameter tooling string to the target sample depth and setting a temporary or permanent soil vapor well. At the target depth, the soil vapor well material (screen tip or stainless steel screen with ¼ tubing) is installed into the borehole, followed by the installation of sand pack, dry granular bentonite and hydrated granular bentonite lifts to ground surface. If it is intended for a one-time grab sample, the tubing and screen materials are removed from the borehole after the sampling is completed. If it is to become a permanent soil vapor well, either a concrete pad with manhole or some other means of protection is installed. It is important to close off the tubing with a 3-way valve, stopcock, or Swagelok fitting in the case of a permanent soil vapor well. Nested wells are also possible in the same borehole if needed, by installing in a similar fashion. A variety of screen lengths and

implant tip configurations are possible. Temporary soil vapor wells can be easily converted to permanent locations during the day of drilling, eliminating costs of additional mobilizations, as long as the surface protection materials are available onsite.



VAPOR PIN<sup>®</sup> devices are becoming a popular way of collecting sub-slab samples (temporary or permanent). They can be installed quickly with hand held power tools during one mobilization, with minimal (small diameter) disturbance to concrete floors allowing for the installation of several pins in day. If more than one sample round is needed, the sample points can be capped and secured with a stainless steel lid, or plastic cover (Figure \_), allowing for sampling to be done at a later date. Standard Operating Procedures (SOP) and additional information regarding VAPOR PIN<sup>®</sup> devices can be found at [VaporPin.CoxColvin.com](http://VaporPin.CoxColvin.com).

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Questions about soil vapor / sub-slab sampling? DPA has answers and we are willing to provide additional resources in exchange for your decision to quote with us.

Here are just a few points to consider when scoping your project, and please note that each State, or Local program within each State, may differ slightly (check in advance):

Tubing(Nylon/Nylaflow, Teflon, or Teflon Lined, others)

Swagelok fittings required

Leak testing (required by most state agencies, a helium shroud is commonly accepted)

Equilibrium time (time for subsurface to equilibrate prior to sampling)

Purge Volume

Syringe or pump for purging

Sample Flow Rate

Field documentation forms pertaining to soil vapor sampling types being conducted

No sampling sooner than 24-48 hours of a 0.5-inch or more rainfall event

