

Yakima Regional Clean Air Authority
6 So. 2nd. St., Suite 1016, Yakima, WA 98901

Burn Bans in Yakima County, Washington

Group: State Wood Smoke Group

Date: Thurs., July 19, 2007

Presentation Time: 10 Min.

Place: Sea – Tac Airport, Seoul Room

Presenter: Charlie Stansel, Planner, YRCAA

Presentation Outline

I. Local Situation

A. Geography

1. Upper Yakima Valley is a basin surrounded by ridges several thousand feet in elevation that traps winter air masses and smoke emissions.

B. Population

1. Outside of Spokane, the Upper Yakima Valley has the largest population in Eastern WA

C. Winter weather patterns

1. Can expect one or more extended high pressure systems with upper atmosphere inversions that trap emissions during the late fall and winter period.
2. Winter storm systems frequently do not have sufficient winds to ventilate the emissions.

D. Monitor trends

1. Annual $PM_{2.5}$ value has been consistently close to $10 \mu\text{g}/\text{m}^3$.
2. Highest $PM_{2.5}$ values occur between late October and early March.
3. Table shows late fall and winter monthly average, minimum, and maximum concentrations at the Yakima monitor.

**Late Fall and Winter Monthly PM_{2.5} Concentrations in Yakima, WA
 For C. Y. 2000 - 2006**

Month	PM _{2.5} Concentration in µg/m ³		
	Minimum	Average	Maximum
January	14.2	17.6	19.4
February	10.5	13.6	16.0
November	14.1	22.2	31.4
December	17.5	22.8	27.3

E. Home heating trends

1. Wood is readily available for home heating from forest and orchard sources
2. Many homes use wood as an alternative to a higher cost fuel.

II. Burn Ban History

- A. Originally a PM₁₀ control strategy starting in the mid - 1990's.
- B. Burn ban rigger levels have lowered progressively as shown in the following table

Statutory Burn Ban Levels

Year	1 st Stage		2 nd Stage	
	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
1991	75	---	105	---
1998	60	---	105	---
2005	---	35	---	60

C. Winter 2006 - 2007

1. Six burn bans called with a 46 day total duration or 38 % of winter season.
2. First 2nd stage ban called since 1999.
3. Expect similar numbers and lengths of bans this coming winter

D. Winter 2007 - 2008

1. Expect more home heating with wood because of rising electricity

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rates

2. Expect similar number and duration of burn bans with the seasonal variation in the weather affecting the timing of the bans.

III. Current Practices

- A. Burn ban decision is based on 24 hr. and 1 hr. monitor trends, weather forecasts, and meteorological models.
- B. Don't call ban if we are not confident the high monitor concentrations and the atmospheric conditions creating or aggravating the conditions will last for the next 48 hours.
- C. Coordination with EPA, Region 10 is very important for bans in the Lower Valley. The Lower Valley areas inside and outside of the Yakama Indian Reservation are a single air shed with emissions moving in both directions across the Yakima River (the YIR boundary)
- D. Burn ban implementation
 1. Media releases.
 2. Burn ban status change posted on YRCAA website.
 3. Public education and compliance patrols.
 4. Continuing media releases for a burn ban with a duration longer than two or three days.

IV. Recommendations

- A. Create flexibility in the future legislation allowing the use of 24 hr. and 1 hr. monitor data, weather forecasts, and meteorological models to make burn ban decisions.
- B. Create a single burn ban level in the statute which would ban all wood stove, pellet stove, and fireplace use
- C. Any burn ban thresholds set in the statute need to be at least $10 \mu\text{g}/\text{m}^3$ below the $\text{PM}_{2.5}$ NAAQS. Threshold values set higher may not prevent an exceedance.
- D. Use WAQA at least until EPA revises the AQI, but do not formally link burn ban thresholds to a WAQA value. This can create public confusion.
- E. Any advisories issued for weather conditions, wood stove use, or outdoor burning by ECY or NWS should be very clear that they are not regulatory. Advisories have created confusion in the media and the public in the past.
- F. Do not use the ECY $\text{PM}_{2.5}$ objective for decision making outside of any area administered by ECY until the Board of the local air authority adopts this objective.
- G. Continue the close coordination with ECY, NWS, and EPA, Region 10 for burn ban decisions.
- H. In counties with $\text{PM}_{2.5}$ nonattainment areas or potential nonattainment

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areas consider amending RCW 70.94 to include requirements for:

1. Registration of persons claiming sole source wood heating status under RCW 70.94.473; and
2. Removal and destruction of uncertified wood stoves and inserts prior to the sale of a home.

V. Summary

- A. Avoiding or dealing with a future PM_{2.5} nonattainment designation is going to be expensive.
- B. Smaller local air authorities do not currently have the financial resources to effectively deal with this situation.
- C. Future wood stove removal programs will need large EPA and ECY financial support to remove the number of stoves needed to reduce emissions.

Attachments

Executive memo dated Oct. 9, 2002

Board Resolution No. 15-2004

Table 2006-6

Upper Valley PM_{2.5} Values and Burn Bans for No. 2006 – Feb. 2007



~~Six So. Second St., Suite 1016, Yakima, WA 98904~~

Phone: (509) 574-1410, Fax: (509) 574-1411

EXECUTIVE MEMORANDUM

DATE: October 9, 2002

TO: Honorable Members of the Board and Alternates
Dick Smith, Agency Counsel

FROM: Les Ornelas, Executive Director
Air Pollution Control Officer

SUBJECT: PM₁₀ Maintenance Plan - Voluntary PM₁₀ Emission Reduction Project

RECOMMENDATIONS:

1. Hear staff report.
2. Provide Board direction.
3. Approve \$5,000 budget.
4. Approve Resolution 14-2002.

BACKGROUND - Your Board has directed staff to expeditiously meet all requirements to achieve attainment status for PM₁₀. Your Board has been advised and determined that the current "design value" may require air pollution controls which may be avoided by lowering the design value.

Your Board has directed a voluntary, public education driven emission reduction effort for the upcoming winter. Your Board has directed that all air quality planning involving the agency be subject to Board approval. Finally, your Board rejected interim controls, except the calling of burn bans based on judgement of the Control officer.

STATUS -

1. Transportation - Most agencies may be willing to take voluntary actions to reduce PM emissions if not subject to formal agreement.
2. Ag Burning - Agriculture interests accept the value of education, voluntary actions and earlier burn bans when justified.
3. Woodheat and Outdoor Burn Bans - Early burn bans are designed to prevent spikes of PM₁₀ which may prevent the lowering of the design value. A resolution is preferred to formally authorize your Control Officer to call Burn Bans.
4. Area Meteorologists have been contacted - with the intent that they help notify

the public of the need to voluntarily act to prevent air pollution on an episodic basis. Voluntary pollution prevention by the public is crucial to effectively *avoiding spikes at our monitors.*

5. Partners in prior Woodstove Rebates - Partners in prior Woodstove Rebates have shown an interest in voluntarily providing discounts and other incentives to replace home heaters with low-polluting heaters. Voluntary involvement of this industry will help avoid spikes of air pollution and provide long term benefits to our region's air quality.
6. Advertising - A budget of \$5000 will be requested to cover advertising and educational efforts for the 2002-03 winter season. Discretionary Project Funds will be used.
7. Burn Bans - Authority exists in RCW 70.94.141(3) for your Board or delegated Control Officer to issue orders as necessary.

CONCLUSIONS:

1. A broad based voluntary emission reduction program is viable in reducing the likelihood of high PM₁₀ values.
2. Identified partners can play a significant role in educating the general public and targeted sectors of the need to take voluntary actions to reduce PM₁₀ emissions.
3. Authority exists within RCW 70.94.141(7) to encourage voluntary cooperation of affected groups and RCW 70.94.141(3) to issue such orders as necessary to meet the purpose of this Chapter (RCW 70.94.011); to preserve, protect and enhance air quality ...
4. A budget, estimated at no more than \$5,000 is necessary to pay for advertising and preparation and distribution of information required to inform, encourage and acknowledge voluntary actions to reduce PM₁₀ emissions.
5. A resolution is desirable to formally authorize your Control Officer to declare burn bans in the affected area when best available information justifies the action.

Enclosure - Resolution

BOARD OF THE YAKIMA REGIONAL CLEAN AIR AUTHORITY

A RESOLUTION OF THE BOARD OF DIRECTORS OF
THE YAKIMA REGIONAL CLEAN AIR AUTHORITY
AUTHORIZING OPTIONAL PM₁₀ CONTROLS

RESOLUTION
NO. 15-2004

RECITALS:

BE IT RESOLVED by the Board of Directors of the Yakima Regional Clean Air Authority (YRCAA) on this eleventh day of August, 2004, that;

WHEREAS, the Yakima Regional Clean Air Authority, the Yakima Valley Conference of Governments, and the Washington State Department of Ecology, have prepared and submitted a maintenance plan and redesignation request to the U. S. Environmental Protection Agency for attainment status for the Yakima PM₁₀ Nonattainment Area; and

WHEREAS, attainment status ensures healthful air quality which protects public health and safety and resolves the threat of future loss of federal transportation funds, removes the requirement for sources in the nonattainment area to use the lowest achievable emission rate emission controls for PM emissions; and

WHEREAS, the EPA limited maintenance plan requires the annual recalculation of the design value during the life of the plan, and if after the second time the recalculated design value is greater than the limited maintenance plan policy design value the limited maintenance plan must be replaced by a full maintenance plan within eighteen months; and

WHEREAS, if there are no additional days with monitored values above those recorded in Calendar Years 2001 - 2003 during the life of the plan, the replacement of the Limited Maintenance Plan with a full maintenance plan will not be required.

BE IT HEREBY RESOLVED by the Board of Directors of the Yakima Regional Clean Air Authority that it is prudent to take preventative measures in the Woodsmoke Control Zone, the Upper Yakima Valley, the Lower Yakima Valley, and / or the entire County to prevent a high PM₁₀ monitor value during the life of the Yakima Limited PM₁₀ Maintenance Plan; and

BE IT FURTHER RESOLVED THAT; the Air Pollution Control Officer is granted the authority to call a burn ban of all outdoor burning, and of the use of certified and uncertified wood stoves, and fireplaces for heating based on daily monitor information, weather forecasts, and meteorological models. This ban does not apply to homes where these types of heaters are the sole source of heat.

ADOPTED, on this eleventh day of August, 2004.

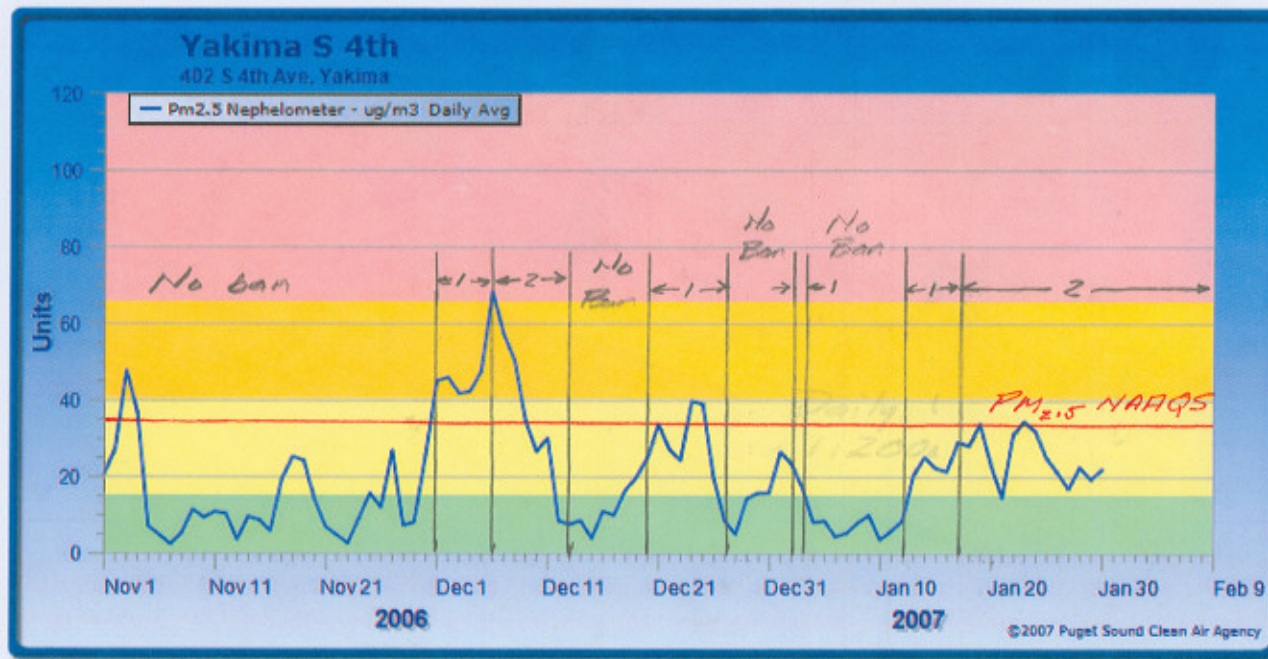
APPROVED:

_____ Board Chairman	_____ Board Member
_____ Board Member	_____ Board Member
_____ Board Member	_____ Board Member

ATTEST:

Patty Walker, Secretary

Table 2006-6, Cumulative No. of Days in 2006 with							
a 24 Hour Monitor Value > a Given Value and Burn Ban Information							
Light Shaded Area is the New PM NAAQS. Dark Shade Area is an Ecology Objective							
Bold Face Numbers are Exceedances							
Value in ug/m3	PM10 FRM		PM2.5 Neph.		PM10-2.5		
	No.	Occurrence	No.	Occurrence	No.	Occurrence	
90							
85							
80							
75							
70			0				
65			1	Dec.			
60	0		1	Dec.			
55	1	Jan.	2	Dec.			
50	3	Jan. & Dec.	3	Dec.			
45	3	Jan. & Dec.	6	Nov. & Dec.			
40	3	Jan. & Dec.	11	Jan., Nov., & Dec.			
35			13	Jan., Nov., & Dec.			
30			17	Jan., Sep., Nov. & Dec.	0		
25			27	Jan., Sep., Nov. & Dec.	3	Apr., May, & Sep.	
20			47	Jan., Feb. & Sep. - Dec.			
15			72	Jan., Feb., Aug., Sep., Oct. - Dec	21	Jan. - Jun. & Sep. - Nov.	
Predicted Future Annual PM2.5 NAAQS Exceedances and Violations and Days >Ecology Objective							
Objective or Standard			20 ug/m3		35 ug/m3		PM10-2.5 None
Annual 98 th Percentile			N/A		42.0		
No. of Sample Days			365		365		
			For Entire Year				
No. Days w/ Values > Ecology Standard			47				
No. Days w/ Values > New PM2.5 NAAQS					13		
No Days w/ Values > Poss. Future NAAQS & > 98th Percentile of Data			N/A		7		
No. of Possible Violations					6		
Calculated Days / Year Different AQI Levels Based on PM10 & PM2.5 Data							
Level	AQI				WAQA		
	Days	% Year	Days	% Year	Days	% Year	
Green - Good	292	79.8	282	77.3			
Yellow - Moderate	63	17.2	36	9.9			
Orange - Unhealthy for sensitive groups	9	2.5	34	9.3			
Red - Unhealthy	1	0.3	13	3.6			
Total	365	99.5	365	100.0			
Burn Bans Called							
	Upper Valley			Lower Valley			
	1st Stage	2nd Stage	Total	1st Stage	2nd Stage	Total	
Number	3	1	4	3	0	3	
Number of Days	16	5	21	21	0	21	
Burn Bans Called Nov. 2006 - Feb. 2007							
	Upper Valley			Lower Valley			
	1st Stage	2nd Stage	Total	1st Stage	2nd Stage	Total	
Number	4	2	6	5	1	6	
Number of Days	19	27	46	42	4	46	
% Season	16	23	38	35	3	38	



Change y-Axis Scaling

Up
Dn
Autoscale

Legend
 Off
 Left
 Center
 Right

Time

Interval
 1 Month
 3 Months
 6 Months
 1 Year
 3 Years
 6 Years
 10 Years
 20 Years
 30 Years

Display

Markers
 Yes No

Display Data Values

Display Air Quality (AQI)

Categories
 None
 Pm2.5 24Hr

Instructions for making graphs

Change Start 1 Day

Select Beginning Date
 November 1 2006

Select Station
 Yakima S 4th

Ending Date
 January 31 2007

Add Items to plot

Hourly Averages
 Daily Averages
 Daily Maximums

1 Station & Multiple Items
 1 Item & Multiple Stations
 Stations w/Same Multiple Items

Select Averaging For Each
 Select Averaging For All

Day Mon Qtr Year
 Day Mon Qtr Year

Interval Average	Interval Maximum	Interval Minimum
20.3	68.2	2.5

csv xml

Notes
 1. No burn bans in Nov. 2006
 2. Last burn ban was cancelled on Feb. 9, 2007
 3. PSCAA does not have the data for 2/07.