**Section 604.245 Well Testing and Records**

a) The specific capacity of the production well must be determined by a drawdown test before the well is placed in service.

b) Aquifer property data must be:

1) determined by using published values of transmissivity and hydraulic conductivity;

2) estimated by using specific capacity; or

3) determined by using a pump test with an observation well.

c) Pump Test

1) A pump test must be performed on every production well after construction and prior to placement of the permanent pump.

2) A pump test must have a capacity of at least 1.5 times the flow anticipatedat the maximum anticipated drawdown.

3) The test must provide, as a minimum, for continuous pumping for at least 24 hours at the design pumping rate or until stabilized drawdown has continued for at least six hours when test pumped at 1.5 times the design pumping rate.

d) The following information must be submitted to the Agency before the Agency will issue an operating permit:

1) pump test data:

A) the latitude and longitude of the observation well;

B) test pump capacity head characteristics;

C) static water level;

D) depth of test pump settings; and

E) time of starting and ending each test cycle;

2) static water level in the production well and observation wells;

3) pumping water level in the production well;

4) transmissivity in gallons per day per foot of drawdown (GPD/ft);

5) hydraulic conductivity in gallons per day per square foot (GPD/ft2) or feet per day (ft/day);

6) saturated thickness of the aquifer;

7) storage coefficient or specific yield (dimensionless); and

8) lateral area of influence calculated under 35 Ill. Adm. Code 671.

9) recording and graphic evaluation of the following, at one-hour intervals or less:

A) pumping rate;

B) pumping water level;

C) drawdown;

D) water recovery rate and levels; and

E) specific capacity, measured in gallons per minute per foot (GPM/ft) of drawdown.

10) a determination of the regional groundwater gradient and flow direction:

A) if the groundwater gradient and flow direction was estimated, provide the data and the source of the data;

B) if the groundwater gradient and flow direction was not estimated, provide the longitude and latitude of the wells used, well logs and the water elevations observed in the wells during the pump test;

C) provide the compass direction clockwise from north in degrees; and

D) provide the gradient.

11) geological data:

A) a driller's log determined from samples collected at 5-foot intervals and at each pronounced change in formation;

B) accurate geographical location, such as latitude and longitude or GIS coordinates;

C) records of drill hole diameters and depths;

D) order of size and length of casing, screens and liners;

E) grouting depths;

F) formations penetrated;

G) water levels; and

H) location of any blast charges.

e) Every well must be tested in accordance with AWWA A100, incorporated by reference in 35 Ill. Adm. Code 601.115, for plumbness and alignment. The test method and allowable tolerance must be clearly stated in the specifications submitted to the Agency.

f) The owner of each well must retain all records pertaining to each well's construction, maintenance and operation.