

3.EPA COST VALIDITY

3.1.1.Current Hg Compliance Cost Effectiveness (4.0 lb/TBtu)

With respect to MRY, EPA estimated the cost effectiveness for current 2021 Hg emissions is shown below in an excerpt from Table 12 in 2023 Technology Review for the Coal - and Oil-Fired EGU Source Category (Docket ID. No: EPA-HQ-OAR-2018-0794).

TABLE 12. ESTIMATED COST-EFFECTIVENESS FOR CONTROL OF MERCURY IN 2021 AT LIGNITE-FIRED EGUS

Plant Name	PM Control	Est Hg Inlet (lb/HR)	Est Hg In (lb)	2021 Hg (lb/TBtu)	Est Hg Out (lb)	Avg Sorbent injection (lb/MWet)	Avg Sorbent (lb/hr)	Sorbent Cost (\$/lb)	Est 2021 Sorbent Cost (\$)	Est 2021 Sorbent Cost (\$/hr)	Est 2021 Additive Cost (\$/hr)	2021 C/F (\$/hr)
Spartwood Station 1	FF	5.03	21.3	1.9	1.9	4.0	13.2	\$0.83	111,662	\$92,680	\$92,680	\$11,776
Ieland Olds 1	ESPC	7.79	91.8	2.5	29.6	3.9	45.0	\$0.97	299,689	\$290,699	\$290,699	\$9,143
Ieland Olds 2	ESPC	7.79	142.2	3.0	55.1	2.5	55.0	\$0.97	294,762	\$285,929	\$285,919	\$6,563
Milton R. Young 2	ESPC	7.79	131.1	3.2	53.5	1.6	43.0	\$0.83	177,451	\$147,267	\$147,267	\$3,844
Milton R. Young 1	ESPC	7.78	255.5	3.2	106.2	1.3	19.0	\$0.83	271,988	\$227,420	\$227,410	\$1,046
Major Oak Power 1	FF	14.62	193.6	1.2	16.4	1.9	-	\$0.83	161,759	\$134,260	\$134,260	\$1,515
Major Oak Power 2	FF	14.65	207.0	1.3	18.5	1.9	-	\$0.83	172,603	\$143,261	\$143,261	\$1,519
Red Hills Generating Facility 1	FF	12.40	192.7	1.3	20.7	2.6	36.0	\$0.76	299,600	\$197,296	\$197,296	\$2,293
Red Hills Generating Facility 2	FF	12.40	209.4	1.4	22.9	2.4	36.0	\$0.76	267,834	\$199,754	\$199,754	\$2,141
Oak Grove 1	FF	14.60	980.0	2.0	134.9	0.1	8.0	\$1.15	65,331	\$75,131	\$75,131	\$178
Martin Lake 1	ESPC	8.22	192.7	2.3	111.0	1.0	39.0	\$0.97	313,150	\$303,755	\$303,755	\$2,156
Oak Grove 2	FF	14.88	887.2	2.6	154.2	0.3	17.0	\$1.15	126,484	\$145,456	\$145,456	\$397
San Miguel 1	ESPC	14.62	346.6	2.8	66.7	2.7	59.5	\$0.97	418,050	\$405,509	\$405,509	\$2,897
Martin Lake 2	ESPC	8.13	331.1	3.0	121.7	3.0	112.0	\$0.97	809,939	\$785,660	\$785,660	\$7,504
Martin Lake 3	ESPC	7.85	372.8	3.0	144.1	3.4	126.0	\$0.97	1,046,260	\$1,014,872	\$1,014,872	\$8,837

* Additive costs are unknown. For this analysis, the EPA assumed the additive costs are the same, annually, as the sorbent costs.
** Bolded costs are those that were provided to the EPA in the 2022 CAA section 114 information survey.

Response: Flaws in EPA's cost analysis for current compliance:

- Est. Hg In (lb) & Hg Out (lb)
 - Table 12 would appear to have flipped MRY Unit 1 and Unit 2 in the table, utilizing the higher MRY Unit 2 operating conditions (heat input, hg loading, etc.) for the smaller sized Unit 1 and vice versa.
- PAC Injection Rate:
 - Table 12 Avg. Sorbent (lb/hr) – EPA noted MRY Unit 1: 19.0 lb/hr and MRY Unit 2: 43.0 lb/hr to achieve controlled Hg rate of 3.2 lb/TBtu.
 - Minnkota PAC sorbent injection rates to achieve controlled Hg rate of 3.85 lb/TBtu for MRY Unit 1 is expected to be 86 lb/hr and for MRY Unit 2 is 158 lb/hr.
- Cost of PAC:
 - Table 12 non-brominated PAC sorbent cost – EPA assumed a cost of \$0.83/lb.
 - In the 2024 Technical Memo, EPA adjusted this cost down to \$0.80/lb.
 - Based on MRY operational costs for 2023, non -brominated PAC sorbent cost is \$0.86/lb.
 - Based on MRY operational costs for 2023, actual non -brominated PAC costs for achieving current compliance with 4.0 lb/TBtu indicated MRY Unit 1: \$119,813 and MRY Unit 2: \$329,328