# Attachment "P" Monitoring Program Zelman #1 Injection Well

### **Injection Fluid Samples**

A representative sample of the injection fluids will be collected and analyzed by a certified laboratory annually unless a change in the injection fluid is anticipated. In which case, Windfall Oil & Gas Inc. will submit a new analysis and wait for approval prior to injection. The analysis will consist of the following parameters:

PH Aluminum
Alkalinity Barium
Specific Conductance Calcium
T. Dissolved Solids Iron

ChloridesMagnesiumPotassiumManganeseTotal suspended solidsSodiumSulfateStrontium

A copy of each analysis will be supplied to the EPA. The initial sample analysis are included in attachment. H of this application.

## Injection Pressures, Rate and Volume

The tubing and annulus pressure will be continuously monitored with a 2 pen recorder. Annulus pressure will be monitored to ensure that mechanical integrity is being maintained during injection. Flow rates will be monitored with an in line flow meter and cumulative volume will be monitored with a flow meter totalizer, verified with containment level straps. Specific gravity will be measured with a dens-o-meter and bottom- hole pressure will be calculated in real time. Injection pressure, rates and volumes will be observed at a minimum of one time per week and recorded a minimum of one time per month. The above data shall be submitted annually to the EPA on Form 7520-11.

#### **Mechanical Integrity**

To demonstrate mechanical integrity in the wellbore; a pressure of 3700 psig will be applied to the 2 7/8 tubing x 4½ casing annulus; this pressure test will be observed and recorded. The test will be witnessed by an EPA representative.

This test will be performed prior to injection and no more than thirty (30) days prior to the fifth and tenth anniversary dates of the permit issuance. Additionally, this test will be performed whenever tubing is pulled, the packer is unseated or a well failure is suspected.

#### **Local Water Sources**

Local water sources have been sampled and analyzed by a certified laboratory. The analysis includes the same parameters as for the "injection fluid" listed above. Water samples will be collected and analyzed, annually, from at least four monitoring points indentified as 10-9-14; 7-9-13; 2-9-14 and 4-9-19 in the Hydrology report prepare by Resource Management Services Inc. Two additional water sources to be monitored were recommended by RMS however continued access to the supplies has been refused by the water purveyors. The complete Hydrology report is included as attachments D&E.

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