

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10  
 "Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix

Reid Gardner CALPUFF Visibility Modeling for Grand Canyon, EPA, 2012-03-09

Grand Canyon Impacts, 98th percentile delta deciview		Unit 1 NOx, lb/MMBtu	average of 3 individual year 98th percentiles				98th percentile of merged years			
			visibility method 6		visibility method 8		visibility method 6		visibility method 8	
			annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background
scen	Scenario		vm6a	vm6b	vm8a	vm8b	vm6a	vm6b	vm8a	vm8b
c00	WRAP for NOx, SO2, PM	0.591	0.61	0.78	0.60	0.83	0.59	0.75	0.58	0.80
c02	WRAP NOx, NDEP SO2 & PM	0.591	0.56	0.72	0.56	0.77	0.55	0.71	0.54	0.74
c04	Baseline NOx LNB+OFA	0.462	0.46	0.60	0.45	0.63	0.44	0.58	0.42	0.59
c11	Enh. LNB+OFA	0.364	0.40	0.52	0.40	0.54	0.38	0.50	0.37	0.51
c12	SNCr+LNB+OFA	0.273	0.28	0.37	0.28	0.39	0.28	0.36	0.27	0.37
c13	ROFA+Rotamix	0.195	0.24	0.31	0.24	0.33	0.22	0.29	0.22	0.31
c15	SCR+LNB+OFA	0.085	0.19	0.24	0.18	0.25	0.17	0.22	0.16	0.22
c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.17	0.23	0.16	0.22	0.16	0.20	0.15	0.20

Grand Canyon Change relative to baseline, 98th percentile		Unit 1 NOx, lb/MMBtu	average of 3 individual year 98th percentiles				98th percentile of merged years			
			visibility method 6		visibility method 8		visibility method 6		visibility method 8	
			annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background
scen	Scenario		vm6a	vm6b	vm8a	vm8b	vm6a	vm6b	vm8a	vm8b
c00	WRAP for NOx, SO2, PM	0.591	0.15	0.18	0.15	0.20	0.14	0.18	0.16	0.21
c02	WRAP NOx, NDEP SO2 & PM	0.591	0.10	0.13	0.11	0.15	0.10	0.13	0.11	0.16
c04	Baseline NOx LNB+OFA	0.462								
c11	Enh. LNB+OFA	0.364	-0.06	-0.08	-0.06	-0.08	-0.06	-0.08	-0.06	-0.08
c12	SNCr+LNB+OFA	0.273	-0.18	-0.23	-0.17	-0.24	-0.17	-0.22	-0.16	-0.21
c13	ROFA+Rotamix	0.195	-0.22	-0.29	-0.22	-0.30	-0.22	-0.29	-0.20	-0.28
c15	SCR+LNB+OFA	0.085	-0.27	-0.35	-0.28	-0.38	-0.28	-0.36	-0.26	-0.36
c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	-0.29	-0.37	-0.29	-0.41	-0.29	-0.37	-0.28	-0.38

Grand Canyon Incremental change, SCR vs. ROFA+Rotamix		Unit 1 NOx, lb/MMBtu	average of 3 individual year 98th percentiles				98th percentile of merged years			
			visibility method 6		visibility method 8		visibility method 6		visibility method 8	
			annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background	annl. avg natl background	best 20% natl background
scen	Scenario		vm6a	vm6b	vm8a	vm8b	vm6a	vm6b	vm8a	vm8b
c13	ROFA+Rotamix	0.195								
c15	SCR+LNB+OFA	0.085	-0.05	-0.07	-0.06	-0.08	-0.05	-0.07	-0.06	-0.09
c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	-0.07	-0.09	-0.08	-0.11	-0.06	-0.08	-0.08	-0.10

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10  
 "Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix  
 Impact is the 98th percentile of all impacts in 2001-2003 period

### Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

*Visibility Method 6, annual avg. background*

					Visibility Change, dv	
Area	scen	Scenario	Unit 1 NOx, lb/MMBtu	98th %ile Impact, dv	Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.20	0.06	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.18	0.04	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.14		-0.04
	c11	Enh. LNB+OFA	0.364	0.12	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.273	0.09	-0.05	-0.03
	c13	ROFA+Rotamix	0.195	0.08	-0.06	-0.01
	c15	SCR+LNB+OFA	0.085	0.07	-0.07	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.06	-0.08	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.59	0.14	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.55	0.10	-0.04
	c04	Baseline NOx LNB+OFA	0.462	0.44		-0.10
	c11	Enh. LNB+OFA	0.364	0.38	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.273	0.28	-0.17	-0.11
	c13	ROFA+Rotamix	0.195	0.22	-0.22	-0.05
	c15	SCR+LNB+OFA	0.085	0.17	-0.28	-0.05
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.16	-0.29	-0.06
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.591	0.51	0.13	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.45	0.07	-0.06
	c04	Baseline NOx LNB+OFA	0.462	0.38		-0.07
	c11	Enh. LNB+OFA	0.364	0.33	-0.05	-0.05
	c12	SNCR+LNB+OFA	0.273	0.24	-0.14	-0.10
	c13	ROFA+Rotamix	0.195	0.20	-0.18	-0.03
	c15	SCR+LNB+OFA	0.085	0.19	-0.19	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.17	-0.21	-0.03
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.14	0.04	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.12	0.02	-0.02
	c04	Baseline NOx LNB+OFA	0.462	0.10		-0.02
	c11	Enh. LNB+OFA	0.364	0.08	-0.01	-0.01
	c12	SNCR+LNB+OFA	0.273	0.06	-0.03	-0.02
	c13	ROFA+Rotamix	0.195	0.06	-0.04	-0.01
	c15	SCR+LNB+OFA	0.085	0.05	-0.05	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.05	-0.05	-0.01
Zion	c00	WRAP for NOx, SO2, PM	0.591	0.39	0.11	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.36	0.07	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.28		-0.07
	c11	Enh. LNB+OFA	0.364	0.25	-0.03	-0.03
	c12	SNCR+LNB+OFA	0.273	0.18	-0.10	-0.07
	c13	ROFA+Rotamix	0.195	0.15	-0.14	-0.04
	c15	SCR+LNB+OFA	0.085	0.11	-0.17	-0.03
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.10	-0.18	-0.04

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10  
 "Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix  
 Impact is the 98th percentile of all impacts in 2001-2003 period

Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

Visibility Method 6, best 20% background

Area	scen	Scenario	Unit 1 NOx, lb/MMBtu	98th %ile Impact, dv	Visibility Change, dv	
					Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.26	0.08	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.23	0.05	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.18		-0.05
	c11	Enh. LNB+OFA	0.364	0.16	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.273	0.12	-0.06	-0.04
	c13	ROFA+Rotamix	0.195	0.10	-0.08	-0.02
	c15	SCR+LNB+OFA	0.085	0.09	-0.10	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.08	-0.10	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.75	0.18	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.71	0.13	-0.05
	c04	Baseline NOx LNB+OFA	0.462	0.58		-0.13
	c11	Enh. LNB+OFA	0.364	0.50	-0.08	-0.08
	c12	SNCR+LNB+OFA	0.273	0.36	-0.22	-0.14
	c13	ROFA+Rotamix	0.195	0.29	-0.29	-0.07
	c15	SCR+LNB+OFA	0.085	0.22	-0.36	-0.07
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.20	-0.37	-0.08
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.591	0.65	0.17	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.58	0.09	-0.08
	c04	Baseline NOx LNB+OFA	0.462	0.49		-0.09
	c11	Enh. LNB+OFA	0.364	0.43	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.273	0.31	-0.18	-0.12
	c13	ROFA+Rotamix	0.195	0.26	-0.22	-0.04
	c15	SCR+LNB+OFA	0.085	0.25	-0.24	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.23	-0.26	-0.04
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.18	0.05	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.15	0.03	-0.02
	c04	Baseline NOx LNB+OFA	0.462	0.13		-0.03
	c11	Enh. LNB+OFA	0.364	0.11	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.273	0.08	-0.04	-0.03
	c13	ROFA+Rotamix	0.195	0.07	-0.05	-0.01
	c15	SCR+LNB+OFA	0.085	0.07	-0.06	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.06	-0.07	-0.01
Zion	c00	WRAP for NOx, SO2, PM	0.591	0.51	0.14	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.47	0.10	-0.04
	c04	Baseline NOx LNB+OFA	0.462	0.37		-0.10
	c11	Enh. LNB+OFA	0.364	0.33	-0.04	-0.04
	c12	SNCR+LNB+OFA	0.273	0.24	-0.13	-0.09
	c13	ROFA+Rotamix	0.195	0.19	-0.18	-0.05
	c15	SCR+LNB+OFA	0.085	0.14	-0.23	-0.05
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.13	-0.24	-0.06

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10  
 "Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix  
 Impact is the 98th percentile of all impacts in 2001-2003 period

## Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

### Visibility Method 8, annual avg. background

Area	scen	Scenario	Unit 1 NOx, lb/MMBtu	98th %ile Impact, dv	Visibility Change, dv	
					Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.20	0.06	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.18	0.04	-0.02
	c04	Baseline NOx LNB+OFA	0.462	0.14		-0.04
	c11	Enh. LNB+OFA	0.364	0.12	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.273	0.09	-0.05	-0.03
	c13	ROFA+Rotamix	0.195	0.08	-0.07	-0.01
	c15	SCR+LNB+OFA	0.085	0.06	-0.08	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.06	-0.08	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.58	0.16	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.54	0.11	-0.04
	c04	Baseline NOx LNB+OFA	0.462	0.42		-0.11
	c11	Enh. LNB+OFA	0.364	0.37	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.273	0.27	-0.16	-0.10
	c13	ROFA+Rotamix	0.195	0.22	-0.20	-0.05
	c15	SCR+LNB+OFA	0.085	0.16	-0.26	-0.06
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.15	-0.28	-0.08
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.591	0.46	0.12	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.43	0.09	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.34		-0.09
	c11	Enh. LNB+OFA	0.364	0.30	-0.04	-0.04
	c12	SNCR+LNB+OFA	0.273	0.21	-0.13	-0.08
	c13	ROFA+Rotamix	0.195	0.19	-0.15	-0.03
	c15	SCR+LNB+OFA	0.085	0.17	-0.17	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.15	-0.19	-0.04
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.12	0.04	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.10	0.01	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.09		-0.01
	c11	Enh. LNB+OFA	0.364	0.08	-0.01	-0.01
	c12	SNCR+LNB+OFA	0.273	0.06	-0.03	-0.02
	c13	ROFA+Rotamix	0.195	0.05	-0.04	-0.01
	c15	SCR+LNB+OFA	0.085	0.04	-0.05	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.04	-0.05	-0.01
Zion	c00	WRAP for NOx, SO2, PM	0.591	0.37	0.09	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.34	0.07	-0.02
	c04	Baseline NOx LNB+OFA	0.462	0.27		-0.07
	c11	Enh. LNB+OFA	0.364	0.23	-0.04	-0.04
	c12	SNCR+LNB+OFA	0.273	0.17	-0.10	-0.06
	c13	ROFA+Rotamix	0.195	0.14	-0.13	-0.03
	c15	SCR+LNB+OFA	0.085	0.10	-0.17	-0.04
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.09	-0.18	-0.05

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10  
 "Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix  
 Impact is the 98th percentile of all impacts in 2001-2003 period

Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

Visibility Method 8, best 20% background

Area	scen	Scenario	Unit 1 NOx, lb/MMBtu	98th %ile Impact, dv	Visibility Change, dv	
					Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.27	0.08	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.24	0.05	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.19		-0.05
	c11	Enh. LNB+OFA	0.364	0.16	-0.03	-0.03
	c12	SNCR+LNB+OFA	0.273	0.12	-0.07	-0.04
	c13	ROFA+Rotamix	0.195	0.10	-0.09	-0.02
	c15	SCR+LNB+OFA	0.085	0.08	-0.10	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.08	-0.11	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.80	0.21	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.74	0.16	-0.05
	c04	Baseline NOx LNB+OFA	0.462	0.59		-0.16
	c11	Enh. LNB+OFA	0.364	0.51	-0.08	-0.08
	c12	SNCR+LNB+OFA	0.273	0.37	-0.21	-0.13
	c13	ROFA+Rotamix	0.195	0.31	-0.28	-0.06
	c15	SCR+LNB+OFA	0.085	0.22	-0.36	-0.09
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.20	-0.38	-0.10
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.591	0.60	0.15	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.56	0.11	-0.04
	c04	Baseline NOx LNB+OFA	0.462	0.45		-0.11
	c11	Enh. LNB+OFA	0.364	0.39	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.273	0.28	-0.17	-0.11
	c13	ROFA+Rotamix	0.195	0.25	-0.20	-0.04
	c15	SCR+LNB+OFA	0.085	0.22	-0.22	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.20	-0.25	-0.05
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.591	0.16	0.05	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.13	0.01	-0.03
	c04	Baseline NOx LNB+OFA	0.462	0.11		-0.01
	c11	Enh. LNB+OFA	0.364	0.10	-0.01	-0.01
	c12	SNCR+LNB+OFA	0.273	0.07	-0.04	-0.03
	c13	ROFA+Rotamix	0.195	0.06	-0.05	-0.01
	c15	SCR+LNB+OFA	0.085	0.05	-0.06	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.05	-0.07	-0.02
Zion	c00	WRAP for NOx, SO2, PM	0.591	0.46	0.11	
	c02	WRAP NOx, NDEP SO2 & PM	0.591	0.44	0.09	-0.02
	c04	Baseline NOx LNB+OFA	0.462	0.35		-0.09
	c11	Enh. LNB+OFA	0.364	0.30	-0.05	-0.05
	c12	SNCR+LNB+OFA	0.273	0.21	-0.14	-0.09
	c13	ROFA+Rotamix	0.195	0.18	-0.17	-0.03
	c15	SCR+LNB+OFA	0.085	0.13	-0.22	-0.05
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.11	-0.24	-0.07

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

"Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix

"avg" = average of the three years' individual 98th percentile; "merged" = all years' data considered together in computing percentile

### Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

#### Visibility Method 6, annual avg. background

Area	scen	Scenario	98th percentile Visibility Impacts, dv					Visibility Change, dv	
			2001	2002	2003	avg	merged years	Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.18	0.20	0.30	0.23	0.20	0.06	
	c02	WRAP NOx, NDEP SO2 & PM	0.15	0.19	0.23	0.19	0.18	0.04	-0.03
	c04	Baseline NOx LNB+OFA	0.12	0.15	0.19	0.15	0.14		-0.04
	c11	Enh. LNB+OFA	0.11	0.13	0.18	0.14	0.12	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.08	0.09	0.14	0.10	0.09	-0.05	-0.03
	c13	ROFA+Rotamix	0.07	0.08	0.12	0.09	0.08	-0.06	-0.01
	c15	SCR+LNB+OFA	0.07	0.06	0.08	0.07	0.07	-0.07	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.06	0.07	0.07	0.06	-0.08	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.73	0.59	0.51	0.61	0.59	0.14	
	c02	WRAP NOx, NDEP SO2 & PM	0.67	0.56	0.46	0.56	0.55	0.10	-0.04
	c04	Baseline NOx LNB+OFA	0.56	0.44	0.38	0.46	0.44		-0.10
	c11	Enh. LNB+OFA	0.49	0.38	0.33	0.40	0.38	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.34	0.28	0.23	0.28	0.28	-0.17	-0.11
	c13	ROFA+Rotamix	0.29	0.23	0.21	0.24	0.22	-0.22	-0.05
	c15	SCR+LNB+OFA	0.24	0.17	0.16	0.19	0.17	-0.28	-0.05
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.21	0.16	0.15	0.17	0.16	-0.29	-0.06
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.66	0.58	0.45	0.56	0.51	0.13	
	c02	WRAP NOx, NDEP SO2 & PM	0.61	0.54	0.40	0.52	0.45	0.07	-0.06
	c04	Baseline NOx LNB+OFA	0.50	0.44	0.33	0.43	0.38		-0.07
	c11	Enh. LNB+OFA	0.44	0.39	0.29	0.37	0.33	-0.05	-0.05
	c12	SNCR+LNB+OFA	0.31	0.27	0.21	0.26	0.24	-0.14	-0.10
	c13	ROFA+Rotamix	0.26	0.23	0.18	0.22	0.20	-0.18	-0.03
	c15	SCR+LNB+OFA	0.22	0.21	0.17	0.20	0.19	-0.19	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.20	0.19	0.16	0.18	0.17	-0.21	-0.03
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.13	0.18	0.13	0.15	0.14	0.04	
	c02	WRAP NOx, NDEP SO2 & PM	0.10	0.13	0.12	0.12	0.12	0.02	-0.02
	c04	Baseline NOx LNB+OFA	0.08	0.11	0.09	0.09	0.10		-0.02
	c11	Enh. LNB+OFA	0.07	0.11	0.08	0.09	0.08	-0.01	-0.01
	c12	SNCR+LNB+OFA	0.06	0.08	0.06	0.07	0.06	-0.03	-0.02
	c13	ROFA+Rotamix	0.05	0.07	0.06	0.06	0.06	-0.04	-0.01
	c15	SCR+LNB+OFA	0.04	0.05	0.05	0.05	0.05	-0.05	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.04	0.05	0.05	0.05	0.05	-0.05	-0.01
Zion	c00	WRAP for NOx, SO2, PM	0.31	0.38	0.60	0.43	0.39	0.11	
	c02	WRAP NOx, NDEP SO2 & PM	0.29	0.33	0.52	0.38	0.36	0.07	-0.03
	c04	Baseline NOx LNB+OFA	0.23	0.26	0.43	0.31	0.28		-0.07
	c11	Enh. LNB+OFA	0.20	0.24	0.39	0.27	0.25	-0.03	-0.03
	c12	SNCR+LNB+OFA	0.14	0.17	0.28	0.20	0.18	-0.10	-0.07
	c13	ROFA+Rotamix	0.12	0.15	0.23	0.17	0.15	-0.14	-0.04
	c15	SCR+LNB+OFA	0.10	0.11	0.15	0.12	0.11	-0.17	-0.03
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.09	0.10	0.13	0.11	0.10	-0.18	-0.04

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

"Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix

"avg" = average of the three years' individual 98th percentile; "merged" = all years' data considered together in computing percentile

### Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

#### Visibility Method 6, best 20% background

Area	scen	Scenario	98th percentile Visibility Impacts, dv					Visibility Change, dv	
			2001	2002	2003	avg	merged years	Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.24	0.26	0.38	0.29	0.26	0.08	
	c02	WRAP NOx, NDEP SO2 & PM	0.19	0.24	0.29	0.24	0.23	0.05	-0.03
	c04	Baseline NOx LNB+OFA	0.15	0.19	0.25	0.20	0.18		-0.05
	c11	Enh. LNB+OFA	0.14	0.17	0.23	0.18	0.16	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.11	0.12	0.18	0.14	0.12	-0.06	-0.04
	c13	ROFA+Rotamix	0.09	0.10	0.16	0.12	0.10	-0.08	-0.02
	c15	SCR+LNB+OFA	0.09	0.08	0.10	0.09	0.09	-0.10	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.08	0.08	0.09	0.08	0.08	-0.10	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.92	0.76	0.66	0.78	0.75	0.18	
	c02	WRAP NOx, NDEP SO2 & PM	0.85	0.73	0.59	0.72	0.71	0.13	-0.05
	c04	Baseline NOx LNB+OFA	0.71	0.58	0.50	0.60	0.58		-0.13
	c11	Enh. LNB+OFA	0.63	0.50	0.44	0.52	0.50	-0.08	-0.08
	c12	SNCR+LNB+OFA	0.44	0.36	0.30	0.37	0.36	-0.22	-0.14
	c13	ROFA+Rotamix	0.37	0.30	0.27	0.31	0.29	-0.29	-0.07
	c15	SCR+LNB+OFA	0.31	0.22	0.21	0.24	0.22	-0.36	-0.07
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.28	0.20	0.20	0.23	0.20	-0.37	-0.08
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.85	0.75	0.57	0.72	0.65	0.17	
	c02	WRAP NOx, NDEP SO2 & PM	0.79	0.69	0.52	0.67	0.58	0.09	-0.08
	c04	Baseline NOx LNB+OFA	0.65	0.57	0.42	0.55	0.49		-0.09
	c11	Enh. LNB+OFA	0.57	0.51	0.37	0.48	0.43	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.40	0.35	0.27	0.34	0.31	-0.18	-0.12
	c13	ROFA+Rotamix	0.34	0.29	0.23	0.29	0.26	-0.22	-0.04
	c15	SCR+LNB+OFA	0.28	0.27	0.22	0.26	0.25	-0.24	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.25	0.25	0.21	0.24	0.23	-0.26	-0.04
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.16	0.23	0.18	0.19	0.18	0.05	
	c02	WRAP NOx, NDEP SO2 & PM	0.13	0.17	0.15	0.15	0.15	0.03	-0.02
	c04	Baseline NOx LNB+OFA	0.10	0.14	0.12	0.12	0.13		-0.03
	c11	Enh. LNB+OFA	0.10	0.14	0.11	0.11	0.11	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.08	0.11	0.08	0.09	0.08	-0.04	-0.03
	c13	ROFA+Rotamix	0.07	0.09	0.07	0.08	0.07	-0.05	-0.01
	c15	SCR+LNB+OFA	0.06	0.07	0.06	0.06	0.07	-0.06	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.05	0.07	0.06	0.06	0.06	-0.07	-0.01
Zion	c00	WRAP for NOx, SO2, PM	0.40	0.49	0.78	0.56	0.51	0.14	
	c02	WRAP NOx, NDEP SO2 & PM	0.37	0.43	0.69	0.50	0.47	0.10	-0.04
	c04	Baseline NOx LNB+OFA	0.30	0.35	0.56	0.40	0.37		-0.10
	c11	Enh. LNB+OFA	0.26	0.30	0.51	0.36	0.33	-0.04	-0.04
	c12	SNCR+LNB+OFA	0.19	0.22	0.37	0.26	0.24	-0.13	-0.09
	c13	ROFA+Rotamix	0.16	0.19	0.31	0.22	0.19	-0.18	-0.05
	c15	SCR+LNB+OFA	0.12	0.14	0.20	0.15	0.14	-0.23	-0.05
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.12	0.13	0.17	0.14	0.13	-0.24	-0.06



NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

"Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix

"avg" = average of the three years' individual 98th percentile; "merged" = all years' data considered together in computing percentile

### Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

<i>Visibility Method 8, annual avg. background</i>			98th percentile Visibility Impacts, dv					Visibility Change, dv	
Area	scen	Scenario	2001	2002	2003	avg	merged years	Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.17	0.21	0.29	0.23	0.20	0.06	
	c02	WRAP NOx, NDEP SO2 & PM	0.15	0.18	0.23	0.19	0.18	0.04	-0.02
	c04	Baseline NOx LNB+OFA	0.12	0.15	0.19	0.15	0.14		-0.04
	c11	Enh. LNB+OFA	0.10	0.13	0.17	0.14	0.12	-0.02	-0.02
	c12	SNCR+LNB+OFA	0.08	0.09	0.14	0.10	0.09	-0.05	-0.03
	c13	ROFA+Rotamix	0.07	0.08	0.12	0.09	0.08	-0.07	-0.01
	c15	SCR+LNB+OFA	0.06	0.06	0.08	0.07	0.06	-0.08	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.06	0.06	0.07	0.06	0.06	-0.08	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	0.74	0.57	0.50	0.60	0.58	0.16	
	c02	WRAP NOx, NDEP SO2 & PM	0.68	0.54	0.47	0.56	0.54	0.11	-0.04
	c04	Baseline NOx LNB+OFA	0.56	0.42	0.38	0.45	0.42		-0.11
	c11	Enh. LNB+OFA	0.49	0.36	0.33	0.40	0.37	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.34	0.27	0.23	0.28	0.27	-0.16	-0.10
	c13	ROFA+Rotamix	0.28	0.22	0.20	0.24	0.22	-0.20	-0.05
	c15	SCR+LNB+OFA	0.23	0.16	0.15	0.18	0.16	-0.26	-0.06
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.20	0.15	0.13	0.16	0.15	-0.28	-0.08
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.61	0.55	0.43	0.53	0.46	0.12	
	c02	WRAP NOx, NDEP SO2 & PM	0.56	0.49	0.39	0.48	0.43	0.09	-0.03
	c04	Baseline NOx LNB+OFA	0.46	0.40	0.32	0.39	0.34		-0.09
	c11	Enh. LNB+OFA	0.40	0.35	0.28	0.34	0.30	-0.04	-0.04
	c12	SNCR+LNB+OFA	0.29	0.25	0.20	0.24	0.21	-0.13	-0.08
	c13	ROFA+Rotamix	0.24	0.21	0.16	0.20	0.19	-0.15	-0.03
	c15	SCR+LNB+OFA	0.19	0.19	0.15	0.17	0.17	-0.17	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.17	0.16	0.14	0.15	0.15	-0.19	-0.04
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.09	0.16	0.11	0.12	0.12	0.04	
	c02	WRAP NOx, NDEP SO2 & PM	0.08	0.13	0.10	0.10	0.10	0.01	-0.03
	c04	Baseline NOx LNB+OFA	0.07	0.10	0.08	0.08	0.09		-0.01
	c11	Enh. LNB+OFA	0.06	0.09	0.07	0.07	0.08	-0.01	-0.01
	c12	SNCR+LNB+OFA	0.04	0.07	0.05	0.06	0.06	-0.03	-0.02
	c13	ROFA+Rotamix	0.04	0.06	0.04	0.05	0.05	-0.04	-0.01
	c15	SCR+LNB+OFA	0.03	0.04	0.04	0.04	0.04	-0.05	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.03	0.04	0.03	0.03	0.04	-0.05	-0.01
Zion	c00	WRAP for NOx, SO2, PM	0.29	0.36	0.57	0.40	0.37	0.09	
	c02	WRAP NOx, NDEP SO2 & PM	0.27	0.31	0.49	0.36	0.34	0.07	-0.02
	c04	Baseline NOx LNB+OFA	0.22	0.25	0.39	0.28	0.27		-0.07
	c11	Enh. LNB+OFA	0.19	0.22	0.35	0.25	0.23	-0.04	-0.04
	c12	SNCR+LNB+OFA	0.14	0.16	0.26	0.19	0.17	-0.10	-0.06
	c13	ROFA+Rotamix	0.11	0.14	0.22	0.16	0.14	-0.13	-0.03
	c15	SCR+LNB+OFA	0.08	0.10	0.14	0.10	0.10	-0.17	-0.04
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.08	0.09	0.12	0.10	0.09	-0.18	-0.05



NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

"Incremental" for c15 and c16 SCR are both relative to c13 ROFA+Rotamix

"avg" = average of the three years' individual 98th percentile; "merged" = all years' data considered together in computing percentile

### Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

#### Visibility Method 8, best 20% background

Area	scen	Scenario	98th percentile Visibility Impacts, dv					Visibility Change, dv	
			2001	2002	2003	avg	merged years	Relative to Base	incremental
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0.23	0.28	0.39	0.30	0.27	0.08	
	c02	WRAP NOx, NDEP SO2 & PM	0.20	0.24	0.31	0.25	0.24	0.05	-0.03
	c04	Baseline NOx LNB+OFA	0.16	0.20	0.26	0.21	0.19		-0.05
	c11	Enh. LNB+OFA	0.14	0.17	0.23	0.18	0.16	-0.03	-0.03
	c12	SNCR+LNB+OFA	0.10	0.13	0.18	0.14	0.12	-0.07	-0.04
	c13	ROFA+Rotamix	0.09	0.10	0.16	0.12	0.10	-0.09	-0.02
	c15	SCR+LNB+OFA	0.08	0.08	0.10	0.09	0.08	-0.10	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.08	0.07	0.09	0.08	0.08	-0.11	-0.02
Grand Canyon	c00	WRAP for NOx, SO2, PM	1.00	0.79	0.70	0.83	0.80	0.21	
	c02	WRAP NOx, NDEP SO2 & PM	0.92	0.74	0.66	0.77	0.74	0.16	-0.05
	c04	Baseline NOx LNB+OFA	0.76	0.59	0.53	0.63	0.59		-0.16
	c11	Enh. LNB+OFA	0.67	0.50	0.46	0.54	0.51	-0.08	-0.08
	c12	SNCR+LNB+OFA	0.47	0.37	0.32	0.39	0.37	-0.21	-0.13
	c13	ROFA+Rotamix	0.39	0.31	0.28	0.33	0.31	-0.28	-0.06
	c15	SCR+LNB+OFA	0.32	0.22	0.20	0.25	0.22	-0.36	-0.09
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.28	0.20	0.18	0.22	0.20	-0.38	-0.10
Joshua Tree	c00	WRAP for NOx, SO2, PM	0.80	0.71	0.55	0.69	0.60	0.15	
	c02	WRAP NOx, NDEP SO2 & PM	0.73	0.63	0.50	0.62	0.56	0.11	-0.04
	c04	Baseline NOx LNB+OFA	0.60	0.52	0.41	0.51	0.45		-0.11
	c11	Enh. LNB+OFA	0.52	0.46	0.36	0.45	0.39	-0.06	-0.06
	c12	SNCR+LNB+OFA	0.38	0.33	0.26	0.32	0.28	-0.17	-0.11
	c13	ROFA+Rotamix	0.32	0.28	0.21	0.27	0.25	-0.20	-0.04
	c15	SCR+LNB+OFA	0.24	0.24	0.20	0.23	0.22	-0.22	-0.02
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.22	0.21	0.18	0.20	0.20	-0.25	-0.05
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0.12	0.21	0.15	0.16	0.16	0.05	
	c02	WRAP NOx, NDEP SO2 & PM	0.11	0.17	0.13	0.13	0.13	0.01	-0.03
	c04	Baseline NOx LNB+OFA	0.09	0.13	0.10	0.11	0.11		-0.01
	c11	Enh. LNB+OFA	0.07	0.11	0.09	0.09	0.10	-0.01	-0.01
	c12	SNCR+LNB+OFA	0.06	0.10	0.07	0.07	0.07	-0.04	-0.03
	c13	ROFA+Rotamix	0.05	0.08	0.06	0.06	0.06	-0.05	-0.01
	c15	SCR+LNB+OFA	0.04	0.06	0.05	0.05	0.05	-0.06	-0.01
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.04	0.05	0.04	0.05	0.05	-0.07	-0.02
Zion	c00	WRAP for NOx, SO2, PM	0.37	0.45	0.72	0.52	0.46	0.11	
	c02	WRAP NOx, NDEP SO2 & PM	0.35	0.40	0.63	0.46	0.44	0.09	-0.02
	c04	Baseline NOx LNB+OFA	0.28	0.31	0.50	0.36	0.35		-0.09
	c11	Enh. LNB+OFA	0.24	0.28	0.45	0.32	0.30	-0.05	-0.05
	c12	SNCR+LNB+OFA	0.17	0.20	0.34	0.24	0.21	-0.14	-0.09
	c13	ROFA+Rotamix	0.14	0.18	0.28	0.20	0.18	-0.17	-0.03
	c15	SCR+LNB+OFA	0.11	0.12	0.17	0.13	0.13	-0.22	-0.05
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0.10	0.11	0.15	0.12	0.11	-0.24	-0.07

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

### Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

<i>Visibility Method 6, annual avg. background</i>			Number of days with impact > 0.5 dv				Number of days with impact > 1.0 dv			
Area	scen	Scenario	2001	2002	2003	sum	2001	2002	2003	sum
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0	2	3	5	0	0	0	0
	c02	WRAP NOx, NDEP SO2 & PM	0	1	2	3	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	0	1	1	0	0	0	0
	c11	Enh. LNB+OFA	0	0	1	1	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Grand Canyon	c00	WRAP for NOx, SO2, PM	15	10	8	33	3	4	1	8
	c02	WRAP NOx, NDEP SO2 & PM	13	10	5	28	3	4	1	8
	c04	Baseline NOx LNB+OFA	8	6	3	17	1	3	1	5
	c11	Enh. LNB+OFA	7	6	2	15	0	2	1	3
	c12	SNCR+LNB+OFA	3	4	1	8	0	1	0	1
	c13	ROFA+Rotamix	1	2	1	4	0	0	0	0
	c15	SCR+LNB+OFA	0	1	0	1	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	1	0	1	0	0	0	0
Joshua Tree	c00	WRAP for NOx, SO2, PM	11	10	4	25	1	0	0	1
	c02	WRAP NOx, NDEP SO2 & PM	10	8	3	21	0	0	0	0
	c04	Baseline NOx LNB+OFA	8	6	0	14	0	0	0	0
	c11	Enh. LNB+OFA	4	3	0	7	0	0	0	0
	c12	SNCR+LNB+OFA	1	0	0	1	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0	1	0	1	0	0	0	0
	c02	WRAP NOx, NDEP SO2 & PM	0	1	0	1	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	0	0	0	0	0	0	0
	c11	Enh. LNB+OFA	0	0	0	0	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Zion	c00	WRAP for NOx, SO2, PM	4	1	9	14	0	0	2	2
	c02	WRAP NOx, NDEP SO2 & PM	4	1	9	14	0	0	1	1
	c04	Baseline NOx LNB+OFA	1	1	5	7	0	0	0	0
	c11	Enh. LNB+OFA	0	1	4	5	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	1	1	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

## Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

<i>Visibility Method 6, best 20% background</i>			Number of days with impact > 0.5 dv				Number of days with impact > 1.0 dv			
Area	scen	Scenario	2001	2002	2003	sum	2001	2002	2003	sum
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0	2	4	6	0	0	1	1
	c02	WRAP NOx, NDEP SO2 & PM	0	2	4	6	0	0	1	1
	c04	Baseline NOx LNB+OFA	0	1	2	3	0	0	0	0
	c11	Enh. LNB+OFA	0	1	1	2	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	1	1	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Grand Canyon	c00	WRAP for NOx, SO2, PM	19	14	15	48	6	5	2	13
	c02	WRAP NOx, NDEP SO2 & PM	18	13	13	44	5	5	2	12
	c04	Baseline NOx LNB+OFA	14	10	7	31	3	4	1	8
	c11	Enh. LNB+OFA	11	7	4	22	3	4	1	8
	c12	SNCR+LNB+OFA	5	5	2	12	0	2	1	3
	c13	ROFA+Rotamix	3	4	1	8	0	1	0	1
	c15	SCR+LNB+OFA	1	4	1	6	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	1	1	2	0	0	0	0
Joshua Tree	c00	WRAP for NOx, SO2, PM	18	17	12	47	4	3	0	7
	c02	WRAP NOx, NDEP SO2 & PM	14	13	8	35	3	0	0	3
	c04	Baseline NOx LNB+OFA	10	8	3	21	1	0	0	1
	c11	Enh. LNB+OFA	10	8	1	19	0	0	0	0
	c12	SNCR+LNB+OFA	4	3	0	7	0	0	0	0
	c13	ROFA+Rotamix	1	0	0	1	0	0	0	0
	c15	SCR+LNB+OFA	1	0	0	1	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0	1	0	1	0	0	0	0
	c02	WRAP NOx, NDEP SO2 & PM	0	1	0	1	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	1	0	1	0	0	0	0
	c11	Enh. LNB+OFA	0	0	0	0	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Zion	c00	WRAP for NOx, SO2, PM	4	7	12	23	0	1	4	5
	c02	WRAP NOx, NDEP SO2 & PM	4	3	9	16	0	1	4	5
	c04	Baseline NOx LNB+OFA	4	1	9	14	0	0	2	2
	c11	Enh. LNB+OFA	2	1	8	11	0	0	0	0
	c12	SNCR+LNB+OFA	0	1	4	5	0	0	0	0
	c13	ROFA+Rotamix	0	0	2	2	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

## Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

			Number of days with impact > 0.5 dv				Number of days with impact > 1.0 dv			
<i>Visibility Method 8, annual avg. background</i>			2001	2002	2003	sum	2001	2002	2003	sum
Area	scen	Scenario								
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0	1	4	5	0	0	0	0
	c02	WRAP NOx, NDEP SO2 & PM	0	1	2	3	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	0	1	1	0	0	0	0
	c11	Enh. LNB+OFA	0	0	1	1	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Grand Canyon	c00	WRAP for NOx, SO2, PM	15	10	7	32	3	4	1	8
	c02	WRAP NOx, NDEP SO2 & PM	13	10	5	28	3	4	1	8
	c04	Baseline NOx LNB+OFA	8	6	3	17	1	3	1	5
	c11	Enh. LNB+OFA	7	6	3	16	0	2	1	3
	c12	SNCR+LNB+OFA	3	4	1	8	0	1	0	1
	c13	ROFA+Rotamix	1	3	1	5	0	0	0	0
	c15	SCR+LNB+OFA	0	1	0	1	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	1	0	1	0	0	0	0
Joshua Tree	c00	WRAP for NOx, SO2, PM	10	8	3	21	1	0	0	1
	c02	WRAP NOx, NDEP SO2 & PM	9	7	1	17	0	0	0	0
	c04	Baseline NOx LNB+OFA	5	5	0	10	0	0	0	0
	c11	Enh. LNB+OFA	4	1	0	5	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0	1	0	1	0	0	0	0
	c02	WRAP NOx, NDEP SO2 & PM	0	1	0	1	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	0	0	0	0	0	0	0
	c11	Enh. LNB+OFA	0	0	0	0	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Zion	c00	WRAP for NOx, SO2, PM	4	1	9	14	0	0	2	2
	c02	WRAP NOx, NDEP SO2 & PM	3	1	7	11	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	1	5	6	0	0	0	0
	c11	Enh. LNB+OFA	0	0	3	3	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	1	1	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0

NOTES: All runs except "WRAP for NOx, SO2, PM" incorporate NDEP BART determination for SO2 and PM10

Reid Gardner CALPUFF Visibility Modeling, EPA, 2012-03-09

			Number of days with impact > 0.5 dv				Number of days with impact > 1.0 dv			
<i>Visibility Method 8, best 20% background</i>			2001	2002	2003	sum	2001	2002	2003	sum
Bryce Canyon	c00	WRAP for NOx, SO2, PM	0	2	5	7	0	0	1	1
	c02	WRAP NOx, NDEP SO2 & PM	0	2	4	6	0	0	1	1
	c04	Baseline NOx LNB+OFA	0	1	4	5	0	0	0	0
	c11	Enh. LNB+OFA	0	1	1	2	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	1	1	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Grand Canyon	c00	WRAP for NOx, SO2, PM	21	19	16	56	8	6	3	17
	c02	WRAP NOx, NDEP SO2 & PM	20	16	14	50	7	6	3	16
	c04	Baseline NOx LNB+OFA	15	11	9	35	3	4	2	9
	c11	Enh. LNB+OFA	11	9	5	25	3	4	1	8
	c12	SNCR+LNB+OFA	7	6	2	15	0	2	1	3
	c13	ROFA+Rotamix	5	4	2	11	0	1	1	2
	c15	SCR+LNB+OFA	1	4	1	6	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	1	1	2	0	0	0	0
Joshua Tree	c00	WRAP for NOx, SO2, PM	17	14	11	42	3	1	0	4
	c02	WRAP NOx, NDEP SO2 & PM	12	12	8	32	2	0	0	2
	c04	Baseline NOx LNB+OFA	10	8	3	21	0	0	0	0
	c11	Enh. LNB+OFA	9	6	1	16	0	0	0	0
	c12	SNCR+LNB+OFA	2	0	0	2	0	0	0	0
	c13	ROFA+Rotamix	1	0	0	1	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Sycamore Canyon	c00	WRAP for NOx, SO2, PM	0	1	0	1	0	0	0	0
	c02	WRAP NOx, NDEP SO2 & PM	0	1	0	1	0	0	0	0
	c04	Baseline NOx LNB+OFA	0	1	0	1	0	0	0	0
	c11	Enh. LNB+OFA	0	0	0	0	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	0	0	0	0	0	0
	c13	ROFA+Rotamix	0	0	0	0	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0
Zion	c00	WRAP for NOx, SO2, PM	4	3	9	16	0	1	3	4
	c02	WRAP NOx, NDEP SO2 & PM	4	2	9	15	0	0	3	3
	c04	Baseline NOx LNB+OFA	3	1	8	12	0	0	0	0
	c11	Enh. LNB+OFA	2	1	5	8	0	0	0	0
	c12	SNCR+LNB+OFA	0	0	3	3	0	0	0	0
	c13	ROFA+Rotamix	0	0	1	1	0	0	0	0
	c15	SCR+LNB+OFA	0	0	0	0	0	0	0	0
	c16	SCR+LNB+OFA 0.06 lb/MMBtu	0	0	0	0	0	0	0	0