Gas Well Workshop

Environmental Assessment – Chloride Testing

The chloride test strips come from Hach. What we use are the low range test strips (30 mg/l to 617 mg/l). The strips have a scale on them with an orange strip in the center that goes nearly to the top. The orange strip turns white in response to chloride and all you have to do is see how far up the scale the white ran. Reading the number at that point gives the concentration.

Tests are done two ways -- either by getting a sample in a container or by clipping the test strip onto a wood shim (from Lowes or some other builders' supply) and sticking the shim in the mud so that the bottom of the test strip is in the water but not touching mud.

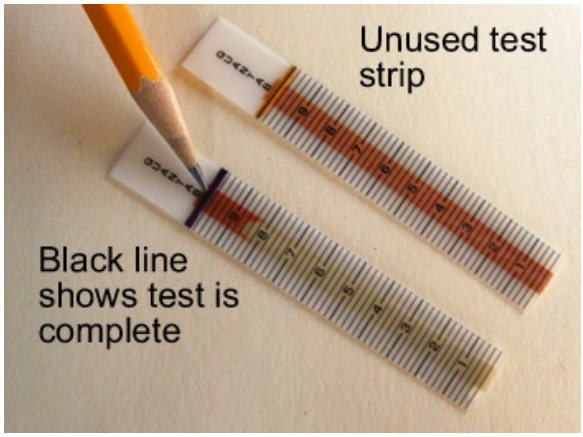
It's important when testing a sample that the whole test strip not be immersed. When the test is completed the red line at the top of the scale becomes black. That part of the test strip needs to be kept dry. We use binder clips to help hold the test strip on a shim or on a container.

Soil tests are a little more complex. We use plastic Ball freezer containers from the grocery store -- small ones (purple lids) for soil samples and larger ones (green lids) for testing. At home we dump the soil sample from the purple lid container into the larger container and mix with an approximately equal amount, by volume, of distilled water (also from the grocery store). The mixture is shaken for 30 seconds and then let left undisturbed to settle.

Some samples settle fairly quickly, some take a day or more. The test strip can't be set in mud or silt as particles will clog the orange strip. A clip holds the test strip at the right level.

It can take a while for a test strip to show final results, a few minutes or longer. Generally, if there is high chloride the test is faster. The only issue with the test strips is that they must be stored at 86 degrees or less. For summertime put just a few in a pill bottle and keep that in an insulated bag when out at a site.

The data provided by chloride testing is easy for us to analyse since there are criteria for waste management and water quality (both domestic water supply and rivers and such) in West Virginia. We figure if a test is over 30 mg/l then there is probably contamination.



Remember to identify samples/tests from a site and record the results. Plot locations on a sketch map. When possible measure distance from wellhead and take a compass bearing to wellhead (the compass will not work properly close to or at the wellhead).

Reading a Hach Test Strip for Chloride

Quantab scale

Up to 1.4.....Less than 32 ppm
1.4 32
1.6 38
1.8 45
2.0 52
2.2 60
2.4 68
2.6 76
2.8 85
3.0 94
3.2 104
3.4 115
3.6 126
3.8 137
4.0 150
4.2 163
4.4 177
4.6 192
4.8.....207
5.0.....224
5.2.....242
5.4.....261
5.6.....281
5.8.....303
6.0.....326
6.2.....350
6.4.....377
6.6.....406
6.8.....436
7.0.....470
7.2.....506
7.4.....545
7.6.....587
7.8.....634