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DIVISION OF AIR
RESOURCE MANAGEMENT

February 5, 2013

Mr. Jeff Koerner
Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blainstone Road
Tallahassee, FL 32399 – 2400

Via FedEx
Airbill No. 7946-7729-4319

Mr. David Read
Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blainstone Road
Tallahassee, FL 32399 – 2400

Via FedEx
Airbill No. 7946-7730-5700

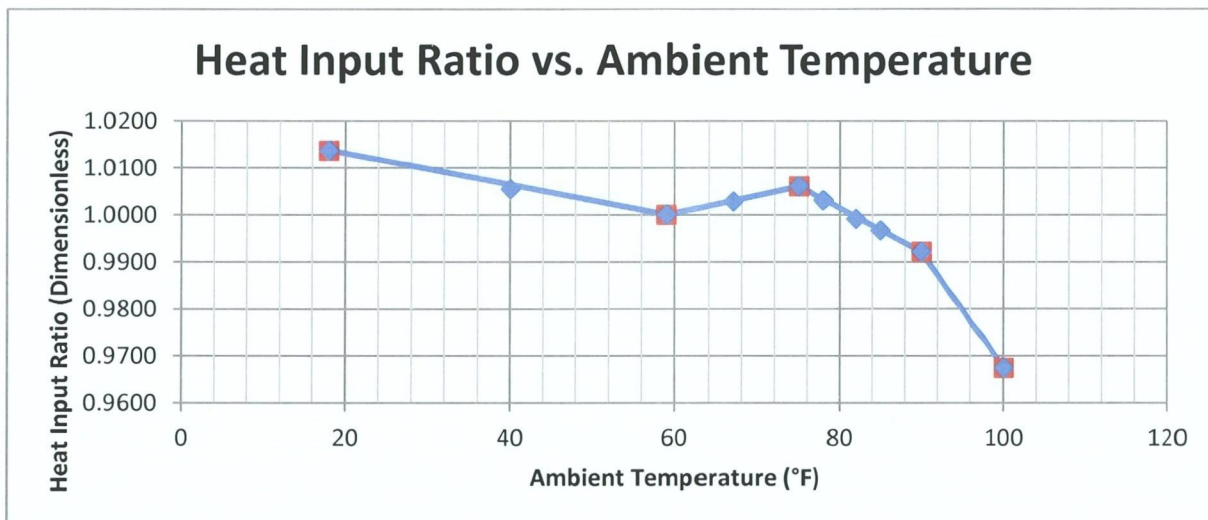
**Re: Tampa Electric Company
Polk Power Station EU – 001
Permit No. 1050233 – 028 – AV
Heat Input Correction Curves**

Dear Mr. Koerner & Mr. Read:

Below please find heat input correction curves for approval of the Department for use. This is in reference to permit number 1050233 – 028 – AV condition A – 3. The graphs include heat input ratio vs. the ambient temperature, syngas temperature, DGAN temperature, and air extraction flow.

Correction of Heat Input Ratio in Regards to Ambient Temperature

Performance data from GE can be seen below:



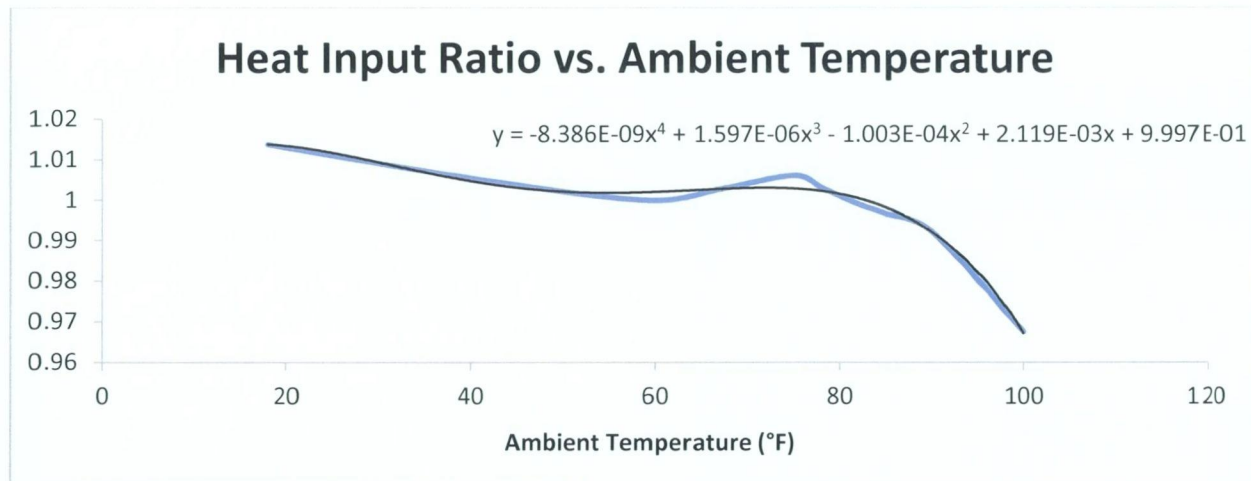
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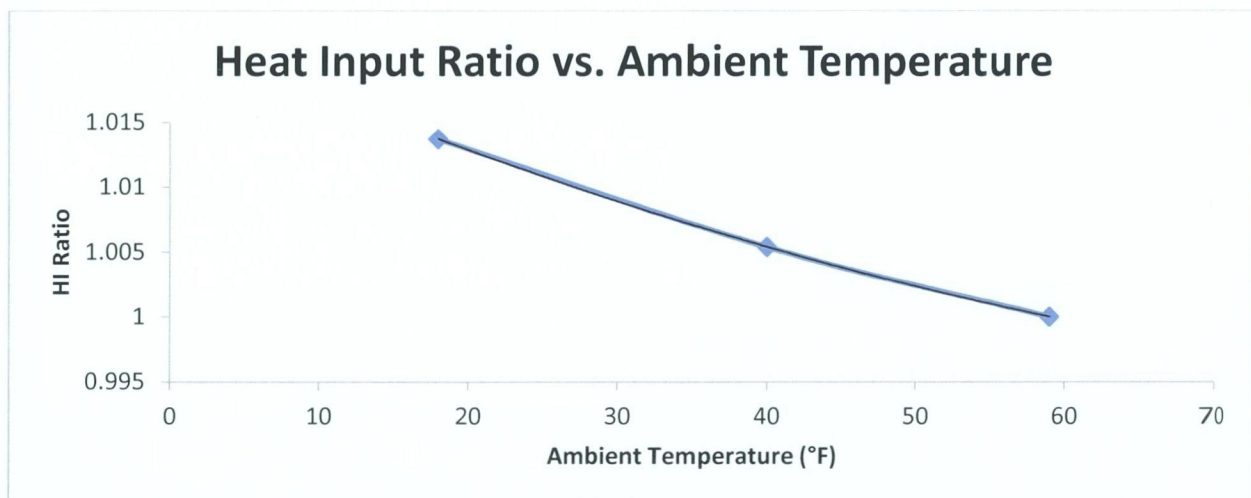
The “best fit” description of the curve results in a 4th order polynomial as seen in the following curve:



This polynomial doesn't capture the correction over the majority of the operating ambient air conditions at the site.

Tampa Electric requests to treat the curve as three distinct line segments (18°F to 59°F, 59°F to 75°F, and 75°F to 100°F) to provide a correction factor that better represents the original data. The breakdowns would look like this:

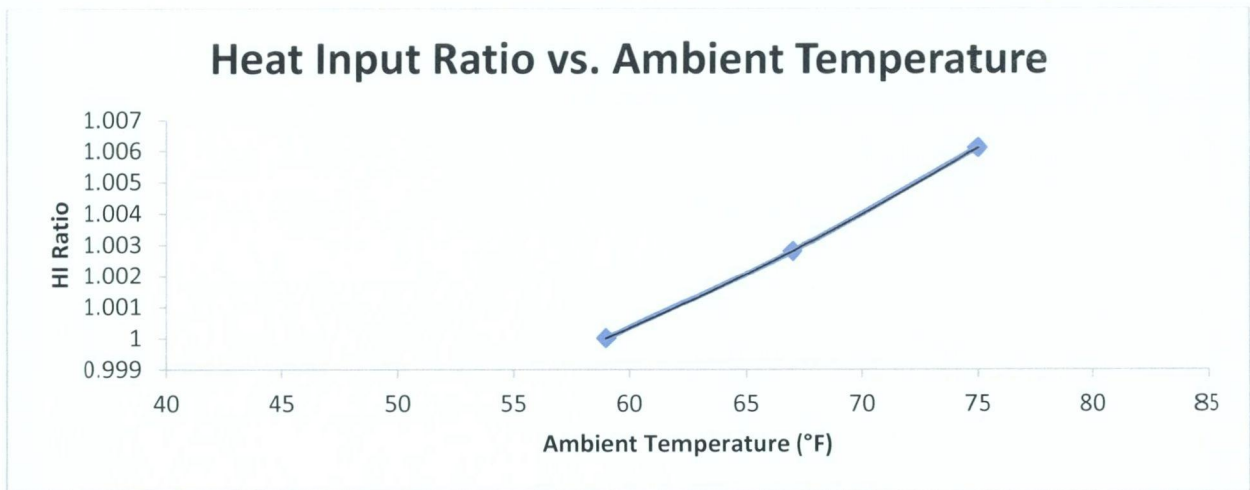
The 18°F to 59°F line segment



Described by a second order polynomial:

$$y = 2.207E-06x^2 - 5.089E-04x + 1.022$$

The 59°F to 75°F line segment

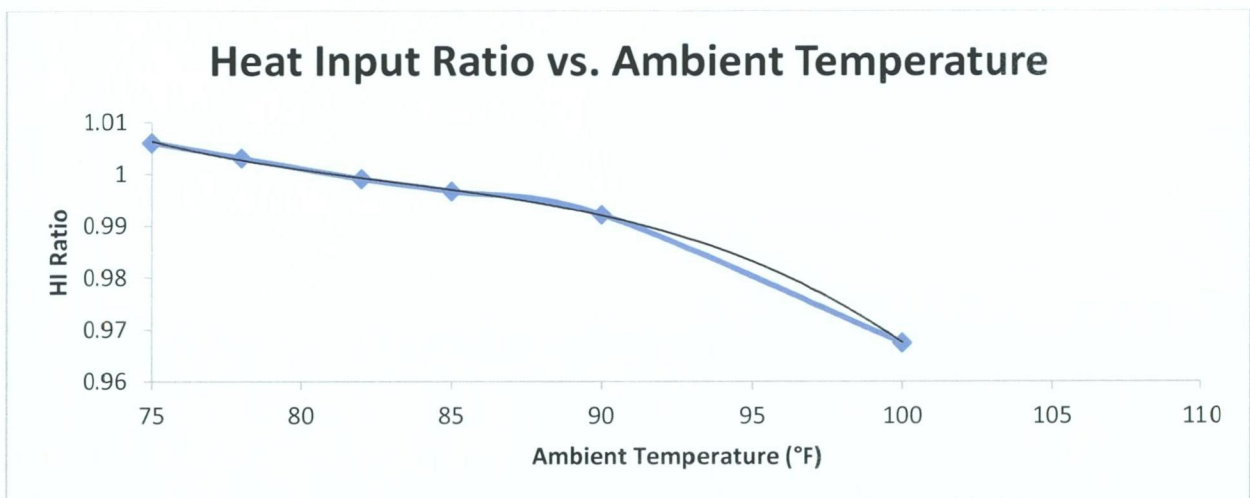


Described by a second order polynomial:

$$y = 3.906E-06x^2 - 1.422E-04x + 9.984E-01$$

And finally,

The 75°F to 100°F line segment

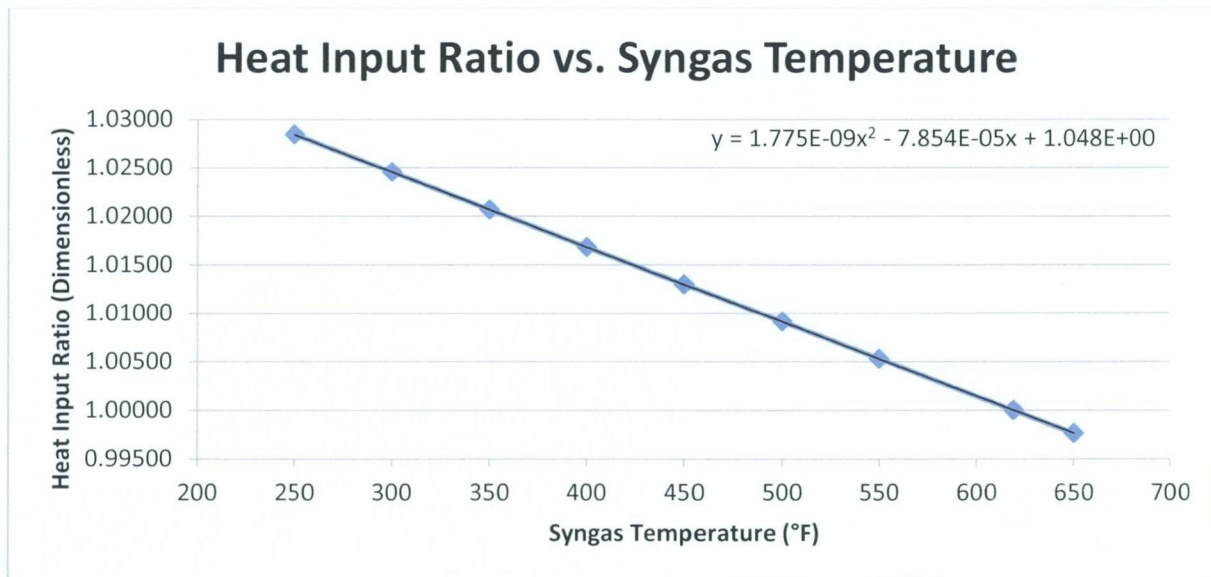


Described by a third order polynomial:

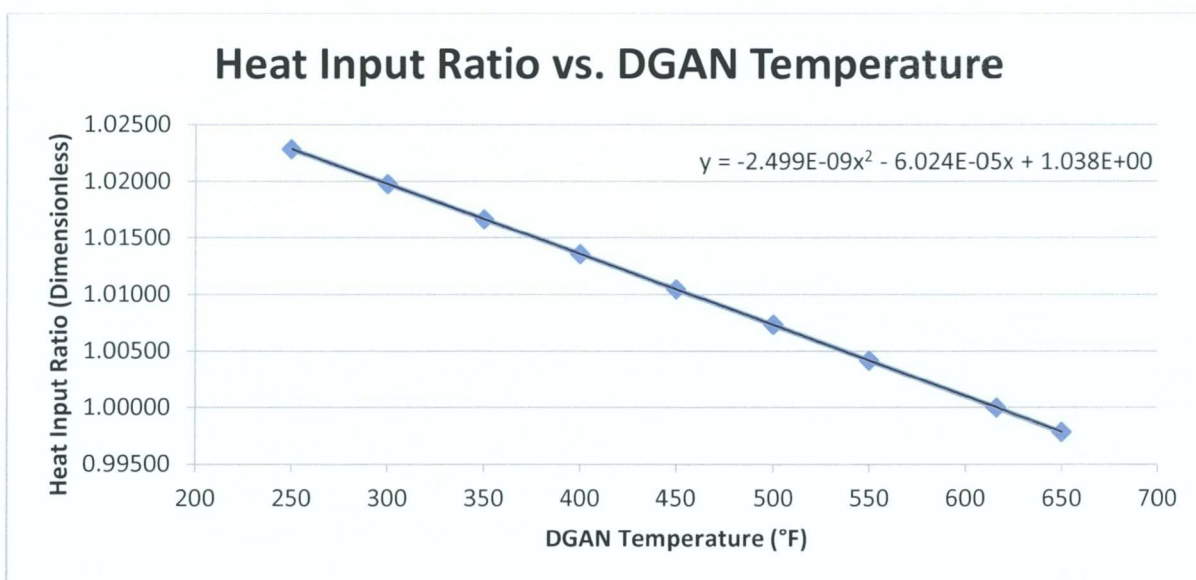
$$y = -3.704E-06x^3 + 9.217E-04x^2 - 7.720E-02x + 3.174$$

This allows the data to be easily programmed into a spreadsheet, with a decision tree based on observed inlet vane temperature to allow for heat input corrections.

Correction of Heat Input Ratio in Regards to Syngas Temperature

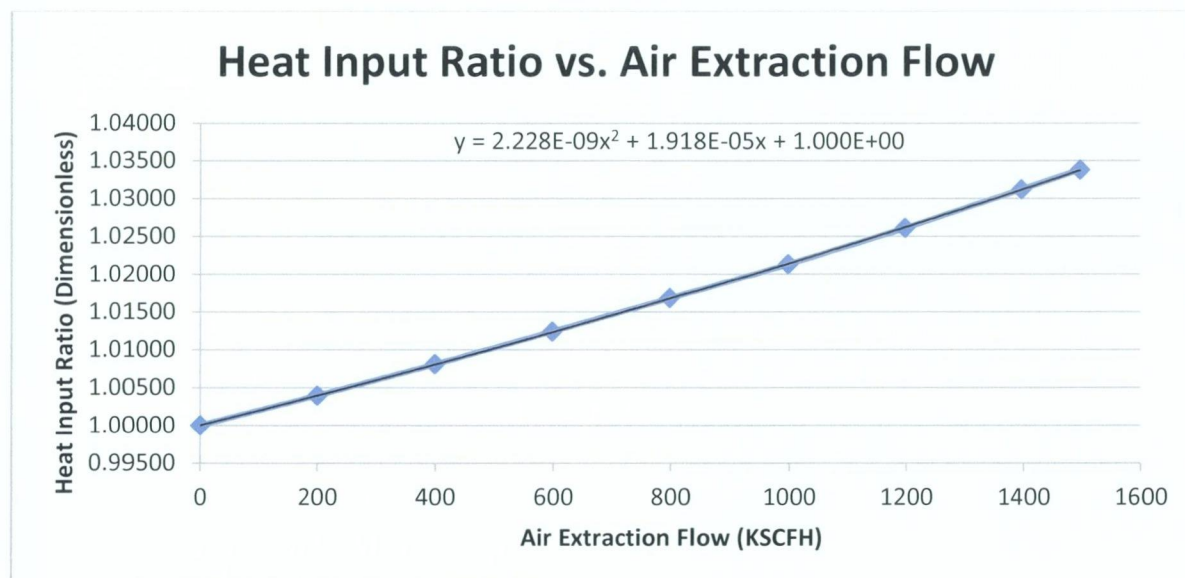


Correction of Heat Input Ratio in Regards to DGAN Temperature



Mr. Koerner
Mr. Read
February 5, 2013
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Correction of Heat Input Ratio in Regards to Air Extraction Flow



If there are any questions or concerns please do not hesitate to contact me at 813 – 228 – 4740.

Sincerely,

Lyndsey Baldyga
Engineer
Air Programs
Environmental, Health & Safety

EHS/iym/LMB120

cc: Mr. Erin DiBacco – FDEP (Email)
cc: Ms. Catherine DeFoe – FDEP (Email)