

2017-18 Smoke Management Review Committee

*Draft Agency Recommendations for updates to the
Oregon Smoke Management Plan*

March 9, 2018

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Oregon Department of Environmental Quality



Environmental
Quality
Commission



Board of
Forestry



Goal for Rulemaking



Goal of Smoke Management Program review: Explore and make recommendations for improved implementation, policy changes or clarifications to the Oregon Smoke Management Plan to better accomplish the program's goals.

Agency's draft proposal is designed to provide additional opportunity for the use of prescribed fire under the Smoke Management Plan and to facilitate this burning in a way that does not harm the public.



Overview of Key Agency Recommendations



- Allow expanded use of polyethylene covers as an emission reduction technique.
- Update definition of “smoke intrusion” and “smoke incident”. New “smoke intrusion” defined as smoke events that exceed new air quality performance criteria. Less intense smoke incidents no longer considered an “intrusion”, but tracked.
- Create new air quality criteria for defining smoke intrusions. Protect compliance with the federal 24-hour average NAAQS and avoid excessive short-duration (1-hour average) smoke events.
- Clarify actions to be taken if measured smoke intrusions and smoke incidents occur.
- Encourage local efforts to increase the scope and effectiveness of public outreach.
- Other ODF rule changes



Polyethylene (PE) Covers on Burn Piles

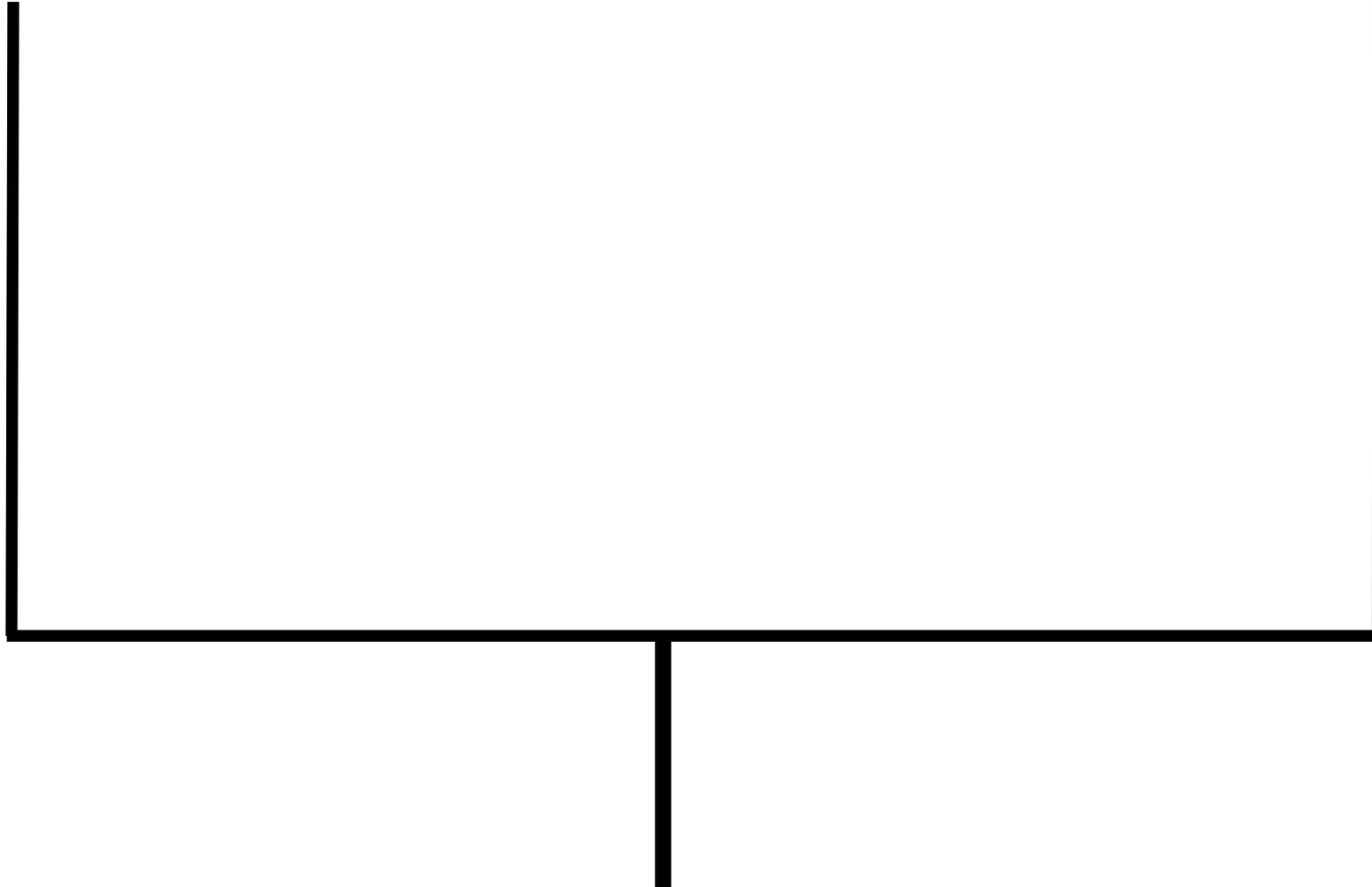


- PE serves as emission reduction technique by keeping burn piles dry.
- Literature review (2003) found no evidence that PE produces more harmful emissions than burning woody material.
- Smoke Management Plan of 2008 allows 100 sq ft size, 4 mil thick PE to cover burn piles. Waiver for multiple covers.
- Lab study (2009) confirms that PE does not produce more harmful emissions than burning woody material.
- Field study (2015) shows a significant emission benefit of covering piles with greater amounts of PE than burning wet, uncovered piles.
- ODF and DEQ agree that increasing the size and thickness of PE to cover piles more completely is beneficial in reducing emissions and the new rule and Smoke Management Plan should reflect this.



Updating Intrusion Definitions

-Air Quality Performance Metrics-

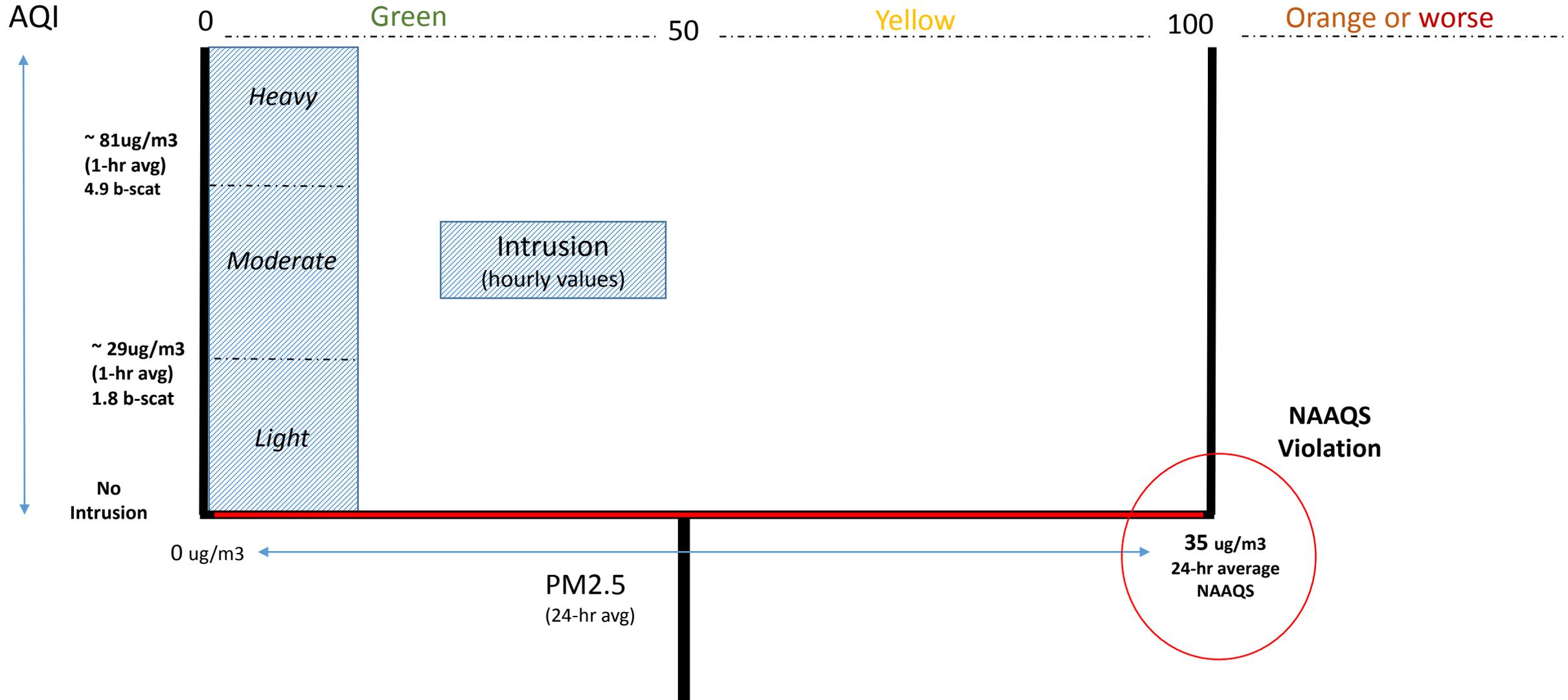




Smoke Management Air Quality Performance Criteria



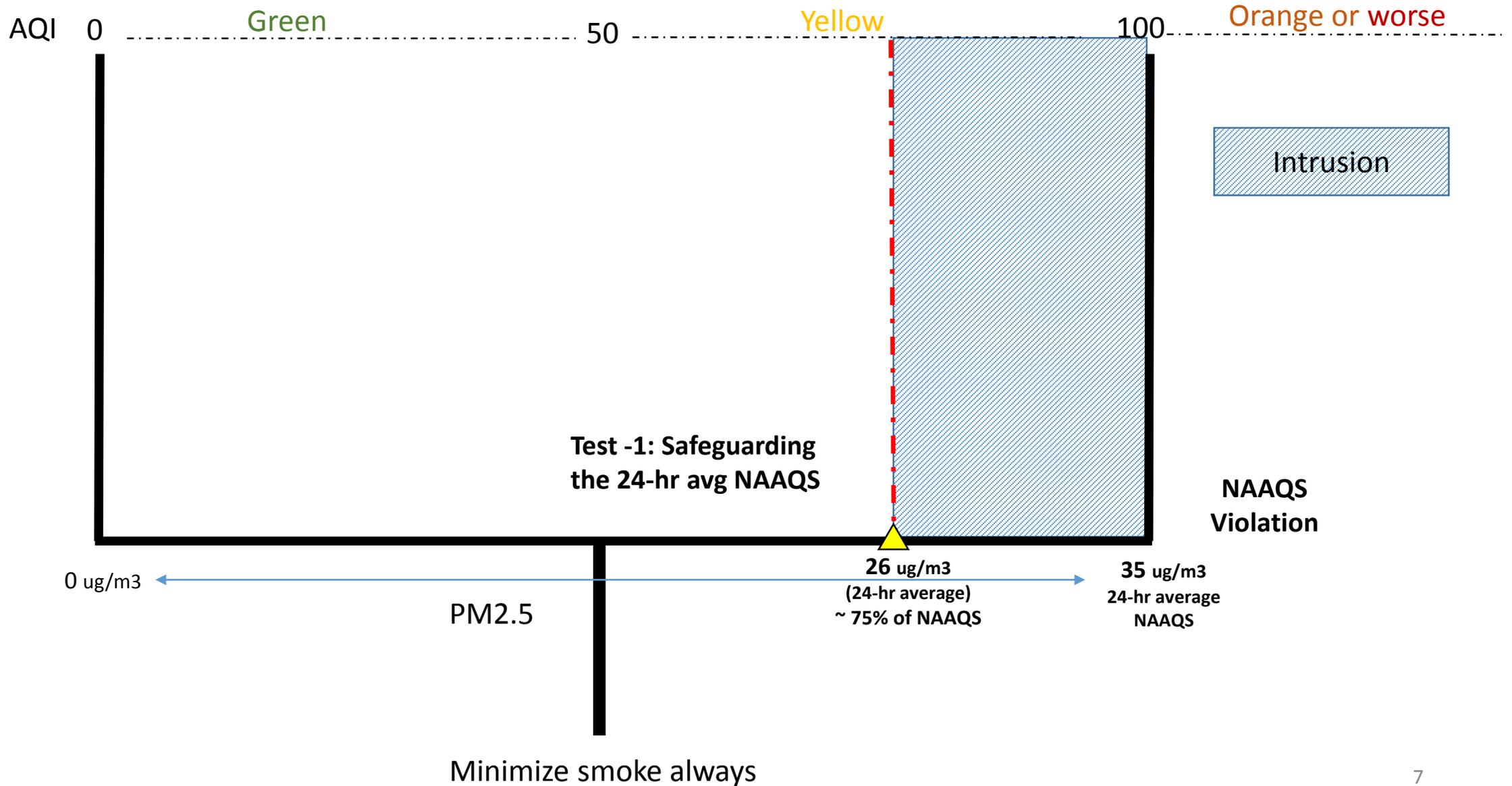
Current intrusion metric based on 1-hr avg values + NAAQS protection





Smoke Management Air Quality Performance Criteria

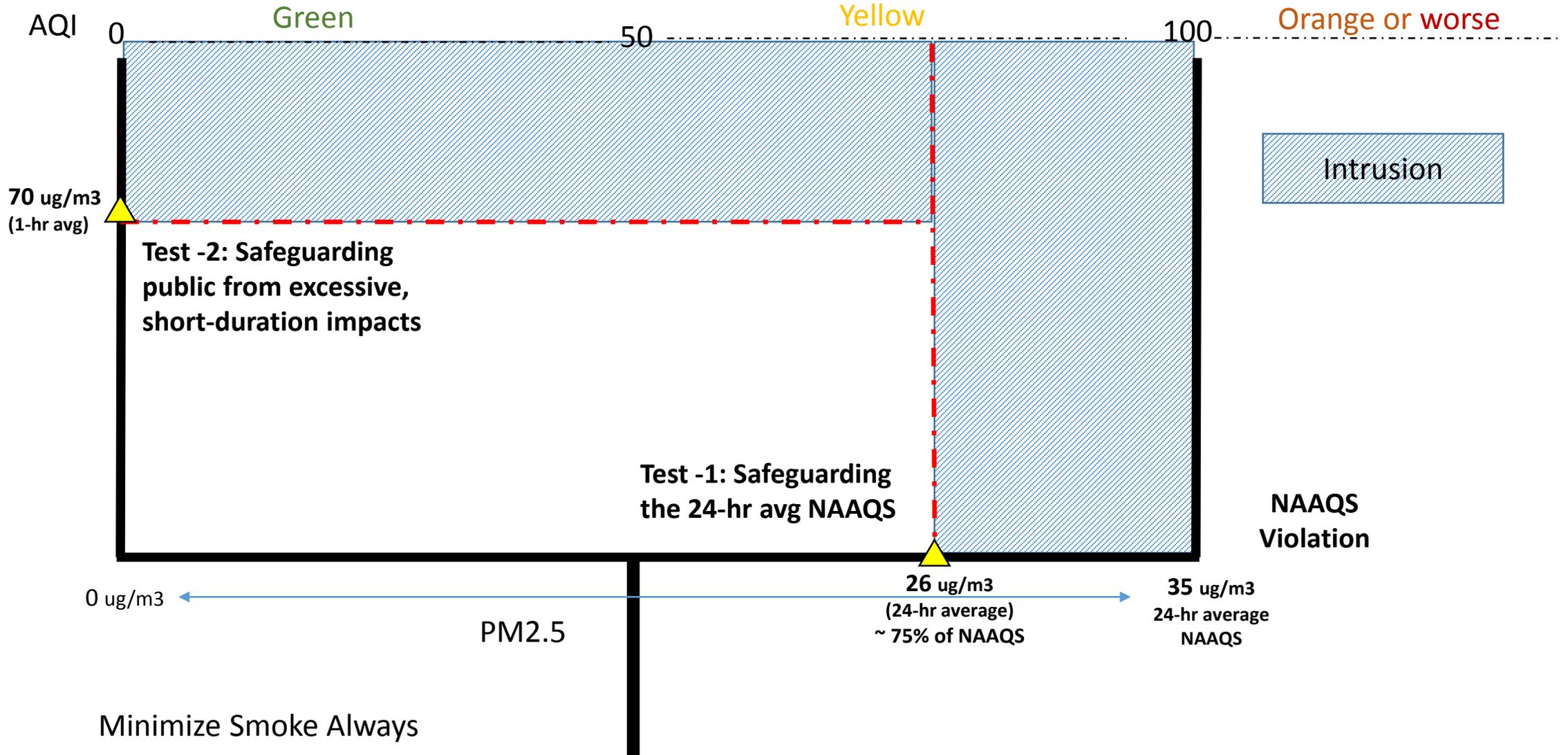
Two Tests: Objective to protect public health and NAAQS compliance





Smoke Management Air Quality Performance Criteria

Two Tests: to protect public health and NAAQS compliance





Short-duration Health Threshold Guidance



Comparison of several recent short-duration thresholds for Unhealthy for Sensitive Groups

EPA 2009-2016 (1-hr) AQI value for Unhealthy for Sensitive Groups	88 ug/m3 (not used by EPA anymore. Replaced with EPA Now Cast)
EPA Now Cast (total PM) Unhealthy for Sensitive Groups	>70 ug/m3
DEQ current Neph/PM2.5 conversion for smoke: Heavy intrusion = 4.9 Bscat or ~ 81 ug/m3	81 ug/m3

Science for sub-24 hour average health impacts still emerging. This metric can be evaluated as more is learned.

A short-duration (e.g. 1-hr average) value would not be an enforceable standard, but would serve as a performance metric informing program success and improvement.

Notes:

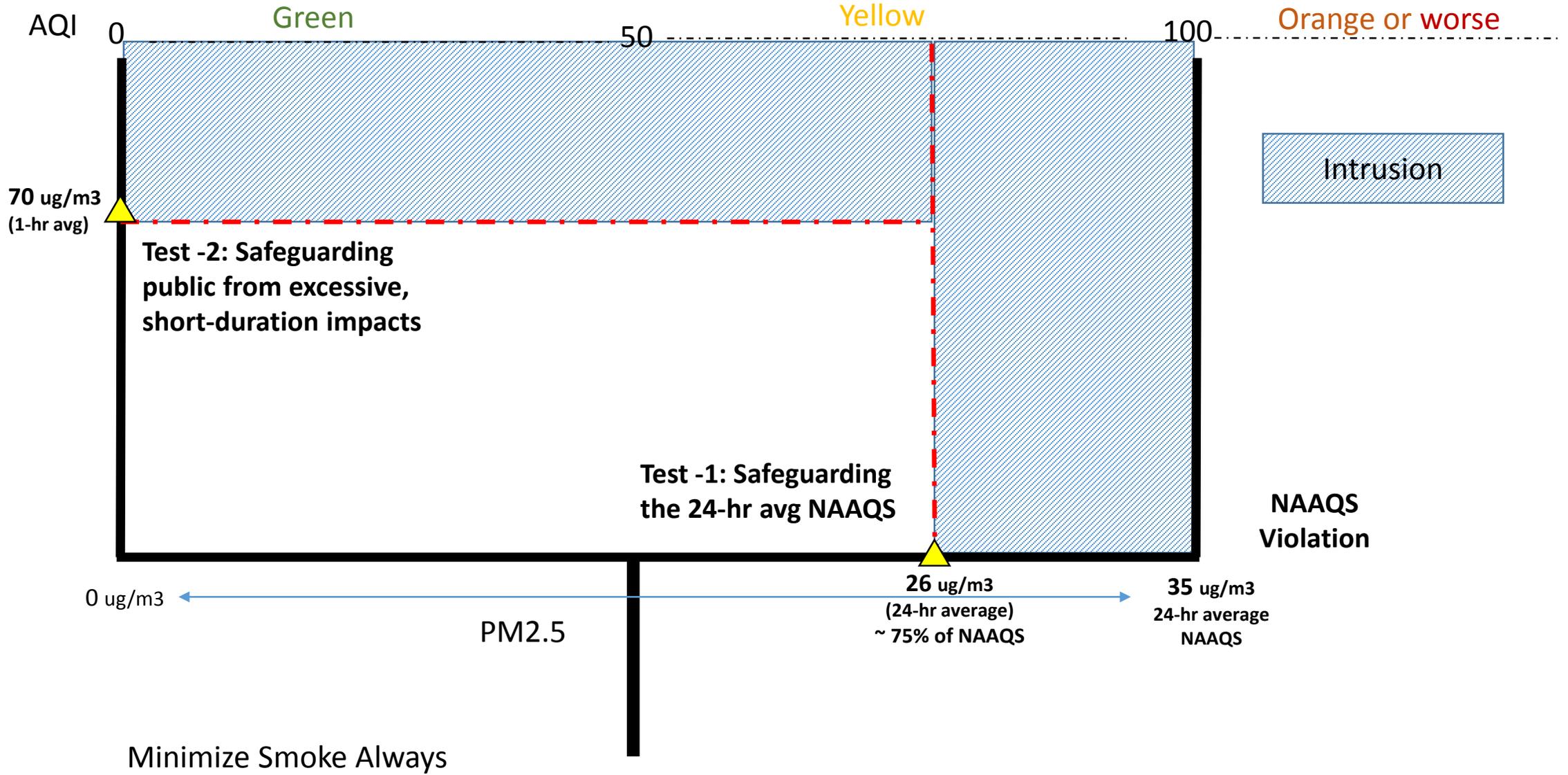
This 2018 proposal would use a max. 1-hr avg value of 70 ug/m3 as an hourly based performance metric (including background) to safeguard against excessive short-duration smoke spikes.

Using 70 ug/m3 relative to historic DEQ 4.9BScat (~81ug/m3) would reflect a safety buffer of ~13% below historic Heavy Intrusion line.

Science for sub-24 hr. average health thresholds still emerging.

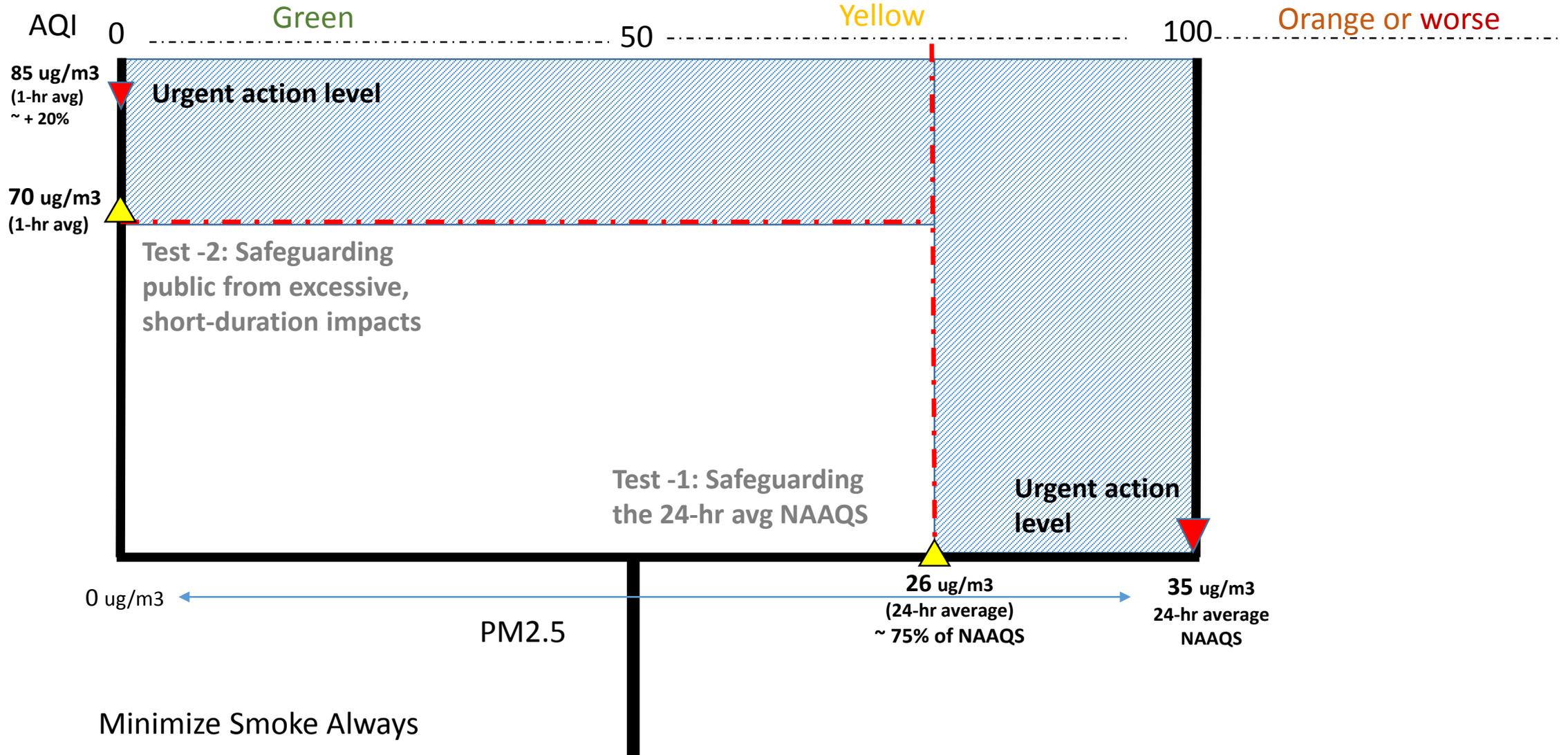


Smoke Management Air Quality Performance Criteria Two Tests





Smoke Management Air Quality Performance Criteria - Intrusion Response -





Smoke Incident and Intrusion Response



Actions to be taken if smoke incidents or intrusions occur

- **Incident:** Log date, time, duration, magnitude, and comments on department spreadsheet (no distribution)
- **Intrusion:** Fill out department forms for preliminary and final report
 - Final report will include: burn details, SSRA impact, weather, forecast, duration and magnitude, and comments
 - Reports will be distributed to affected districts/ forests, ODF leadership, Advisory Committee, and DEQ
- **Urgent action level intrusion (potential NAAQS violation):** Same as intrusion reporting above
 - DEQ notified immediately
 - Analysis conducted to determine how to prevent this from happening again



Public Engagement Communication Plan



- **The Committee recognizes that if prescribed burning increases, smoke incidents and intrusions may increase in vulnerable SSRAs.**
- **The Committee recognizes vulnerable SSRAs need to be notified about potential burning and develop a plan to educate and alert their community when smoke may impact them.**
- **Local ODF district office will identify and notify a designated public agency in an SSRA of upcoming prescribed burning and potential prescribed burn smoke impacts.**
- **ODF and DEQ will recommend to smoke vulnerable SSRAs to develop a plan how to educate and alert their community to potential prescribed burn smoke impacts.**
- **A successful SSRA prescribed burn communication plan will require collaboration among numerous community agencies, officials, facilities, businesses, and residents.**



Other Rule Changes



- **Special Protection Zone (SPZ) provisions move from department directive to rule. SPZ boundary maps become topography-based and stay in directive.**
- **Smoke Management jurisdiction outside ODF protection district boundaries' language is removed.**
- **Other minor housekeeping language**



Goal for Rulemaking



Joint agency proposal meets state goals for smoke management. Finds reasonable balance in meeting two important state needs, reflects diverse perspectives and priorities.

- **Creates more opportunity for the use of prescribed fire** **Yes**
- **Preserves public health protection for vulnerable populations** **Yes**
- **Encourages timely and comprehensive communications.** **Yes**



Rule Language Review



- See Handout



Rulemaking Next Steps



- **ODF Process**
 - ODF/ DEQ final draft collaboration of rule (March/ April 2018)
 - Present rule language and seek permission of Board of Forestry to hold public hearings on proposed rule (June 2018)
 - Public hearings and comment period concurrent with DEQ (summer 2018)
 - Seek rule approval from Board of Forestry (target September 2018)
 - Enroll new rule with Secretary of State/ rule implementation (target fall 2018)
- **DEQ Process**
 - ODF/ DEQ final draft collaboration of rule (March/ April 2018)
 - Information item to Environmental Quality Commission (May 2018)
 - Public rulemaking process concurrent with ODF's process. Public hearings and public comment period (summer 2018)
 - Joint agency recommendation to EQC (target September 2018)
 - Submit changes to EPA for review and approval (target September 2018)

End

Extra Slides as needed

Current AQI Chart on DEQ's website

3/1/2018

Likely based on DEQ's updated Neph/PM2.5 conversion formula

- AQI Station Map Notes:** The data displayed are the most current available.
- All readings are preliminary and unvalidated. Following final review, all values are subject to change.
- New AQI readings will be available at approximately 15-20 minutes past the hour. The AQI map will refresh asynchronously at this time.
- The units *ppm* and $\mu\text{g}/\text{m}^3$ stand for *parts per million* and *micrograms per cubic meter*, respectively. Both are used in the measurement of air pollutant concentration.

Air Quality Rating	Air Quality Index (AQI)	PM _{2.5} 1-hour Average ($\mu\text{g}/\text{m}^3$)	PM _{2.5} 24-hour Average ($\mu\text{g}/\text{m}^3$)	Ozone 8-hour Average (ppm)
GOOD	0 - 50	0 - 38	0.0 - 12.0	0.000 - 0.054
MODERATE	51 - 100	39 - 88	12.1 - 35.4	0.055 - 0.070
UNHEALTHY FOR SENSITIVE GROUPS	101 - 150	89 - 138	35.5 - 55.4	0.071 - 0.085
UNHEALTHY	151 - 200	138 - 351	55.5 - 150.4	0.086 - 0.105
VERY UNHEALTHY	201 - 300	352 - 526	150.5 - 250.4	0.106 - 0.200
HAZARDOUS	>300	>526	>250.5	>0.200

Table 1. The Air Quality Index is the EPA's scale for rating air quality

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Environmental Quality Commission

Smoke Management Program

Authorized by Environmental Quality Commission and Board of Forestry



Board of Forestry

State Smoke Management Policy

"No smoke intrusion into SSRA (populated area)"

No Intrusions

Intrusions

7 Intrusions per 3000 Ignitions (10yr avg)

National Ambient Air Quality Standard PM2.5

No NAAQS Violation

NAAQS Violation

Policy Decision Space



12,790 Tons Emissions

21,430 Tons Emissions (estimated)

162,000 Acres Burned

271,000 Registered Acres (planned to burn)

Prescribed Fire 10 Year Averages

Policy Tradeoffs

496,000 Acres Burned in Oregon (10 year average)

Reduce Wildfire Potential and Emissions

Vulnerable Population Health Risk

NAAQS Violation Potential



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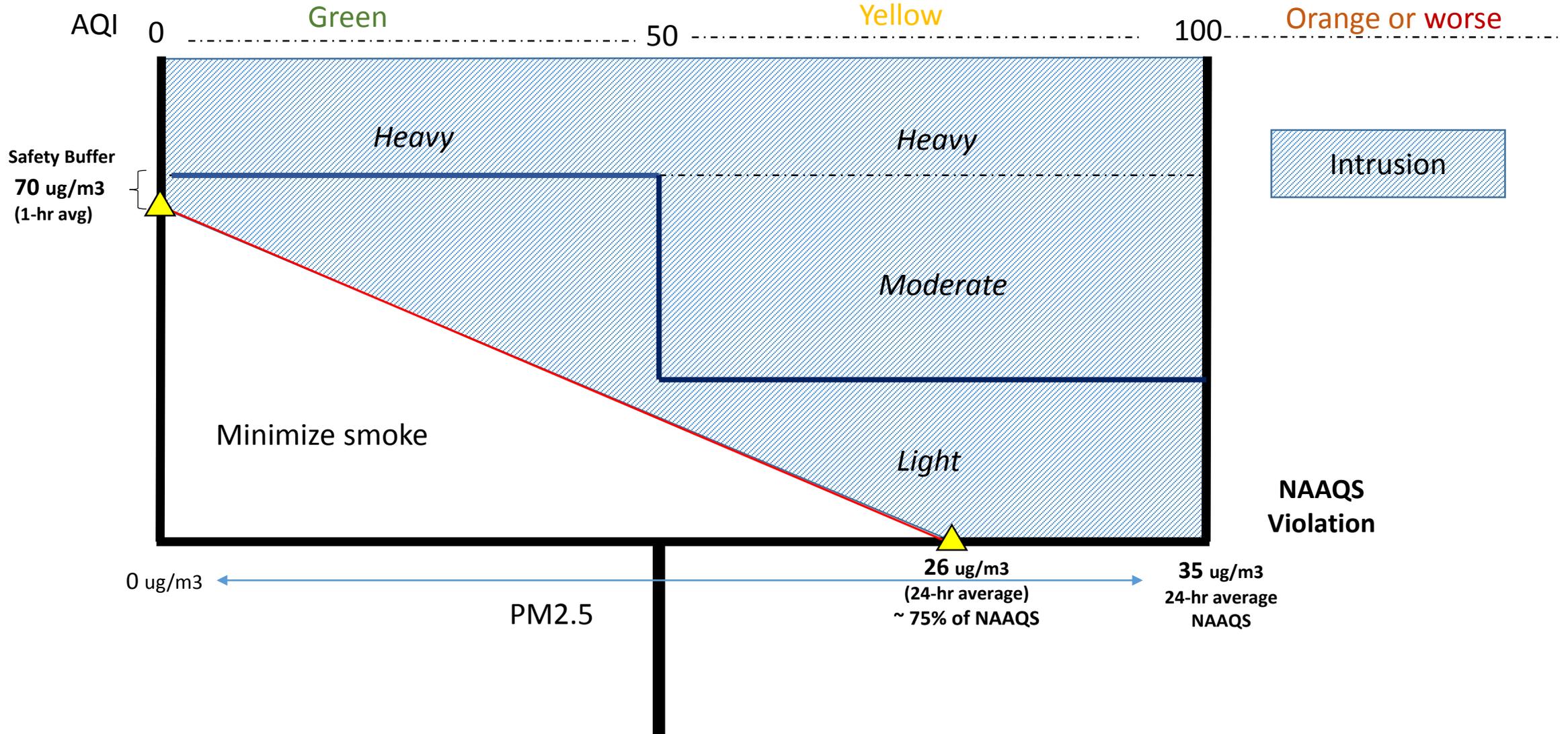
NAAQS Violation Potential

Air Quality Index (AQI) & NAAQS

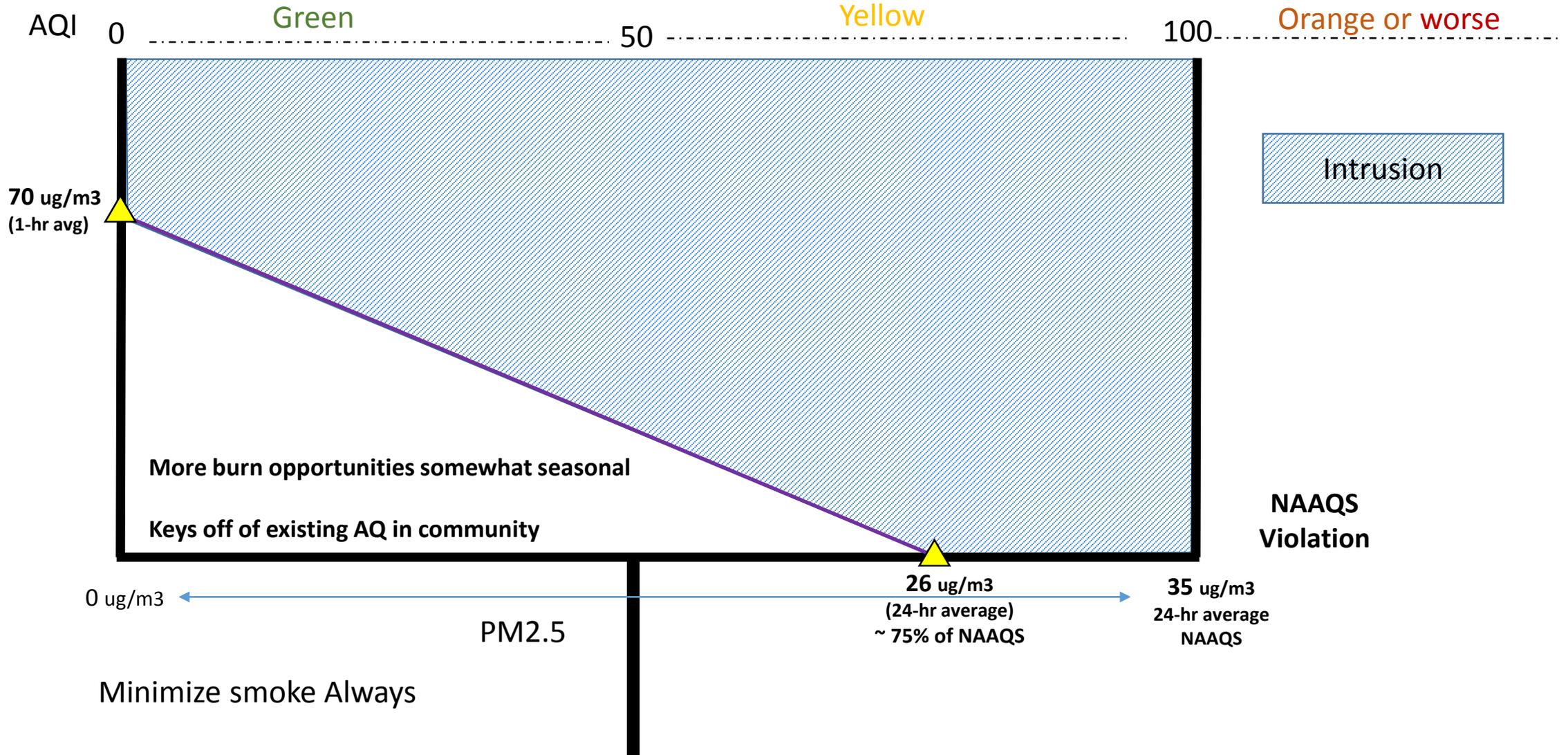
- AQI is index for reporting daily air quality

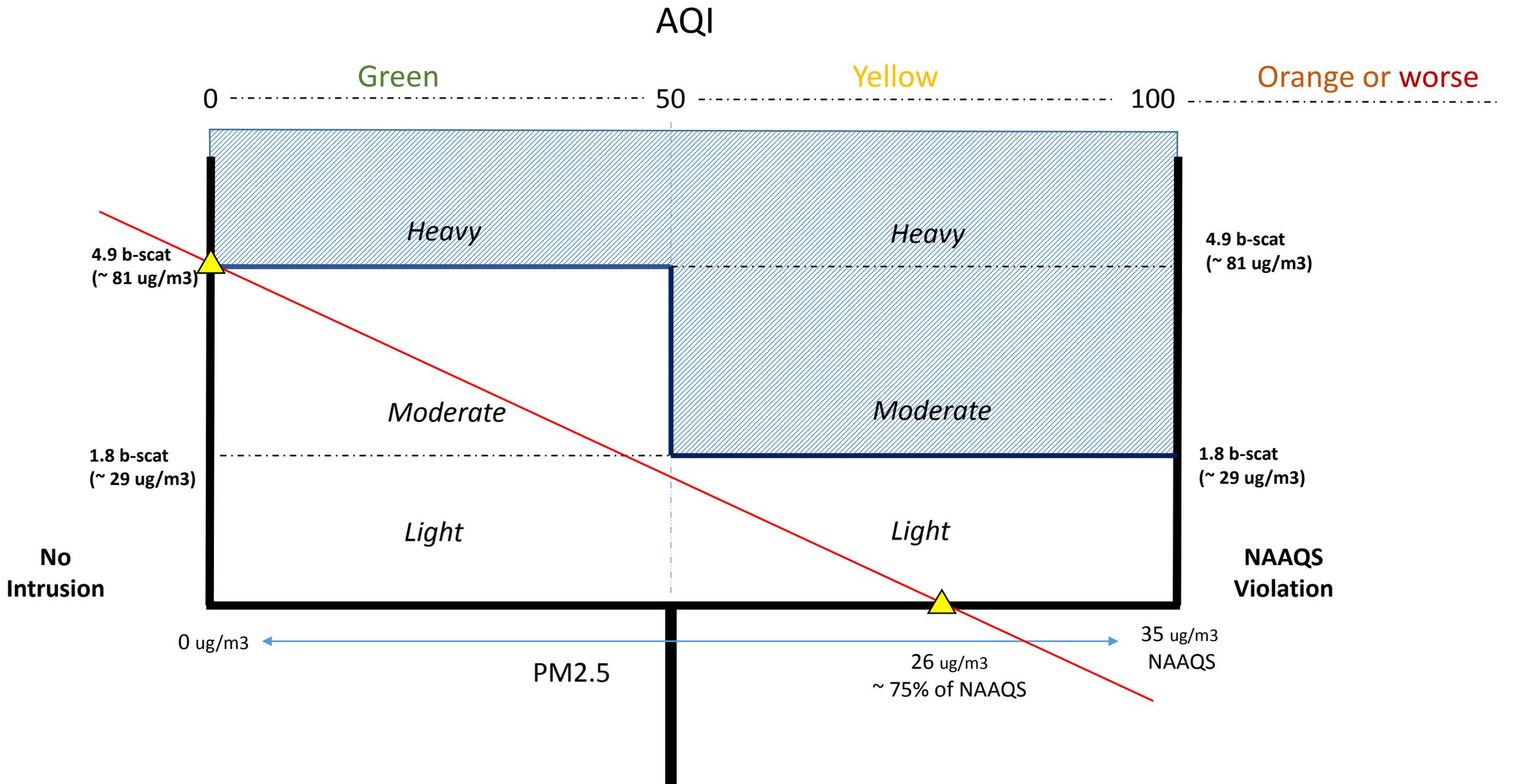
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GOOD	0-50	0.0 – 40.4	0.0 – 12.0
MODERATE	51-100	40.5 – 80.4	12.1 – 35.4
UNHEALTHY FOR SENSITIVE GROUPS	101-150	80.5 – 175.4	35.5 – 55.4
UNHEALTHY	151-200	175.5 – 300.4	55.5 – 150.4
VERY UNHEALTHY	201-300	300.5 – 500.4	150.5 – 250.4
HAZARDOUS	>300	>500.5	>250.5

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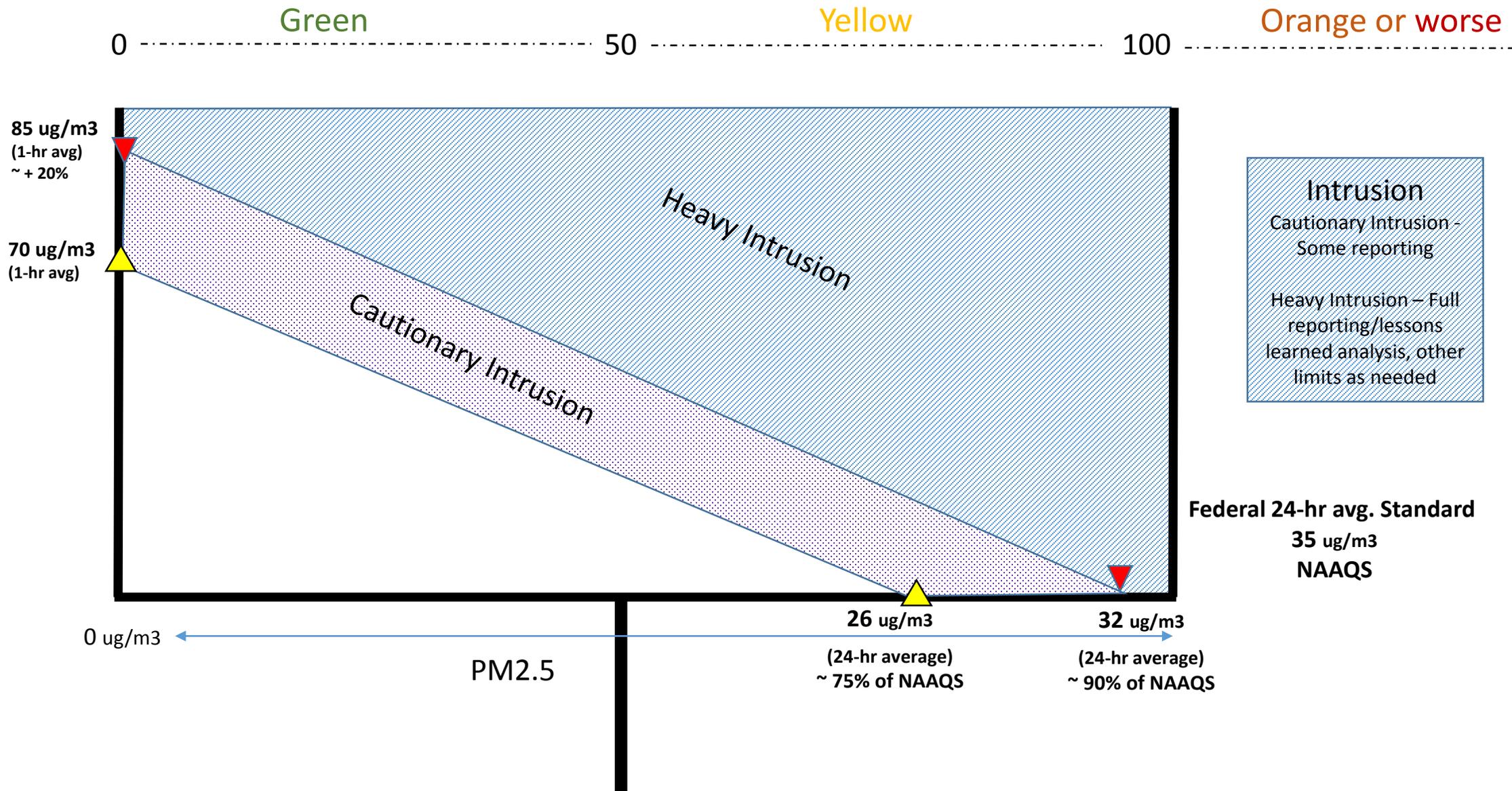


Smoke Management Air Quality Performance Criteria Two Tests





AQI



Oregon Department of Forestry

SMOKE MANAGEMENT PLAN REVIEW COMMITTEE CHARTER

Purpose

The Committee is formed by ODF, in consultation with DEQ. It serves as an advisory committee and is charged to make recommendations for improved implementation, policy changes or clarifications to better accomplish the program's goals. The Committee's primary focus is to review the smoke management policy and ensure program implementation is balanced in achieving these two goals (ORS 477.552):

“To improve the management of prescribed burning as a forest management and protection practice; and

To minimize emissions from prescribed burning consistent with the air quality objectives of the federal Clean Air Act and the State of Oregon Clean Air Act Implementation Plan developed by the Department of Environmental Quality.”

The Committee will also consider:

- Recommendations from a Fee Structure Subcommittee made up of ratepayers to the program.
- Recommendations from agency staff for ODF and DEQ on other necessary rule changes.
- Other identified recommendations and implementation items that don't require a rule change will be addressed later by the Smoke Management Advisory Committee.