FEDERAL LAND MANAGERS UPDATE
2010 Regional, State, Local Modelers Workshop
May 11, 2010

- NATIONAL PARK SERVICE
- U.S. FISH and WILDLIFE SERVICE
- U.S. FOREST SERVICE
- BUREAU OF LAND MANAGEMENT

Disclaimer

- The following presentation represents the current views and ideas of the federal land management agencies' staff and does not necessarily represent the official position of the Department of the Interior, the Department of Agriculture, or the agencies or bureaus of these departments.
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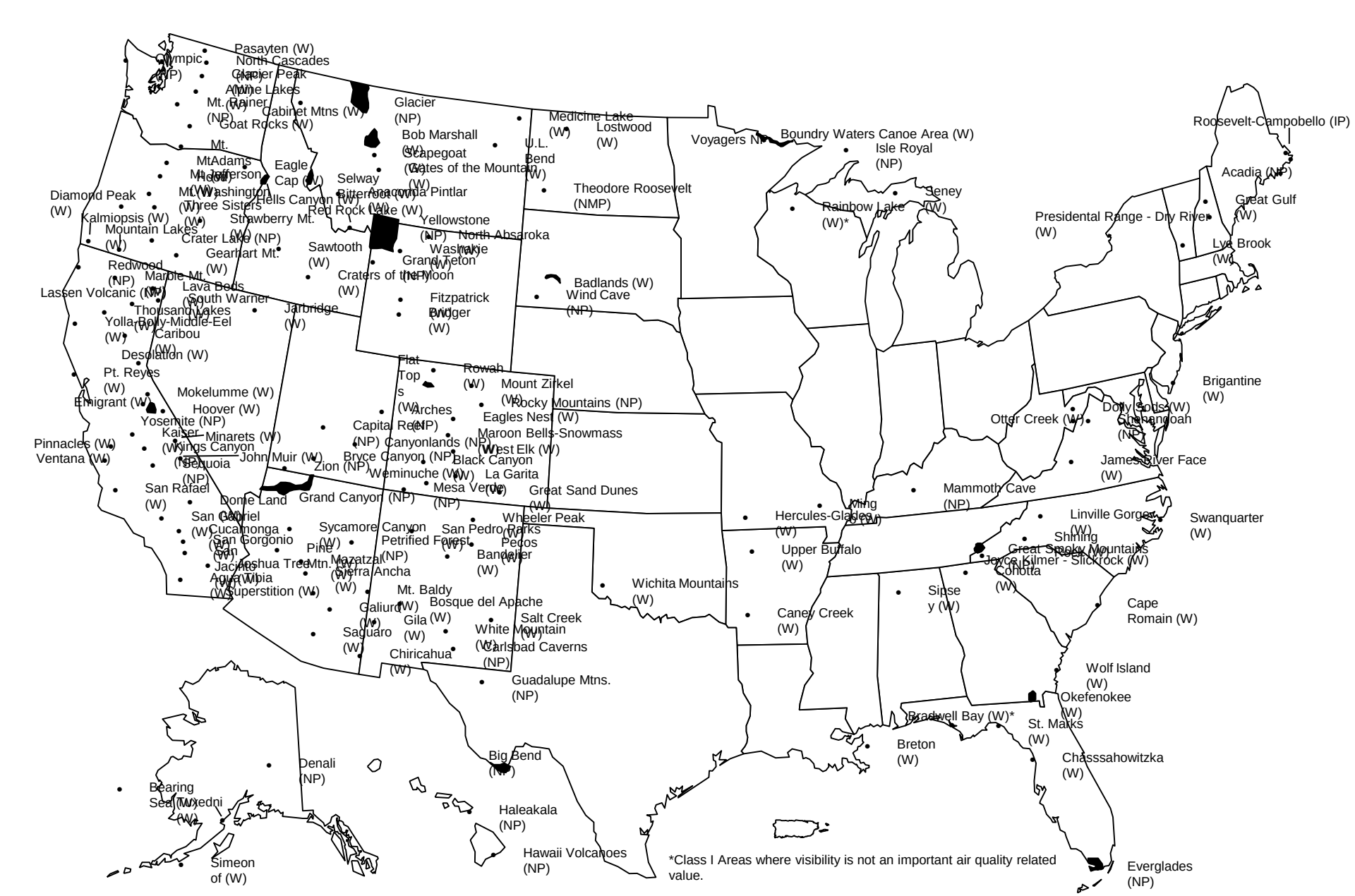


*Class I Areas where visibility is not an important air quality related value.

Legend:
NP= National Park
W = Wilderness
IP = International Park

Map of Mandatory Federal Class I Areas

FLM Highlights

- ENERGY DEVELOPMENTS- WY,MT, ND,UT,(PA,WV, NY,OH,KY Marcellus Shale)
- Some **new** power plant permit applications (4 in VA)

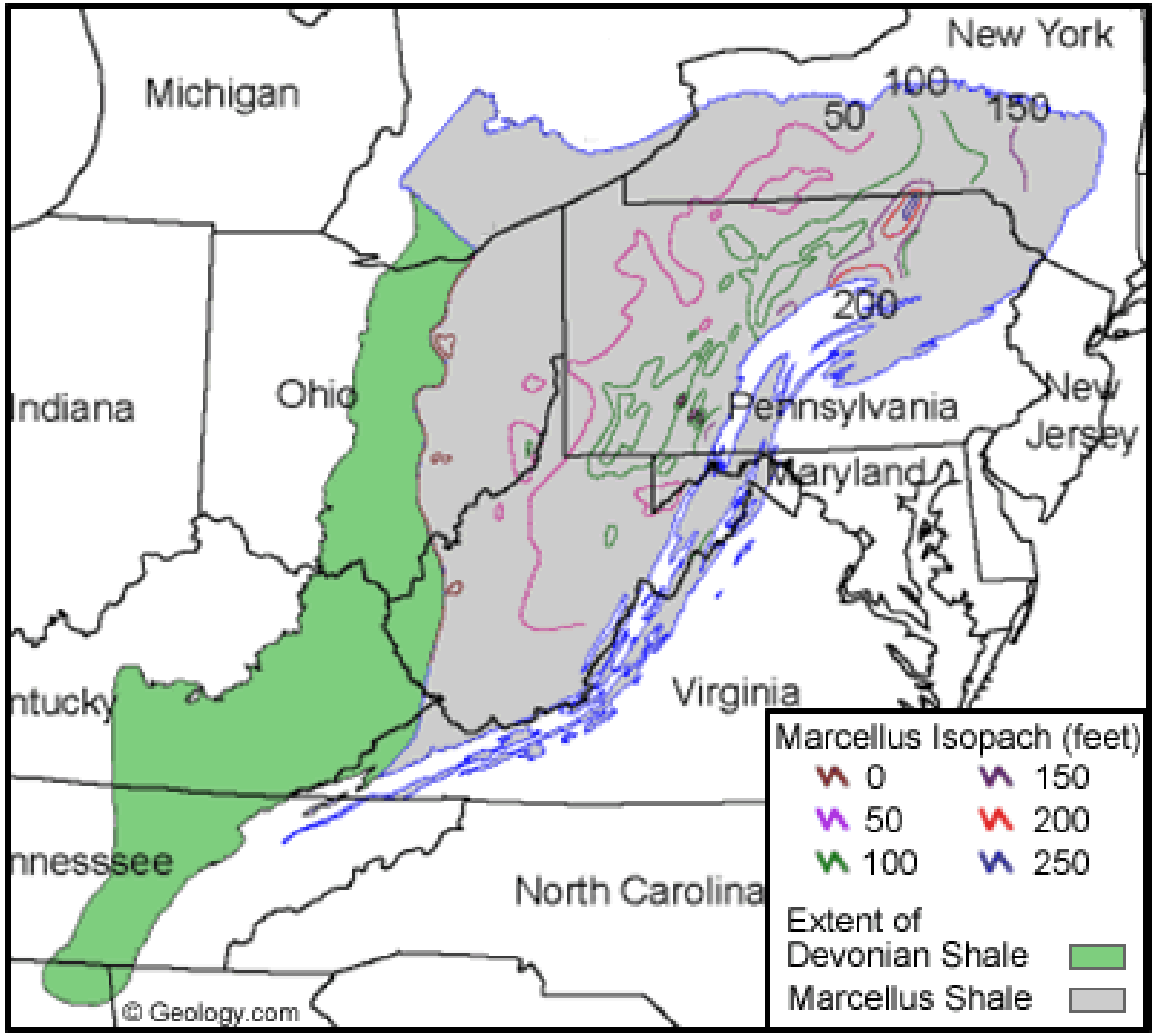
Major PSD permits in most EPA Regions

BART ANALYSES FOR STATES AND EPA REGIONS

Looking into status of Parks with of new ozone standards

Testing CALMET vs MMIF (FWS & NPS) , test areas ND, 4 Corners, VISTAS Domain 5

Marcellus Shale



BART ANALYSES

- NGS (AZ)
- FCPP (NM)
- Centralia (WA)
- Colstrip (MT)
- San Juan (NM)
- Boardman (OR)
- Healy (AK)

MAJOR PERMITS

- MR Young (ND)
- United Taconite (MN)
- Kewatin Taconite (MN)
- Essar Steel (MN)
- CEMEX (AZ)
- Chemical Lime (AZ)
- Rio Grande Cement (CO)
- 4 POWER PLANTS in VA
- Uranium mines , 10 km from Grand Canyon

FEDERAL LAND MANAGERS' AQRV WORKGROUP (FLAG)

LATEST ON FLAG 2010

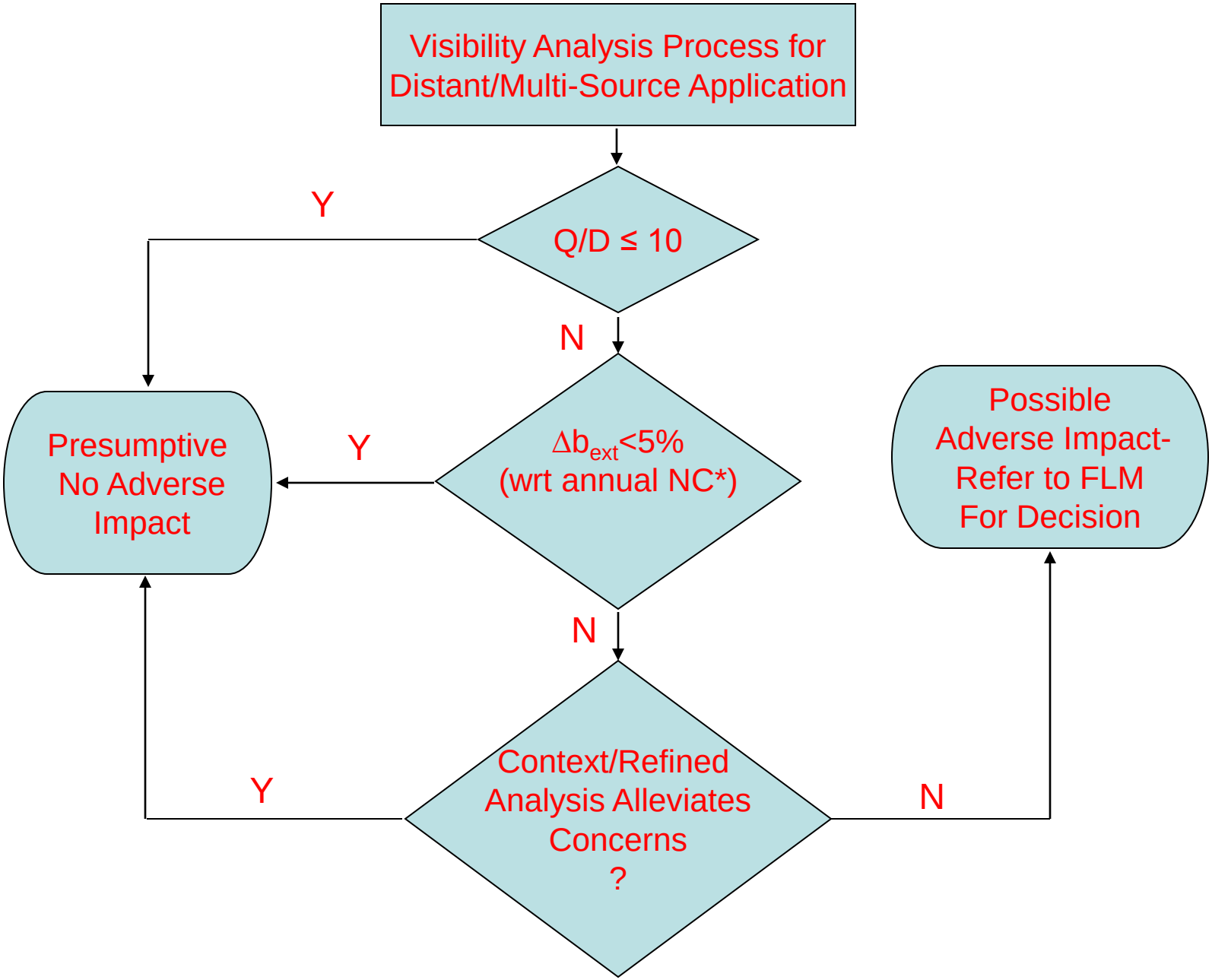
- Federal Register published July 8, 2008
- Comment period ended September 8,2008
- FLAG_REVISEDFinalDraft20080624 is available on the NPS web site in folder ADR Public
- Working its way thru for final signature in the Departments of Interior and Agriculture.
- No changes since the final version
- Note FLAG is guidance not regulatory

FLAG Visibility Changes to Screening Analysis

- Use **monthly** average f(RH) (MVISBK=8 MODE=5)
- 98th percentile 5% Δb_{ext} (i.e. 8th high)
  - ***Any 1 year fails test***
  - ***Not the 21st high or 3 year average***
- Background visual range will be based on annual average natural conditions
- If fail test look at context and mitigation, (option to perform refined analysis; refined analysis is hour-by-hour)
- Adverse impact determination process more explicit; considers regulatory and contextual factors

SCREENING OUT OF A CLASS I AIR QUALITY RELATED ANALYSIS PER CLASS I AREA

- EMISSIONS / DISTANCE TO EACH CLASS I AREA(S)
- EMISSIONS = MAXIMUM 24 HOUR EMISSION LIMITS FOR:
- SO_2 + SO_4 + NO_X + PMC + PMF + SOA + EC X 8760 / 2000 = TPY
- DISTANCE TO EACH CLASS I AREA IN KILOMETERS
- IS Q/D ≤ 10 PER CLASS I AREA ?


Visibility Analysis Process for Distant/Multi-Source Application
Q/D ≤ 10
Y
N
Presumptive No Adverse Impact
Δb_ext<5% (wrt annual NC*)
Y
N
Possible Adverse Impact- Refer to FLM For Decision
Context/Refined Analysis Alleviates Concerns ?
Y
N

FLAG NATURAL CONDITIONS & f(RH)

Table V.1-1. 20% Best Natural Conditions – Concentrations and Rayleigh Scattering By Class I Area

- Table V.1-2. Annual Average Natural Conditions - Concentrations and Rayleigh Scattering By Class I Area
- Do not use current conditions
- Table V.1-3. Monthly fL(RH) – Large (NH4)2SO4 and NH4NO3 Relative Humidity Adjustment Factor
- Table V.1-4. Monthly fS(RH) – Small (NH4)2SO4 and NH4NO3 Relative Humidity Adjustment Factor
- Table V.1-5. Monthly fSS(RH) – Sea Salt Relative Humidity Adjustment Factor
- Table V.1-6. Monthly Average Natural Conditions Visual Range In Kilometers (km).

CALPOST v6.221 Method 8 Mode 5

INPUT GROUP: 2 -- Visibility Parameters (ASPEC = VISIB)

Test visibility options specified to see
if they conform to FLAG 2008 configuration?
(MVISCHECK) -- Default: 1 ! MVISCHECK = 1 !

0 = NO checks are made
1 = Technical options must conform to FLAG 2008 visibility guidance
ASPEC = VISIB
LVNO2 = T
NO2CALC = 1
RNO2NOX = 1.0
MVISBK = 8
M8_MODE = 5

Some of the data entered for use with the FLAG 2008 configuration
are specific to the Class I area being evaluated. These values can
be checked within the CALPOST user interface when the name of the
Class I area is provided.

Name of Class I Area (used for QA purposes only)
(AREANAME) -- Default: User ! **AREANAME =Great Smoky MTS NP** !

33Class I Area	$(NH_4)_2SO_4$ µg/m³	NH_4NO_3 µg/m³	OM µg/m³	EC µg/m³	Soil µg/m³	CM µg/m³	Sea Salt µg/m³	Rayleigh Mm^{-1}	Type
Craters of the Moon NM	0.12	0.10	0.60	0.02	0.50	2.92	0.01	10	Annual
Cucamonga Wilderness	0.12	0.10	0.60	0.02	0.50	3.00	0.04	9	Annual
Denali NP & Pres	0.12	0.06	0.60	0.02	0.14	1.12	0.04	11	Annual
Desolation Wilderness	0.12	0.10	0.60	0.02	0.43	1.92	0.01	9	Annual
Diamond Peak Wilderness	0.12	0.10	0.60	0.02	0.40	1.67	0.02	9	Annual
Dolly Sods Wilderness	0.23	0.10	1.80	0.02	0.43	2.19	0.02	10	Annual
Dome Land Wilderness	0.12	0.10	0.60	0.02	0.50	3.00	0.03	10	Annual
Eagle Cap Wilderness	0.12	0.10	0.60	0.02	0.50	2.99	0.05	10	Annual
Eagles Nest Wilderness	0.12	0.10	0.60	0.02	0.47	2.12	0.00	8	Annual
Emigrant Wilderness	0.12	0.10	0.60	0.02	0.44	3.00	0.02	10	Annual
Everglades NP	0.23	0.10	1.79	0.02	0.50	3.00	0.31	11	Annual
Fitzpatrick Wilderness	0.12	0.10	0.60	0.02	0.44	1.88	0.01	9	Annual
Flat Tops Wilderness	0.12	0.10	0.60	0.02	0.47	2.12	0.00	8	Annual
Galiuro Wilderness	0.12	0.10	0.60	0.02	0.50	3.00	0.02	10	Annual
Gates of the Mountains Wilderness	0.12	0.10	0.60	0.02	0.35	1.55	0.01	9	Annual
Gearhart Mountain Wilderness	0.12	0.10	0.60	0.02	0.40	1.67	0.02	9	Annual
Gila Wilderness	0.12	0.10	0.60	0.02	0.50	2.55	0.01	9	Annual
Glacier NP	0.12	0.10	0.60	0.02	0.50	3.00	0.02	11	Annual
Glacier Peak Wilderness	0.12	0.10	0.60	0.02	0.22	1.22	0.01	11	Annual
Goat Rocks Wilderness	0.12	0.10	0.60	0.02	0.23	1.23	0.03	10	Annual
Grand Canyon NP	0.12	0.10	0.60	0.02	0.50	2.88	0.02	9	Annual
Grand Teton NP	0.12	0.10	0.60	0.02	0.41	1.92	0.01	9	Annual
Great Gulf Wilderness	0.23	0.10	1.70	0.02	0.24	2.65	0.03	11	Annual
Great Sand Dunes NP & Pres	0.12	0.10	0.60	0.02	0.50	2.99	0.01	9	Annual
Great Smoky Mountains NP	0.23	0.10	1.80	0.02	0.48	2.92	0.02	11	Annual
Guadalupe Mountains NP	0.12	0.10	0.60	0.02	0.50	3.00	0.02	9	Annual
Haleakala NP	0.12	0.10	0.57	0.02	0.23	2.93	0.25	10	Annual
Hawaii Volcanoes NP	0.12	0.10	0.45	0.02	0.15	1.42	0.29	10	Annual
Hells Canyon Wilderness	0.12	0.10	0.60	0.02	0.48	2.97	0.01	11	Annual
Hercules-Glades Wilderness	0.23	0.10	1.80	0.02	0.50	3.00	0.03	11	Annual
Hoover Wilderness	0.12	0.10	0.60	0.02	0.50	2.97	0.01	9	Annual
Isle Royale NP	0.23	0.10	1.55	0.02	0.24	2.89	0.03	12	Annual

Table V.1-4. Monthly $f_S(RH)$ – Small $(NH_4)_2SO_4$ and NH_4NO_3 Relative Humidity Adjustment Factor

ass I Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
olation Wilderness	3.77	3.22	2.82	2.26	2.09	1.80	1.67	1.71	1.84	2.08	2.72
mond Peak Wilderness	5.79	4.97	4.61	4.35	3.90	3.55	3.08	3.12	3.55	4.63	5.75
ly Sods Wilderness	3.39	3.16	3.17	2.87	3.63	3.62	3.78	4.06	4.15	3.63	3.27
ne Land Wilderness	2.97	2.64	2.51	2.17	2.08	1.91	1.89	1.93	2.01	2.06	2.23
le Cap Wilderness	5.05	4.28	3.45	3.05	3.02	2.56	2.20	2.15	2.53	3.62	4.89
les Nest Wilderness	2.48	2.48	2.29	2.32	2.42	2.03	2.02	2.24	2.31	2.09	2.42
igrant Wilderness	3.69	3.25	2.98	2.39	2.21	1.86	1.71	1.73	1.85	2.07	2.68
rglades NP	3.14	2.93	2.83	2.67	2.63	3.03	2.91	3.22	3.33	3.12	2.95
patrick Wilderness	2.78	2.60	2.54	2.43	2.44	1.99	1.66	1.63	2.02	2.25	2.77
Tops Wilderness	2.61	2.53	2.28	2.26	2.31	1.91	1.86	2.04	2.19	2.06	2.42
iuro Wilderness	2.17	1.99	1.68	1.30	1.26	1.14	1.62	1.96	1.75	1.60	1.82
es of the Mountains Wilderness	3.20	2.85	2.71	2.57	2.53	2.50	2.21	2.14	2.37	2.74	3.09
rhart Mountain Wilderness	4.80	4.05	3.60	3.30	3.04	2.76	2.37	2.39	2.62	3.36	4.45
a Wilderness	2.40	2.16	1.77	1.45	1.41	1.33	2.11	2.12	2.00	1.73	1.99
cier NP	4.53	3.87	3.63	3.39	3.51	3.48	2.91	2.87	3.47	3.86	4.29
cier Peak Wilderness	5.53	4.98	4.21	3.99	3.90	3.43	3.35	3.54	4.14	5.12	5.80
t Rocks Wilderness	5.81	5.08	4.46	4.23	3.97	3.57	3.35	3.48	4.11	5.22	5.98
nd Canyon NP	2.73	2.53	2.12	1.69	1.52	1.27	1.42	1.72	1.69	1.74	2.11
nd Teton NP	2.88	2.66	2.48	2.35	2.34	2.00	1.68	1.62	1.94	2.25	2.73
at Gulf Wilderness	3.34	3.02	3.12	3.23	3.31	3.46	3.76	4.03	4.22	3.90	3.64
at Sand Dunes NP & Pres	2.66	2.55	2.27	2.16	2.22	1.92	2.04	2.47	2.41	2.07	2.57
at Smoky Mountains NP	4.01	3.52	3.43	3.14	3.76	4.20	4.21	4.39	4.45	4.05	3.76
dalupe Mountains NP	2.85	2.28	1.74	1.57	1.73	1.69	2.16	2.48	2.74	1.90	2.20
eakala NP	2.98	2.85	2.81	2.72	2.60	2.53	2.65	2.63	2.56	2.69	2.95
waii Volcanoes NP	3.35	3.10	3.14	3.13	3.14	3.11	3.24	3.42	3.34	3.38	3.76
ls Canyon Wilderness	4.28	3.56	2.83	2.42	2.34	2.19	1.80	1.75	2.01	2.75	4.03
rcules-Glades Wilderness	3.70	3.33	3.01	3.01	3.47	3.48	3.41	3.51	3.67	3.43	3.46
ver Wilderness	3.63	3.18	2.89	2.33	2.16	1.82	1.66	1.68	1.81	2.02	2.62
Royale NP	3.26	2.74	2.87	2.58	2.46	3.00	3.59	3.68	3.92	2.88	3.72
es River Face Wilderness	3.25	3.03	3.02	2.72	3.31	3.48	3.59	3.83	3.91	3.48	3.11
idge Wilderness	3.29	2.92	2.31	2.34	2.44	2.22	1.73	1.51	1.48	1.80	2.70
n Muir Wilderness	3.42	3.02	2.86	2.44	2.29	1.94	1.86	1.87	2.01	2.16	2.60

PLUME ANALYSES

- VISCREEN , < 50KM
- PLUVUE , < 50 KM - 5 years NWS data
- Required for Class I and Class II
- Class II “PSD Additional Impact Analysis for visibility, vegetation, and soils”
- Use annual Natural background visual ranges from FLAG 2010 Table V.1-6
- Class II use representative nearby Class I area

Deposition Analysis

- Included concern thresholds, pollutant exposures, and deposition analysis thresholds (DATs) for sulfur and nitrogen deposition
- EAST-Total Sulfur; Total Nitrogen=0.01 Kg/HA/Yr
- WEST-Total Sulfur; Total Nitrogen=0.005 Kg/HA/Yr
- Expanded discussion of “Critical Loads” to reflect developments since FLAG 2000
- Replaced dated deposition maps with reference to NADP website for current trends data

FLM Adverse Impact Determination

- Made on a project-specific basis
- Based on air quality impact modeling performed by the applicant and verified by the FLM
- Considers magnitude, frequency, duration, location, geographic extent, timing of expected impacts (and other factors)

Further Considerations

- Regulatory Factors
  - Geographic extent, intensity, duration, frequency, time of visitor use, natural conditions that affect visibility
- Contextual Considerations
  - Current pollutant concentrations and AQRV impacts in the Class I area
  - Air Quality trends in the Class I area
  - Emission offsets obtained or other mitigation offered by the permit applicant
  - Enforceable emission changes that have occurred or would occur before source operation date
  - Whether there are approved SIPs that account for new source growth and demonstrate “reasonable progress” toward visibility goals
  - Expected life of the source
  - Stringency of proposed emission limits (BACT?)
  - Ancillary environmental benefits proposed by applicant (e.g., reduced toxics emissions, pollution prevention investments, CO2 sequestration, purchase of “green” power
  - Comments from the public and other agencies

New Ozone standards at NPS Parks both Class I and Class II

- If O3 =0.60 ppm 193 NPS units in a non-attainment county (27 Class I areas)
- If O3 =0.65 ppm 174 NPS units in a non-attainment county (18 Class I areas)
- If O3 =0.70 ppm 126 NPS units in a non-attainment county (11 Class I areas)
- Based on monitoring either NPS or State from 2006 - 2009

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  http://fs.fed.us/air