



## WATER ENERGY DISTRIBUTORS, INC.

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### Recharge Ideal Well Spacing for Two Well Application Technical Bulletin 2007-09

#### RESPONSIBILITY

When using a well water heat pump system, the responsible return of the water to the ground for the regeneration of the heat is the most important part of the external system's configuration. A responsible water recharge system satisfies heating/cooling, environmental, and economic requirements. This external system becomes the most visible part of your trade to the outside world. Do it right and do it responsibly.

#### SPACING

The spacing between the supply and recharge wells is a function of the energy stored in the Earth. The energy is derived from solar radiation on the Earth, air convection, and geothermal energy from the deep Earth itself.

Below 500 feet of depth, it is common that the geothermal energy increases the water temperature  $\frac{1}{2}^{\circ}\text{F}$  to  $\frac{3}{4}^{\circ}\text{F}$  per 100 feet of depth. These sources are stored in a vast reserve and it is easily tapped. The energy stored between a supply and recharge well, plus these restoration sources, provides us with the spacing requirements. Sources for this information is our practical experience, the National Water Well Association and Johnson Div, UOP Inc.

The spacing between a supply and recharge well maybe stated as:

$$\text{Idea Spacing (feet)} = \sqrt{(\text{BTU/Hr}) * .2}$$

Hence a 50,000 BTU/Hr installation would require a spacing between a well of 100 feet, or  $(50,000 * .2)^{\frac{1}{2}} = 100$  feet.

The table below lists spacing for nominal heating tons (12,000 BTU). Note: the minimum well spacing if 50 feet.

Tons	BTU/Hr	Ideal Supply to Recharge Well Spacing
1	12,000	50ft
2	24,000	70ft
3	36,000	85ft
4	48,000	100ft
5	60,000	110ft
6	72,000	120ft
7 ½	90,000	135ft

**Spacing for larger loads may require other considerations. Give our office a call for large commercial installations!**

#### NOTES