



February 8, 2012

1138-7737

Mr. Jay A. Worley,
Director, Environmental Programs
Jacksonville Electric Authority (JEA)
21 West Church Street
Jacksonville, Florida 32202

**RE: NORTHSIDE GENERATING STATION/SJRPP
TITLE V PERMIT 0310045-030-AV; PSD-FL-10
LIMESTONE SILOS - FABRIC FILTERS REPLACEMENT**

Dear Jay:

This correspondence provides and evaluation emission calculations to support the replacement of the fabric filters originally installed on the limestone silos for St. Johns River Power Park (SJRPP) with a static filter with a Minimum Efficiency Reporting Value (MERV) of 7 or equivalent. The current SJRPP limestone silo fabric filters are identified as Emission Unit 0231 Limestone Silos with Fabric Filters (1DC-01 and 2DC-01) in the above referenced Title V permit. Currently, there are two transfer points within the limestone preparation building that are serviced by these fabric filters. SJRPP desires to replace the current fabric filters with a static dust collector with an American Air Filter PerfectPleat 1 inch filter or equivalent mounted in a specifically designed housing.

The existing emissions for the limestone silos are listed in Table 6 of Appendix SJRPP to the Title V Permit. The predicted emissions in Table 6 are 0.05 lb/hr and corresponded to emissions calculated in SJRPP PSD Permit Update, Materials Handling and Storage Operations May 3, 1999 for which the PSD permit was updated.

Table 1 presents limestone usage rates and emission calculations for the limestone silos without the fabric filters using EPA's AP-42 Emission Factors for materials handling and storage operations. These same emission factors were used in the SJRPP PSD Permit Update. To estimate the emissions from the proposed static dust collector, the information on PM, PM₁₀ and PM_{2.5} were used along with particle size removal efficiency from American Air Filter.

The information in Table 1 allowed an estimate of the emissions for three particle ranges: greater than or equal to 10 microns, less than 10 microns and greater than 2.5 microns and equal to or less than 2.5 microns. Based on the MERV rating of 7 for the American Air Filter PerfectPleat 1 inch filter the following efficiencies were estimated: 90% for particles \geq 10 microns, 60% for $<$ 10 microns and $>$ 2.5 microns, and 30% for particles \leq 2.5 microns. The estimate of 90 percent efficiency for particles greater than or equal to 10 microns is based on the efficiency curves and the fact that these large particles are almost entirely removed by any fabric filter. The efficiencies of 60 percent ($<$ 10 microns and $>$ 2.5 microns) and 30 percent (\leq 2.5 microns) was based on the initial filter efficiencies with median particle diameters of 6 microns and 2.5 microns, respectively. These efficiencies are conservative since with use fabric filters build a filter cake that increases efficiency with use.

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation

Table 2 presents the calculations for the PM emission rate based on particle size. The controlled emissions with the static dust collector are 96.75 pounds/year or 0.05 tons/year. Based on operation of 2,000 hours/year (see Table 1) the predicted emission rate is 0.05 lb/hr. This is an equivalent emission rate to that contained in Table 6 of the Title V permit. As a result, the replacement of the fabric filter with a static dust collector will not change the emissions at SJRPP and is a like-kind replacement.

Please call me if there are any questions on the information contained herein.

Professional Engineer Certification

I understand and certify that to the best of my knowledge, any emission estimates reported or relied on in this analysis are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions for the emissions units addressed in this analysis, based solely upon the materials, information and calculations submitted with this analysis.

Sincerely,

GOLDER ASSOCIATES INC.



Kennard F. Kosky, P.E.
Principal
Professional Engineer Registration No. 14996

KFK/kfk



Table 1. SJRPP Limestone Silos PM Emissions

<u>Limestone Rates</u>	<u>PM</u>		
Tons per Silo (a)	600,000		
Limestone Transfer rate (tons/hour) (a)	300		
Hours per Year	2000		
 <u>Batch Drop Equation (b)</u>			
$E = k (0.0032) (U/5)^{1.3} / (M/2)^{1.4}$	<u>PM</u>	<u>PM₁₀</u>	<u>PM_{2.5}</u>
k	0.74	0.35	0.053
U (wind speed; mph) (b)	2.87	2.87	2.87
M (moisture; %)	5.15	5.15	5.15
 <u>Emission Calculations w/o Dust Collectors</u>			
Emission Factor (lb/ton)	0.0003061	0.0001448	2.19E-05
Tons (loading and unloading)	1,200,000	1,200,000	1,200,000
Emissions (lb; uncontrolled)	367.33	173.74	26.31

Notes:

(a) SJRPP PSD Permit Update; Materials Handling and Storage Operations, May 3, 1999

(b) USEPA, 2006; AP-42, Section 13.2.4 for Aggregate Handling and Storage Piles.

Table 2. PM Calculations for Static Dust Collector

Particle Size	Control	Uncontrolled lb	Controlled lb
>10 u	90%	193.59	19.36
10 to 2.5 u	60%	147.43	58.97
< 2.5 u	30%	26.31	18.42
Total:		367.33	96.75