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To: [Treece, Tricia](#)
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Subject: VW Mitigation Comment
Date: Monday, October 23, 2017 7:41:57 AM

Martin Marietta's Hatton Quarry in Cove, AR is interested in utilizing VW Mitigation funds to replace their current locomotive with an all-electric freight switcher.

The proposed project will replace one unregulated / uncontrolled EMD freight locomotive (MY 1971) to Nordco's all-electric Shuttlewagon (freight switcher). The locomotive operates over 1,000 hours annually in switching operations at Martin Marietta's Hatton Quarry in Cove, AR. The existing freight switcher is 3000 bhp and utilizes, on average, 19,408 gallons of fuel per year. Unregulated / uncontrolled baseline emissions levels are 17.4 g/bhp-hr NO_x, .44 g/bhp-hr PM, and 2.84 g/bhp-hr ROG respectively. Unregulated emissions levels reflect the U.S. EPA Locomotive Emissions Standards, Regulatory Support Document, April 1998. Reduced emissions levels reflect zero-emissions.

In order to calculate the tons of emissions reduced per project the unregulated emissions levels in g/bhp-hr are first converted to grams per year by multiplying the pollutant rate in g/bhp-hr by the fuel consumption rate factor of 20.8 and taking the resulting figure and multiplying by the number of diesel fuel gallons used per year. The new tier pollutant levels in g/year are then subtracted from the baseline tier pollutant levels in g/year. This figure in grams is then converted to tons by dividing by 907,200. The life of the replacement all-electric freight switcher is 15 years. After converting to tons, the figure is then multiplied by 15 to reflect emission reductions over the entire project life. Compared to unregulated / uncontrolled locomotive emissions, Nordco's all-electric Shuttlewagon / freight switcher reduces NO_x, PM, and ROG emissions by 100%.

By replacing one unregulated switch locomotives with Nordco's all-electric Shuttlewagon, this project reduces annually 7.7 tons of NO_x, 1.3 tons of ROG, and .2 tons of PM. Over a 15-year project life, over 115.5 tons of NO_x, 19.5 tons of ROG, and 3 tons of PM are eliminated from the atmosphere in Cove located in Polk county.

The cost of an all-electric Shuttlewagon/freight switcher is \$1,272,000 including the cost of charging infrastructure. Under funding guidelines, 75% of the costs of a replacement all-electric freight switcher is offered under VW.

On behalf of Martin Marietta, KEW Grant Services is asking that this freight switcher project be taken into consideration for ADEQ's Beneficiary Mitigation Plan.

Kind Regards,

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