LIST OF APPENDICES

Appendix A: Underlying Data Tables

Appendix B: Online Public Notice Screenshot with Date Stamp

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Appendix A: Underlying Data Tables

Missouri's CAMD Acid Rain Program Unit Data:

State	Year	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)
MO	2007	255201.637	105921.124	800610887.9
MO	2008	258268.854	88599.982	770260872.5
MO	2009	240201.919	53474.868	761579014
MO	2010	236216.924	58364.015	808226596.8
MO	2011	196255.617	63277.666	838655088.9
MO	2012	138805.424	69561.901	769110993.1

Visibility Data from the WRAP TSS for Mingo, Hercules Glades, and El Dorado Springs:

Note: Underlying Data for Figures included in the Visibility Progress Section are also publicly available online through the WRAP TSS website, http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx.

Extinction (Mm^{-1}) and Deciviews for Worst 20% Days:

Site	Method	Year	N	Deciview	Total Extinction	SO4 Extinction	NO3 Extinction	OMC Extinction	EC Extinction	Soil Extinction	CM Extinction	SeaSalt Extinction
MING1	NIA	2001	23	29.5	200.25	91.58	39.27	38.47	8.95	1.55	8.4	0.03
MING1	NIA	2002	13			141.31	18.35			1.73	5.14	0.14
MING1	NIA	2003	19			113.31	29.7			1.1	4.46	0
MING1	NIA	2004	21			72.09	21.54			1.2	7.83	0.7
MING1	NIA	2005										
MING1	NIA	2006	23	27.3	158.68	101.77	9.43	17.05	6.19	2.71	9.16	0.37

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MING1	NIA	2007	23	29.1	195.08	120.95	10.75	32.32	8.09	2.12	8.45	0.41
MING1	NIA	2008	22	26.8	147.21	87.92	14.4	20.13	5.56	1.67	5.23	0.3
MING1	NIA	2009	20	25.1	126.28	64.02	15.35	20.73	5.8	1.44	6.65	0.29
MING1	NIA	2010	21	25.7	135.02	48.48	29.56	29.33	6.07	2.2	7.16	0.22
MING1	NIA	2011	20	25.2	125.99	53.56	29.62	18.75	5.06	1.1	5.48	0.42
HEGL1	NIA	2002	25	27.2	156.8	104.15	14.6	18.16	4.96	1.04	2.88	0
HEGL1	NIA	2003	24	26.6	149.33	87.02	14.99	27.36	5.59	0.82	2.55	0
HEGL1	NIA	2004	25	26.5	147.58	72.64	24.15	30.28	5.12	0.89	2.92	0.58
HEGL1	NIA	2005	24	29.5	200.64	139.16	15.27	22.82	6.71	0.69	4.14	0.85
HEGL1	NIA	2006	24	25.9	138.54	76.78	20.29	19.51	5.62	1.5	3.29	0.55
HEGL1	NIA	2007	25	26.2	146.19	92.61	10	21.87	5.59	0.84	3.88	0.4
HEGL1	NIA	2008	22	25	125.01	73.04	19.41	13.84	3.57	0.77	3.15	0.22
HEGL1	NIA	2009	25	23.6	107.26	51.87	21.97	14.29	3.96	0.72	3.19	0.25
HEGL1	NIA	2010	24	23.6	107.09	42.24	27.31	16.48	4.33	0.91	4.76	0.06
HEGL1	NIA	2011	23	24.1	115.12	47.09	30.35	16.69	3.9	0.59	5.13	0.37
HEGL1	NIA	2012	25	21.2	86.08	37.65	11.9	16.25	4.15	0.63	4.21	0.3
ELDO1	NIA	2003	24	27.9	168.43	75.41	39.94	26.14	6.41	1.27	8.26	0
ELDO1	NIA	2004	23	26.6	149.22	58.82	37.27	30.32	4.8	1.05	5.34	0.63
ELDO1	NIA	2005	23	28.6	185.3	109.67	30.53	16.24	5.68	1.71	10.2	0.27
ELDO1	NIA	2006	20	26.1	138.25	66.63	30.74	14.06	5.02	1.63	8.74	0.42
ELDO1	NIA	2007	21	26.1	140.62	69.47	30.73	15.49	5.1	1.56	6.83	0.45
ELDO1	NIA	2008	25	24.5	117.74	55.36	23.79	15.54	4.3	0.96	6.49	0.28
ELDO1	NIA	2009	23	24.1	114.86	46.19	33.27	12.56	4.45	0.93	6.18	0.27
ELDO1	NIA	2010	23	24.7	121.79	37.77	50.74	13.19	3.99	0.69	4.16	0.27
ELDO1	NIA	2011	21	25.2	127.41	42.85	44.49	16.66	4.3	0.79	6.71	0.6
ELDO1	NIA	2012	24	23.4	106.08	38.74	25.47	11.2	3.87	2.75	12.62	0.43

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Mass Concentrations (µg/m^3) for Worst 20% Days:

Site	Method	Year	N	ammSO4	ammNO3	OMC	EC	Soil	CM	SeaSalt
MING1	NIA	2001	23	8.78	3.85	8.39	0.9	1.55	14	0.01
MING1	NIA	2002	13	12.42	1.76			1.73	8.57	0.02
MING1	NIA	2003	19	10.89	3.15			1.1	7.44	0
MING1	NIA	2004	21	7.36	2.23			1.2	13.05	0.11
MING1	NIA	2006	23	9.68	1.09	4.63	0.62	2.71	15.27	0.06
MING1	NIA	2007	23	11.15	1.26	7.44	0.81	2.12	14.08	0.07
MING1	NIA	2008	22	8.69	1.51	5.11	0.56	1.67	8.72	0.05
MING1	NIA	2009	20	6.58	1.59	5.31	0.58	1.44	11.09	0.05
MING1	NIA	2010	21	5.26	2.97	6.76	0.61	2.2	11.93	0.03
MING1	NIA	2011	20	5.88	3.05	4.98	0.51	1.1	9.13	0.07
HEGL1	NIA	2002	25	9.93	1.45	4.89	0.5	1.04	4.8	0
HEGL1	NIA	2003	24	8.71	1.65	6.4	0.56	0.82	4.24	0
HEGL1	NIA	2004	25	7.42	2.51	6.87	0.51	0.89	4.87	0.1
HEGL1	NIA	2005	24	12.56	1.47	5.71	0.67	0.69	6.91	0.14
HEGL1	NIA	2006	24	7.83	2.21	4.96	0.56	1.5	5.48	0.09
HEGL1	NIA	2007	25	9.07	1.13	5.63	0.56	0.84	6.47	0.07
HEGL1	NIA	2008	22	7.57	1.89	3.9	0.36	0.77	5.25	0.04
HEGL1	NIA	2009	25	5.59	2.29	3.86	0.4	0.72	5.32	0.04
HEGL1	NIA	2010	24	4.8	2.83	4.32	0.43	0.91	7.93	0.01
HEGL1	NIA	2011	23	5.26	2.98	4.55	0.39	0.59	8.56	0.06
HEGL1	NIA	2012	25	4.33	1.29	4.05	0.41	0.63	7.01	0.05
ELDO1	NIA	2003	24	7.79	3.97	6.18	0.64	1.27	13.76	0
ELDO1	NIA	2004	23	6.25	3.72	6.68	0.48	1.05	8.89	0.1
ELDO1	NIA	2005	23	10.4	3.12	4.36	0.57	1.71	17.01	0.04
ELDO1	NIA	2006	20	7.09	3.28	3.84	0.5	1.63	14.56	0.07
ELDO1	NIA	2007	21	7.26	3.22	4.26	0.51	1.56	11.38	0.08

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ELDO1	NIA	2008	25	6	2.52	4.12	0.43	0.96	10.82	0.05
ELDO1	NIA	2009	23	5.11	3.31	3.58	0.45	0.93	10.3	0.05
ELDO1	NIA	2010	23	4.36	5.13	3.54	0.4	0.69	6.93	0.04
ELDO1	NIA	2011	21	4.95	4.4	4.52	0.43	0.79	11.19	0.1
ELDO1	NIA	2012	24	4.46	2.59	3.28	0.39	2.75	21.03	0.07

Extinction (Mm^{-1}) and Deciviews for Best 20% Days:

Site	Method	Year	N	Deciview	Total Extinction	SO4 Extinction	NO3 Extinction	OMC Extinction	EC Extinction	Soil Extinction	CM Extinction	SeaSalt Extinction
MING1	NIA	2001	22	13.7	39.81	13.16	5.08	4.99	2.1	0.37	2.1	0.01
MING1	NIA	2002	12			15.81	4.29			0.56	3.23	0
MING1	NIA	2003	18			13.98	4.05			0.46	3.2	0
MING1	NIA	2004	20			12.45	4.36			0.28	4.09	0.25
MING1	NIA	2006	23	14.2	42.1	14.15	4.06	5.01	2.42	0.61	3.49	0.36
MING1	NIA	2007	22	15.1	46.08	14.5	6.11	5.79	2.58	0.72	4.06	0.32
MING1	NIA	2008	22	13.9	41.02	14	4.51	5.09	1.82	0.47	2.98	0.16
MING1	NIA	2009	19	12.3	34.62	11.79	2.12	4.24	1.62	0.29	2.41	0.15
MING1	NIA	2010	21	13.5	39.04	14.07	2.88	4.86	1.78	0.64	2.75	0.05
MING1	NIA	2011	19	12.5	35.73	9.05	2.74	4.95	1.91	0.52	4.06	0.49
HEGL1	NIA	2002	24	13.6	39.28	11.69	6.09	5.47	2.37	0.3	2.36	0
HEGL1	NIA	2003	24	12.2	34.44	9.25	4.32	5.26	1.83	0.34	2.27	0.16
HEGL1	NIA	2004	24	12.7	36.02	11.6	4.27	4.6	1.83	0.32	2.12	0.29
HEGL1	NIA	2005	23	13.6	40.28	14.83	4.16	4.79	2.19	0.39	2.82	0.12
HEGL1	NIA	2006	23	13.3	38.3	13.72	3.91	4.89	2.51	0.3	1.77	0.19
HEGL1	NIA	2007	24	13	37.3	10.21	5.99	5.1	1.92	0.32	2.54	0.22
HEGL1	NIA	2008	21	11.7	32.74	10.48	2.85	4.13	1.41	0.33	2.49	0.05
HEGL1	NIA	2009	24	11	30.4	9.52	2.36	3.65	1.41	0.26	2.04	0.16

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HEGL1	NIA	2010	23	11.5	31.87	9.35	3.1	3.49	1.41	0.43	3.03	0.06
HEGL1	NIA	2011	22	11.4	31.49	8.67	3	3.9	1.63	0.28	2.75	0.26
HEGL1	NIA	2012	24	10.9	30.18	7.28	2.7	3.62	1.78	0.39	3.22	0.19
ELDO1	NIA	2003	24	13.4	38.84	9.5	5.66	5.9	2.37	0.4	3.96	0.05
ELDO1	NIA	2004	22	12.7	36.49	9.78	4.09	5.4	2.04	0.55	3.37	0.26
ELDO1	NIA	2005	22	13.8	40.53	12.32	6.11	4.52	2.23	0.53	3.71	0.11
ELDO1	NIA	2006	19	14.2	41.81	13.41	5.75	4.73	2.47	0.44	3.91	0.1
ELDO1	NIA	2007	21	13.7	40.03	11.68	5.4	4.5	1.87	0.67	4.71	0.21
ELDO1	NIA	2008	24	11.8	32.92	10	3.49	3.75	1.48	0.35	2.73	0.12
ELDO1	NIA	2009	23	11.9	33.15	9.73	4.78	3.63	1.48	0.29	2.01	0.23
ELDO1	NIA	2010	23	11.8	33.04	9.04	3.63	3.8	1.58	0.49	3.47	0.04
ELDO1	NIA	2011	20	12.7	36.18	9.54	4.29	4.28	1.6	0.47	4.74	0.26
ELDO1	NIA	2012	23	11.5	31.9	7.11	3.71	3.72	1.48	0.59	4.04	0.25

Mass Concentrations (µg/m^3) for Best 20% Days:

Site	Method	Year	N	ammSO4	ammNO3	OMC	EC	Soil	CM	SeaSalt
MING1	NIA	2001	22	1.68	0.61	1.61	0.21	0.37	3.5	0
MING1	NIA	2002	12	1.89	0.48			0.56	5.38	0
MING1	NIA	2003	18	1.74	0.48			0.46	5.34	0
MING1	NIA	2004	20	1.54	0.5			0.28	6.81	0.04
MING1	NIA	2006	23	1.72	0.47	1.6	0.24	0.61	5.81	0.06
MING1	NIA	2007	22	1.8	0.71	1.84	0.26	0.72	6.76	0.05
MING1	NIA	2008	22	1.74	0.53	1.63	0.18	0.47	4.96	0.02
MING1	NIA	2009	19	1.5	0.26	1.39	0.16	0.29	4.02	0.02
MING1	NIA	2010	21	1.77	0.34	1.57	0.18	0.64	4.58	0.01
MING1	NIA	2011	19	1.16	0.33	1.58	0.19	0.52	6.77	0.08

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HEGL1	NIA	2002	24	1.5	0.72	1.75	0.24	0.3	3.94	0
HEGL1	NIA	2003	24	1.17	0.5	1.69	0.18	0.34	3.79	0.03
HEGL1	NIA	2004	24	1.46	0.49	1.49	0.18	0.32	3.53	0.05
HEGL1	NIA	2005	23	1.87	0.51	1.54	0.22	0.39	4.7	0.02
HEGL1	NIA	2006	23	1.67	0.44	1.59	0.25	0.3	2.94	0.03
HEGL1	NIA	2007	24	1.27	0.69	1.64	0.19	0.32	4.24	0.03
HEGL1	NIA	2008	21	1.34	0.33	1.33	0.14	0.33	4.15	0.01
HEGL1	NIA	2009	24	1.23	0.29	1.2	0.14	0.26	3.39	0.03
HEGL1	NIA	2010	23	1.18	0.37	1.15	0.14	0.43	5.05	0.01
HEGL1	NIA	2011	22	1.09	0.35	1.28	0.16	0.28	4.58	0.04
HEGL1	NIA	2012	24	0.94	0.32	1.19	0.18	0.39	5.37	0.03
ELDO1	NIA	2003	24	1.2	0.66	1.87	0.24	0.4	6.6	0.01
ELDO1	NIA	2004	22	1.28	0.5	1.71	0.2	0.55	5.62	0.05
ELDO1	NIA	2005	22	1.59	0.74	1.46	0.22	0.53	6.18	0.02
ELDO1	NIA	2006	19	1.67	0.67	1.53	0.25	0.44	6.51	0.02
ELDO1	NIA	2007	21	1.48	0.63	1.46	0.19	0.67	7.85	0.03
ELDO1	NIA	2008	24	1.28	0.43	1.23	0.15	0.35	4.55	0.02
ELDO1	NIA	2009	23	1.27	0.58	1.2	0.15	0.29	3.35	0.04
ELDO1	NIA	2010	23	1.18	0.45	1.24	0.16	0.49	5.78	0.01
ELDO1	NIA	2011	20	1.23	0.51	1.4	0.16	0.47	7.9	0.04
ELDO1	NIA	2012	23	0.94	0.45	1.23	0.15	0.59	6.74	0.04

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Mingo's Reasonable Progress Chart of 5-Year Averages for Worst and Best 20% Days – from TSS:

Class I Area Visibility Summary: Mingo NWRW, MO Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**					
	2000-04 Baseline Conditions (Mm^{-1})	**2005-09 Progress Period (Mm^{-1})**	**2006-10 Progress Period (Mm^{-1})**	**2007-11 Progress Period (Mm^{-1})**	**2008-12 Progress Period (Mm^{-1})**
Sulfate	104.6	93.7	84.6	75.0	63.5
Nitrate	27.2	12.5	15.9	19.9	22.2
Organic Carbon	20.5	22.6	23.9	24.3	22.2
Elemental Carbon	5.5	6.4	6.3	6.1	5.6
Fine Soil	1.4	2.0	2.0	1.7	1.6
Coarse Material	6.5	7.4	7.3	6.6	6.1
Sea Salt	0.2	0.3	0.3	0.3	0.3
Total Light Extinction	177.9	156.8	152.5	145.9	133.6
Deciview	28.02	27.1	26.8	26.4	25.7

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Class I Area Visibility Summary: Mingo NWRW, MO Class I area					
Visibility Conditions: Best 20% Days					
Reasonable Progress Summary					
	2000-04 Baseline Conditions	**2005-09 Progress Period**	**2006-10 Progress Period**	**2007-11 Progress Period**	**2008-12 Progress Period**
Sulfate	13.8	13.6	13.7	12.7	12.2
Nitrate	4.4	4.2	3.9	3.7	3.1
Organic Carbon	6.3	5	5	5	4.8
Elemental Carbon	2.3	2.1	2	1.9	1.8
Fine Soil	0.4	0.5	0.5	0.5	0.5
Coarse Material	3.2	3.2	3.1	3.3	3
Sea Salt	0.1	0.2	0.2	0.2	0.2
Total Light Extinction	42.5	41	40.6	39.3	37.6
Deciview	14.3	13.9	13.8	13.5	13.1

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Hercules Glades' Reasonable Progress Chart of 5-Year Averages for Worst and Best 20% Days – from TSS:

	Class I Area Visibility Summary: Hercules-Glades W, MO Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm^{-1})	**2005-09 Progress Period (Mm^{-1})**	**2006-10 Progress Period (Mm^{-1})**	**2007-11 Progress Period (Mm^{-1})**	**2008-12 Progress Period (Mm^{-1})**
Sulfate	87.9	86.7	67.3	61.4	50.4
Nitrate	17.9	17.4	19.8	21.8	22.2
Organic Carbon	25.3	18.5	17.2	16.6	15.5
Elemental Carbon	5.2	5.1	4.6	4.3	4.0
Fine Soil	0.9	0.9	0.9	0.8	0.7
Coarse Material	2.8	3.5	3.7	4.0	4.1
Sea Salt	0.2	0.5	0.3	0.3	0.2
Total Light Extinction	151.2	143.5	124.8	120.1	108.1
Deciview	26.7	26.0	24.9	24.5	23.5

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Class I Area Visibility Summary: Hercules-Glade W, MO Class I area					
Visibility Conditions: Best 20% Days					
Reasonable Progress Summary					
	2000-04 Baseline Conditions	**2005-09 Progress Period**	**2006-10 Progress Period**	**2007-11 Progress Period**	**2008-12 Progress Period**
Sulfate	10.8	11.8	10.7	9.6	9.1
Nitrate	4.9	3.9	3.6	3.5	2.8
Organic Carbon	5.1	4.5	4.3	4.1	3.8
Elemental Carbon	2	1.9	1.7	1.6	1.5
Fine Soil	0.3	0.3	0.3	0.3	0.3
Coarse Material	2.3	2.3	2.4	2.6	2.7
Sea Salt	0.2	0.1	0.1	0.1	0.1
Total Light Extinction	36.6	35.8	34.1	32.8	31.3
Deciview	12.8	12.5	12.1	11.7	11.3

Arkansas – Upper Buffalo

	Class I Area Visibility Summary: Upper Buffalo W, AR Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)	2008-12 Progress Period (Mm-1)

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Sulfate	83.2	90.0	70.0	62.1	50.7
Nitrate	13.3	11.9	13.0	14.4	14.4
Organic Carbon	22.5	19.8	18.7	18.7	14.9
Elemental Carbon	4.7	4.7	4.2	4.1	3.7
Fine Soil	1.2	1.2	1.3	1.1	1.1
Coarse Material	6.8	4.9	5.5	5.1	5.4
Sea Salt	0.2	0.4	0.5	0.4	0.4
Total Light Extinction	142.9	143.9	124.1	117.0	101.6
Deciview	26.3	25.9	24.7	24.1	22.9

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Arkansas – Caney Creek

	Class I Area Visibility Summary: Caney Creek W, AR Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)	2008-12 Progress Period (Mm-1)
Sulfate	87.1	87.0	63.4	53.9	51.9
Nitrate	13.8	9.5	11.2	12.6	12.5
Organic Carbon	23.4	16.4	14.8	14.1	13.3
Elemental Carbon	4.8	4.2	3.5	3.3	3.3
Fine Soil	1.1	1.2	1.5	1.3	1.4
Coarse Material	3.7	4.0	4.3	4.3	4.2
Sea Salt	0.2	0.3	0.3	0.4	0.5

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Total Light Extinction	145.1	133.6	110.1	100.9	97.9
Deciview	26.4	25.3	23.7	23.0	22.7

2013 EGU Control Summary for Units Subject to CAIR (queried from CAMD):

Facility Name	Facility ID (ORISPL)	Unit ID	Year	Unit Type	Fuel Type (Primary)	Fuel Type (Secondary)	SO2 Control(s)	NOx Control(s)	PM Control(s)
Asbury	2076	1	2013	Cyclone boiler	Coal			Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Audrain Power Plant	55234	CT1	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT2	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT3	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT4	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT5	2013	Combustion turbine	Pipeline Natural			Dry Low NOx Burners	

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					Gas				
Audrain Power Plant	55234	CT6	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT7	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT8	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Blue Valley	2132	3	2013	Tangentially-fired	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Closed-coupled OFA	Electrostatic Precipitator
Chamois Power Plant	2169	2	2013	Cyclone boiler	Coal	Diesel Oil			Electrostatic Precipitator
Chillicothe	2122	GT1A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Chillicothe	2122	GT1B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Chillicothe	2122	GT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Chillicothe	2122	GT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Columbia	2123	6	2013	Stoker	Coal				Baghouse
Columbia	2123	7	2013	Stoker	Coal				Baghouse

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Columbia	2123	8	2013	Dry bottom wall-fired boiler	Pipeline Natural Gas				
Columbia Energy Center (MO)	55447	CT01	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Columbia Energy Center (MO)	55447	CT02	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Columbia Energy Center (MO)	55447	CT03	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Columbia Energy Center (MO)	55447	CT04	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Dogwood Energy Facility	55178	CT-1	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Dogwood Energy Facility	55178	CT-2	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Empire District Elec Co Energy Ctr	6223	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy	6223	3A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	

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Ctr									
Empire District Elec Co Energy Ctr	6223	3B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	4A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	4B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Essex Power Plant	7749	1	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Fairgrounds	2082	CT01	2013	Combustion turbine	Diesel Oil				
Greenwood Energy Center	6074	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Greenwood Energy Center	6074	2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Greenwood Energy Center	6074	3	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Greenwood Energy Center	6074	4	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			

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Hawthorn	2079	5A	2013	Dry bottom wall-fired boiler	Coal		Dry Lime FGD	Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction	Baghouse
Hawthorn	2079	6	2013	Combustion turbine	Pipeline Natural Gas			Other	
Hawthorn	2079	7	2013	Combustion turbine	Pipeline Natural Gas			Other	
Hawthorn	2079	8	2013	Combustion turbine	Pipeline Natural Gas			Other	
Hawthorn	2079	9	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Higginsville Municipal Power Plant	2131	4A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Higginsville Municipal Power Plant	2131	4B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Holden Power Plant	7848	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	
Holden Power Plant	7848	2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	

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Holden Power Plant	7848	3	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	
Howard Bend	2102	CT1A	2013	Combustion turbine	Diesel Oil				
Howard Bend	2102	CT1B	2013	Combustion turbine	Diesel Oil				
Iatan	6065	1	2013	Dry bottom wall-fired boiler	Coal		Wet Lime FGD	Low NOx Burner Technology w/ Overfire Air Overfire Air Selective Catalytic Reduction	Baghouse
Iatan	6065	2	2013	Dry bottom wall-fired boiler	Coal		Wet Lime FGD	Low NOx Burner Technology w/ Overfire Air Overfire Air Selective Catalytic Reduction	Baghouse
James River	2161	**GT1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
James River	2161	**GT2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
James River	2161	3	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator

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James River	2161	4	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
James River	2161	5	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
John Twitty Energy Center	6195	1	2013	Dry bottom wall-fired boiler	Coal	Diesel Oil, Pipeline Natural Gas		Other Selective Catalytic Reduction	Electrostatic Precipitator
John Twitty Energy Center	6195	2	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas	Fluidized Bed Limestone Injection	Selective Catalytic Reduction	Baghouse
John Twitty Energy Center	6195	CT1A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
John Twitty Energy Center	6195	CT1B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
John Twitty Energy Center	6195	CT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
John Twitty Energy Center	6195	CT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Labadie	2103	1	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator

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Labadie	2103	2	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Labadie	2103	3	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Labadie	2103	4	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Lake Road	2098	6	2013	Cyclone boiler	Coal	Pipeline Natural Gas		Overfire Air	Electrostatic Precipitator
Lake Road	2098	GT5	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
McCartney Generating Station	7903	MGS1A	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
McCartney Generating Station	7903	MGS1B	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
McCartney Generating Station	7903	MGS2A	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	

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McCartney Generating Station	7903	MGS2B	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
Meramec	2104	1	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Separated OFA	Electrostatic Precipitator
Meramec	2104	2	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Separated OFA	Electrostatic Precipitator
Meramec	2104	3	2013	Dry bottom wall-fired boiler	Coal			Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
Meramec	2104	4	2013	Dry bottom wall-fired boiler	Coal			Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
Meramec	2104	CT01	2013	Combustion turbine	Diesel Oil				
Meramec	2104	CT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Meramec	2104	CT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Mexico	6650	CT01	2013	Combustion turbine	Diesel Oil				
Moberly	6651	CT01	2013	Combustion turbine	Diesel Oil				
Montrose	2080	1	2013	Tangentially-fired	Coal				Electrostatic Precipitator
Montrose	2080	2	2013	Tangentially-fired	Coal			Overfire Air	Electrostatic Precipitator

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Montrose	2080	3	2013	Tangentially-fired	Coal			Overfire Air	Electrostatic Precipitator
Moreau	6652	CT01	2013	Combustion turbine	Diesel Oil				
New Madrid Power Plant	2167	1	2013	Cyclone boiler	Coal	Diesel Oil		Selective Catalytic Reduction Overfire Air	Electrostatic Precipitator
New Madrid Power Plant	2167	2	2013	Cyclone boiler	Coal	Diesel Oil		Selective Catalytic Reduction Overfire Air	Electrostatic Precipitator
Nodaway Power Plant	7754	1	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Nodaway Power Plant	7754	2	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Northeast Generating Station	2081	11	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	12	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	13	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	14	2013	Combustion turbine	Diesel Oil				

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Northeast Generating Station	2081	15	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	16	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	17	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	18	2013	Combustion turbine	Diesel Oil				
Peno Creek Energy Center	7964	CT1A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT1B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT3A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT3B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT4A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	

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Peno Creek Energy Center	7964	CT4B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Ralph Green Station	2092	3	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
Rush Island	6155	1	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Rush Island	6155	2	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Sibley	2094	1	2013	Cyclone boiler	Coal			Overfire Air Selective Non-catalytic Reduction	Electrostatic Precipitator
Sibley	2094	2	2013	Cyclone boiler	Coal			Overfire Air Selective Non-catalytic Reduction	Electrostatic Precipitator
Sibley	2094	3	2013	Cyclone boiler	Coal			Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator

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Sikeston	6768	1	2013	Dry bottom wall-fired boiler	Coal	Other Oil		Selective Non-catalytic Reduction Low NOx Burner Technology (Dry Bottom only)	Electrostatic Precipitator
Sioux	2107	1	2013	Cyclone boiler	Coal		Wet Limestone	Overfire Air Other	Electrostatic Precipitator
Sioux	2107	2	2013	Cyclone boiler	Coal		Wet Limestone	Overfire Air Other	Electrostatic Precipitator
South Harper Peaking Facility	56151	1	2013	Combustion turbine	Pipeline Natural Gas				
South Harper Peaking Facility	56151	2	2013	Combustion turbine	Pipeline Natural Gas				
South Harper Peaking Facility	56151	3	2013	Combustion turbine	Pipeline Natural Gas				
St. Francis Power Plant	7604	1	2013	Combined cycle	Pipeline Natural Gas			Dry Low NOx Burners Selective Catalytic Reduction	
St. Francis Power Plant	7604	2	2013	Combined cycle	Pipeline Natural Gas			Dry Low NOx Burners Selective Catalytic Reduction	

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State Line (MO)	7296	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	
State Line (MO)	7296	41671	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
State Line (MO)	7296	41672	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Thomas Hill Energy Center	2168	MB1	2013	Cyclone boiler	Coal	Diesel Oil		Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Thomas Hill Energy Center	2168	MB2	2013	Cyclone boiler	Coal	Diesel Oil		Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Thomas Hill Energy Center	2168	MB3	2013	Dry bottom wall-fired boiler	Coal	Diesel Oil		Overfire Air Low NOx Burner Technology (Dry Bottom only) Selective Catalytic Reduction	Electrostatic Precipitator

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Appendix B: Online Public Notice Screenshot with Date Stamp

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Appendix C: Written Comments and Responses and Consultation Correspondence

In order to fulfill the 60-day required consultation with the Federal Land Management agencies (FLMs) the Air Program submitted an official letter and draft copy of the report with each of the three FLMs: Forest Service, Fish & Wildlife Service, and National Park Service, on February 14, 2014.

The same email from the Air Program Director with attached official letter and draft report was sent to all three agencies, as well as forwarded on to EPA Region 7 Staff. All emails/letters are included below for documentation purposes. Comments were requested back by April 18, 2014, in order to be incorporated before posting the report online for public notice. A conference call was held on March 17, 2014, with the Air Program and all three FLMs to discuss their comments and suggestions. Comments from the FLM agencies were shared with the Air Program via email and comment letters. These are included in this appendix as well.

The draft report was shared with the following FLM agency contacts, the same contacts all participated in the aforementioned conference call as well.

Fish & Wildlife Service: Tim Allen
Forest Service: Claire O'Dea and Bret Anderson (the report was forwarded to Bret after it was sent officially to Claire)
National Park Service: Patricia Brewer

Emails from Air Program Director to FLM agency contacts:

From: Moore, Kyra
Sent: Friday, February 14, 2014 4:18 PM
To: tim_allen@fws.gov
Cc: Vit, Wendy; Wilbur, Emily; Jurgensmeyer, Ashley
Subject: Missouri Regional Haze Periodic Update

Mr. Allen,

Please find attached a cover letter and a draft report regarding the Missouri Department of Natural Resources Regional Haze Report.
If you have any questions, please let us know.
Thank you!

DRAFT

Kyra L. Moore, Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102
(573) 751-7840
(573) 751-0303 direct line

From: Moore, Kyra
Sent: Friday, February 14, 2014 4:38 PM
To: cbodea@fs.fed.us
Cc: Vit, Wendy; Wilbur, Emily; Jurgensmeyer, Ashley
Subject: Missouri Regional Haze Periodic Update

Ms. Odea,

Please find attached a cover letter and a draft report regarding the Missouri Department of Natural Resources Regional Haze Report.
If you have any questions, please let us know.
Thank you!

Kyra L. Moore, Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102
(573) 751-7840
(573) 751-0303 direct line

From: Moore, Kyra
Sent: Friday, February 14, 2014 4:40 PM
To: Patricia_F_Brewer@nps.gov
Cc: Vit, Wendy; Wilbur, Emily; Jurgensmeyer, Ashley
Subject: Missouri Regional Haze Periodic Update

Ms. Brewer,

Please find attached a cover letter and a draft report regarding the Missouri Department of Natural Resources Regional Haze Report.
If you have any questions, please let us know.
Thank you!

Kyra L. Moore, Director

DRAFT

Draft: 4/21/14

MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102
(573) 751-7840
(573) 751-0303 direct line

<u>Official letter to FLMs (attached to the above emails):</u>

Mr. Tim Allen
U.S. Fish & Wildlife Service
7333 West Jefferson, Suite 375
Lakewood, CO 80235

RE: Regional Haze Rule Periodic Update Consultation with Federal Land Management Agencies

Dear Mr. Allen:

The purpose of this correspondence is to begin consultation with the Federal Land Management (FLM) agencies on the 1999 Regional Haze Rule (RHR) requirement for periodic reports. Enclosed with this letter is Missouri's draft Regional Haze 5-Year Progress Report for the two federal Class I Areas: Hercules Glades National Wilderness Area and Mingo National Wildlife Refuge.

The Missouri Department of Natural Resources (department) has prepared the enclosed report to meet the requirements at 40 CFR 51.308(g), which address the need for periodic reports that evaluate progress towards the reasonable progress goals established in the State Implementation Plan (SIP). The RHR also requires states to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)).

State periodic reports for this first implementation period are due to the U.S. Environmental Protection Agency (EPA) no later than five years after the state's initial SIP submittal to EPA. The department submitted its initial Regional Haze SIP to the EPA on August 5, 2009. Therefore, Missouri's completed progress report is due to EPA no later than August 2014. In order to facilitate this process and to continue our collective efforts to develop a complete SIP package for submittal in August of this year, the department has tentatively scheduled a public hearing for this report on May 29, 2014 and the subsequent adoption hearing for July

30, 2014.

The department requests that the FLM acknowledge the date of this submission as the formal commencement of the required 60-day consultation period. We would appreciate your comments on or before **April 18, 2014**. Should you have any further questions concerning Missouri's 5-Year Progress Report, please do not hesitate to contact Ashley Jurgensmeyer at the Missouri Department of Natural Resources' Air Pollution Control Program,
P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Director

KLM:ajc

Enclosures: Copy of Missouri's Draft Regional Haze 5-Year Progress Report

c: Project #1999-RH-7

Ms. Claire O'Dea, Ph.D.
Air Quality Specialist
USDA Forest Service Eastern Region
Rosslyn Plaza C
1601 North Kent Street, Suite 400
Arlington, VA 22209

RE: Regional Haze Rule Periodic Update Consultation with Federal Land Management Agencies

Dear Ms. O'Dea:

DRAFT

Draft: 4/21/14

The purpose of this correspondence is to begin consultation with the Federal Land Management (FLM) agencies on the 1999 Regional Haze Rule (RHR) requirement for periodic reports. Enclosed with this letter is Missouri's draft Regional Haze 5-Year Progress Report for the two federal Class I Areas: Hercules Glades National Wilderness Area and Mingo National Wildlife Refuge.

The Missouri Department of Natural Resources (department) has prepared the enclosed report to meet the requirements at 40 CFR 51.308(g), which address the need for periodic reports that evaluate progress towards the reasonable progress goals established in the State Implementation Plan (SIP). The RHR also requires States to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)).

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The department requests that the FLM acknowledge the date of this submission as the formal commencement of the required 60-day consultation period. We would appreciate your comments on or before **April 18, 2014**. Should you have any further questions concerning Missouri's 5-Year Progress Report, please do not hesitate to contact Ashley Jurgensmeyer at the Missouri Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Director

KLM:ajc

Enclosures: Copy of Missouri's Draft Regional Haze 5-Year Progress Report

c: Project #1999-RH-7

DRAFT

Draft: 4/21/14

Ms. Patricia Brewer
Environmental Protection Specialist
Air Resource Division
National Park Service
Post Office Box 25287
Denver, CO 80225

RE: Regional Haze Rule Periodic Update Consultation with Federal Land Management Agencies

Dear Ms. Brewer:

The purpose of this correspondence is to begin consultation with the Federal Land Management (FLM) agencies on the 1999 Regional Haze Rule (RHR) requirement for periodic reports. Enclosed with this letter is Missouri's draft Regional Haze 5-Year Progress Report for the two federal Class I Areas: Hercules Glades National Wilderness Area and Mingo National Wildlife Refuge.

The Missouri Department of Natural Resources (department) has prepared the enclosed report to meet the requirements at 40 CFR 51.308(g), which address the need for periodic reports that evaluate progress towards the reasonable progress goals established in the State Implementation Plan (SIP). The RHR also requires states to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)).

State periodic reports for this first implementation period are due to the U.S. Environmental Protection Agency (EPA) no later than five years after the state's initial SIP submittal to EPA. The department submitted its initial Regional Haze SIP to the EPA on August 5, 2009. Therefore, Missouri's completed progress report is due to EPA no later than August 2014. In order to facilitate this process and to continue our collective efforts to develop a complete SIP package for submittal in August of this year, the department has tentatively scheduled a public hearing for this report on May 29, 2014 and the subsequent adoption hearing for July 30, 2014.

The department requests that the FLM acknowledge the date of this submission as the formal commencement of the required 60-day consultation period. We would appreciate your comments on or before **April 18, 2014**. Should you have any further questions concerning Missouri's 5-Year Progress Report, please do not hesitate to contact Ashley Jurgensmeyer at the Missouri Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

DRAFT

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Director

KLM:ajc

Enclosures: Copy of Missouri's Draft Regional Haze 5-Year Progress Report

c: Project #1999-RH-7

Email from Air Program to EPA Region 7 informally sharing draft report:

From: Vit, Wendy
Sent: Tuesday, February 18, 2014 8:37 AM
To: Amy Bhesania
Cc: Wilbur, Emily; Jurgensmeyer, Ashley
Subject: FW: Missouri Regional Haze Periodic Update

Hi Amy. I'm forwarding the regional haze 5-year progress report. Please share with others as appropriate. (This email happens to be the one we sent to the National Park Service. We also sent copies to the Forest Service and Fish & Wildlife; let me know if you want me to forward those emails to you for your records.) We're asking for comments from the FLMs by April 18, 2014, and we'd appreciate any feedback from you by then as well. Please let us know if you have questions or if you'd like to discuss this draft. Thanks.

Wendy Vit
Air Quality Planning Section Chief
Air Pollution Control Program
Missouri Department of Natural Resources
(573) 526-3167
wendy.vit@dnr.mo.gov

DRAFT

Comment Letter Received from the Forest Service on March 21, 2014:

File Code: 2580
Date: March 21, 2014

Ms. Kyra L. Moore
Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102

Dear Ms. Moore:

The USDA Forest Service has completed our review of the document entitled "State of Missouri Regional Haze Plan 5-Year Progress Report: A Missouri State Implementation Plan Revision." We appreciated the opportunity to review the document and the chance to once again work cooperatively with your staff.

We concur with your findings that the Missouri Air Pollution Control Program is on track to meet the reasonable progress goal for the Hercules Glades Wilderness, a Federally mandated Class I area. The current projections of sulfur dioxide emissions from the electric generating units in Missouri are significantly lower than were originally projected for 2018 in the Regional Haze State Implementation Plan. Therefore, we agree with your conclusion that no additional controls are necessary for the first planning period for emission sources in Missouri in order to achieve reasonable progress in visibility for the Hercules Glades Wilderness.

We do, however, have a few recommendations to enhance the clarity of the 5-Year Progress Report:

1. The EPA document *General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans* (2013), Section C. Visibility Progress, states that, "For each mandatory Class I Federal area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of 5-year averages of these annual values." In the 5-Year Progress Report, Missouri assesses visibility conditions and changes by calculating a rate of improvement comparing baseline with current conditions. We, therefore, recommend recalculating visibility improvements by expressing visibility conditions and changes in terms of 5-year averages.

2. The Glide Path Projected 2018 Conditions value listed for Hercules-Glades Class I Area in Table 4, also referred to later in the document as the established 2018 Reasonable Progress Goal (RPG), is listed at 22.63 deciviews. This value does not

match the 2009 SIP 2018 RPG value of 23.06 deciviews (taken from Table 10.1, 2018 Modeled Predictions where Missouri stated, "Missouri has determined that the modeled rate of visibility improvement by 2018 shown in Table 10.1 is reasonable and hereby adopts it as the RPG for the listed Class I areas"). We recommend clarifying why the 2018 RPG listed in the MO 5-Year Progress Report differs from the 2018 RPG selected in the 2009 SIP.

3. As stated above, Missouri assesses visibility conditions and changes by calculating a rate of improvement comparing baseline with current conditions in the 5-Year Progress Report. In Table 4 of the 5-Year Progress Report, Missouri lists a projected rate of progress for Hercules-Glades Wilderness (from 2001 to June 2012, based on monitored values) of 0.494 deciviews/year. Trying to recreate these calculations, we calculate a rate of 0.4625 dv/yr, resulting in an expected 2018 visibility of 18.26 dv (instead of 18.84 dv). We ask for clarification of these calculations, including specifying values used for current visibility for 20% haziest and clearest days, so that these calculations can be replicated.

4. The 5-Year Progress Report, Section A.2.1., discusses SO_2 and NO_x RACT in St. Louis. From our understanding, St. Louis has not officially been designated by EPA as nonattainment of the new $PM_{2.5}$ 12 µg National Ambient Air Quality Standard (NAAQS) standard, and further has petitioned EPA to not be included in the nonattainment area due to the fact that violations have occurred only on the Illinois side of St. Louis. We, therefore, recommend that this section reflect the uncertainty in RACT/RACM implementation based on the fact that St. Louis is not currently designated as nonattainment of the new $PM_{2.5}$ NAAQS.

5. The 5-Year Progress Report, Section C, identifies trends for visibility on the best and worst 20% sampling days for the three locations with IMPROVE monitors. This trends analysis focuses on sulfate and nitrate concentrations. Visibility impairment in the form of light extinction also occurs due to organic matter and elemental carbon. In fact, for the 2012 average of the worst 20% days, organic matter contributes more to light extinction than ammonium nitrate. We, therefore, recommend that trends in organic carbon matter and elemental carbon be included in the analysis.

6. The 5-Year Progress Report, Section C, calculates rate of improvement from baseline to present and states that natural conditions will be achieved between 2025-2035 for all of the IMPROVE locations if this rate of improvement remains constant. Analysis of future on-the-books/on-the-way controls does not support a continued rate of improvement. We recommend providing justification for this assertion, or removing it from the analysis.

We look forward to our continued close cooperation toward the national goal of no "man-made" visibility impairment to the Class I areas in our region by 2064. If you have questions, please contact Claire O'Dea at (202) 205-1686.

Sincerely,

/s/ William B. Nightingale

DRAFT

Draft: 4/21/14

WILLIAM B. NIGHTINGALE
Forest Supervisor

cc:
Claire O'Dea

Emailed comments from the Fish & Wildlife Service, received March 17, 2014:

From: Allen, Tim [mailto:tim_allen@fws.gov]
Sent: Monday, March 17, 2014 1:43 PM
To: Jurgensmeyer, Ashley
Cc: Wilbur, Emily; Patricia Brewer; Anderson, Bret A -FS; O'Dea, Claire B -FS
Subject: Re: Missouri's Draft Regional Haze 5-Year Report Consultation

Hi,

Thank you for inviting me to discuss your Regional Haze 5yr review. I do appreciate the work you've put into this document and offer the following comments for consideration.

1. In section E., visibility impacts from agricultural burning activity is attributed to impeding visibility progress. No discussion is provided on current or future potential changes to smoke management procedures that might resolve this concern. Agricultural burning is a source category that should be addressed by a certified smoke management plan, which includes use of best management practices, day-to-day burn calls, long term tracking of emissions, and a declaration that Class I areas are sensitive receptors.

2. In section C.1.1 and associated Figures, data begins with 2006. Although monitoring data prior to 2006 had substitution requirements due to missing data, it was none-the-less used as part of establishing the visibility baseline for MINGO NWR in your Regional Haze SIP. Since this 5 year review addresses progress from your prior SIP, it is important to continue to report those monitoring years. Please include data from 2002 on as with the other Class I area reported.

3. In section C.1.1 narrative, a projection that natural conditions will be met by 2025 is included in the draft. Although we appreciate you optimism, it is unlikely that future emission reductions will continue at previous rates.

The mid-term review does not require sufficient modeling analysis or refinements to emission inventories in a way to appropriately revise Class I reasonable progress goals (RPG). Please consider waiting to revise Mingo's RPG until the next major RH SIP revision.

DRAFT

Thank you,
Tim

Emailed Comments from National Park Service, March 17, 2014:

From: Brewer, Patricia [mailto:patricia_f_brewer@nps.gov]
Sent: Monday, March 17, 2014 6:34 PM
To: Jurgensmeyer, Ashley
Cc: O'Dea, Claire B -FS; Wilbur, Emily; Anderson, Bret A -FS; Tim_Allen@fws.gov
Subject: Re: Missouri's Draft Regional Haze 5-Year Report Consultation

Ashley and Emily,

Attached are tables and charts for Hercules Glade and Mingo that are copied from the WRAP's Technical Support System. http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx

The tables of 5-year averages show the contributions of different pollutant species to light extinction and help to understand the dv trends.

The charts show the relative contributions of the pollutants and show the annual variability that is missing in the tables of 5-year averages.

Section C 1.1.1 indicates that the Mingo OC and EC data were invalidated for 2002-2205. But data substitution was done using approved methods (Hercules Glade as the donor site?) and EPA approved the 2000-2004 baseline in your Regional Haze SIP. Also, your progress report is focusing on SO4 and NO3 trends, still valid in the 2000-2004 period (and used for Hercules Glade). So you probably could use the 2000-2004 baseline to keep the longer period of record.

I will provide written comments on other points next week.

thanks, Pat Brewer

DRAFT

Letter from National Park Service, April 17, 2014:

TRANSMITTED VIA ELECTRONIC MAIL - NO HARDCOPY TO FOLLOW
N3615 (2350)
April 17, 2014
Kyra L. Moore,
Director, Air Pollution Control Program
Missouri Department of Natural Resources
1659 E. Elm Street
Jefferson City, MO 65102

Dear Ms. Moore:
Thank you for the opportunity to review and comment on Missouri's Regional Haze Plan 5-Year Progress Report. We agree with Missouri Air Pollution Control Program, consistent with the periodic reporting requirements of 40 CFR 51.308(g) and (h), that the emissions reductions under Missouri's Regional Haze Plan are sufficient for Missouri to meet the 2018 Reasonable Progress Goals set in the State's Regional Haze plan. We also agree that no further revision of the Regional Haze Plan is needed at this time to meet the 2018 goals. However, we did not see discussion of Missouri's contributions to haze in Class I areas in neighboring states, as required under 51.308(g)(6).

We have several suggestions to better support Missouri's demonstration:
• Executive Summary:
In response to comments on Section C, please revise the discussion of expected visibility improvements by 2018.

• Section A: Status of Emissions Control Strategies:
For Electric Generating Units (EGU) that installed controls under the Clean Air Interstate Rule (CAIR), please provide summary of specific facilities, controls, and year that controls began operation.
Section A3: Please clarify if any of the emission reductions expected between 2012 and 2017 (Table 2) were included in the 2018 projection inventory and modeling that was used to set 2018 reasonable progress goals.

• Section B: Emissions Reductions:
Please add brief summary of nitrogen oxide emission trends for electric generating units (EGU) in Figure 2 and Table 3.

• Section C: Visibility Trends

We recommend using the same baseline data and natural condition assumptions for Mingo in the progress report as were used in the Missouri Regional Haze Plan.

Substituted data were developed for Mingo for the baseline period.

We do not recommend using a partial year of data for 2012. The 2012 IMPROVE data are currently not publically available, so we recommend that Missouri use IMPROVE data through 2011.

Missouri should not extrapolate from the rate of visibility improvement for 2006-2012 to 2018 or beyond (Figures 3, 11, 19.) Regional EGU controls between 2006 and 2012 significantly reduced sulfur dioxide emissions and sulfate concentrations in the Class I areas, but Missouri has not demonstrated that emissions reductions of that magnitude will continue in the future. We recommend that Missouri focus in Table 4 on visibility (measured in deciviews) for the 20% worst ad 20% best visibility days for the 2000-2004 Baseline, Natural Conditions, 2018 Reasonable Progress Goals (from the Regional Haze Plan), and 2007-2011 5-year averages. Including pollutant contributions to light extinction would further identify the bases for the observed trends. These latter data are available on the WRAP Technical Support System website (http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx.) With the evidence available, Missouri can demonstrate that the state is on track to meet the 2018 reasonable progress goals. Redefining the 2018 goals would require regional emissions projections and regional air quality modeling that are beyond the expectations for the five year progress reports.

• Section E. Changes Impeding Visibility Progress

Missouri did not include IMPROVE data to support the discussion of the contribution of prescribed fire in 2010 to visibility trends. You may want to add discussion of the role of agricultural burning compared to prescribed fire for forest management. Does Missouri have a smoke management plan?

• Section F. Assessment of Current Strategy

Please add discussion of the contribution of Missouri emissions to haze in Class I areas in neighboring states. Source apportionment results from the Regional Haze Plan would support Missouri's conclusion that it expects to meet the 2018 emission projections that were used to set reasonable progress goals for Class I areas in neighboring states and therefore is not impeding neighboring states from meeting their goals.

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Draft: 4/21/14

Response to Received Comments:

Response to Comments from Fish& Wildlife Service: (Emailed Comments received March 17, 2014)

1. In response to comment 1., additional language was added to Section E. of the report. Specifically discussion was added to clarify the impact fire events could have on visibility conditions in sensitive Class I areas. In addition, Missouri's current Smoke Management plan (SMP) should aid in protecting these visual environments and in the event of a violation or other extreme case the SMP may be evaluated and revised in order to properly protect these environments.

2. All available visibility data was added to Section C. of the report in response to this comment and comments from other FLMs.

3. Projections to 2018 and beyond were removed from the report in response to this comment and other FLM comments.

Response to Comments from National Park Service: (Emailed Comments received March 17, 2014)

1. The data used in the visibility analysis of this report in Section C., were updated using the Western Regional Air Partnership (WRAP) Technical Support System (TSS) data set as recommended by FLM comments and as referenced in the EPA's Guiding Principles on 5-Year Reports document.

2. The available 5-Year Average Summary tables and corresponding graphs were added to the visibility analysis section of the report.

3. As mentioned in previous response to comments, all available data was added to the tables/graphs included in the visibility analysis section.

Response to Comments from National Park Service: (Letter received April 17, 2014)

1. The executive summary has been updated in response to this comment.

2. In response to this comment, a table summarizing all SO_2, NO_X, and PM controls installed prior to emission year 2013 on Missouri EGU's that are subject to CAIR was added to Appendix A. It was not included in the plan text due to its length. The table was generated by running a query of the EPA's Clean Air Markets Division (CAMD) database.

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The expected facility changes included in Table 2 are new developments and are not yet permanent and enforceable; therefore, these changes were not included in the 2009 RH plan's modeling efforts and language has been added to clarify this in the report in response to this comment.

3. Brief language discussing the downward trend in NOx emissions and rates has been added to Section B in response to this comment.

4. The baseline/natural conditions were changed to match 2009 RH plan estimations, this change is also discussed in the other comment responses as well. The partial year of data was removed from the analysis in response to this comment. The extrapolation to 2018 was removed from the report and a glidepath between the baseline and RPGs was added to show the trend of monitored data is below the glidepath and on track to achieve the RPGs.
The available five-year average tables for all Class I areas for all speciated pollutant light extinctions and deciviews were added (from the TSS) to support the visibility analysis section in response to this and other comments received.

5. Missouri currently has an adopted Smoke Management plan and additional clarifying language was added to Section E in response to this and other comments received.

6. In response to this comment, monitoring trend data for the two nearby Class I areas in Arkansas were added to the visibility progress section of the report to reinforce the claim that Missouri will not prevent nearby areas from achieving their RPGs in 2018. Additional clarifying language was also added to Section F to fully address this comment.

Response to Comments from Forest Service (Letter received March 21, 2014):

1. All available 5-Year Average summary tables and graphs were added to the visibility analysis section of the report. The 'reasonable progress' tables were available using the WRAP TSS site, and include speciated pollutants, total light extinction and deciview trends to aid in characterizing visibility progress.

2. and 3. In the first draft report, raw data was manipulated by the Air Program and due to slight differences, the RPGs were mischaracterized as different from the initial RH SIP. Therefore, the RPGs are indeed the same as adopted in the initial RH SIP and the data used for comparison and analysis was accessed (via the TSS) in final best/worst percent format to avoid any slight assumption differences due to external manipulation. The differences in data manipulation and assumptions as well as data availability at time of calculation can be accounted for the slight differences in values as discussed in Comment 3. Both comments are addressed by the replacement of data as described above.

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4. The reference to SO2 & NOx RACT in St. Louis was removed as it is no longer a control strategy, this was a remnant of the original SIP's assumptions. The SO2 attainment demonstrations for Jackson and Jefferson Counties were added as a future control measure that will result in additional SO2 emission reductions not included in the initial RH SIP's modeling efforts.

5. Trends for all speciated pollutants were added to the analysis in response to this and other comments of the like.

6. As mentioned in previous response to comments, the future predicted rate of visibility improvement to 2018 and beyond has been removed from the report.

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Appendix D: MACC Adoption Signature Page

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