DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
Field Observation Report: Stack Testing

JH 6-9-14

Facility: St. Marys Cement, Inc. (U.S.)		**SRN / ID:** B1559
Location: CHARLEVOIX	**County:** CHARLEVOIX	**District:** Cadillac

Permit(s):	MI-ROP-B1559-2008				
Save					
Contact (s):	Cortney Schmidt - Facility	Staff (s):	Jeremy Howe - Cadillac	Date (s):	04/22/14 - 04/25/14
	Pat Gillespie - Tester		Rob Dickman - Cadillac		
	Geoff Resney - Tester		Kurt Childs - Cadillac		

ACTIVITY:	
☐ Pre-Test Site Visit/Monitoring	☑ Source Test Observation
☐ Visible Emissions Observation	☐ Sample(s) Collected
☐ Photos Taken	☐ Other

This was an emissions test of FGKILNNRAWMILLS at St. Marys Cement (SMC) in Charlevoix, Charlevoix County on April 22-24, 2014 for the following parameters:

Particulate Matter (PM)
Dioxin/Furan (D/F)

The following individuals were involved with the test:

DEQ
Jeremy Howe (Day 1+2) – Cadillac
Rob Dickman (Day 1+3) – Cadillac
Kurt Childs (Day 2) – Cadillac

Stack Testers – Environmental Stack Testing (EST) + Elemental Air (EA)
Patrick + Dave – EST – Bypass Stack
Dan Pratt – EA – Main Stack
Mark Carlson – EA – Trailer running computer to run meter boxes
Geoff Resney – EA – Lead?

Facility
Cortney Schmidt – EHS Manager

Observations:

Day 1

We arrived onsite at 1100

Rob and I met with Cortney who told us about where testing was at, which had not started at that point. The facility was not running well that day because they had just started up for the year. Rob and I went out to the trailer. The testers were using an autobox for sampling. This was something that neither Rob or I have seen in action, nor has anyone else in Michigan that I know of. The sampling boxes were controlled by a computer that recorded and calculated everything on the fly and updated the isokinetic sampling rate every two or three seconds. Rob and I went up to the main stack to see the autoboxes. They were completely electronic with no interface or user panel. There was an on/off light and some switches. We asked them to take off the cover so we could see inside. The guts of the box was a bunch of wires and sensors. There was no red oil for the manometer (obviously). Communication with the computer was via a really long ethernet cable. The name of the program controlling all this was Meter 2007. This too was completely home grown like the meter box.

The appeal of this system was that one person could run essentially infinite boxes because the computer was "watching" each box. Also, ostensibly there is continuous recording and adjusting going on with this method. I am sure there are disadvantages as well, but I'm not completely sure of all of them. Offhand, it does lead one to wonder what checks are in place to ensure that the computer does indeed respond to all alarms and adjustments when it is supposed to since it is the "operator" watching the controls.

Another disadvantage with the system is that it is impossible for the Regulator to check for isokinetics since the computer is adjusting every couple of seconds. Also, a Regulator cannot record the results since there is a new data point every couple of seconds. The data points happen too quickly and there are roughly 1500 for each hour of run time. A possible solution to this is grabbing a copy of the data on a flash drive to keep the tester from changing any of it later. Still though, it would be a lot of data to crunch onsite to derive if isokinetics were correct.

Finally, an effort to report the calibration of any non-primary standard needs to be checked on. While secondary standards are not uncommon nor unacceptable, they do require a higher level maintenance due to the need for calibrating. Also, I did not catch how they were measuring diluents and the volume of the DGM.

As far as testing, they had some issues with the really low flow of the bypass stack. The DGM initially was sampling too quickly, so they inserted a restrictor to slow the flow. Because of the slow velocity in the bypass stack, they had to also sample slowly. This meant 4 hour runs because 90 dscf had to be collected for the D/F and 1 dscm for PM samples according to the PC MACT. To alleviate this, they decided to order bigger nozzles for the bypass stack from 3/8 to 1/2 inch. They seemed to have issues with the probes not getting up to temp and passing initial leak checks on Day 1 + 2. They did have a thermocouple measuring the XAD trap, which cannot exceed 68F during sampling (sec 4.1.3.5 of M-23).

I asked if a cyclonic flow check had been done to Mark and he said no, but they could if I wanted them to. I said yes, but I suspect they did not do one because I can't imagine how they could do cyclonic flow on SVBYPASS because the flow is so slow (dp were only about 0.00 – 0.02)

We stayed through the first half of Run 1 D/F Raw Mill On.

We left the site around 1400

Day 2

I arrived onsite at 0950

I went to the office and met Cortney then I went out to the trailer. The raw mill was broke in the morning so the testers were running Run 1 D/F Raw Mill Off. This had to be done on the main stack only. Kurt Childs arrived about an hour after I did. I was told the testers got through Run 1 and the first half of Run 2 for D/F Raw Mill On. Today, they were hoping to get a PM run in and finish up the second half of Run 2 D/F Raw Mill On once the larger nozzles arrived. Once they did arrive, I learned that the testers did not measure the inner diameter of the nozzles because they did not have calipers. I provided the ones I had to them and they measured the nozzles. Note: the sampling rate for the second half of Run 2 D/F Raw Mill On will have to be checked for isokinetics separate from the first half of that run. Kurt and I did go up to the sampling point for SVMAIN. The mill went down at 1455, so Kurt and I decided to leave.

We left the site at 1515.

Note: Rob did come back the following day, however he was unable to observe anything due to the fact that the process was down.

This is a summary of run times since testing was so intermittent.

Pollutant	PM	D/F	D/F
Stack Vent	SVMAIN + SVBYPASS	SVMAIN + SVBYPASS	SVMAIN
Raw Mill	On	On	Off
Run 1	4/23 1349 - 1701 4/24 0737 - 0829	4/22 1216 -1645	4/23 0832 - 1142
Run 2	4/24 1112 - 1557	4/22 1804 - 2035 4/23 1251 - 1439	4/23 1752 - 2057
Run 3	4/24 1638 - 1814	4/24 0755 - 1720	4/25 0724 - 1031

Staff: Jeremy Howe CC: Date: 06/09/14