



Planning for Clean Air and Environmental Justice Special Environmental Concerns

Presented by:

Greg Zwicke and Greg Johnson

NRCS National Air Quality and Atmospheric Change Team

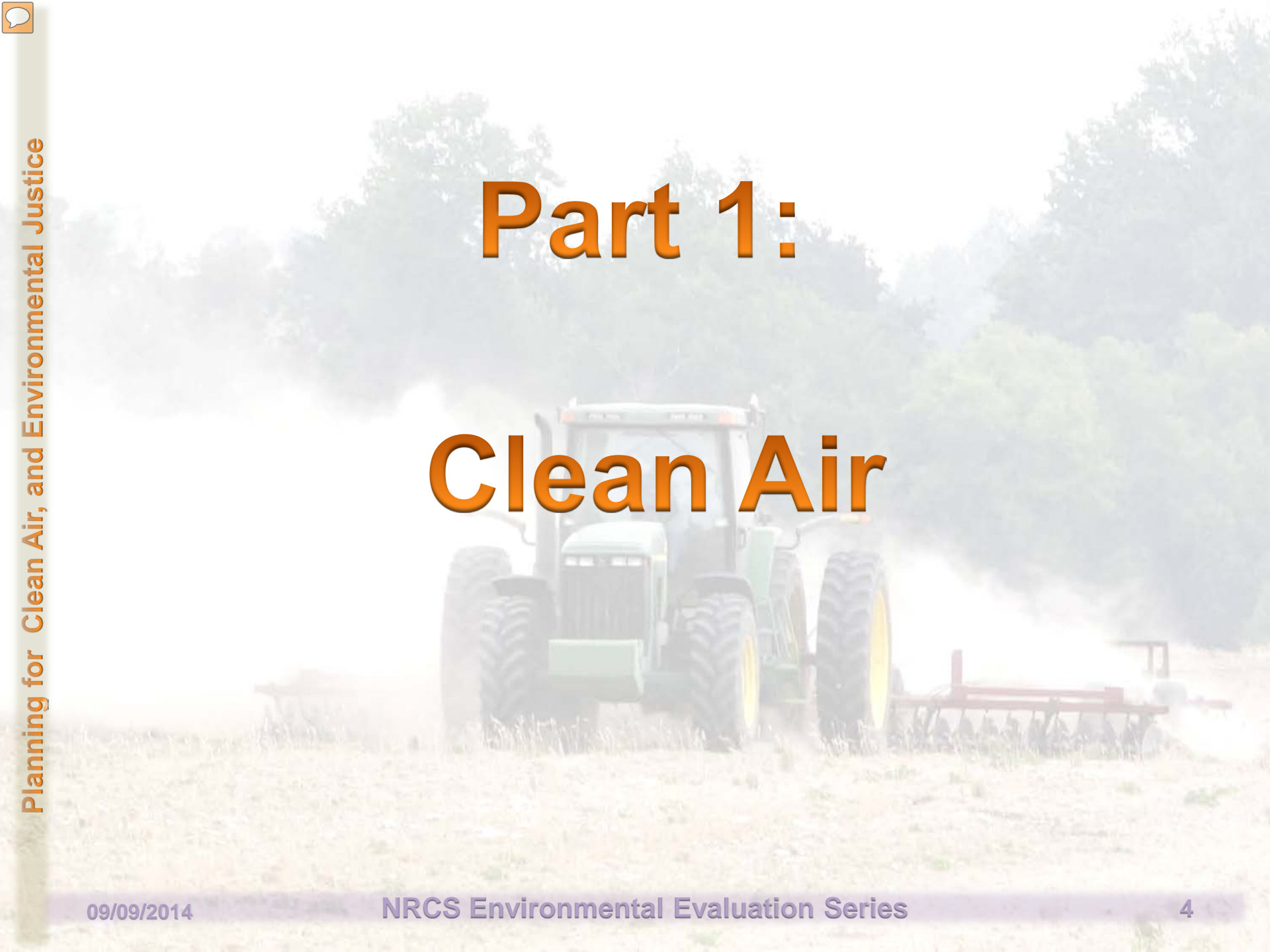


Topics addressed:

- Definition
- Purpose
- Authority
- Policy/Procedures
- Information/Data Sources & Tools
- Mitigation Measures
- Evaluation and Documentation
- Examples




Part 1: Clean Air





Definition

- The two Clean Air-related Special Environmental Concerns are:
 - Criteria Pollutants
 - Regional Visibility Degradation

 United States Department of Agriculture
Special Environmental Concerns

Clean Air Act - Criteria Pollutants

CLEAN AIR ACT – Criteria Pollutants
“Criteria pollutants” are considered excessive concentrations of particulate matter and ozone in the atmosphere that adversely impact human health.

What is it?
Criteria pollutants are those contaminants in the atmosphere for which U.S. EPA has used health-based criteria to establish National Ambient Air Quality Standards (NAAQS). The U.S. EPA has currently promulgated NAAQS for six criteria air pollutants, but the primary criteria pollutants of concern for agriculture are particulate matter and ozone.


Why is it important?
The NAAQS are intended to represent the maximum concentration of a particular pollutant in the ambient air that will not adversely impact public health or welfare, which includes aesthetic, economic, and other non-health effects. Areas that are designated as nonattainment, meaning that concentrations of a criteria pollutant are not in compliance with the NAAQS, are subject to greater regulatory scrutiny than areas that are in compliance with the NAAQS (i.e., attainment areas). Sources that are considered to contribute to an area’s nonattainment status will be subject to more stringent control and permitting requirements. Requirements for each nonattainment area vary and are tailored to the specific needs of the nonattainment area.

What is required?
Ozone is not typically emitted directly from air pollutant emission sources. Rather, it is formed in the atmosphere by chemical reactions. As such, emissions of oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are regulated as precursors to ozone formation instead. Particulate matter may be either emitted directly (dust and smoke are examples of directly-emitted particulate matter) or formed in the atmosphere from other pollutants, such as ammonia, NOx, VOCs, and sulfur dioxide (SO2). Agriculture does not produce significant amounts of SO2, so reducing emissions of directly-emitted particulate matter, NOx, ammonia, and VOCs from agricultural sources will help to mitigate agriculture’s contribution to concentrations of particulate matter and ozone in the ambient air.

See the “Agricultural Air Quality Conservation Measures Reference Guide for Cropping Systems and General Land Management” for information about NRCS conservation practices and other activities that can be used to address air resource concerns.

Criteria Pollutants at a Glance

Problems/Indicators – Nonattainment area for ozone and/or particulate matter	
Potential Causes	Potential Solutions
<ul style="list-style-type: none"> • Dust emissions • Poor smoke management • Wind erosion • Ammonia release • VOC emissions • NO_x emissions 	<ul style="list-style-type: none"> • Dust control, windbreaks • Proper smoke management • Maintain surface residue/cover • Proper manure management • Proper nutrient management • Assist landowner with required permits

 United States Department of Agriculture
Special Environmental Concerns

Clean Air Act - Regional Visibility Degradation

CLEAN AIR ACT – Regional Visibility Degradation
The Clean Air Act recognizes the issue of “regional visibility degradation” as excessive concentrations of particulate matter and other pollutants in the atmosphere cause regional visibility degradation in national parks and other “Class I areas”.

What is it?
Regional visibility degradation occurs when concentrations of particulate matter, oxides of nitrogen (NOx), and sulfur dioxide (SO2) in the atmosphere hinder the ability to view distant objects or vistas. Of these, the primary visibility-degrading pollutants of concern for agriculture are particulate matter and NOx.

Why is it important?
Class I areas are areas of national or regional natural, scenic, recreational, or historic value that are given special protection under the Clean Air Act. One of these special protections is preservation of the visibility of scenic vistas within the Class I areas. EPA has developed the Regional Haze Rule that directs states to establish goals for improving visibility in national parks and wilderness areas. States are required to develop long-term strategies for reducing emissions of air pollutants that cause visibility impairment. The goals and requirements vary by state and by Class I area.

What is required?
Reducing agricultural emissions that contribute to increased concentrations of particulate matter and NOx in the air, especially from sources near a Class I area, will help mitigate agriculture’s contribution to regional haze issues. These emissions include directly-emitted particulate matter (dust and smoke are examples) and NOx. Additionally, emissions of ammonia and volatile organic compounds (VOCs), as well as NOx, can contribute to fine particulate matter formation in the atmosphere. Many common NRCS practices can be used to address agriculture’s contribution to regional visibility degradation by reducing emissions of these pollutants.

Regional Visibility Degradation at a Glance

Problems/Indicators – Regional haze and poor visibility of scenic areas	
Potential Causes	Potential Solutions
<ul style="list-style-type: none"> • Dust emissions • Poor smoke management • Wind erosion • NO_x emissions • Ammonia emissions • VOC emissions 	<ul style="list-style-type: none"> • Dust control, windbreaks • Proper smoke management • Maintain surface residue/cover • Proper maintenance and operation of combustion sources • Proper nutrient and manure management • Reductions in pesticide use



Definition – Criteria Pollutants

- The Clean Air Act establishes air quality criteria for investigating pollutants relative to adverse effects on human health or welfare
- Criteria Pollutants:
 - Particulate matter (PM)
 - Tropospheric (ground-level) ozone
 - Nitrogen dioxide (NO₂)
 - Sulfur dioxide (SO₂)
 - Carbon monoxide (CO)
 - Lead



Definition – Criteria Pollutants

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- Criteria Pollutants:
 - **Particulate matter (PM)**
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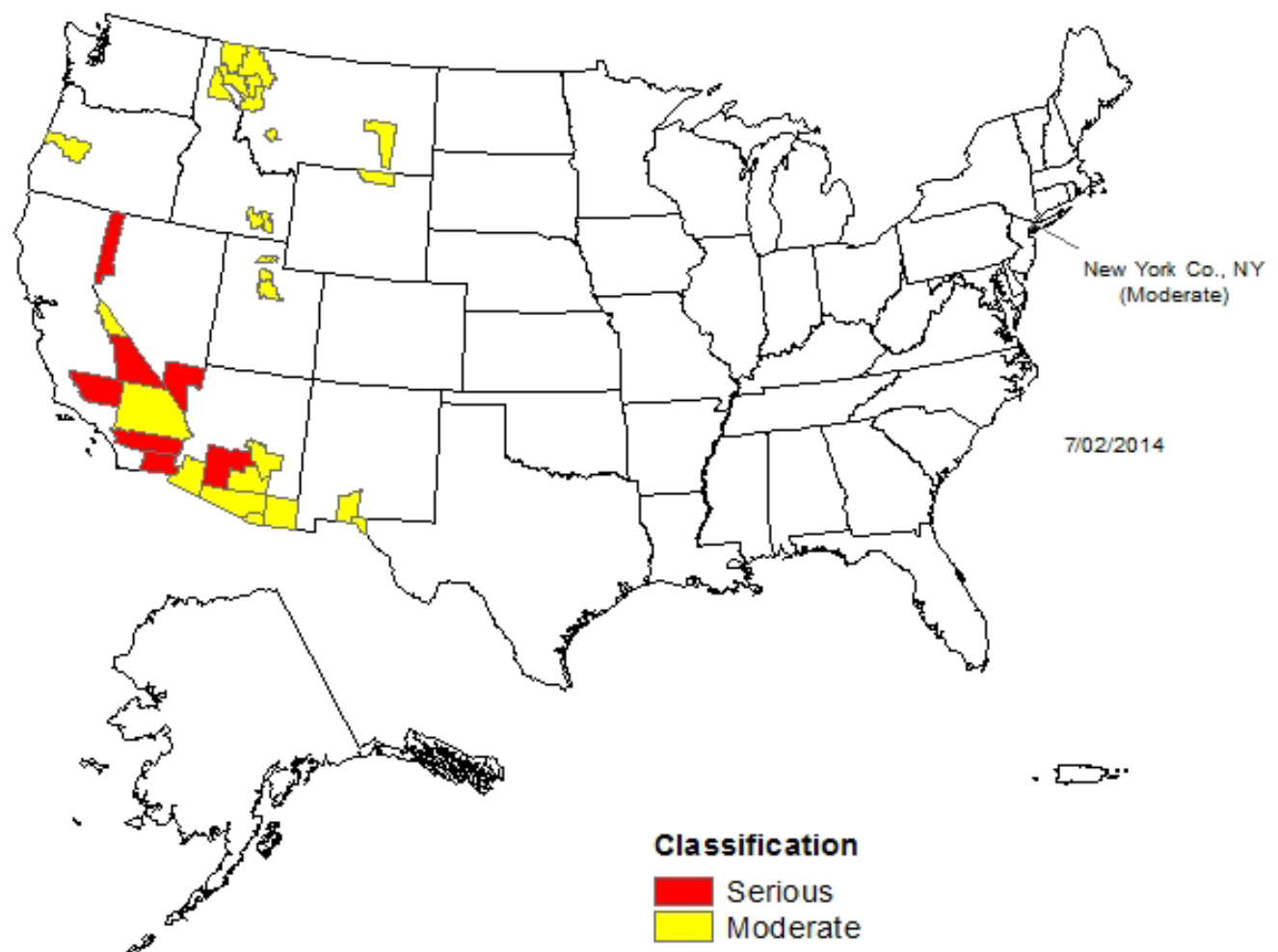


Definition – Criteria Pollutants

- EPA sets National Ambient Air Quality Standards (NAAQS) for these criteria pollutants
- A pollutant-by-pollutant analysis must be made to determine how AQ in an area compares to the NAAQS
 - “Attainment” = better than or equal to NAAQS
 - “Nonattainment” = does not meet NAAQS
 - “Unclassifiable” = no representative data
 - Assumed to be “attainment”
 - “Maintenance” = used to be nonattainment, but achieved attainment



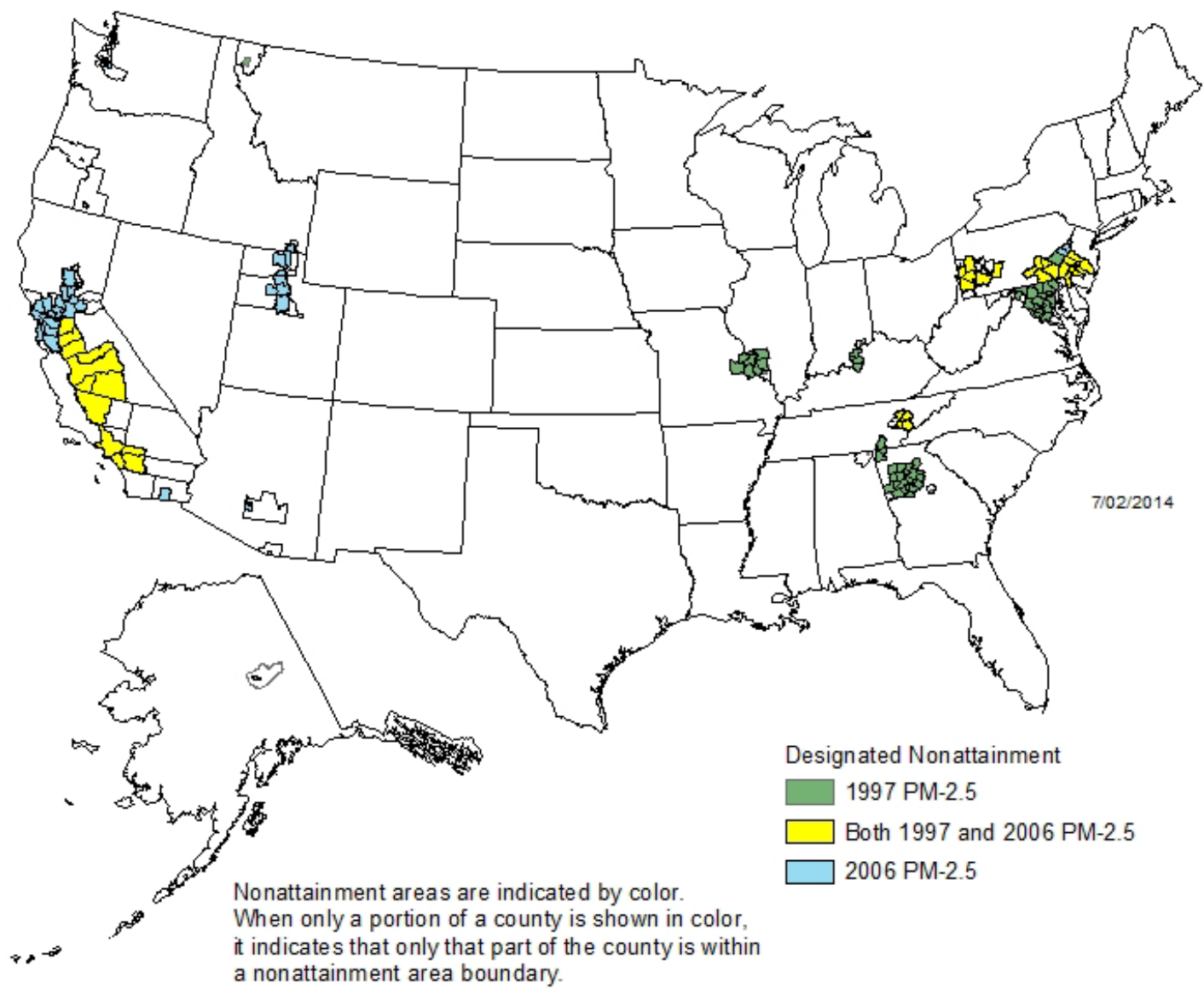
Counties Designated Nonattainment for PM-10



Classification colors are shown for whole counties and denote the highest area classification that the county is in

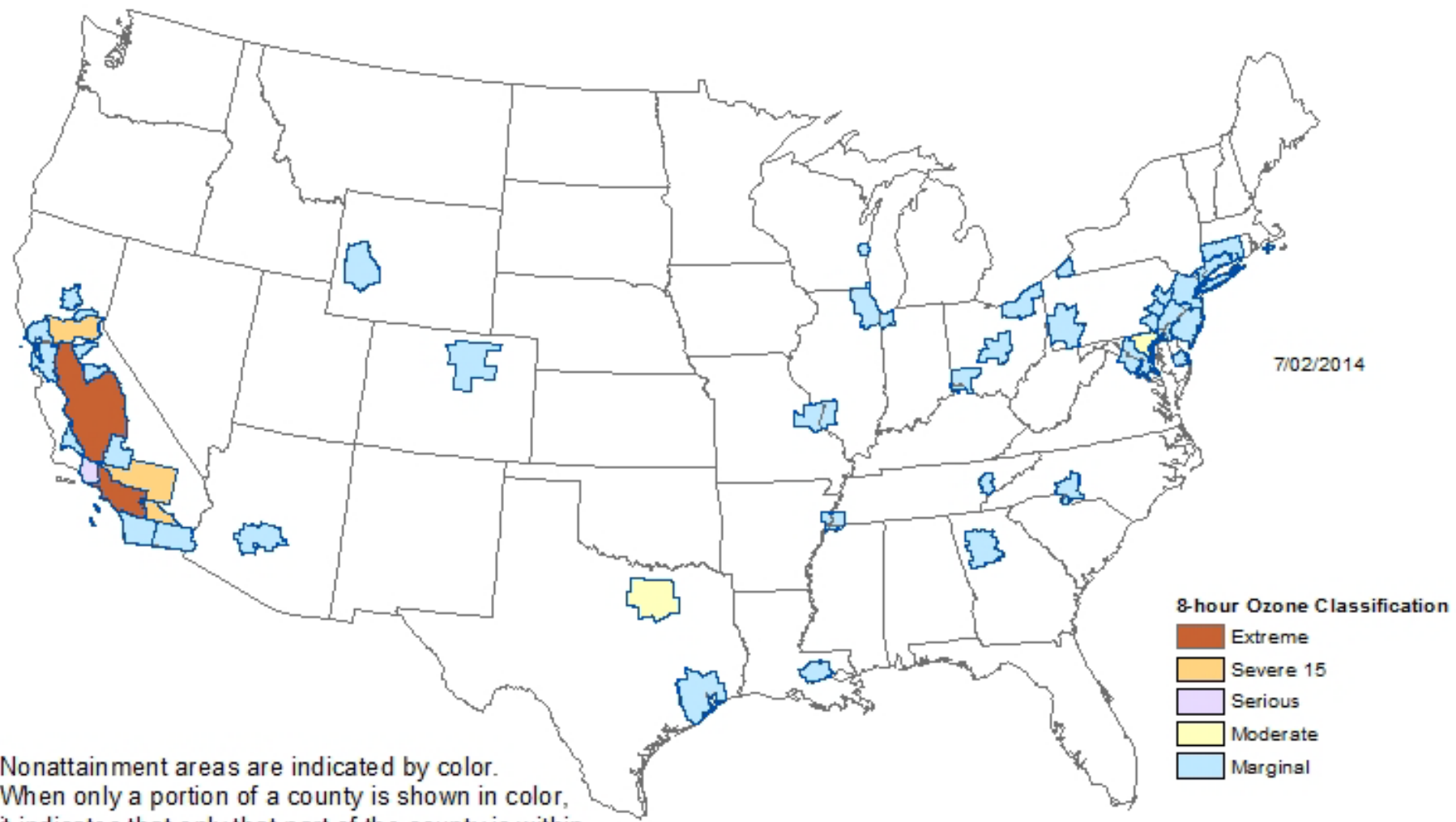


Counties Designated Nonattainment for PM-2.5 (1997 Standard) and/or PM-2.5 (2006 Standard)





8-Hour Ozone Nonattainment Areas (2008 Standard)



Nonattainment areas are indicated by color. When only a portion of a county is shown in color, it indicates that only that part of the county is within a nonattainment area boundary.



Definition – Regional Visibility Degradation

- The Clean Air Act provides for additional protection from air quality impacts on certain areas, such as National Parks and National Wilderness Areas
 - Class I Areas



Purpose

- Ensure that emissions from agricultural operations meet regulatory requirements for Criteria Pollutants and Regional Visibility Degradation
- Where feasible, minimize impact of agricultural emissions on these Special Environmental Concerns



Purpose

- Responsibilities:
 - Agricultural operations/producers:
 - Comply with Federal, State, and local rules
 - NRCS:
 - Assist agricultural operations/producers in complying with Federal, State, and local rules when providing technical and financial assistance



Authority

- Clean Air Act and implementing regulations
 - Section 176 of the CAA prohibits Federal activity in a nonattainment area that does not conform to SIP requirements
 - Title 40 of the Code of Federal Regulations, Chapter 1, Subchapter C (Parts 50-97)
 - State/local regulations implementing Federal regulations
- Agricultural operations and sources are NOT exempt from the CAA!



Policy/Procedures

- NRCS NECH Section 610.21 – Air Quality and the Clean Air Act
- NRCS Clean Air Act Evaluation Procedure Guide Sheet

CLEAN AIR ACT		Client/Plan Information:	
NECH 610.21			
Evaluation Procedure Guide Sheet			
Check all that apply to this Guide Sheet review:	<input type="checkbox"/> Alternative 1		
	<input type="checkbox"/> Alternative 2		
	<input type="checkbox"/> Other		

NOTE: STEPS 1 and 2 help determine whether construction permitting is needed for the planned action or activity. STEP 3 helps determine whether the opportunity for emissions reduction credits exist. STEP 4 helps determine whether any other permitting, record keeping, reporting, monitoring, or testing requirements are applicable. Each of these steps should be updated with more specific language as needed, since air quality permitting and regulatory requirements are different for each state. In each step, if more information is needed or there is a question as to whether there are air quality requirements that need to be met, the planner or client should contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to determine what air quality regulatory requirement must be met prior to implementing the planned action or activity.

STEP 1.
Is the action(s) expected to increase the emission rate of any regulated air pollutant?
NOTE: The definition of a "regulated air pollutant" differs depending on the air quality regulations in effect for a given site. For a federal definition of "regulated air pollutant," please refer to the 40 CFR 70.2. Other definitions for "regulated air pollutant" found in state or local air quality regulations may be different. States should tailor this question to the State air quality regulations and definitions since those will include any Federal requirements.

- No If "No," it is likely that no permitting or authorization is necessary to implement the proposed action or alternative. Document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used and advise the client to contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to either verify that no permitting or authorization is necessary or to determine what requirements must be met prior to implementing the planned action or activity. Go to step 3.
- Yes If "Yes," go to Step 2.

STEP 2.
Can the action(s) be modified to eliminate or reduce the increase in emission rate of the regulated air pollutants?
NOTE: This Step is to prompt the planner to review the planned action or activity to see if there is an opportunity to either eliminate the emission rate increase (possibly remove a permitting requirement) or reduce the emission rate increase (possibly move to less stringent permitting).

- No If "No," it is likely that permitting or authorization from the appropriate air quality regulatory agency will be required prior to implementing the planned action or activity. Document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used and advise the client to contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to either verify that no permitting or authorization is necessary or to determine what requirements must be met prior to implementing the proposed action or alternative. Go to Step 3.
- Yes If "Yes," modify the proposed action or alternative and repeat Step 1.

CLEAN AIR ACT (continued)

STEP 3.
Is the action(s) expected to result in a decrease in the emission rate of any criteria air pollutant for which the area in which the site is located in an EPA designated nonattainment area for that criteria air pollutant?
NOTE: For an explanation of criteria air pollutants and nonattainment areas, refer to Section 610.21 of the NECH. Further information regarding nonattainment areas can also be found on the U.S. EPA nonattainment area Web page.

- No If "No," go to Step 4.
- Yes If "Yes," the opportunity for obtaining nonattainment pollutant emission credits may exist. Document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used and advise the client of that potential opportunity. If the client is interested in registering nonattainment pollutant emission credits, advise him/her to contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to determine if and how credits can be documented and/or registered for potential sale. Go to Step 4.

STEP 4.
Is the action(s) subject to any other federal (e.g., New Source Performance Standards, National Emissions Standards for Hazardous Air Pollutants, etc.), State, or local air quality regulation (including odor, fugitive dust, or outdoor burning)?
NOTE: Refer to Section 610.21 of the NECH for a further discussion of air quality regulations.

- No If "No," document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used and proceed with planning.
- Yes If "Yes," additional permits, authorizations, or controls may be needed before implementing the proposed action or alternative. Document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used and advise the client to contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to determine what requirements must be met prior to implementing the proposed action or alternative.

Notes:



Information/Data Sources

- Criteria pollutants
 - EPA Green Book for nonattainment areas
 - <http://www.epa.gov/oar/oaqps/greenbk/index.html>
 - State/local air quality regulatory agency
- Regional visibility degradation
 - Class I areas
 - <http://www.epa.gov/visibility/class1.html>
 - State/local air quality regulatory agency



Mitigation Measures

- 49 national NRCS conservation practices currently approved for addressing PM or ozone emissions
 - Ranked High, Medium, or Low
 - CPPE can also be used to identify effectiveness
- EPA/USDA Agricultural Air Quality Conservation Measures: Reference Guide for Cropping Systems and General Land Management
 - <http://www.epa.gov/airquality/agriculture/docs/agaqconsmeasures.pdf>



Evaluation and Documentation

- Key questions:
 - What is attainment status?
 - Near ($\sim \leq 50$ miles) Class I Area?
 - Action increasing “regulated air pollutant” emissions?
 - Action decreasing “criteria pollutant” emissions in nonattainment area for that pollutant?
 - Subject to other Federal, State, or local air quality regulation?
 - Sources at the operation

Example CPA-52 for Air

A		B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		Q		R		S		T		U		V		W		X		Y		Z		AA		AB		AC	
1	U.S. Department of Agriculture										NRCS-CPA-52										A. Client Name: Bud Smith Jr.																																				
2	Natural Resources Conservation Service										4/2013										B. Conservation Plan ID # (as applicable): Plan # 1, 2014																																				
3	ENVIRONMENTAL EVALUATION WORKSHEET										D. Client's Objective(s) (purpose):										C. Identification # (farm, tract, field #, etc. as required):																																				
4																					Go to Form Instructions																																				
5																					Smith Farm, Tract # 123																																				
6																					Resource Considerations Guide																																				
7																					Sheet "Optional"																																				
8																																																									
9																																																									
10	E. Need for Action:										H. Alternatives																																														
11											No Action <input type="checkbox"/> if RMS										Alternative 1 <input type="checkbox"/> if RMS										Alternative 2 <input type="checkbox"/> if RMS																										
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150	Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.																																																								
151	In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with																																																								
152	a "•" may require a federal permit or consultation/coordination between the lead agency and another government agency.																																																								
153	In these cases, effects may need to be determined in consultation with another agency. Planning and practice																																																								
154	implementation may proceed for practices not involved in consultation.																																																								
155	G. Special										J. Impacts to Special Environmental Concerns																																														
156	Environmental										No Action										Alternative 1										Alternative 2																										
157	Concerns										Document all impacts										Document all impacts										Document all impacts																										
158	(Document existing/										(Attach Guide Sheets as										(Attach Guide Sheets as										(Attach Guide Sheets as																										
159	benchmark conditions)										applicable)										applicable)										applicable)																										
160	•Clean Air Act																																																								
161	Guide Sheet FS1 FS-2																																																								
162																																																									
163																																																									
164	•Clean Water Act / Waters of the																																																								
165	U.S.																																																								
166	Guide Sheet Fact Sheet																																																								
167																																																									
168																																																									
169	•Coastal Zone Management																																																								
170	Guide Sheet Fact Sheet																																																								
171																																																									
172																																																									

Example CPA-52 for Air

CLEAN AIR ACT NECH 610.21 Evaluation Procedure Guide Sheet		Client/Plan Information:
Check all that apply to this Guide Sheet review:	<input type="checkbox"/> Alternative 1 <input type="checkbox"/> Alternative 2 <input type="checkbox"/> Other	

NOTE: STEPS 1 and 2 help determine whether construction permitting is needed for the planned action or activity. STEP 3 helps determine whether the opportunity for emissions reduction credits exist. STEP 4 helps determine whether any other permitting, record keeping, reporting, monitoring, or testing requirements are applicable. Each of these steps should be updated with more specific language as needed, since air quality permitting and regulatory requirements are different for each state. In each step, if more information is needed or there is a question as to whether there are air quality requirements that need to be met, the planner or client should contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to determine what air quality regulatory requirement must be met prior to implementing the planned action or activity.

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- Yes **If "Yes,"** go to **Step 2.**

STEP 2.

Can the action(s) be modified to eliminate or reduce the increase in emission rate of the regulated air pollutants?

NOTE: This Step is to prompt the planner to review the planned action or activity to see if there is an opportunity to either eliminate the emission rate increase (possibly remove a permitting requirement) or reduce the emission rate increase (possibly move to less stringent permitting).

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- Yes **If "Yes,"** modify the proposed action or alternative and **repeat Step 1.**

CLEAN AIR ACT (continued)

STEP 3.

Is the action(s) expected to result in a decrease in the emission rate of any criteria air pollutant for which the area in which the site is located in an EPA designated nonattainment area for that criteria air pollutant?

NOTE: For an explanation of criteria air pollutants and nonattainment areas, refer to Section 610.21 of the NECH. Further information regarding nonattainment areas can also be found on the U.S. EPA nonattainment area Web page.

- No **If "No,"** go to **Step 4.**
- Yes **If "Yes,"** the opportunity for obtaining nonattainment pollutant emission credits may exist. **Document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used** and advise the client of that potential opportunity. If the client is interested in registering nonattainment pollutant emission credits, advise him/her to contact the appropriate air quality regulatory agency with permitting jurisdiction for the site to determine if and how credits can be documented and/or registered for potential sale. **Go to Step 4.**

STEP 4.

Is the action(s) subject to any other federal (e.g., New Source Performance Standards, National Emissions Standards for Hazardous Air Pollutants, etc.), State, or local air quality regulation (including odor, fugitive dust, or outdoor burning)?

NOTE: Refer to Section 610.21 of the NECH for a further discussion of air quality regulations.

- No **If "No,"** document on the NRCS-CPA-52, or notes section below, the finding, rationale, and information sources used and proceed with planning.
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Notes:



Example CPA-52 for Air

- 1,000 head dairy with 320 acres of irrigated corn/alfalfa rotation in southern Weld County, CO
 - Freestall barn with manure scrape system to lagoon
 - Drylot exercise areas
 - Conventional tillage
 - 100 hp diesel engine (installed in 1991) to pump irrigation water



Example CPA-52 for Air

- Key questions:
 - What is attainment status?
 - Southern Weld County is part of the Denver-Boulder-Greeley-Ft. Collins-Loveland, CO 8-hour ozone nonattainment area
 - Portion of Weld County also was previously nonattainment for Total Suspended Particulate standard



Example CPA-52 for Air

- Key questions:
 - Near ($\sim \leq 50$ miles) Class I Area?
 - ~ 30 miles from Rocky Mountain National Park



Example CPA-52 for Air

- Key questions:
 - Action increasing “regulated air pollutant” emissions?
 - Depends on the “action”
 - Replacing diesel engine?
 - Adding solids separation and composting operation?
 - Increasing operation size?
 - Increasing operation size and switching to anaerobic digestion?



Example CPA-52 for Air

- Key questions:
 - Action decreasing “criteria pollutant” emissions in nonattainment area for that pollutant?
 - Depends on the “action”
 - Replacing diesel engine?
 - Adding solids separation and composting operation?
 - Increasing operation size?
 - Increasing operation size and switching to anaerobic digestion?
 - Be careful!



Example CPA-52 for Air

- Key questions:
 - Subject to other Federal, State, or local air quality regulation?
 - Sources at the operation
 - Stationary internal combustion engines
 - Composting operations
 - Etc.

Example CPA-52 for Air

T161 Improvement in ammonia and VOC emissions from lagoon, significant reduction in NOx and PM emissions from diesel pump																											
ENVIRONMENTAL EVALUATION WORKSHEET														B. Client Name: Add Smith et.													
2 Natural Resources Conservation Service 4/2013														B. Conservation Plan ID # (as applicable): Plan #1, 2013													
3														Program Authority (optional):													
4														C. Identification # (farm, tract, field #, etc. as required):													
5 D. Client's Objective(s) (purpose):														Smith Farm Tract #123													
6 Improve manure handling, recycle bedding/manure solids,																											
7 improve irrigation/lagoon water delivery																											
8																											
9																											
10 E. Need for Action:														H. Alternatives													
11 Existing lagoon has solids build-														No Action <input type="checkbox"/> if RMS				Alternative 1 <input type="checkbox"/> if RMS				Alternative 2 <input type="checkbox"/> if RMS					
12 up, replacement bedding														Continue pumping and cleaning lagoon				Waste Separation Facility (632)				Waste Separation Facility (632)					
13 sources needed, older diesel														on an expedited schedule, continue				Composting Facility (317)				Composting Facility (317)					
14 engine pumping														buying replacement bedding, continue				Pumping Plant (533)				Pumping Plant (533)					
15 irrigation/lagoon water														using older diesel engine				Pumping Plant (533)				Irrigation Water Management (449)					
16																						Combustion System Improvement (372)					
150 Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.																											
151 In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a																											
152 "•" may require a federal permit or consultation/coordination between the lead agency and another government agency. In																											
153 these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation																											
154 may proceed for practices not involved in consultation.																											
155 G. Special														J. Impacts to Special Environmental Concerns													
156 Environmental Concerns														No Action				Alternative 1				Alternative 2					
157 (Document existing/														Document all impacts				Document all impacts				Document all impacts					
158 benchmark conditions)														(Attach Guide Sheets as				(Attach Guide Sheets as				(Attach Guide Sheets as					
159 applicable)														if needs				if needs				if needs					
160 further														action				action				action					
161 • Clean Air Act																											
162 Guide Sheet FS1 FS-2																											
163 Located in ozone nonattainment														No Effect - No change from				Improvement in ammonia and				Improvement in ammonia and					
area and 30 miles from Rocky														current management				VOC emissions from lagoon,				VOC emissions from lagoon,					
Mountain National Park																		reduction in NOx and PM from				significant reduction in NOx and					
																		diesel pump				PM emissions from diesel pump					



Summary

- Clean Air-related Special Environmental Concerns:
 - Criteria Pollutants – focus on PM and ozone nonattainment and maintenance areas
 - Regional Visibility Degradation – Class I Areas
- Assist agricultural operations/producers in complying with Federal, State, and local rules



Summary

- State/local air quality regulatory agency can help with determining requirements, even Federal ones
- 49 NRCS conservation practices currently approved for addressing PM or ozone emissions
- Ask the Key Questions



QUESTIONS ?

A green tractor is shown from a rear-three-quarter view, pulling a red implement (likely a plow or similar agricultural equipment) through a field. The tractor is kicking up a significant amount of dust or dirt, which is visible as a white cloud behind it. The background consists of a line of trees under a bright, slightly hazy sky. The overall scene is somewhat desaturated, with a focus on the tractor and the dust it is creating.

For additional information... contact:

Greg Zwicke greg.zwicke@ftc.usda.gov

Greg Johnson greg.johnson@por.usda.gov

Matthew Judy- matthew.judy@ftw.usda.gov