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EIN 30-0246999

Philadelphia, PA
Scranton, PA
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Washington, DC

January 11, 2017

Dear New Milford Township Supervisors and Solicitor Briechle:

Susquehanna Clean Air Netowk (SCAN) asked us for an analysis of the draft ordinance developed by the Township with Eckert Seamans and Liberty Environmental.

In summary, we're thankful to see that the Township has moved forward with the core concepts behind the Clean Air Ordinance we initially drafted and proposed. The concept of local air pollution enforcement through continuous emissions monitoring, public online disclosure of data, and locally-enforced emissions standards is critical to protecting our Constitutional right to clean air. We're also specifically thankful to see a citizen suit provision remain.

However, we have numerous concerns with the ordinance ultimate redrafted by the Township.

We find that the monitoring requirements are very little more than what DEP already requires of incinerators, and that the emissions limits are set mainly at the federal minimums – with the exception of four limits pulled from the State of Ohio – not a state known for its aggressive environmental standards.

We're happy to see that some aspects of the ordinance went beyond what was recommended to the Township, notably the requirements for a human health risk assessment, ambient air monitoring, and operational restrictions. However, we have concerns about each. We note that the human health risk assessment is already required for hazardous waste incinerators; that the ambient air monitoring may be designed not to find the most dangerous chemicals or to look at chemicals unique to incineration; and that the operational restrictions seem to be far *too* strict, making facility operation dangerous, requiring frequent shut-downs (and start-ups) that could lead to higher pollution levels.

We're also concerned that some aspects of the ordinance make it vulnerable to legal challenge. Some aspects make facility operation impossible, leaving the ordinance vulnerable to claims that it's unreasonable. Other aspects could cause the ordinance to be in conflict with DEP requirements. In both cases, the ordinance could be stricken down in the courts if these problems are not addressed. Strict protections are good, but the ordinance either doesn't get strict at all, or

where it does, it goes so far overboard that those strict requirements wouldn't survive court challenge and are useless if stricken down.

Finally, we note that the ordinance covers fewer types of combustion facilities than was proposed to the Township, leaving open loopholes where certain types of incinerators could evade the ordinance completely.

Please find our full analysis attached.

Sincerely,

Mike Ewall, Esq.
Founder & Director
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Loopholes Regarding Which Facilities are Covered by the Ordinance

The ordinance applies to far fewer facilities than it ought to, and is far narrower in scope than the Clean Air Ordinance originally proposed to the Township. Many loopholes have been added, enabling various sorts of combustion facilities to be completely exempted.

Construction timing

Section 2, paragraph 1: "Constructed" is not defined. It is overly vague because it could apply to a range of times depending on what point in time one deems something "constructed." For example, is it constructed if the building is there, but the air pollution monitors aren't yet installed? If those *are* installed, but the building isn't painted? Is it "constructed" if all is complete, but it hasn't started up yet, lacks permits to do so, or hasn't gone through safety checks? Rather than use a vague notion of when something is constructed, it's more common to base this timing on whether a facility has commenced commercial operation, which is a more clear point in time.

Bypass vents exempted

Section 4(a) states: "These emission limits apply at any Waste Incinerator exhaust stack(s) that exhaust air pollutants to the atmosphere." This seems to exempt bypass vents, which can release unfiltered / uncontrolled emissions into the atmosphere. Some hazardous waste incinerators have had routine problems that cause these unfiltered emissions to enter the atmosphere through bypass vents designed to release exhaust gases before they hit the pollution control systems, in order to avoid damaging the pollution control systems with pressure problems. The ordinance ought to ensure that bypass vents are regulated so that unfiltered combustion products are not released into the air, avoiding regulation by the ordinance, and avoiding all filtering and monitoring.

Fuel

Section 3, "Waste" definition: The term is not technically defined and is only defined by what it "includes" and "excludes." If the definition is more than what it says it "includes," then that ought to be spelled out. For example, does it include coal refuse? Source-separated recyclables, like plastics repackaged as fuel under deregulatory schemes such as Pennsylvania General Permits WMGR106? Asphalt shingles, gypsum board, various organic wastes, wood waste, pallets, source segregated (recyclable) paper, cardboard and newspaper, plastic waste, building materials and architectural elements burned as fuel under Pennsylvania General Permit WMGM044? Does it include refuse-derived fuel (RDF), or "processed engineered fuel," like Waste Management's "SpecFuel" pellets produced out of Philadelphia trash? What about radioactive wastes? Does "coal" in the definition include waste coal (a.k.a. "coal refuse")?

Fuel vs. waste

Section 3, "Waste Incinerator" definition: The term applies to facilities that burn "waste." There is a major loophole encouraged by EPA's Non-Hazardous Secondary Materials Rule, and by various DEP general permits, which allows wastes to no longer be considered wastes, with minimum processing, and the air regulations then allow incinerators to evade regulation as incinerators. By only including wastes and not a broader definition that closes these state and federal loopholes, those who would exploit that loophole escape regulation by this ordinance by reframing wastes as "fuels."

Burnable fuels/waste covered	Clean Air Ordinance Proposed by Energy Justice Network	New Milford Township / Eckert Seamans / Liberty Environmental Draft
Municipal waste	**Yes**	**Yes**
Residual waste	**Yes**	**Yes**
Hazardous waste	**Yes**	**Yes**
Medical / infectious / chemotherapeutic / pathological wastes	**Yes**	**Yes**
Solid Radioactive Waste	**Yes**	No
Waste Coal	**Yes**	No
Biomass (Wood / Wood Waste / Animal Waste…)	**Yes**	No
Waste that is pelletized or otherwise converted to "fuel"	**Yes**	No
Gasified waste	**Yes**	No
Coal	**Yes**	No
Oil	No	No
Natural gas	No	No
Landfill gas	No	No
Digester gas	No	No
Liquid or gaseous radioactive waste	No	No

Facility type

Section 3, "Waste Incinerator" definition: The ordinance applies only to facilities that "burn, oxidize or pyrolize" waste. This should include the term "gasify." For gasification facilities, it's not enough to include the second stage ("burn… gaseous waste") because gasification facilities often argue that "syngas" is no longer waste, but fuel, which is a problem generally with this definition. Also, does the definition cover plasma arc, thermal depolymerization, or Fischer-Tropsch processes? These are all incinerator-like gasification processes.

Facility primary purpose

Section 3, "Waste Incinerator" definition: The ordinance applies only to facilities that operate for the "primary purposes of volume reduction or of disposal" of waste.

Proposed waste incinerators in Pennsylvania and around the country, in order to avoid more stringent regulations, have argued (successfully) that their primary purpose is to produce electricity. They do this even though the industry has repeatedly admitted in various public forums that they know that waste disposal is their primary purpose. This is unlikely for a hazardous waste incinerator, but this ordinance regulates more than hazardous waste incinerators. This is a gaping loophole that allows waste incinerators to escape regulation by arguing over their primary purpose.

Also, "primary purposes" is not defined, and would need to be if this is the standard. Is the primary purpose to reduce volume or dispose of waste if half of the company's revenues come from energy sales? 51%? 49%? It really shouldn't matter, which is why this definition ought to be reworked so that energy generation or other arguable "primary purposes" are irrelevant.

Air pollution "control" type

Section 3, "Waste Incinerator" definition: The ordinance specifically exempts "air pollution control devices such as flares or oxidizers." The same definition says the ordinance applies to facilities that "burn, oxidize or pyrolize" waste. An "oxidizer" is a fancy way to say "burner." All combustion is oxidation. If a facility argues that its burner is an air pollution control device, it would be exempted. Of course, a facility's burner is a pollution source, but this hasn't kept a number of companies from arguing that it's also an air pollution control device. The ordinance weakens itself with this circular definition and exempting "oxidizers" that are argued to be air pollution control devices.

Also, does this apply on **any** process? What if it's a facility that gasifies hazardous waste, then burns off the gases in a "flare or oxidizer?" They wouldn't be regulated by this ordinance for this reason, and also because of the loophole described above on gasification.

"Minor" sources

Section 3, "Waste Incinerator" definition: The ordinance specifically exempts "minor sources exempted from air quality Plan Approval requirements by PA DEP." There can be minor sources that are subject to air quality plan approval requirements, though less stringent ones. Many proposed facilities seeking air permits deliberately keep their projected air emissions just below the "major source" threshold in order to escape stricter regulations. Exempting them, without even closing the loophole for these "synthetic minor" permits, is not wise, either. This ought to be more clear and should only exempt facilities that require no DEP air permitting of any sort. If trying to make a distinction between permit types, please be clear about the distinctions between major sources, minor sources, synthetic minor sources / state-only operating permits, area sources, sources permitted under general permits, and those effectively "permitted" as an air pollution source under a request for determination (RFD).

Facility Types Covered	Clean Air Ordinance Proposed by Energy Justice Network	New Milford Township / Eckert Seamans / Liberty Environmental Draft
Conventional boiler types	**Yes**	**Yes**
Fluidized bed	**Yes**	**Yes**
Pyrolysis	**Yes**	**Yes**
Rotary Kilns	**Yes**	**Yes**
Gasification	**Yes**	Maybe
Plasma Arc	**Yes**	Maybe
Exempted "minor sources"	**Yes (if over 5 tons/day)**	No
Cement / Lime Kilns	**Yes**	No
Any of the above whose primary purpose is arguably not waste disposal (i.e. anything producing energy for sale)	**Yes**	No
Crematories	No	No
Open Burning	No	No
Small heating systems	No	No
Oil/gas operations	No	No

Weaknesses in Ambient Air Monitoring

Section 5 requires ambient air monitoring. Ambient just means "outside air," or air tested outside of the smokestack or other emissions source, and usually off-site, some distance away from an air polluting facility. There are some inherent pitfalls to ambient air monitoring, and some weaknesses in the requirements specific to the draft ordinance.

Can't be pinned to a source

Ambient monitoring does not provide anything very enforceable because any emissions detected can be blamed on other sources. As preposterous as such a claim may seem at times, the burden of proof in any court will be high, especially if there are other sources in the area that one can point to, which emit the same pollutants.

Several of the pollutants required to be monitored in the ambient air are already prevalent in the area due to the gas industry's heavy presence as well as highway traffic. It's important to ensure that the ordinance focuses on the types of pollutants that are known to come from incinerators more than other sources. Dioxins are much more unique to incinerators and can be "fingerprinted" so as to show that a specific mixture of dioxins found match the type emitted from a source. Other key pollutants from incinerators should be monitored as well, such as toxic metals, acid gases, and polycyclic aromatic hydrocarbons (PAHs).

24-hour sampling time-frame too short to detect toxic pollutants

Any testing equipment has a detection limit below which it cannot detect a certain amount of a contaminant. Results from tests that don't pick up amounts this small are reported as "below detection limits" (BDL). Better equipment has lower detection limits.

Section 5(c) requires that 24-hour samplers be used. Twenty-four hours is too short a time-period for some pollutants to accumulate to the point where they'd reach detection limits, especially for ambient monitoring. AMESA-type of samplers can gather a sample up to 4-6 weeks, in order to test for dioxins/furans, mercury, and perhaps other pollutants. There ought to be language in the ordinance that ensures that sampling periods are calibrated to fit with the detection limits of testing equipment. Otherwise, the community will be continually told that nothing was detected, because the sampling was designed so that pollutants had not had a chance to build up to the point where they would be detected.

Not real-time

Section 5(c) requires the use of filter-based and summa canister samplers. Where the technology exists, the ordinance should require the use of real-time continuous emissions monitors for ambient monitoring, rather than traps and filters that must be sent off to a lab for results to come in later. Continuous monitors exist for nearly all of the pollutants for which ambient monitoring is required.

No requirements for using equipment with the lowest detection limits

The ordinance should require that testing be done with equipment that has the lowest available detection limits.

Non-detects allowed to be considered zero

Non-detects should not be counted as zero, but as half the detection limit. This encourages the use of better tests with lower detection limits, and better data, while also not misleading the public into thinking that a non-detect means that nothing is there.

This comment is also relevant to in-plant emissions monitoring.

Need proper dioxin monitoring

The ambient program ought to be designed to seek out pollutants most specific to incinerators, notably dioxins. Dioxins are the most toxic group of man-made chemicals known to science. They primarily are released from incinerators, and 93% of exposure to them is not from the air, but from consuming meat and dairy products that they rapidly accumulate in because they are fat soluble. This means that they love fat and hate water. EPA's official language for this is that they're lipophilic and hydrophobic. See more about dioxins at www.ejnet.org/dioxin/

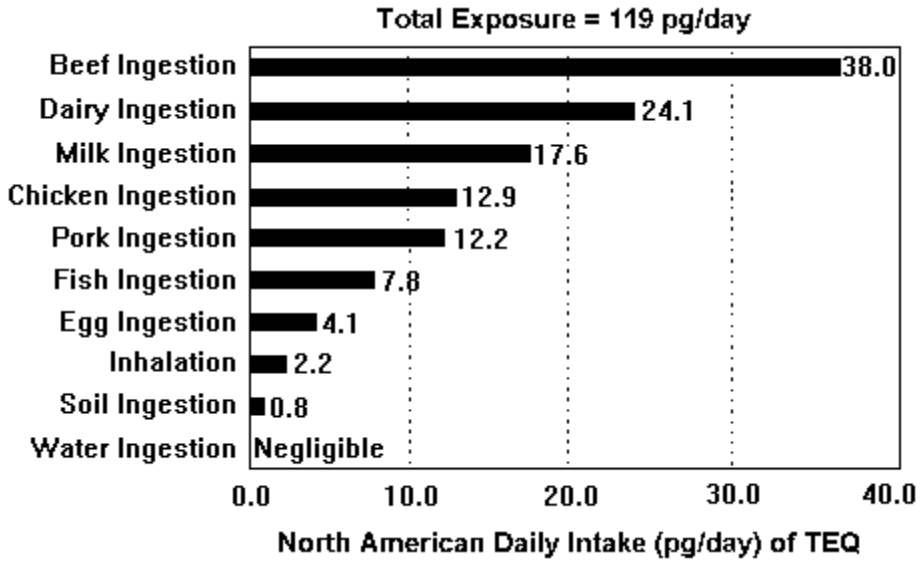

Chart from EPA Dioxin Reassessment Summary 4/94 - Vol. 1, p. 37
(Figure II-5. Background TEQ exposures for North America by pathway)

[A TEQ is a dioxin Toxic EQuivalent, calculated by looking at all toxic dioxins and furans and measuring them in terms of the most toxic form of dioxin, 2,3,7,8-TCDD. This means that some dioxins/furans might only count as half a TEQ if it's half as toxic as 2,3,7,8-TCDD.]

To properly test for dioxin contamination from incinerators, one must look beyond the air, to where dioxins concentrate. This would entail gathering samples of cow's milk and eggs in the area. They need not be tested immediately, but samples over time and from different locations can be stored for later sampling, with baseline collection of data from before any incinerator starts operation, in order to show if there is an increase should any incinerator be built. Also, pine needles are another good sampling medium that can be collected for dioxin monitoring.

Organic compounds too vague

Section 5(c) requires "organic compound" ambient monitoring. This should be more specific as to which organic compounds. Dioxins and furans? Polycyclic aromatic hydrocarbons (PAHs)? Volatile Organic Compounds (VOCs)? Semi-Volatile Organic Compounds (SVOCs)? Others?

NO_2 and not NO_3

Section 5(c) requires ambient monitoring of NO_2, but not NO_3. Nitrogen Oxides (NOx) refers to the combination of both NO_2 and NO_3, and it's typical to require testing of both, not just one of them.

"PM10-Metals" not spelled out

Section 5(c) requires ambient monitoring of "PM10-metals." This seems to mean arsenic, beryllium, cadmium, chromium, manganese, mercury, nickel, and perhaps lead. It should be spelled out specifically in the ordinance, perhaps through a definition of "PM10-metals."

Continuous Emissions Monitoring (CEMS) Required For:	**Clean Air Ordinance Proposed by Energy Justice Network**	**Typical state incinerator permits**	**New Milford / Eckert Seamans / Liberty Environmental Draft**	**Ambient CEMS required by NMT Draft**
Dioxins and Furans	**Yes**	No (annual)	No (annual)	Maybe?
Carbon Dioxide (CO_2)	**Yes**	No	No	No
Carbon Monoxide (CO)	**Yes**	**Yes**	**Yes**	**Yes**
Hydrochloric Acid (HCl)	**Yes**	Rarely	**Yes**	No
Hydrofluoric Acid (HF)	**Yes**	No	No (annual)	No
Nitrogen Oxides (NOx)	**Yes**	**Yes**	**Yes**	**Yes** (NO_2 only)
Sulfur Oxides (SOx)	**Yes**	**Yes** (SO_2 only)	**Yes** (SO_2 only)	**Yes** (SO_2 only)
Particulate Matter (PM)	**Yes**	No (just opacity)	**Yes** (just total PM); also opacity	PM10 & PM2.5
Volatile Organic Compounds (VOCs)	**Yes**	No	Maybe?	Maybe? ("organic compounds")
Polycyclic Aromatic Hydrocarbons (PAHs)	**Yes**	No	No (annual)	Maybe? ("organic compounds")
Arsenic	**Yes**	No (annual)	No (annual)	**Yes** (PM10-metals)
Cadmium	**Yes**	No (annual)	No (annual)	**Yes** (PM10-metals)
Chromium	**Yes**	No (annual)	No (annual)	**Yes** (PM10-metals)
Lead	**Yes**	No (annual)	No (annual)	**Yes**
Manganese	**Yes**	No	No (annual)	**Yes** (PM10-metals)
Mercury (Hg)	**Yes**	**Yes**	**Yes**	**Yes** (PM10-metals)
Nickel	**Yes**	No (annual)	No (annual)	**Yes** (PM10-metals)
Selenium	**Yes**	No	No (annual)	No
Zinc	**Yes**	No	No	No
Ammonia (if used)	**Yes**	No	No	No
Beryllium	No	No (annual)	No (annual)	**Yes** (PM10-metals)
Total Hydrocarbons	No	No	**Yes**	No

Too few Pollutants Required to be Monitored in Continuous Stack Monitoring

The draft ordinance only requires use of continuous stack monitoring for 2-3 pollutants that the state does not already require in permits for new incinerators

As is evident in the previous chart, only seven pollutants are required to be continuously monitored at the facility's smokestack, 4-5 of which are already required by the state in typical permits for new incinerators.

Section 7(f) fails to require CEMS for some of the most dangerous pollutants, like dioxins/furans, toxic metals (other than mercury), ammonia, or PAHs. It also fails to specify what grade of particulate matter must be monitored continuously. Is it total PM? PM10? PM2.5?

The notes in Table 1 also specify that "[c]ompliance with the dioxin/furan and metal limits must be demonstrated by annual stack testing."

> Annual stack testing is like having a speed limit, and allowing drivers to drive all year with no odometer, and enforcing the limit with a speed trap once a year, while setting up signs saying: "Warning! Slow Down! Speed Trap Ahead!" to notify drivers... then having the driver's brother run the speed trap (the companies do their own testing). In reality, smokestack facilities are 'speeding' many other days of the year, with excessive emissions during startup, shutdown and malfunction times, when testing is not done. Regulating air polluting facilities with these "best behavior tests" is inexcusable, especially in the age where continuous testing technology exists and where the data is able to be made available to the public real-time through a website.

The technology exists to continuously monitor far more than 40 pollutants common to incinerator emissions. This is why the ordinance that was drafted for the Township proposed requiring continuous monitoring for about 20 pollutants of primary concern with incinerators. Much of this equipment was tested and verified by EPA a decade ago by their Environmental Testing and Verification (ETV) Program. Energy Justice Network brought this to the attention of Liberty Environmental in April 2006 when they were reviewing the ordinance for West Reading Borough, so they should be familiar by now with the commercial availability of the technology, and EPA's approval of it.

It's especially important to require continuous monitoring (at least continuous sampling in this case) for dioxins/furans, since a study of this has shown that actual dioxin emissions (as shown through continuous sampling) are 30-50 times higher than what the standard 6-hour annual stack test used in the U.S. leads people to believe. See study by DeFre and Weavers at the bottom of this page: www.ejnet.org/toxics/cems/dioxin.html

Volatile Organic Compounds vs. Total Hydrocarbons

Section 7(f) lists which pollutants must be continuously monitored at the stack, as "sulfur dioxide, nitrogen oxides, carbon monoxide, **total hydrocarbons**, hydrogen chloride, particulate matter, mercury." The notes at the very end of the ordinance, below Table 1, state that "[c]ompliance with the limits must be demonstrated by continuous emissions monitors (CEM) for PM, SO2, NOx, CO, **VOC**, HCl/Cl2, and Hg."

It seems that total hydrocarbons and Volatile Organic Compounds (VOCs) are being used interchangeably, while the requirement is for using CEMS on total hydrocarbons, while the standard is for VOCs. They're not exactly the same thing, and it ought to be clarified which test is being used to meet which limit. Not all hydrocarbons are VOCs and not all VOCs are hydrocarbons.

Hydrocarbons are compounds of Carbon and Hydrogen. They are often volatile, but not necessarily. Wax is a hydrocarbon which is not volatile. Long chain hydrocarbons, like motor oil, are not volatile.

VOC can refer to any compound of carbon and many other elements (not just hydrogen), so is a much wider category. These are compounds with a significant vapor pressure at normal ambient temperature (they evaporate or volatize) at low temperature. Tetrachloroethylene (PCE) is C_2Cl_4 – very volatile, no hydrogen. Fuel hydrocarbons in gasoline engines are VOCs. Other examples include Acetone, Alcohol, Ether, Carbon Tetrachloride, Carbon Disulfide and many more which are not hydrocarbons at all.

Dioxin testing must be done at the proper temperature

The ordinance ought to have provisions ensuring that dioxins/furans can be monitored properly by requiring exhaust gases to be cooled to below the dioxin formation temperature range before monitoring takes place. Dioxins and furans are formed at relatively low temperatures, starting at about 200^{o} C. If the testing is done before the exhaust gases cool to below this temperature, then much of the dioxin formation will occur as the gases are cooling down *after* the sampling takes place. Whether we're talking about annual stack tests (which vastly underestimate dioxin emissions), continuous sampling technology (like the AMESA method), or real-time dioxin monitoring, that monitoring must be required to take place after the exhaust gases are cooled to the point where no more dioxins will be formed.

<u>Too Many Pollutants Required to be Monitored in Annual Stack Tests</u>

Sets testing requirements for all 187 Hazardous Air Pollutants (HAPs)

Section 7(a) requires initial testing "to demonstrate compliance with all air emission limits identified in Table 1 and the risk-based emission limits established as part of the Risk Assessment requirements in Section 6." It further states that this testing must be repeated annually: "Subsequent testing must be conducted at least once annually…."

Section 6(g) helps explain what pollutants for which "risk-based emission limits" must be established for: "The air toxic emission rates for each of the Waste Incinerator facility emission points (stack

and fugitive sources) used in the risk assessment shall be established as emission limits if: (a) the air toxic is not listed on Table 1…."

Section 6(a) helps define what the ordinance means by "air toxic" where it states: "Both cancer and non-cancer risks must be calculated for all air toxic pollutants including, at a minimum, any air pollutants classified as 'hazardous air pollutants' under section 112 of the Clean Air Act."

Section 112 of the Clean Air Act lists 187 hazardous air pollutants (HAPs). See: www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications

The ordinance is apparently requiring an unprecedented annual stack test requirement for all 187 hazardous air pollutants. This is pretty extreme and unnecessary, and there may not even be testing protocols for all of them.

Requires Dangerous and Impossible Testing and Operating Scenarios

Must spike test waste with all 187 HAPs that may ever be processed

Section 7(c) requires that "Testing… be conducted… while the… waste composition is at the maximum concentration rate of each toxic that will be processed."

Any waste incinerator regulated by the ordinance would have to spike the waste stream with the maximum concentrations of every toxic material they may ever burn. One company currently proposing a hazardous waste facility elsewhere in Pennsylvania has proposed to process nearly 600 types of hazardous and residual wastes. If a company seeking to comply with this draft ordinance is permitted to take a wide range of materials, this is going to be quite a toxic brew that they'll have to concoct, risking dangerous chemical interactions just in preparing waste to test. There may not be a safe or representative way to spike the waste for such a test.

Potential conflict preemption

If the testing is required for all air toxics, including all 187 hazardous air pollutants, even if the facility would not be accepting each of those types of chemicals, and may not be permitted to take them, does this require that they spike the waste stream with chemicals they may not be permitted to burn just to run the test? This ordinance could be preempted through conflict preemption if it requires that a facility violate a state permit to burn, say, beryllium, or phosgene – a chemical weapon used widely in World War I. Handling of any of these chemicals alone may be quite dangerous.

Operation is Made Literally Impossible and More Polluting

Section 7(e) requires that average operating parameters during testing are made into hard operational limits. It is reckless and dangerous to make a limit out of an operational average. An average is an average, meaning that normal operation will involve exceeding it regularly. The operational restrictions specified later in the ordinance require immediate shut-down if the limit is exceeded. This means that the facility will be required to shut down and start up far more often

than would be normal, causing much more pollution, as pollution levels spike during start-up and shut-down times.

One of the limits is required to be combustion temperature, which means that burning something particularly flammable could increase the temperature to above the average observed during the test, forcing shut-down, even though higher combustion temperatures are usually seen as a good thing in the industry. It's also unclear, with parameters like "pressure drops" what it means to exceed the limit. Is a limit of a drop "higher" or "lower?"

Section 8(c)(1) requires immediate shutdown upon "***any deviations*** from Operating Parameter Limits." Any deviation makes operation literally impossible. A limit set to an average is crazy and dangerous enough, but to shut it down with any deviation from the average during the test means that it'll automatically be shutting down all the time, if operating at all. The ordinance doesn't allow for operation below a limit that is technically possible to meet, even if strict. It prohibits operation under any variance, no matter how great, from a testing average.

These poorly constructed "Operating Parameter Limits" are not limits, but at least eight requirements that must be met exactly or the facility immediately shuts down. It's so impossible that any legal challenge would have these requirements stricken down.

Emissions Standards too Weak

BACT

Section 8(a) requires the use of Best Available Control Technology (BACT), as defined in Section 3. BACT is too weak a standard. The point of making use of the ability of local governments to set standards stricter than the federal and state minimums is to actually do so. BACT is a federal regulatory minimum. It does not ask for the most stringent air pollution control technology. It looks at what is out there in practice, and disregards control technologies that may be deemed too expensive. If using federal minimum standards, the ordinance should at least require the Lowest Achievable Emissions Rate (LAER) standard that is applied to more urban areas that tend to be in non-attainment. Under the LAER standard, cost considerations are not allowed to trump the use of more protective equipment. However, even with LAER, offsets are allowed to be used, undermining the protections as pollution is permitted so long as pollution somewhere else is reduced. Also, basing the standard on the most stringent achieved *in practice* could easily mean basing it on outdated technology, as most incinerators in operation were built about 20 years ago, as nearly every proposed incinerator in the U.S. since then has been stopped. Finally, basing this standard on what is in practice at existing facilities in the industry means merely conforming to unambitious standards that were the product of political compromise and influence by corporate lobbying.

NAAQS inappropriate standard for a rural community

Section 5(d) requires the use of the National Ambient Air Quality Standard (NAAQS). NAAQS are another federal minimum. This is not a strict standard, especially since New Milford Township is a rural community and it may be pretty unlikely for any one facility to trip a standard that usually is only violated in urban areas with lots of mobile pollution sources (traffic).

Emissions limits are set to federal minimums except for just four metals, set to Ohio limits

The limits set in Table 1 are all federal minimums lifted from the Code of Federal Regulations (CFR), except for limits set on four metals (Arsenic, Beryllium, Chromium, and Nickel), for which standards were taken from the Ohio Administrative Code (OAC). See: http://epa.ohio.gov/portals/27/regs/3745-75/7502.pdf

Ohio is not a place where we'd expect the strictest standards! In a New Milford Township meeting, residents were assured by Solicitor Briechle that Liberty Environmental sought out the strictest standards actually in practice, pulling from places like California, not Ohio. While it would be more appropriate to set standards that set a higher bar than what states or the federal government already do, Ohio is the last place you'd want to base a standard that applies to hazardous waste incinerators, considering the dismal and highly polluting existence of the controversial WTI-Heritage hazardous waste incinerator in East Liverpool, Ohio.

Human Health Risk Assessment

Already required for hazardous waste incinerators

Section 6(a) requires that a specific EPA Human Health Risk Assessment for hazardous waste incinerators be used. This Human Health Risk Assessment is already required for hazardous waste incinerators. While it's good that the ordinance also applies it to other types of incinerators, requiring the a specific federal minimum for hazardous waste incinerator risk assessment to be followed is not the same as setting a stricter standard in this regard. As for it being applied to other types of incinerators, is it appropriate to have EPA's protocol for hazardous waste incinerator risk assessments applied to other types of incinerators/fuels? The protocols may largely be the same, but there may be some specific differences that ought to be recognized and dealt with.

Risk assessment is inherently flawed and is more politics than science

Risk assessment is more politics than science, and it's very rare for a company coming up with their own risk assessment to show any harm to anyone. Contractors experienced in developing risk assessments are well versed in how to manipulate the assumptions to come up with "don't worry, be happy" reports, which can be more damaging than no report, as people often take these as if they're credible. The reality is that no risk assessment can be done honestly because the science does not exist to look at the real effects of hundreds and thousands of different pollutants interacting and exposing different people in different ways. The studies on any one given chemical are largely older ones conducted on healthy adult white male workers, and do not take into account vulnerable and over-exposed populations. Even in trying to account for this in risk assessment, the science cannot account for the multiple, additive, cumulative and synergistic affects, where even two chemicals in combination can have a "1 + 1 = 5" type of effect. However, most chemicals have not even been fully studied one at a time, no less all of the possible combinations of two or three or more chemical exposures.

Risk assessment is merely a "death assessment" where consultants or government bureaucrats decide how much of each poison the public can acceptably be exposed to – usually based on a standard of accepting an additional one in a million deaths from cancer for each permitted exposure

to each chemical – a standard echoed in Section 6(e) of the draft ordinance. These assessments can only look at one chemical at a time. They do not tend to account for women, children, fetuses, the elderly, those with compromised immune systems, or the number of people who suffer with cancer but survive it. There is no science that can handle the complexity of studying the multiple, additive, cumulative, and synergistic effects of exposure to tens of thousands of chemical pollutants put into our air, land, and water.

Risk assessment methodology has long been critiqued by the environmental justice movement as inappropriate and unscientific. See the articles compiled here:
http://www.ejnet.org/ej/riskassessment.html

Requirements are impossible to do for all HAPs

Section 6(a) requires that the risk assessment be done on "proposed air emissions rates" and every single hazardous air pollutant (HAP) under section 112 of the Clean Air Act. There are 187 HAPs. Is the risk assessment limited to the rates of air pollutants for which the state air permit sets limits, or – as stated later in Section 6(a) – is it talking about the rates of all air toxic pollutants including, at a minimum, "any air pollutants classified as 'hazardous air pollutants' under section 112 of the Clean Air Act?" It would be interesting to see a risk assessment on over 187 pollutants, but this is unrealistic. There are not even reference concentrations to be used for a risk assessment on all 187 HAPs. It would also be dreadfully inadequate for this risk assessment to be limited just to the proposed air emission rates listed in a state permit, however. This language needs to be clarified to be strict, but not impossible.

Multi-pathway vs. inhalation

Section 6(a) requires a "multi-pathway" risk assessment, but Section 6(b) gets more specific and only talks about studying the inhalation pathway. The ordinance should be just as explicit in ensuring that meat and dairy ingestion is examined as an exposure pathway.

Looking at inhalation and not also food ingestion is a great way to mask the real health impacts of incineration. Doing so has been used to downplay the health risks of other hazardous waste incinerators such as the one in East Liverpool, Ohio. Exposure to dioxins and furans – the most toxic human-made chemicals known to science, notoriously associated with incineration – is predominantly via consuming meat and dairy products. 93% of human exposure to dioxins is through meat and dairy, since it climbs up the food chain very effectively. As Dr. Paul Connett's research has showed, it would take a person 14 years breathing the air next to a cow in a pasture to absorb as much dioxin through inhalation as a cow will ingest in one day of eating the grass on which dioxins have deposited.

It's nice that the risk assessment is "multi-pathway." However, the evaluation of the risk assessment by the Township, and any approved protocols, as required in Section 6(b) only in the context of inhalation, must also be "multi-pathway."

Data Availability

The data disclosure requirements, conceptually carried over from Energy Justice Network's proposed Clean Air Ordinance, are more limited in the Township's draft and could be strengthened in several regards.

Section 5(f) requires that the owner and operator "shall maintain a system that will allow citizens of the Township to, at any time, access the ambient air monitoring data via a publicly accessible website."

Section 8(g) requires that the owner and operator "shall maintain a system that will allow citizens of the Township to, at any time, access CEM emissions data, combustion temperature data, and OPL data via a publicly accessible website."

- Make it available to all: If the website is to be truly "publicly accessible," it should be available to all people, regardless of citizenship or residency in the Township. The ordinance should be clarified that the "allow citizens of the Township… access" language is not intended to be limiting access.
- Ensure that the data is in the public sector, subject to the Pennsylvania's Right-to-Know Act: As currently drafted, the ordinance requires each regulated facility to develop and manage its own system for data disclosure, leaving control and ownership of the data in the hands of the incinerator owners/operators. There is nothing in the ordinance ensuring that the data itself is in the public domain and subject to the state's open records law, or that the data will not be deleted or tampered with. The data ought to be handed over to the Township in a way that makes the data public property. This can be done at no cost to the Township. See below for details.
- Annual stack test data not included in disclosure: The ambient air monitoring and operating parameter limit (OPL) data is required to be reported on a public website, but the much more comprehensive annual stack test data is not required to be disclosed in this fashion, and should.
- Daily records of waste received and burned not included in disclosure: The disclosure requirements in Section 8(g) are ambiguous as to whether it includes disclosure of the all the daily records required to be collected under Sections 8(e) and 8(f). These daily records ought to be disclosed on the public website as well.
- Annual reports not included in disclosure: Section 12(b)(3) requires submission to the Township of annual reports on violations. These annual reports ought to also be disclosed on the public website.
- No requirement for it to be easily understandable: The ordinance ought to ensure that the data is easily understandable by the public by, at a minimum, requiring that data be displayed in line charts over time, with trend lines and comparisons to applicable emissions limits so that it's clear when the facility is over a limit (in violation).
- No requirement for data to be archived and presented as trends: As currently worded, only the latest data point needs to be disclosed, which would mask any spikes or violations that the website viewer may miss if they are not routinely looking at the website and recording and tracking data points on their own. The ordinance should require that all data disclosed on the website be retained and archived, and presented historically. The website should have to be maintained, if maintained privately, until at least six months after the final closure of the facility. If publicly archived, as we recommend, the data ought to be preserved for at least five years, as is the practice by some counties for campaign finance data.

- No requirement to be available for download: So that members of the public can make the most use of the data, the full raw data ought to be available for download in common database or spreadsheet formats, such as CSV, Microsoft Excel, or Microsoft Access.
- No requirement to allow for the Township and other interested individuals to sign up for alerts: The public disclosure website should have a feature that allows the Township and any interested individual to provide their email address (or perhaps also cell number for text alerts) in order that they be alerted of violations. It would be easy to design software to allow a user to customize their alert options to be notified daily or on some other frequency, and to receive notifications of special new data additions to the website, such as the uploading of an annual report, annual stack test data, or other documents.
- Require automatic notification to DEP and Township: Even if DEP will not use the increased amount of data for enforcement, the ordinance should require that any facilities subject to it report to DEP any violations of state limits found as a result of the increased monitoring, and that the software set up for disclosure do this automatically.
- No requirements for disclosure of DEP filings/correspondence/permits: Facilities subject to DEP regulation end up with a paper trail of documents relating to permits, enforcement/inspections, notices of violation, correspondence about permits, operational problems, violations and more. Most of these documents are now created in digital form, even though public access is typically provided just on paper, with residents needing to schedule 1-2 weeks in advance to visit the Wilkes-Barre DEP office during business hours. Costly copy fees add up if copying larger documents that could easily be provided online. Facilities subject to the Township ordinance should be required to make these digital documents available on the disclosure website, for ease of public access to them.

A third-party website should be used to meet the disclosure needs at no cost to the Township, including the features requested above.

As currently drafted, the ordinance requires each regulated facility to develop and manage its own system for data disclosure, rather than have one consistent site under public ownership with third-party maintenance, immune to data tampering or deletion by facilities regulated under the ordinance.

This can be done via a third party software vendor that would develop and maintain the software at no cost to the Township, provided that the software is to be created only once it is needed and that the software vendor is to be paid back to recoup their costs through a subscription fee required by the ordinance to be paid by facilities that have to report to it. We have identified a software vendor willing to provide such a service under these conditions. Having the Township "hire" the vendor at a nominal cost ($1?) to develop, maintain and host the website at no ongoing cost to the Township will put the data in the public sector. Should there ever be multiple facilities regulated by the ordinance, this will also standardize things and save money by not requiring multiple companies to set up redundant reporting websites.

Enforcement Issues

Odors

Section 4(e) attempts to regulate odors, but it's unclear how this would be enforced. Would an electronic odor detection system be allowed as a means of enforcement if it's defined as a "sense of

smell?" Whose sense of smell? Residents who claim to smell something? Township officials coming out to verify an odor that may no longer be present?

Visible Emissions

Section 4(f) attempts to regulate emissions "visible in the atmosphere or at any location beyond the property line of the incinerator location." If the emissions are not visible right above the stack (which would likely violate state opacity requirements), they're not going to be visible ***in the air*** beyond the property line. However, airborne ash typically will accumulate as it deposits on nearby properties, becoming evident as soot on vehicles, homes, clothes hung out to dry, or other surfaces. The ordinance should include that this "emission of particles of unburned waste or ash" is also not allowed beyond the property line if detected through accumulation, if there is to be any workable effort to prevent ash from affecting neighbors.

"Owner and Operator"

The phrase "owner and operator" is used repeatedly throughout the document. In the draft ordinance Energy Justice Network presented to the Township, it specified who the Responsible Party would be, in the event that there are divergent parties involved in owning and operating a regulated facility. This draft ordinance fails to distinguish and ambiguously places requirements on both entities. In the trash incineration industry, it's common for owners and operators to be different entities. The ultimate responsibility needs to be put on one entity only. Please make sure to fix this in all nine places where the term is used.

Sets unenforceable limits for 187+ chemicals

In Section 6(g), as worded, the term "rates" refers to list of chemicals analyzed in the risk assessment and the "all air toxic pollutants" (language in Sections 6(a) and 6(b)) for which "rates" were evaluated includes at least the 187 Section 112 Hazardous Air Pollutants (HAPs). Is this seriously proposing to set an emissions limit for over 187 pollutants? See the list of HAPs here: www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications

Immediate shut-down on exceedance of maximum air toxic concentrations of how many pollutants?

Section 5(e) requires immediate shut-down of the facility for exceeding certain limits. Is this for just the air toxins that are required to be monitored in the ambient air (about 10), or for all air toxics for which there is a maximum air toxic concentration set in the risk assessment (over 187)? The language isn't precise, but seems to refer back to the set of chemicals for which limits are created based on the risk assessment, which includes all Hazardous Air Pollutants, for which there are 187 of them. As described previously, it's impractical to even do a risk assessment on all of those chemicals, no less set and enforce limits for them through testing.

Requires use of EPA test methods that don't exist

Section 7(a) requires testing be done, according to EPA testing procedures and reference testing methods, for over 187 chemicals, as it also includes all HAPs. What about the pollutants for which EPA does not have testing procedures and reference test methods?

Waste Toxic Composition Rate testing scheme/frequency not specified

Section 7(d) requires that waste toxic contamination rates must not be exceeded, yet there is no scheme in place for testing method or frequency. How will this be measured? Which toxins must be tested for? How frequently does each batch of waste to be burned have to be tested for its chemical composition? Will the ordinance specify this?

Waste Toxic Composition Test timing leads to long waste storage times and likely conflict preemption

Under the Section 7(d) waste composition testing requirements, how soon will test results for each toxic compound be available, and what does this mean for how long waste needs to be stored at the facility before it can be burned? This may force the facility to store waste on-site longer than DEP permits allow, especially at a large facility that could be permitted to burn thousands of tons per day. Existing and proposed municipal and industrial waste incinerators in the U.S. have been as large as 3,000 to 6,000 tons/day. Do the math on what it would mean if it takes two weeks for a lab result. Is the ordinance requiring storage for that long? What will such storage mean for safety, odors, and compliance with DEP permits? Could the ordinance be preempted based on conflicts with DEP permit requirements around allowed storage times and amounts?

CEMS operational requirements only required to meet federal and not state regulations

Section 7(f) specifies that continuous emissions monitoring must be done according to EPA specifications. DEP has requirements for this as well. The ordinance should remind regulated facilities that they must follow state requirements as well, not just EPA, or there may be conflicts with state requirements.

Minimum combustion temperature requirements

Section 8(a) sets a minimum combustion temperature for a secondary burner. This might conflict with the combustion temperature limit that is set to the average temperature during the test. Note that the ordinance in Section 8(a) sets a requirement for minimum combustion temperature *capability* of a secondary chamber, and has no requirement that this minimum combustion temperature is actually performed, except in Section 8(c)(1), where it may conflict with the state (and if so, could be preempted), and is subject to impossible operating requirements because zero deviation is allowed in the combustion temperatures from the average during the test burn.

Application fee is one-time? Is it enough for years of ongoing enforcement costs?

Section 9 sets a $15,000 fee for a Township application. Is this a one-time fee with no annual ongoing fees? What is the amount based on? Does there need to be a relationship between this fee and the cost to the Township for enforcement?

How will Township issue finding that "emissions from the Waste Incinerator are causing or contributing to an unacceptable risk to human health?"

Section 10(b) authorizes the Township to issue orders "if the Township finds that any emissions from the Waste Incinerator are causing or contributing to an unacceptable risk to human health…." How will this be found? It's highly subject to interpretation and disagreement. A more objective standard ought to be used so as not to hamstring local enforcement.

Criminal penalties section not fully echoed from state law

Section 12(a) is just the first section of the criminal penalties in the Pennsylvania Air Pollution Control Act (APCA). 35 P.S. 4012(g) requires that the local penalties be the same as those in the APCA. Should the rest of the criminal penalties not also be incorporated into the local ordinance?

Penalties deviate slightly from state law, which may not be allowed

Sections 12(a) and 12(b)(1) both deviate from the state's penalties for air pollution violations by "including attorneys' fees, expert witnesses and costs of suit." This may be a minor change, but is such a change allowed, given that 35 P.S. 4012(g) requires penalties to be the same as the state's.

References to EPA standards

There are several references to EPA standards which could be changed or gutted under the new administration. Should the ordinance be constructed so that it's not pegging standards to potentially moving targets?

Fine per pollutant, per violation, per day

In order to ensure that penalties are above the "cost of doing business," the penalties section should specify that each pollutant or other limit that is exceeded constitutes a separate violation, and that each day of an ongoing violation constitutes a new and separate violation.

<u>Authority:</u>

There is an ongoing dispute about the authority granted to local governments under 35 P.S. 4012, and DEP is continuing to try to undermine this authority, with faulty legal analysis claiming that 35 P.S. 4012(b)-(f), which applies only to Philadelphia and Allegheny Counties, allowing them to replace DEP's role in air pollution regulation, is somehow relevant to the authority granted under 35 P.S. 4012(a) to all municipalities and counties in the state to adopt air pollution laws (or even "programs") without a limit on how strict or generally-applicable such a local ordinance may be, so long as it's understood that such ordinances must not conflict with DEP and do not replace DEP's authority.

Given this ongoing dispute, it's important that the ordinance cite the authority more explicitly – not just the Pennsylvania Air Pollution Control Act, but specifically 35 P.S. 4012(a), as well as the Clean Air Act 42 U.S.C. § 7416, the Pennsylvania Constitution, Article 1 Section 27, and Section 607 of the Second Class Township Code, as the Township has not just the rights under the federal Clean Air Act

and the state Pennsylvania Air Pollution Control Act, but the duties under the Pennsylvania Constitution and the Township Code to protect residents and Pennsylvanians at large from environmental harm.

Referencing 35 P.S. 4012(a) specifically is important to distinguish between that and the legal confusion perpetuated by DEP and others about 4012(b)-(f), pretending that it applies to local ordinances such as these.

It would also be wise to include a finding by the Township that the ordinance is no less stringent than state requirements.

Lack of Definitions, Bad Drafting, Grammar, and Spelling Mistakes

Reminding readers that a term is defined

Section 2 states that "Waste Incinerators are defined in the 'Definitions' section of this ordinance" and goes on to say what it does not include. An ordinance does not need to remind readers that a capitalized term (or any term, for that matter) is defined in the definitions section. The full definition should be in the definitions section, without supplemental definition of the term outside of the definitions section.

Why is "outside burning" in quotes, but not actually defined?

In Section 2, why is "outside burning" in quotes, but not actually defined? This should be defined in the definitions section, and referred to in a properly written "waste incinerator" definition, also in the definitions section.

"Waste oil burners" is not defined

Section 2 also mentions "waste oil burners" but fails to define it. Like "outside burning," this term ought to be defined in the definitions section, and referred to in a properly written "waste incinerator" definition, also in the definitions section.

"Waste" not technically defined

In Section 3, as described in other comments above, the "waste" definition is not actually defined, but is just "defined" by what is included or excluded. Given the now-popular loopholes around fuels vs. wastes, the term should be intentionally more inclusive so that wastes repackaged as fuels cannot be incinerated in the Township without being subject to this ordinance. Please refer to the "solid fuel or waste" definition in the draft ordinance presented to the Township by Energy Justice Network.

The "waste" definition refers to biomass as if it's a fossil fuel

In Section 3, the "waste" definition states, in part, "…fossil fuels including natural gas, propane, fuel oil, coal and biomass materials." Biomass materials sometimes are defined in such a way as to include fossil fuel materials mixed in with them (i.e. municipal solid waste, which is about half from

"biogenic" sources). However, biomass is generally defined as materials that are not fossil fuels, but plant-based in origin. The definition should be reworded so as not to imply falsehoods.

CEMS should be defined

Continuous Emissions Monitoring Systems (CEMS) should be defined. It should specifically include long-term samplers for dioxins/furans even though they are not truly real-time, in the event that the real-time and semi-real-time dioxin monitors that have been tested and verified by EPA in 2006 are not commercially available, as the AMESA-type of long-term sampler is. The long-term samplers for dioxins and furans are used in at least 600 installations world-wide. Based on interview of CEMS vendors last year by Energy Justice Network, CEMS Experts (www.cems-experts.com) claims to have real-time dioxin monitoring capabilities. See the attached documentation from these interviews.

Corporations = people

Corporations and other business entities are not human beings. They are not natural persons. They are legal fictions with very different powers, rights, and responsibilities than natural persons. Section 3 defines person to include business entities. This is unnecessary. While it's standard practice these days, it would be appropriate to distinguish between natural persons and fictitious business and governmental legal entities.

Clarify whether the stricter standard applies

Section 4(b) sets limits based on Table 1 and also on risk-based emissions limits. It would be better drafting to state clearly that if there's a difference, the stricter standard applies.

They have to test for every HAP, but only spike the waste for those they plan to process?

Section 7(c) requires testing for every Hazardous Air Pollutant, but does the waste only need to be spiked for the chemicals that the facility plans to process? This is addressed in other comments above, but is flagged here as an issue of poor drafting that may have been unintentional.

Waste Toxic Composition Rate required not to exceed the maximum?

Section 7(d) states that the "waste toxic composition rates shall not exceed the rates measured during the previous test program…." Per the previous subsection, are these waste toxic composition rates required to be the maximum they're *allowed* to process? Or the maximum they *plan* to process? If it's really a maximum, this is meaningless. What is the point of requiring something not to exceed a maximum?

Section 8(a) spelling and grammar edits:

"meet" should be "meets"

"include" should be "includes"

"with carbon injection system" should be "with a carbon injection system"

ATTACHMENT A

To: Solicitor Briechle, New Milford Township
From: Mike Ewall, Energy Justice Network
Date: January 11, 2017
Re: Clean Air Ordinance – Continuous Emissions Monitoring data

In June 2016, I interviewed three CEMS vendors to inquire into questions a city has in their own pursuit of a Clean Air Ordinance. One vendor markets a multi-metals monitor that can continuously monitor over 50 contaminants at once, and another markets nearly everything else we were aiming to cover in the draft ordinance we proposed.

The three companies I interviewed are:

Cooper Environmental
David Moore, Director of Sales and Marketing
503-608-4444
davidm@cooperenvironmental.com
www.cooperenvironmental.com

Makes the Xact 640 product that can continuously monitor 53 elements including all of the metals we specified in the ordinance: Arsenic, Cadmium, Chromium, Lead, Manganese, Mercury, Nickel, Selenium & Zinc. See http://cooperenvironmental.com/multi-metals-continuous-emissions-monitor/ They also make an ambient multi-metals monitor, the Xact 625i: http://cooperenvironmental.com/ambient-monitor/

CEMS Experts
Geoffrey Klotz, President
805-523-8700
805-298-2028 (cell)
www.cems-experts.com

Altech Environment USA
Tim Kamczyc, Regional Sales Manager
630-262-4400
630-360-0136 (cell)
tkamczyc@altechusa.com
www.altechusa.com

I interviewed them in some detail about data sharing protocols, but that isn't a concern here. The following page, however, is a chart of what pollutants the vendors can provide continuous emissions monitoring (CEM) equipment for.

Sincerely,

Mike Ewall
Energy Justice Network
215-436-9511
mike@energyjustice.net

Pollutant Monitoring Devices Available from the Interviewed Vendors

#	Pollutant	Cooper Environmental	CEMS Experts	Altech
i.	Dioxins and Furans	n/a	**Can do semi-continuous (and continuous?) CEMS – not just long-term samplers – for dioxins and some furans, using FTIR, which can be programmed to monitor other things as well**	Can do long-term samplers (AMESA style system).
ii.	Carbon Dioxide (CO2) & Carbon Monoxide (CO)	n/a	**Yes**	**Yes**
iii.	Hydrochloric Acid (HCl) & Hydrofluoric Acid (HF)	n/a	**Yes**	**Yes**
iv.	Nitrogen Oxides (NOx)	n/a	**Yes**	**Yes**
v.	Sulfur Oxides (SOx)	n/a	**Yes**	**Yes**
vi.	Particulate Matter (PM)	n/a	**Yes (for total PM); can do semi-continuous monitors for PM2.5**	**Yes**
vii.	Volatile Organic Compounds (VOCs)	n/a	**Yes**	**Yes**
viii.	Polycyclic Aromatic Hydrocarbons (PAHs)	n/a	**Yes**	Indirectly, by measuring total hydrocarbons.
ix.	Arsenic, Cadmium, Chromium, Lead, Manganese, Nickel, Selenium & Zinc	**Yes (Xact 640 CEMS)**	Yes, with semi-continuous monitors down to sub-ppb	They're not sure
ix.	Mercury	**Yes (Xact 640 CEMS)**	**Yes**	**Yes**

Shaded rows are pollutants already typically continuously monitored at existing incinerators.
Bolded answers are the best of those available among these three interviewed vendors.