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Environmental Quality Board  
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INDEPENDENT REGULATORY  
 REVIEW COMMISSION

ENVIRONMENTAL QUALITY BOARD

**Input to PA DEP on regulating outdoor wood-burning boilers in Pennsylvania.**

I attended the public input meeting in Williamsport and gave verbal input, but unfortunately I had just heard about the meeting shortly before, so I had not much time to consider what my main points should be. Moreover, the state representatives who spoke prior to me at the meeting made me realize that my inputs may be more useful if I focused more on the difficulties in regulating these furnaces at the local level. The state representatives, besides misunderstanding the most serious concerns, seemed determined to defer the matter to local municipalities. I know first hand the problems with local municipalities regulating these furnaces. I believe that I have been in a somewhat unique situation relative to these furnaces. I am on the Tioga Borough council where we had as councilpersons both an OWHH furnace owner, and a neighbor living less than 100 feet downwind from another OWHH. I am the neighbor, and my home is much taller than the stack of the OWHH, so I had first hand experience in living near an OWHH under some of the worst conditions. I also am a material science engineer who has had 31 years experience at Corning Inc where one of my primary focus areas was the burning of organic materials; in consequence, I had the technical background that enabled me to gain an understanding of these furnaces and their resultant effects. Before I had any experience living near an OWHH another resident asked the council to take action to regulate them. Once an OWHH was installed near me I certainly had the motivation to lead the council's efforts to do so. Although I understood burning, it took a while to really understand these furnaces and all the issues involved. I believe I heard every conceivable argument against regulation from the furnace owners and their friends. One person even claimed to like the smoke. Although there is no doubt that the majority of residents supported an ordinance, and certainly didn't want one near them, the majority at every public input meeting was against regulation because the meetings were primarily attended by the furnace owners and their friends. We had four furnaces in the Borough at the time, although only three were operating. Two of the three had triggered complaints.

DEP knows well the health consequences of prolonged smoke inhalation and the actions taken by other states, as well the studies done on the subject. I do not feel, therefore, that I need to reiterate points well known and understood. Rather I intend to provide inputs both based on implementing an ordinance in a small municipality, as well as my first hand experience in living near an operating OWHH over a winter season. I have also attached two related documents. One can be considered a posthumous input written by my wife, who passed away in October of 2007 after suffering through the winter of 2006-2007 near an OWHH. The other is a copy of a letter I have sent to my state representative.

**1. Local regulation of OWHHs is problematic:**

- *Local vocal opposition to OWHH regulation is often inherently high in public meetings because most OWHH owners feel that regulation will cause them to cease operation, and when one considers that not every OWHH is located in respect to nearby dwellings in such a manner as to cause significant problems, it is obvious that OWHH owners, augmented and supported by sellers, will always outnumber in public meetings those who are affected adversely. This imbalance is further widened because many of those adversely affected are often hesitant to complain, due to reluctance to offend neighbors or fear of retaliation, unless the situation is extreme .*
- *Although most residents do not want the OWHHs near them, they are often not motivated to speak out unless one is installed nearby. Many others are simply not informed on the subject and have no opinion on regulation until an OWHH is located nearby upwind with a short stack.*

- In public meetings I have encountered a multitude of opinions, theories, hypotheses, and reasons as to why serious problems with OWHHs either don't exist or are no more serious than other sources of smoke. Some concerns are of course valid, but much of what is put forth in opposition to regulation is found upon careful review and understanding to be invalid, even though initially many sound plausible. *The public officials in many small municipalities are volunteers and most do not have the time or the background necessary to sufficiently research this subject to be able to distinguish between the real and bogus concerns and issues that are put forth.* Often on the local level the matter is simply referred to the municipality's solicitor who also may not have the technical background to distinguish between real and bogus concerns. In consequence, even when regulation is pursued the easiest path is often taken, such as simply banning the OWHHs, or copying an ordinance from another municipality which may or may not be appropriate or effective.

- Often the controversy boils down to a choice between cost savings and health. *Due to the familiarity with wood smoke, especially in rural communities, it is difficult locally to get many to take the health concerns seriously.* In comparisons with other sources of smoke most do not immediately grasp that the health hazard magnitude for any hazardous chemical or particulate is a function of concentration and exposure duration

- On the local level *it is often easy for a single OWHH furnace owner to block or stall any attempt at regulation if they are a public official or locally influential.*

## 2. Nuisance vs. serious health concern:

- *Too often this subject is viewed by public officials as well as by solicitors as a nuisance issue rather than a serious health issue.* This perception is reinforced by references to property lines in proposed regulations rather than distances from nearby dwellings.

- References to community air quality as well as the National Air Quality Standards also take the focus away from the worst health situation which is the air quality in the immediate vicinity of the OWHH.

## 3. Industry recommendations:

- Sellers too often neglect to tell buyers of OWHHs the installation guidelines recommended by the industry's trade association. Moreover local enforcement officials are often unaware of these recommendations when enforcing ordinances that may include a requirement for the OWHH to comply with the manufacturer's recommendations. *At the very minimum the installation and location recommendations published by Central Boiler and the Hearth Patio and Barbecue Association should be required statewide!*

- OWHHs causing smoke complaints that were installed in violation of the above guidelines should not be grandfathered in any ordinance either local or statewide.

## 4. EPA emission standards

- Just like for indoor stoves all OWHHs sold after a specified date should be required to meet the latest [phase II] emission standards published by EPA for these furnaces.

- *If within 500 feet of a neighboring dwelling any OWHH newly installed after a specified date should meet the phase II EPA emission standards.*

## 5. Stack Height Issue

- The relatively low stack heights of many OWHHs relative to nearby dwellings is no doubt the cause of most of the worse conditions where the emissions penetrate into the dwellings. Opponents often turn the high stack requirement to ridicule by citing the difficulties in complying with this requirement without causing other safety hazards due to cables or high winds. In Tioga we required one owner to raise his stack and he did so by moving his OWHH to be adjacent to his barn. There have been no complaints about this OWHH since the stack was raised. *When neighboring dwellings are nearby, if the raising the stack above peak height is impractical, then the location is unsuitable for an*

**OWHH.** It is as simple as that.

- For people living in an imperfectly insulated home taller than the stack of an OWHH less than 150 feet away, the concentration of emissions is very high and the exposure time can be almost continuous due to penetration of the emissions into their dwellings. Although the greatest adverse health effects result from long term exposure, the adverse effects can be substantial even short term [see attachment written by Martina Johnson].
- Raising of the stack is not a total cure for problems in all situations, but short stacks near taller dwellings definitely lead to the worst problems. Even with the new low emission OWHHs the stack height requirement should not be eliminated although the setback requirement for which it is required may be somewhat relaxed. An alternative is to use the graduated height requirement depending on setback distance as promoted by some OWHH manufacturers.

6. **Effects of emissions concentration and exposure duration**

- In my opinion the importance of these two variables on causing high adverse health conditions is a key message that needs to be better understood by opponents and public officials. *Equating OWHHs to burning barrels, refuse burning, campfires, smoking in restaurants, fireplaces etc. is bogus simply based on exposure duration alone.* As one speaker in Williamsport so aptly put it, "if the smoke from a campfire blows in your face, you move." People cannot so readily move their dwellings.
- From my personal experience in living near an OWHH, I can attest to the fact that the emissions do penetrate into dwellings and become entrapped. Moreover, even though the odor was variable, proof could not be obtained that anything other than wood was being burned. Obtaining such proof is usually very difficult.

7. **Legal action**

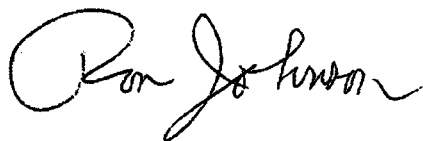
- Because so many persist in viewing OWHH problems as a nuisance or as a problem between neighbors, *it is often suggested that affected residents should simply resort to legal action. This approach places the elderly and low income residents at a great disadvantage.* Many do not have the funds to pursue this approach.
- Since most of the adverse health effects are longer term by the time sufficient evidence for a court case exists, the adverse health impact would be severe and irreversible. Enough is known now that smoke in homes over long periods will cause health problems, but to prove this in court can be lengthy and expensive. This is a case where preventive action by regulation is justified.

8. **Educating legislators**

- See attached letter to representative Baker who was reported to be against regulating these furnaces at the state level.
- The idea that regulation is appropriate for highly populated areas and Boroughs but not for rural townships is false. *All townships have some areas where homes are sufficiently clustered as to be unsuitable for an OWHH installation.*
- I think *one of the most difficult tasks will be to get many PA legislators to understand the seriousness of the health issue* and the difficulty in adequately regulating OWHHs at the local level. I wish DEP good luck in doing so and thank them for making this effort in a very just cause.

Respectfully submitted, Ron Johnson, Tioga Borough

Ron Johnson  
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## ATTACHMENT #1 Letter to Representative Baker

Dear Representative Baker:

I attended the public input meeting held in Williamsport concerning DEP's proposal for regulating outdoor wood-burning furnaces. Two of your fellow legislators spoke at this meeting and I fear their statements would very much mirror your own. What concerned me the most about their comments is that they were viewing this subject as an urban vs. rural issue, and thinking that the priority concern relates to air pollution. They of course, like you, wish to support what they perceive to be in the best interests of their constituents. Unfortunately in this case their perception is wrong. I would like to immediately make two things clear:

1. The primary beneficiaries of a statewide regulation pertaining to these furnaces live in **rural** districts, not urban or even suburban districts.
2. It is **not** in the best interest of either current or future owners of these furnaces for the furnaces to remain unregulated.

Much of the opposition to regulation comes from the fear that the furnaces will ultimately be banned or that the regulation specifics in regard to stack heights and setbacks will be overly stringent or will apply in inappropriate situations. The intent of any furnace regulation should not be to stop wood burning. It should be to insure wood burning is done responsibly in a manner that does not affect the health of immediate neighbors. It is the environment around the furnace, especially within 300 feet, that constitutes the major health concern, not the overall air pollution level in the municipality or county. I am a councilman in the Tioga Borough where after much anguish and argument we passed an ordinance pertaining to these furnaces. The ordinance regulates them. It does not ban them if they can be operated without endangering nearby residents. It took a lot of time and effort to research the subject and achieve sufficient understanding to write a meaningful ordinance. Most small municipalities do not have the resources to do this. Our solicitor was of course very helpful, but solicitors do not usually have, nor can small communities afford to pay them to take the time to acquire, sufficient technical understanding to judge furnace mechanics, burning chemistry, the validity of mathematical modeling of pollutant concentrations, the seriousness of the health concerns, etc. Regulations need to be done at the state level, and of course written in such a manner that the furnaces can continue to operate where they comply with reasonable standards that insure the conditions that create the greatest health concerns will not exist.

The greatest direct beneficiaries will be those individuals who live within close proximity to operating furnaces. Since most furnaces will be in wood burning rural districts, most direct beneficiaries will be in wood burning rural districts. Every

time a furnace is installed in an inappropriate location or manner the complaints and health concerns escalate. Ultimately as the number of furnaces increase, something will have to be done as the health concerns are real and serious. It is logical that when confronted with increased levels of complaints and the inevitable adverse health effects that will be attributed to nearby furnaces, any regulation made under these circumstances will be more stringent than one made now. Someone at the conference made an interesting point. When you sit around a campfire and the smoke blows in your face, you move. Unfortunately when one of these furnaces is located in close proximity upwind from a residence, and the smoke blows directly on a neighbor's dwelling, it is not easy to move the dwelling. The smoke penetrates the dwellings and you can't get away from it. I lived next to an indoor woodstove for 30 years and own two indoor woodstoves myself. I never experienced or imagined how different and severe the effects of these OWHH furnaces could be until one was installed about 70 feet upwind from my home. In the interest of brevity I will not elaborate on our specific situation, but I tell you from personal experience that it destroys the quality of your life and the health effects are real and serious. Yes, because of this experience I was motivated to take the subject seriously. If one of these furnaces could be installed upwind of every Pennsylvania legislator, regulation of the furnaces would not be in doubt. I say this with certainty, but no disrespect.

I wish to make one more point concerning which you may not be aware. There are guidelines for installing these furnaces that have been published both by Central Boiler, one of the major manufacturers, and by the Hearth, Patio and Barbecue Association, which is actually the principal trade association for the manufactures of these furnaces. Many of the worst situations, and resultant complaints, are for situations where installed furnaces do NOT comply with these minimal recommendations. At the very least all installed furnaces should be required to meet these guidelines statewide. No regulation will mean furnaces will continue to be installed in situations against the manufacturer's recommendations and where serious long term health problems are inevitable.

In conclusion I urge you to reconsider your position on regulating these furnaces. You are only right when you say regulating them is outrageous IF the regulation is unreasonably written such that their operation is prohibited where they do not cause serious quality of life and health consequences for neighboring dwellings.

Sincerely,  
Ron Johnson  
Tioga Borough Councilman

**ATTACHMENT #2 Written by Martina Johnson to Tioga Borough Council  
prior to her death in 2007. Her input convinced a majority of council to vote  
FOR regulation.**

To: Tioga Borough Council members and residents:

I recognize that this is lengthy and thank you in advance for your patience in the reading of it in its entirety. A year and a half ago I had a stroke, which places me in a category of high sensitivity to the hazards of wood smoke. I have been especially concerned since at the public input meeting most council members missed my tale of woe, and the excellent talk on outdoor wood-burning boilers by Brian Meadows on the health hazards from burning wood at low temperature and the resultant legal ramifications. I feel strongly about outdoor wood-burning appliances, and we need people like you, who hopefully understand the threat they impose to our community, to consider responsible action promptly; action that is for the betterment, rather than the detriment, of the community.

Many, many hours of painstaking effort have been spent in the endeavor to research and understand the subject of these outdoor wood-burning stoves that have invaded our community. I have personally waded through so much material on the subject and its negative effects, that even were I not so negatively affected personally, I would worry about the health and welfare of others who might be or become so. It is clear to me, and I would have thought to anyone who read and understood the available material, that these appliances were never intended for close proximity housed neighborhoods like our Boro. The health issues are real and long-term consequences are frightening. The proximity of this Boro's homes disallows the practicality of escaping the pollutants.

My primary care physician, Dr. George Dy at Laurel Health tells me that wood smoke, any wood smoke, is a very well recognized and long documented irritant to many of the populous and can cause varied allergic responses, often severe. These furnaces are many times worse than indoor woodstoves in the pollution of our environment and personal bodies. Young people and the elderly are primary targets, as are people with compromised health. These facts are readily available to anyone reading virtually any material on these appliances. In the long-term consideration, everyone is either now, or at some time will be, prime targets to the pollutants.

I have never before this fall-winter season (06-07) been treated for the consequences of such allergies, even though at our other residence we burn wood in an indoor woodstove. In the 13 years we've owned that house, there have been very few times I was in any way adversely affected, (and that was because we developed a faulty gasket) and never did I experience symptoms anywhere near to the turmoil I have suffered in our home in Tioga, and here we are without wood fireplace or woodstove.

My eyes burn, my throat is sore and raw, and my nose stays "raw", is often bloody, and is always clumped with scabs. It is actually painful to blow my constantly running nose! My chest at times is pressured and aches with a heavy dull sensation, as if someone is sitting on me and I can't get air. It is frightening! At times I cough so hard and long that I gag until I feel as if I will choke. [At this point in my

tale of woe, John Wheeler interjected that he too, after his stroke, had been warned of the hazards of wood smoke, and a few times at night when fumes permeated his home, which he said was well insulated, he also had experiences similar to my feelings of not getting enough air. He called out to his wife for help. He said he thought he might be dying.] **It is frightening!**

But worst of all, I have suffered with increased migraine headaches, often of continued long duration of 2 to 5 days. The total effect on me has been dramatic. I dread the future of seasons to come, especially considering owners of these wood-burners have the option to use them continuously for hot water in their homes.

Besides the discomforts and pain of these conditions are the costs incurred with their treatment, which, in my case, has not been all that effective. Consider also that most medications carry risks of their own. It is very hard to keep depression at bay with the constant stress and anxiety of our situation. There is no escaping these fumes. Even when you don't see or smell the smoke, you have symptoms – inside and outside of our home. How can you measure this total situation to a few dollars saved on the heating bills of a few residents?

My parents live to the south of our house and I see daily the extra burden that the fumes assailing their space (yard and home) put on their already compromised lives and health, as they are among our communities' elderly. Their eyes burn and tear, they cough, breath "comes hard" and the fumes very often keep them awake, as their bedroom is on the north side of their house. My father stated that in all his life he was never subjected to a situation such as this, even when he lived near an operating steel mill. They have been miserable this season (fall/winter 06 – 07), and that they should have to endure this at their time of life is a shame and a "crime".

I have lived in this boro for 36 years, and except for one complaint of animal abuse, I have never made a public complaint about neighbors or boro policy. This situation mandates this compilation of facts and dilemmas and yes, complaint, presented with the expectation that the council will seriously consider the disturbance to health and welfare of all of us, even those residents that don't yet realize what effects these pollutants will have on them later!

Those of you who know me, know I spend many hours in my yard and that of my parents. It has become a trial to be outside on even a minimal basis; I might add to be inside both residences is also problematic at times. The only time I am symptom-free is when we leave the boro. Upon returning home, symptoms return as fumes permeate our car in our driveway before we even open the doors! Stress has become our way of life.

It is clearly not in this boro's, or any municipality's interest (I would think) to subject its residents to the effects and repercussions of these outdoor wood-burning appliances. The health risks and effects alone should be enough to elicit prompt action.



Council decisions should be made with the community's best interest in mind, and consider possible future repercussions of allowing these outdoor wood-burning appliances to operate. The future of these wood-burners is uncertain. They may improve in design and may be more efficient and less polluting, but then, is "less" enough? Allow more residents to employ these appliances and the future welfare of the community is uncertain at best.

Now, today, we know we have a problem that must be addressed. The effects are with us and among us. Our bodies' tolerance becomes less each day. Be aware, the body is affected whether we see or smell smoke or not. These pollutants are accumulative. They can replace the space in the air sacks (alveoli) of our lungs and over time, rob our tissues of the oxygen necessary for health and life. Consider the damages to the body by breathing second hand cigarette smoke and think about those who ignored the warnings. Many are now deceased. Ignoring factual information until it is too late is unwise to say the least. The pollutants we now discuss are far more harmful. Can you ignore this? It is fact. Ignoring these factual hazards will not make them disappear. Read the material. Listen to the experts. And if that doesn't convince you, consider the legal ramifications.

As the consequences of these wood furnaces adversely affect people with preexisting conditions such as heart, lung, and vascular system disorders, they do, in fact, affect many residents today.

Does anyone of you want to chance that your family member will be among those to succumb to these effects?

What about property values? Would anyone choose to subject themselves to what we have been through? Of course not!!

As the general populace becomes more aware of the dangers and dilemmas created by these wood-burners, not to mention the malodorous clouds of smoke that these wood-burners generate, property values in close proximity of them will surely drop. This is certainly a negative situation for Boro residents even if they chose to ignore the health issues.

With all considerations and known health risks, and almost certain property value decline, I find it unconscionable that this council is considering anything other than a ban!

Respectfully submitted,

*Martina Irene Mabeck Johnson*

P.S.: With the warm weather upon us, and the nearby outdoor furnace not operating, my symptoms are gone, and I have been outside working in my yard again. Fresh air is wonderful. Please don't jeopardize our comfort and health.

**Attachment 3: Summary of Suggested Specifics**

	<b>Minimum</b>	<b>Preferred</b>
Distance from Neighboring dwellings*	100 feet	150 feet
Above requiring stack above peak	100 - 300 feet**	150 - 500 feet**
Stack height above peak	2 feet	3 feet
emissions	Phase I	Phase II
summer operation	only if >300 ft. from prop. line	only if > 500 ft. from prop. line
grandfathering	if > 100 ft. + no complaints	if > 150 ft. + no complaints
continued sales	Phase I or better	If <500 ft. phase II after set date

\* Minimum distance an OWHH should be located away from any neighboring dwelling.  
 \*\* distance from neighboring dwelling.