ST.LAWRENCE
CEMENT

October 31, 2007

Duane King
Enforcement – ARMA
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230

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Dear Mr. King;

Please find enclosed the St. Lawrence Cement response to the presumptive levels of control for NOx, SO2, and PM for the BART and regional haze rule. Would you please forward it to the appropriate department.

Thank you.

Sincerely,

Victoria Mock

Victoria Mock
Environmental Manager

1260 Security Road, Hagerstown, Maryland 21742
Telephone 301-739-1150 Fax 301-739-6708
St. Lawrence Cement Co., L.L.C., a subsidiary of St. Lawrence Cement Inc. and a company of the Holderbank Group

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CEMENT

BART Assessment for St. Lawrence Cement Hagerstown, Maryland

INTRODUCTION

At the request of Maryland Department of the Environment (MDE), St. Lawrence Cement (SLC) located in Hagerstown, Maryland has evaluated the recommended BART control technologies. The results of this evaluation are described below.

NOX CONTROL TECHNOLOGIES

Combustion Optimization

SLC installed a Linkman kiln control system to optimize kiln combustion in 2000.

Low NOx Burners

SLC installed new state-of-the-art burners in 2007.

Flame Shape Adjustment

Flame properties are critical to formation of quality clinker. The new burner and the Linkman kiln control system are utilized by SLC to control combustion, including the shape of the flame, within critical process parameters.

Mid-Kiln Firing

MDE permitted and SLC installed a mid-kiln tire firing system. The kiln has been burning tires since October 2003. SLC has optimized the system and operates at approximately a 20 percent fuel substitution rate.

Selective Catalytic Reduction (SCR)

SLC operates a long dry cement kiln. The temperature of the kiln gas exiting the kiln is below the temperature required for SCR. The exiting kiln gas would need to be reheated to be between 570 and 700 degrees F. This gas reheat would require the combustion of fossil fuels and would generate additional NOx emissions. In addition, the SO2 in the kiln gas would be oxidized to SO3 by the SCR catalyst which would create corrosion problems in the duct work and stack, and could result in acid gas emissions and/or a detached plume. The use of SCR may increase the pressure drop and require the replacement of the new kiln ID fan. SLC just installed a new kiln ID fan in 2007. To SLC's knowledge, there are no SCR systems operating on long dry cement

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kilns, nor has any cement plant in the U.S specified SCR as BACT or LAER. In addition to the costs associated with the gas reheat, the catalyst will need to be replaced approximately every three years resulting in high capital and operating costs. Therefore, for both environmental and economic reasons SCR is not appropriate as a BART control for SLC.

Selective Non-catalytic Reduction (SNCR)

As with SCR, the kiln gas exiting SLC's long dry kiln is well below the temperature range (1600 to 2000 degrees F) required for the reaction between NOx and ammonia to take place using SNCR. Therefore, in order to have access to the required temperature range, the ammonia or urea would need to be continuously injected into the rotating kiln. To SLC's knowledge, there are currently no long dry kilns utilizing SNCR. SNCR is not appropriate as a BART control for SLC.

Conclusion

SLC has implemented combustion optimization, low NOx burners, mid-kiln firing of tires and flame shape controls. Since 2000, SLC has reduced NOx emissions between 30 and 40 percent. This is equivalent to that which is typically achieved by SNCR. SLC has implemented all except the secondary combustion controls. The secondary combustion controls discussed above have not been installed on long dry kilns. SLC believes that the Hagerstown cement kiln has already implemented BART controls for NOx.

SO2 CONTROL TECHNOLOGIES

In Process Removal

Cement kilns by their design inherently scrub SO2 from the kiln gases and incorporate the sulfur in the clinker product.

Wet or Dry Scrubbers

Wet scrubbers require significant quantities of water, which then must be treated prior to discharge, and generate a sludge which will likely need to be disposed offsite in a landfill. The initial capital cost for a scrubber is estimated to be in the range of $10 million. The cost for treatment of the wastewater and the disposal of the sludges are significant operating costs. The cost per ton of SO2 removed is likely to exceed $7000. Therefore, wet scrubbers are not an economically acceptable control option.

The injection of micro fine lime is not an option for a long dry kiln. Unlike preheater/precalciner kilns, a long dry kiln does not have a conditioning tower for the injection point.

Mixing air and ID Fan

In 2007, SLC installed a new kiln ID fan and has also installed a mixing air system to inject additional oxygen into the kiln to reduce SO2 formation.

Conclusion

SLC has inherent dry scrubbing of the SO2. The use of a wet scrubber is not a cost effective option and generates both wastewater and sludge requiring offsite disposal. The injection of micro fine lime is not a technically feasible option. No additional SO2 controls are possible. In addition, NOx and SO2 emissions at a cement plant have an inverse relationship. Further reduction in SO2 emissions will result in an increase in NOx emissions which are also a concern for SLC due to the proximity of the plant to ozone non-attainment areas.

PM CONTROL TECHNOLOGIES

Electrostatic Precipitator (ESP)

SLC controls particulate emissions from the kiln through the use of multiclones followed by an ESP. The ESP complies with the particulate emissions limitation in 40 CFR Part 63, Subpart LLL.

Baghouses

As previously stated SLC controls particulate emissions from the kiln with an ESP. SLC also controls other non-fugitive sources using baghouses.

Conclusion

Through the use of the ESP on the kiln gas, and baghouses on other non-kiln sources, SLC is already implementing BART controls for PM.

MANE-VU CLASS I AREAS

The Class I Area located nearest to SLC's Hagerstown, Maryland facility is the Brigantine National Wildlife Refuge (Brigantine) in New Jersey. SLC's facility is located approximately 200 miles west of Brigantine. SLC's emissions of SO2 for 2000 were below 300 tons. Therefore, the impact of SLC's facility on the Brigantine Class I area are not expected to be significant.

SUMMARY

SLC has already implemented combustion optimization controls, burner controls, flame optimization controls and mid-kiln firing of tires for an overall reduction in NOx emissions between 30 and 40 percent. Neither SNCR nor SCR have been installed on long dry kilns. SCR is not economically feasible and would result in the combustion of additional fossil fuels and the resulting additional NOx emissions which would also need to be controlled. The SO3 generated by the oxidation of SO2 by the catalyst would create corrosion problems in the kiln system equipment and would result in a negative impact on the environment. SLC believes that the existing NOx controls represent BART.

Along with the inherent dry scrubbing of the kiln system, SLC has installed mixing air and a new ID fan to minimize SO2 emissions. Micro fine lime injection is not a technically feasible control option. The use of a wet scrubber to control SO2 emissions is not a cost effective control and would result in the use of large volumes of water, generate large volumes of wastewater requiring treatment, and generate large volumes of sludge requiring disposal. Therefore, SLC believes that the existing SO2 controls represent BART.

SLC utilizes an ESP to control kiln particulate emissions and baghouses to control particulate emissions from other particulate sources at the facility. Therefore, SLC believes that the existing PM controls represent BART.

Finally, SLC's facility is located approximately 200 miles from and is not expected to have a significant impact on the visibility at the Brigantine Class I Area.