

USE OF EIGHT WELL PURGING AND SAMPLING RECORD BY DON MCEDEWARDS, HYDROGEOLOGIST

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This article describes a groundwater well purging and sampling form that can be downloaded at www.rotapump.com. A click on the articles button will take you to a list of Monitoring Tips and Procedures articles, one of which is the sampling form. The form can be used to record indicator parameters pH, conductivity, temperature, etc., taken during purging of a groundwater monitoring well. The form is very concise and allows the data from eight wells to be recorded on one sheet of paper.

- **Modify Form for Use by Your Company**

The form is not copyrighted. You may modify it using WORD to display your company name, address, and telephone numbers and the particular indicator parameters you measure when purging your groundwater monitoring wells.

- **Calculate Five Well Casing Volumes**

The form provides a simple way to calculate the five well casing volumes **5CV** that must be pumped if pumping is continued because the indicator parameters don't stabilize or the well does not run dry. As indicated on the form, the monitoring well depth **Depth^(a)** in feet is recorded, the groundwater level depth **WL^(b)** in feet is measured, and height of the water column in the well **WC^(a-b)** is calculated by subtracting the groundwater level depth **WL^(b)** from the monitoring well depth **Depth^(a)**. The volume of five well casing volumes **5CV** is calculated by multiplying the height of the water column, **WC^(a-b)**, by a factor **0.816** gallons per foot for a 2" well and by a factor of **3.26** for a 4" well. For example, if **Depth^(a)** is 20 feet and **WL^(b)** is 6.51 feet, **WC^(a-b)** is 13.49 feet. For a 2" well, **5CV** is $13.49 \times 0.816 = 11.00$ gallons.

- **Calculate Cumulative Volume Increment at Which to Measure Indicator Parameters**

The **Gal** column on the form is used to record the cumulative gallons of equal volume increments at which the indicator parameters are measured. To make sure you don't run past the recording lines before five casing volumes are pumped, the minimum volume increment is calculated by dividing **5CV** by eight, the number of lines on the form. For example if **5CV** = 11 gallons, the minimum volume increment is 1.4 gallons so as not to outrun the form. In practice this would be rounded up to an easily measured volume such as 1.5 gallons.

- **Cumulative Volume Increment Must Be At Least Twice the Flow Cell Volume**

To obtain representative values of the indicator parameters, water in the flow cell containing the indicator parameter meters must be replaced by freshly pumped water between readings. To make sure this occurs, the cumulative volume increment must be at least twice the volume of the flow cell. For instance, the choice of an incremental volume of 1.5 gallons requires that the volume of the flow cell be no more than 3 quarts, which is quite large for a flow cell.

For more information about using Rotapump in your application, call Don McEdwards of McEdwards Manufacturing & Distribution at 707/354-4618, email rotapump@comcast.net, or visit www.rotapump.com.