

Introducing the TurboSleeve!

aka

New 4-Liter SuperSleeve

GeoInsight

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Introduction

When we developed the 2-liter SuperSleeve in 2009, we thought that 2-liters would be more than enough sample for all analysis excluding radionuclides. Compared to other no-purge methods the SuperSleeve provides a much larger volume of water than all other no-purge sampling devices and at a much lower cost per unit of sample.

Conversations with environmental laboratories have indicated that 2-liters of sample should be more than adequate for almost all analysis using standard laboratory equipment. However, limited sample volume has remained the most common technical issue we encounter when customers wish to switch from purging or low-flow sampling to no-purge sampling.

During one week in October, 2012 we had two consulting firms doing initial installations of HydraSleeves at different sites. Each firm requested extremely large volumes: 3 liters to as much as 7 liters of sample to be collected from 2-inch wells with 10-foot well screens (though the total volume of water available in a fully saturated 2-inch 10-foot well screen is only 6.4 liters).

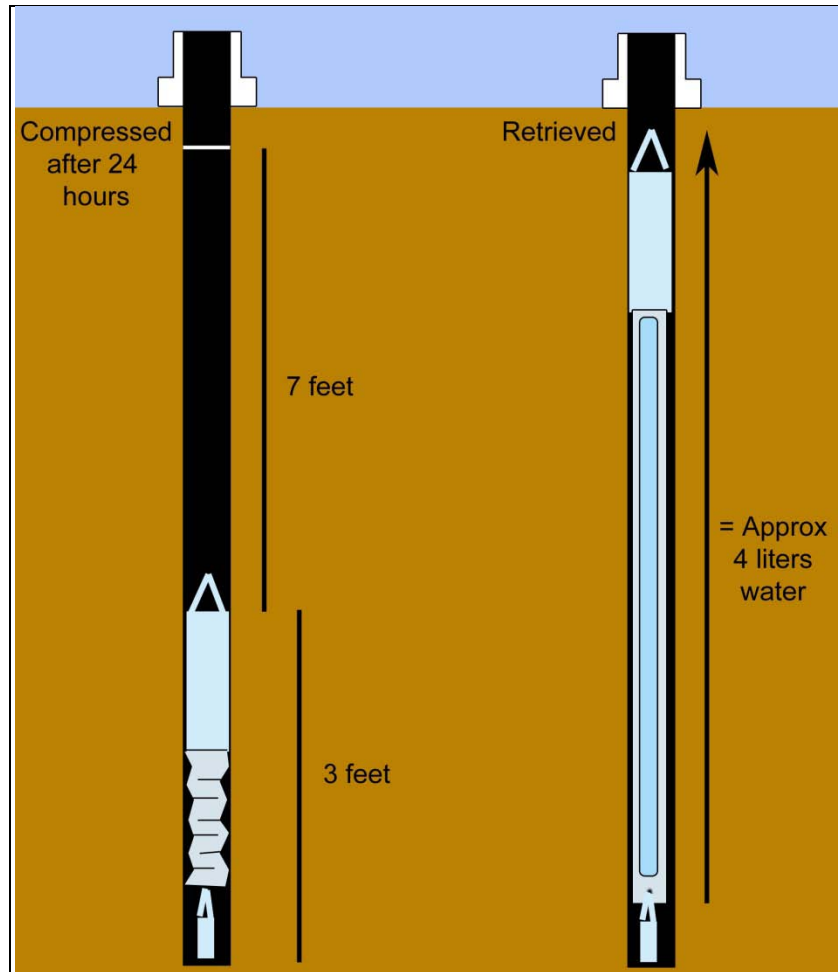
Both consultants asked their laboratory (coincidentally the same company) about reducing sample volume requirements and were told that it was not possible. The sample analysis was not particularly complex, yet the sample volume requested was huge.

Until now, we have been stacking 2 of the 2-liter top-weighted SuperSleeves in the screened interval and have been able to collect about 4 liters of sample. The problem we encountered with this method was that it definitely was not simple, at least compared to using a single SuperSleeve, and it was less reliable than using a single SuperSleeve.

To solve this problem, where occasionally very large sample volumes are required, we are happy to announce that we now have available a relatively simple approach to recover 4 liters of sample out of a 2-inch well with 10-foot screened interval. For now we are calling it a TurboSleeve.

Description and Technical Details

We have increased the size of the stainless steel top weight, tripled its total weight to almost 4 pounds, and created a customized, longer SuperSleeve (8 feet). When used with the larger top weight the TurboSleeve compresses to within 3 feet of the bottom of the well in 24 hours.



The TurboSleeve compresses to 3 feet in a 10 foot screen.

TurboSleeves actually fill faster than a 1:1 rate. This enables the new sampler to collect an eight foot core of water (approximately 4 liters) out of a saturated 10-foot, 2-inch well screen. Using a single long sleeve makes it much simpler to assemble, deploy and recover when compared to trying to attach multiple top-weighted samplers on a single tether and then having all the samplers compress in the well.

- Reusable Stainless/PVC Top Weight: 3.9 pounds; length 18 inches; outside diameter 1.9 inches
- Disposable Polyethylene Sleeve Length: 8 feet; O.D. when full 1.9 inches
- Reusable Stainless Steel 5-ounce bottom weight
- Compression <3-feet of bottom of well in 24 hours

Usage

To use the TurboSleeve begin by assembling and deploying just as you would a SuperSleeve.

1. Attach the bottom weight to the TurboSleeve.
 - a. Thread the stainless steel clip through the bottom of the sleeve.
 - b. Attach the bottom weight to the weight clip.
2. Attach the top weight to the TurboSleeve.
 - a. Insert the top of the sleeve into the bottom of the top weight until the top of the sleeve is well above the top lip of the top weight. Note: ensure the threads of the top weight are oriented up.
 - b. Screw the plastic top cap into the top weight. Ensure that the sleeve is locked between the top cap and the top weight.
3. Attach the tether clip into the holes in the top cap.
4. Attach tether to tether clip.
5. Deploy into well.
6. Be sure to leave at least 8 feet of slack in the tether so the weight can compress the sleeve into the bottom of the well.
7. Wait at least 24 hours before retrieving to ensure the sleeve is fully compressed.

Pulling an 8-foot flexible, water-filled, sleeve out of a well can be challenging, particularly if your field personnel are not very tall. Thus we suggest two people be available to recover the TurboSleeve.

Special considerations when using the TurboSleeve:

- When full, the TurboSleeve is heavy particularly when it clears the water table. Weight when filled and out of the water is 12-15 pounds.
- If there is a long column of water above the well screen the sampler will recover very slowly. When the TurboSleeve is full it will fit tightly in the well and act like a flexible piston as it is recovered through the water column.
- Unlike our standard HydraSleeves, the TurboSleeves are currently hand assembled. This may result in a higher incidence of pinhole leaks occurring than with our standard HydraSleeve.
- During recovery try not to jerk or drop the sampler. The hammer effect of an 8-foot column of water can be substantial when the sampler is out of the water.