

Mike Buckantz,

Here is the catalyst mapping for Blue Diamond's testing last week. Eight runs made added to our mapping to date. Saw some impressive real time results. Especially with the draft down to 0.01 on the last three runs. Overall impressions; this is a combustion enhancement device. All the unburned hydrocarbons and CO are being eaten up in the asphalt drum. No noticeable NOx raw reduction, but with the higher heat, less fuel, more rock= low NOx mass. It was very complicated for running the catalyst on a FGR system in three dimensional tuning. Best was to turn off the FGR and get 38ppm @ 3% corrected. The Catalyst really needs O2 and low draft to work optimum. Therefore it's going to work on a non-FGR plant best.

What is not shown on the data was the last hour's running and seeing how far we could push the plant.

38% Burner set point
17ppm NOx corrected
0.01" draft
50ppm CO

All done by changing the Air/Fuel ratio with the FGR (this PLC is very hard to change A/F ratio on the fly. Need a Hauck rep next time for the fine tuning). But, the FGR did great until a saturation point where CO shot up to 500 and we flamed out.

Second bullet is the draft being down at 0". Without the catalyst we go off the CO analyzer scale at 1000ppm. With the cat we hold a solid 50ppm. At the burner front, the flame is noticeably smoother.

There was some other seat of the pants benefits not mapped but noticed by the operator. Faster warm up. Smoother temperature gain of the material.

For a viability study it was great data. The real fun will be the fine tuning and long term benefit in fuel savings. There is still a part of me asking "why hasn't this been thought of yet?". I've passed the data around the shop and everyone is impressed. Hopefully this is a success that we can incorporate CCI in other applications.

I sent off the last bit of mapping to Greg. He should have the Blue Diamond model together and Sub-E ready for testing this week.

Best regards,

Geoff Ashton