



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-096-14

MEMORANDUM

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Joel Karmazyn, Environmental Scientist

DATE: November 24, 2014

SUBJECT: FINAL ADOPTION: Amend R307-302. Solid Fuel Burning Devices in Box Elder, Cache, Davis, Salt Lake, Tooele, Utah, and Weber Counties.

The Air Quality Board approved for public comment a proposal to amend R307-302 to include:

1. Expanding the rule to include all solid fuel burning sources.
2. Exempting commercial and industrial food preparation using solid fuels.
3. Exempting commercial and industrial boilers and electrical generating facilities existing prior to the effective date of the rule.
4. Re-opening the sole source registry until June 1, 2015.
5. There is no proposed amendment to permit the transfer of non EPA Phase 2 certified stoves located within businesses and institutions as part of a real estate transaction. (A similar provision is currently within the rule for residential properties.)

The public comment period was held from October 1 to October 31, 2014. No comments were received directed towards item 2.

Public Comments Summaries

1. Wasatch Integrated Waste Management District (WIWMD) and The Local Government Coalition for Renewable Energy (Coalition).

The comments from these commenters have been combined (and summarized) because they submitted similar comments and because the Coalition stated that they submitted comments in support of the WIWMD.

Comment: The WIWMD is a municipal waste management authority in Davis County. The WIWMD operates a waste to energy facility that provides steam to Hill Air Force Base for heating. The facility is currently regulated under R307-223, Emissions Standards: Existing Small Municipal Waste Combustion Units. WIWMD stated that the proposed rule would conflict with R307-223 and that the proposal under R307-302 is not necessary for industrial boilers because these units must meet the Best Available Control Technology (BACT) under our permitting rule and the Maximum Achievable Control Technology (MACT) under the Act Section 129(a)(2), 42 U.S.C. Section 7429(a)(2).

The Coalition is an alliance of local government entities that own waste-to-energy (WTE) facilities. The Coalition recognizes the need to control thousands of small sources that are not subject to pre-construction air quality permitting. That is in sharp contrast to the elaborate pre-construction permitting process – and comprehensive ongoing regulatory oversight and control – that the federal Clean Air Act (CAA) requires (together with Utah regulatory standards) for new or expanded major stationary sources, such as a possible future expansion of the Wasatch WTE facility (WIWMD).

WTE is recognized as a renewable energy in 31 states, including Utah and plays a significant role in mitigating greenhouse gas. The Coalition provided citations, including those from EPA regarding the value and reduced emissions with the use of WTE. The proposed amendment is unnecessary for WTE facilities given their excellent emissions control. The Coalition proceeded to reference state and federal standards that require MACT to support their claim of excellent emission control.

Intermittent shut-down/start-up due to intermittent burn restrictions would result in adverse emissions and would require many hours to actually achieve shut-down.

For each of these reasons, the Coalition respectfully requests that the Board not adopt the proposed amendment to Rule 307-302 without modifications (as further described in the Wasatch District's comments) to address the concerns described above.

DAQ response: We agree with the commenters that expanding the rule applicability to all sources of solid fuel burning devices opens up broad categories within industrial settings which were never intended to be subject to this rule. Consequently, we have modified the definition of a solid fuel burning device to clarify the intent of this rule is for fireplaces, wood stoves and boilers. All solid fuel burning boilers with emissions under 5 tons per year (tpy) would be regulated under this rule.

We have further clarified that the rule does not apply to industrial sources subject to an approval order issued under the permitting rule R307-401. Solid fuel burning boilers with emissions in excess of 5 tpy would thus need to demonstrate BACT in order to obtain a permit. MACT standards are federally enforceable and therefore are not impacted by state rules.

2. ATK

Comment: ATK recommends that a clarification should be made to the applicability that the rule applies to appliances that provide comfort heating for commercial, institutional and industrial buildings. ATK cites portions of the rule that [infer] that the rule is intended to apply to comfort heating. These citations include the definition of a sole source that is limited to residential heating and the opacity requirement for heating appliances. ATK further provided dialogue from past Board minutes which support the Board's intended expansion of the rule for heating comfort. ATK believes that DAQ may have unintentionally exceeded the original scope of the Board's directive to revise the rule in response to the wood smoke workgroup suggestions.

DAQ response: Broadening the scope of the rule to include boilers may have unintended consequences that can be resolved by clarifying the applicability. We have modified the applicability as follows:

“R307-302 establishes emission standards for fireplaces and solid fuel burning devices used in residential, commercial, institutional and industrial facilities and associated outbuildings used to provide comfort heating”

Comment: ATK suggests inserting exemptions eliminating stationary sources already covered by existing state and federal regulatory programs, such as, open burning, construction permitting, or conditions in the PM_{2.5} State Implementation Plan.

DAQ response: As explained above, we have clarified that the rule does not apply to industrial sources subject to an approval order issued under the permitting rule R307-401. This provision would also address SIP items.

3. Town of Alta and Alta Lodge

The public comments from the Town of Alta and Alta Lodge have been combined (and summarized) because they submitted similar comments.

Comment: An outright restriction of burning during those days would be a hardship on our operations for a very little reduction in solid fuel burning emissions, a reduction that has no effect on the Salt Lake Valley inversions.

Some ski lodges have converted all of their fireplaces to natural gas. Others have left wood burning fireplaces for only large common areas. Alta has 16 remaining wood burning fireplaces in commercial establishments. Twelve of those fireplaces are in the ski lodge common areas, serving 150 to 200 guests. These remaining fireplaces are important economic resources for the establishments that go far beyond mere aesthetic considerations.

Basic weather science tells us that burning wood in the canyon above the winter inversion does not affect the air below the top of the inversion. Alta's few remaining fireplaces do not contribute to the inversion in the Salt Lake Valley. Further, there appear to be no monitoring stations in Alta. Monitoring stations should be installed in Alta to definitively identify the levels of emissions and their direction of flow before any outright ban.

Application of the rule according to a county line, where topographic elevations vary by over 4,000 feet, would be arbitrary and capricious. Applying the rule to wood fireplaces in Alta would be arbitrary and capricious. Although we believe the Director should have the discretion to apply the rules equitably and only to the areas actually affected, good public policy calls for the rule to be amended to reflect the right policy. This concern applies to residences as well as businesses in Alta. We ask that any rulemaking be based upon solid scientific study and evidence.

Alta requests an exemption to the burning restriction for our remaining 16 fireplaces. This is the same type of exemption being recommended for the 47 wood, charcoal, and barbeque (wood and smokers) restaurant facilities in Salt Lake County, except that those restaurant exemptions are in the heart of the inversion while the Alta facilities are not. Wood burning fireplaces in Alta do not have any relationship to the valley inversion.

DAQ response: Dave Whiteman and John Horel of the University of Utah conducted a persistent cold-air pool study (PCAP) that was published by the American Meteorological Society in 2013. Their research determined that the top of the winter-time inversion is at 2,200 meters or 7,218 feet in elevation.

A yet unpublished graduate thesis by Joseph Swyler Young at the University of Utah shows that the aerosol depth within the inversion is 550 meters from the valley floor or at a top height of 6,070 ft. (1850 meters) in elevation. This is consistent with common visual observations of inversions, including photographs presented in the PCAP.

As a conservative measure, an exemption could be established for elevations across the Wasatch Front above 7,000 feet. This would provide about a 1,000 foot buffer zone. The Town of Alta and the Big Cottonwood community are located well above 7,000 feet in elevation.

We have shared the publications with EPA for their analysis. EPA's modeler agrees with the concept of a high elevation exemption.

We recommend that the Board approve a wood burning exemption for elevations above 7,000 feet in the Wasatch Front. This exemption would also eliminate the sole source registry eligibility for residences above 7,000 feet.

Comment: The language of Rule R-307-302-3(2) should be amended to read:

[When] the National Weather Service forecasted weather for the specific area includes a temperature inversion which is predicted to continue for at least 24 hours, the director will issue a public announcement and will distribute such announcement to the local media notifying the public that a mandatory no-burn period for solid fuel burning devices and fireplaces is in effect for that specific area. The mandatory no-burn periods will only apply to those specific areas [delete: or counties] impacting the real-time monitoring site ... The amended language should be adopted in Subsection R-307-302-3(4) as well.

DAQ response: DAQ meteorologists perform inversion predictions in accordance with the provisions within the rule. There is no need to amend the rule by including the National Weather Service.

The text already specifies that inversion predictions are based on "specific areas." DAQ meteorologists make their predictions based on regional/local meteorological conditions and monitoring station data. Further, R307-302-3(2) and R307-302-3(3) make it clear that burn restrictions are designated per specific areas by stating that "Residents of the affected areas shall not use..." No further action is necessary.

4. Commenters Residing at High Elevations

Carolyn Keigley: This commenter resides in Big Cottonwood Canyon and is opposed to any wood burning restriction, citing financial hardships by some local residents who cannot afford to always pay for propane. She also stated that snow bound areas also restricts propane delivery. Consequently, some residences must rely on wood burning.

Karen Travis: This commenter lives in Alta and has requested an exemption for residents at high elevations. This commenter cites the need for a backup heating source.

Steve Jorgensen: This commenter lives in Brighton and stated that it would be both a physical and financial hardship to live without a wood heat source. He has lived this life style for more 43 years.

Big Cottonwood Community Council: The residents have never experienced inversion related air pollution and request an exemption from the rule.

DAQ response: We have proposed an exemption for elevations above the inversion layer.

5. Hill Air Force Base

The Base uses a device that could be classified as a fireplace for firefighting training purposes. The air flow can be adjusted in this device to simulate flash back. The rule is not intended to control firefighting training equipment; therefore, we have added an exemption for this type of equipment.

6. Keith Averett

Comment: The proposed wood burning ban really has some serious items to consider. Last year's winter weather patterns were exception rather than the rule. There were longer stretches of time between storms that would generate winds to help refresh the air. Example, take a look at this year's July, August, and September weather. Weather patterns change from year to year. Yet, we are willing to HURRY and to JUMP to conclusions based on the exception rather than the rule. This rule contributes to driving up natural gas consumption which is financially hurting the elderly.

DAQ response: The commenter is incorrect in describing the last winter season as exceptional. We have experienced many severe inversion years, as supported in the Technical Support Document prepared for the PM_{2.5} SIP. Wood smoke is a contributing area source that has been managed under our SIP programs since the early 1990s. The commenter did not provide documentation to support the claim that the wood smoke management program affects the natural gas market price.

7. Wasatch Clean Air Coalition (WCAC)

Comment: Future biomass & waste-to-energy. Wasatch Clean Air Coalition supports renewable solid fuel biomass for district heating, with the stringent controls that are possible in larger combustors. We oppose new waste-to-energy, as it exerts a perverse incentive on waste reduction & recycling.

Sole source registry reopening should be well publicized & the opportunity used to increase public understanding of the air & health impacts of solid fuel emissions.

Transfer of non-EPA Phase 2 certified stoves. Utah should follow the example of Missoula and work diligently at reducing the population of uncertified stoves from our NA areas, to reduce the health impacts of PM_{2.5} when burning is permitted.

The WCAC supports the DAQ outreach to the health departments in the effort to define our food service industry and believes that further consumer outreach would help consumers make wise cooking choices.

DAQ response: The Air Quality Board has put into place R307-223, which permits small municipal waste combustion units and the 400 series rules for permitting other units. These rules require controls

that are considered to be BACT. The objection to new waste-to-energy units is noted, as well as the support for re-opening the sole source registry and no transfer on non-EPA certificated stoves from commercial, industrial and institutional sources.

Staff Recommendation: Staff recommends that the Board adopt R307-302 as amended.

1 **R307. Environmental Quality, Air Quality.**

2 **R307-302. Solid Fuel Burning Devices in Box Elder, Cache, Davis,**
3 **Salt Lake, Tooele, Utah, and Weber Counties.**

4 **R307-302-1. Purpose and Definitions.**

5 (1) R307-302 establishes emission standards for fireplaces and
6 solid fuel burning devices used in residential, commercial,
7 institutional and industrial facilities and associated
8 outbuildings used to provide comfort heating.

9 (2) The following additional definitions apply to R307-302:

10 "Sole source of heat" means the solid fuel burning device is
11 the only available source of heat for the entire residence, except
12 for small portable heaters.

13 "Solid fuel burning device" means [~~any device~~] fireplaces, wood
14 stoves and boilers used for burning wood, coal, or any other nongaseous
15 and non-liquid fuel, both indoors and outdoors, but excluding outdoor
16 wood boilers, which are regulated under R307-208.

17
18 **R307-302-2. Applicability.**

19 (1) R307-302-3 and R307-302-6 shall apply to any solid fuel
20 burning device in PM10 and PM2.5 nonattainment and maintenance areas
21 as defined in 40 CFR 81.345 (July 1, 2011) and geographically described
22 as all regions of Salt Lake and Davis counties; all portions of the
23 Cache Valley; all regions in Weber and Utah counties west of the Wasatch
24 mountain range; in Box Elder County, from the Wasatch mountain range
25 west to the Promontory mountain range and south of Portage; and in
26 Tooele County, from the northernmost part of the Oquirrh mountain
27 range to the northern most part of the Stansbury mountain range and
28 north of Route 199.

29 (2) R307-302-4 shall apply only within the city limits of Provo
30 in Utah County.

31 (3) R307-302-5 shall apply in all portions of Box Elder, Cache,
32 Davis, Salt Lake, Tooele, Utah and Weber counties.

33 [~~(4) R307-302 does not apply to restaurant and institutional~~
34 ~~food preparation.~~

35 ~~_____ (5) R307-302 does not apply to commercial and industrial boilers~~
36 ~~and electrical generating facilities existing prior to the effective~~
37 ~~date of this rule.]~~

38 (4) The following exemptions apply to R307-302:

39 (a) R307-302 does not apply to restaurant and institutional
40 food preparation.

41 (b) R307-302 does not apply to commercial and industrial boilers
42 subject to an approval order issued under R307-401.

43 (c) R307-302-3 does not apply to sources located above 7000
44 feet in elevation within Box Elder, Davis, Salt Lake, Tooele, Utah
45 and Weber counties.

46 (d) R307-302 does not apply to firefighting training devices
47 that meet the definition of a solid fuel burning device.

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49 **R307-302-3. No-Burn Periods for Fine Particulate.**

50 (1) By June 1, 2015, sole sources of residential heating using
51 solid fuel burning devices must be registered with the director in
52 order to be exempt during mandatory no-burn periods.

1 (2) When the ambient concentration of PM10 measured by the
2 monitors in Salt Lake, Davis, Weber, or Utah counties reaches the
3 level of 120 micrograms per cubic meter and the forecasted weather
4 for the specific area includes a temperature inversion which is
5 predicted to continue for at least 24 hours, the director will issue
6 a public announcement and will distribute such announcement to the
7 local media notifying the public that a mandatory no-burn period for
8 solid fuel burning devices and fireplaces is in effect. The mandatory
9 no-burn periods will only apply to those areas or counties impacting
10 the real-time monitoring site registering the 120 micrograms per cubic
11 meter concentration. Residents, commercial, institutional and
12 industrial facilities of the affected areas shall not use solid fuel
13 burning devices or fireplaces except those that are the sole source
14 of heat for the entire residence and registered with the director.

15 (3) PM10 Contingency Plan. If the PM10 Contingency Plan
16 described in Section IX, Part A, of the State Implementation Plan
17 has been implemented, the trigger level for no-burn periods as
18 specified in R307-302-3(2) will be 110 micrograms per cubic meter
19 for that area where the PM10 Contingency Plan has been implemented.

20 (4) When the ambient concentration of PM2.5 measured by monitors
21 in Box Elder, Cache, Davis, Salt Lake, Tooele, Utah or Weber counties
22 are forecasted to reach or exceed 25 micrograms per cubic meter, the
23 director will issue a public announcement to provide broad
24 notification that a mandatory no-burn period for solid fuel burning
25 devices and fireplaces is in effect. The mandatory no-burn periods
26 will only apply to those counties identified by the director.
27 Residents, commercial, institutional and industrial facilities within
28 the geographical boundaries described in R307-302-2(1) shall not use
29 solid fuel burning devices or fireplaces except those that are the
30 sole source of heat for the entire residence and registered with the
31 director.

32 (5) PM2.5 Contingency Plan. If the PM2.5 contingency plan of
33 the State Implementation Plan has been implemented, the trigger level
34 for no-burn periods as specified in R307-302-3(4) shall be 15
35 micrograms per cubic meter for the area where the PM2.5 contingency
36 plan has been implemented.

37 38 **R307-302-4. No-Burn Periods for Carbon Monoxide.**

39 (1) Beginning on November 1 and through March 1, the director
40 will issue a public announcement and will distribute such announcement
41 to the local media notifying the public that a mandatory no-burn period
42 for solid fuel burning devices and fireplaces is in effect when the
43 running eight-hour average carbon monoxide concentration as monitored
44 by the state at 4:00 PM reaches a value of 6.0 ppm or more.

45 (2) In addition to the conditions contained in R307-302-4(1),
46 the director may use meteorological conditions to initiate a no-burn
47 period. These conditions are:

48 (a) A national weather service forecasted clearing index value
49 of 250 or less;

50 (b) Forecasted wind speeds of three miles per hour or less;

51 (c) Passage of a vigorous cold front through the Wasatch Front;

52 or

1 (d) Arrival of a strong high pressure system into the area.
2 (3) During the no-burn periods specified in R307-302-4(1) and
3 (2), residents, commercial, institutional and industrial facilities
4 in Provo City shall not use solid fuel burning devices or fireplaces
5 except those that are the sole source of heat for the entire residence
6 and are registered with the director or the local health district
7 office.

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R307-302-5. Opacity for Heating Appliances.

10 Except during no-burn periods as required by R307-302-3 and 4,
11 visible emissions from solid fuel burning devices and fireplaces shall
12 be limited to a shade or density no darker than 20% opacity as measured
13 by EPA Method 9, except for the following:

14 (1) An initial fifteen minute start-up period, and
15 (2) A period of fifteen minutes in any three-hour period in
16 which emissions may exceed the 20% opacity limitation for refueling.

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R307-302-6. Prohibition.

19 (1) Beginning September 1, 2013, no person shall sell, offer
20 for sale, supply, install, or transfer a wood burning stove that is
21 not EPA Phase 2 certified or a fireplace that is not EPA qualified.

22 (2) Ownership of a non EPA Phase 2 certified stove within a
23 residential dwelling installed prior to March 6, 2014 may be
24 transferred as part of a real estate transaction, so long as the unit
25 remains intact within the real property of sale.

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KEY: air pollution, fireplaces, stoves, solid fuel burning

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Date of Enactment or Last Substantive Amendment: 2014

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Notice of Continuation: June 2, 2010

30

Authorizing, and Implemented or Interpreted Law: 19-2-101; 19-2-104