WELCOME !!!
‘Perfect’ Location to Develop the finest In-water Heat Exchangers
LIMA-1 GeoCirculator LimaSol

LIMA-1

Water reaches maximum density at 39.2°F/4°C...

If Water was similar to most other forms of matter, it would be a solid at 39.2°F/4°C... but,

As the temperature of water drops below 39.2°F/4°C..., water’s density begins to decrease until it forms ice at 32°F/0°C.

Accordingly, Water’s solid form – ICE, is in fact less dense than it’s liquid form. ICE is more buoyant and as such, “floats” on its liquid form.
Therefore,

If the temperature of a body of water is warmer (greater) than 39.2°F/4°C:

A colder temperature will sink ↓,

and a warmer temperature will rise ↑.

And, if the temperature of a body of water is colder (lower) than 39.2°F/4°C:

Both colder temperature ↑ and a warmer temperature ↑ will rise.
Heating: Lake => 40°F

Cooling: Lake => 40°F

Heating: Lake <= 40°F
LIMA-1
Series “F” - Split Core with independent Intake and Exhaust Porting for each core section. Coaxial Exhaust Chimney Design.
LIMA-1
GeoCirculator
LimаСol

Limnion Live from our Lab In Ontario, Canada

Time: 15:29:31
Date: 09/28/2012

101.41 °F LAT
71.37 °F EAT
Heat Pump Status: on

81.49 °F LAB interior
66.42 °F Exterior
76.99 °F Conduit
495.00 W GeoCirculator Pumps
16.97 Heat Pump GPM (US)
17.62 LIMA GPM (US)

101.41 °F LAT
71.37 °F EAT
Heat Pump Status: on

53.60 °F EWT1
45.72 °F LWT1
53.82 °F EWT2
46.85 °F LWT2
53.60 °F EWT1
45.72 °F LWT1
53.82 °F EWT2
46.85 °F LWT2

62.03 °F B
61.69 °F C
61.47 °F D
54.83 °F E
62.14 °F F
61.47 °F G
53.60 °F H

54.49 °F I

Heating Summer/Fall
H-S/F H-W C
Change Modes

Update
We are currently running "continuous" full load (7 TON water to air) heating tests. A 5 TON and 2 TON Heat Pump are operating through a single GeoCirculator and LIMA-1 unit. Air and Lake temperatures are steadily dropping as we move into FALL...please contact us at info@limnion.com with comments and questions.
\[ q_L = \text{Load} \]

\[ q_S = \text{Source} \]

\[ \text{Btu/h @ Heat Pump(s) (H@E or H@R)} = q_L \]
\[ q_L = \frac{(T_1 + T_2 + T_3)}{3} - \frac{(T_4 + T_2 + T_3)}{3} \times F_1 \times (8.35 \times 60) \]

\[ \text{Btu/h @ LIMA(s) (H@E or H@R)} = q_S \]
\[ q_S = \frac{(T_1 + T_2 + T_3)}{3} - \frac{(T_4 + T_2 + T_3)}{3} \times F_2 \times (8.35 \times 60) - (Cp \times 3.142) \]
Thank you...

We invite your comments and questions.