Staff Interrogatories 12/15/2015

12/23/15 Response

14-2254-EL-REN, Zanesville Energy LLC

1. PUCO came back with this formula for incorporating the heat capacity of a 50:50 mix of water and glycol.

$$Q = V\ \rho\ C\ h\frac{(T1 - T2)}{F}$$

$Q = Megawatt\ hours\ of\ thermal\ energy$
$V = volumetric\ \ flow\ rate\ of\ glycol/water\ mixture, 175\ gallons\ per\ minute$
$\rho = density\ of\ glycol\ mixture, 8.34\ lb\ per\ gallon$
$C = heat\ capacity\ of\ glycol/water\ mixture, 0.89\ \frac{BTU}{lb\ ^\circ F}$
$h = number\ of\ minutes\ the\ CHP\ unit\ operated\ in\ a\ month$
$T1 = hot\ temperature\ of\ CHP\ unit\ heat\ loop, ^\circ F$
$T2 = cold\ temperature\ of\ CHP\ unit\ heat\ loop, ^\circ F$
$F = conversion\ factor, 3{,}412{,}142\ \frac{BTU}{MWH}$

Response: We agree with this formula.

2. Can portable flow meter testing frequency be increased? How is a reading that is +/- 10% from expected flow in GPM managed?

   Response: We will use the portable flow meter to test quarterly (4x/year). In the event of a flow meter reading that is +/-10% from expected flow in GPM, the following steps will be taken;

   a). perform maintenance on pump
   b). replace pump
   c). discount REN for the quarter if reading is -10% from expected reading.

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Summary: Reply electronically filed by Mr. Bruce Bailey on behalf of Zanesville Energy, LLC