

Landfill Report

HARMFUL HEALTH EFFECTS Pottstown Landfill's Air Pollution

Sources For Health Effects: EPA, ATSDR, OSHA, NIOSH

For DEP, Waste Management, or Waste Management experts to claim there are no off-site risks from Pottstown Landfill's air pollution is not only inaccurate, it is highly irresponsible.

This ACE Report on Pottstown Landfill's air pollution will confirm the serious health threat of Pottstown Landfill's air pollution. Government research on chemicals in Pottstown Landfill's air pollution will show there are clearly substantial health risks to those continuously exposed to Pottstown Landfill's air pollution, especially children. We remind DEP and EPA that there are thousands of children who attend 29 schools and day-care centers within three miles of the Pottstown Landfill.

Government's own research, on just a fraction of the hazardous substances in the landfill, confirms Pottstown Landfill's air pollution is a serious public health issue, which needs to be addressed immediately. Serious health effects of the contents of Pottstown Landfill's air pollution are documented by EPA, ATSDR, OSHA, and NIOSH.

What NO agency has comprehensively evaluated are the synergistic health impacts of all the chemicals together. Additive long-term health impacts of individual chemicals, and synergistic combinations have not been accurately determined by anyone. ACE has a few synergistic health impacts identified in this report, such as the bacterial breakdown of mercury, radiation with ozone, sulfur compounds with other chemicals, and even synergistic combinations of the main constituent in the gas itself, methane.

Looking at the body of evidence presented in this report, it should be clear to any independent observer, that Pottstown Landfill's air pollution presents enormous health risks. There are far more health risks than can be identified by levels of contaminants in landfill gas. The levels of contaminants are not the major risk from landfill gas, but instead continuous exposure to vast numbers of toxic substances and their even more toxic, extremely synergistic combinations.

Since comprehensive perimeter monitoring for an extended period of time, for all toxic contaminants in Pottstown Landfill gas has never been done, there is a lack of accurate verifiable data on Pottstown Landfill's air pollution. DEP has only ever done one test on Pottstown Landfill gas and that was severely flawed.

All testing, monitoring, calculations, and reporting for all permit information and reports are done on the honor system by Waste Management, to tell us what poisons they emit into our air. This company has a long history of violations and legal problems, which have resulted in fines of millions of dollars for over 140 violations, some of which were for falsified reports. This is a company whose corporate culture a judge has defined as "fraud, misrepresentation, and dishonesty for greed." Without verification there can be no trust. Levels reported to be within safe limits are not verifiable. There is no real independent on-site verification of the air pollution reported by Waste Management. This is one reason neither DEP nor EPA can guarantee our safety from Pottstown Landfill's air pollution.

What goes into a landfill breaks down, and produces the landfill gas which escapes into the community's air. Since 1982, EPA knew that most hazardous wastes in the U.S. are disposed in landfills. HAZARDOUS WASTES produce HAZARDOUS GASES, which eventually ESCAPE OFF-SITE. This may occur in several years, or for decades after the hazardous wastes are placed in the landfill.

ACE's investigation led us to believe that Pottstown Landfill is one of the worst air polluters in the nation. It's emitting radioactivity. It has had asbestos, medical waste (including infectious wastes), residual waste, radioactive slag, toxic and radioactive sewage sludge, incinerator ash, construction and demolition debris, and many other wastes dumped in it, all in massive amounts. Evidence logically suggests that Pottstown Landfill's air pollution can be far more hazardous than the waste dumped, due to synergistic and additive harmful health effects. It must be noted that area residents are exposed to Pottstown Landfill's air pollution 24 hours a day, 365 days a year.

How do we know Pottstown Landfill's air pollution presents off-site health risks?

- Research around other landfills
- Pottstown Landfill gas testing
- Occidental's permit requesting a 310% increase in HAZARDOUS air emissions to burn Pottstown Landfill gas
- CDC's 2003 report proving that chemicals which we are exposed to get into our bodies
- In March 2003, EPA admitted that standards have been woefully inadequate, which were used to evaluate health risks to our children, from the kinds of chemicals emitted with Pottstown Landfill gas.

Why don't we know the full extent of health risks from Pottstown Landfill's air pollution?

Most reports on levels of pollution are based on calculations.

- a. Those calculations are done by Waste Management, which has a vested interest in the outcome.
- b. There is a lack of actual independent verification of those calculations.

Waste Management does its own monitoring and testing with little if any on-site independent verification. Without verification there can be no trust. Pottstown Landfill is not required to even monitor or report its most dangerous air pollution, radiation and dioxin.

Only a fraction of possibly thousands of chemicals dumped in the Pottstown Landfill have ever been tested for their human toxicity, yet, they're escaping 24 hours a day, 7 days a week with Pottstown Landfill's air pollution. Neither EPA nor DEP evaluates additive or synergistic exposure risks and, therefore, no one can legitimately claim there are no health risks from Pottstown Landfill's off-site air pollution.

While the fraction of chemicals tested and monitored may be claimed to be at levels of no concern, we breathe them 24 hours a day, in additive and synergistic combinations for which there are health risks, the extent of which is not known.

Health impacts for those most vulnerable such as our children, those already sick, and the elderly are not considered in what has been determined to be levels of no concern.

The true and total health threats to Greater Pottstown Area families from

Pottstown Landfill's air pollution have never been comprehensively or accurately established by anyone. To claim there is none is not only illogical, it is unacceptable. A vast body of evidence suggests otherwise. While difficult to determine the actual extent of health risks from Pottstown Landfill's air pollution, the following would have to be completed to have even a minimal idea our the total health risks:

Independent comprehensive and continuous perimeter monitoring for ALL TOXIC SUBSTANCES, which can harm human health in Pottstown Landfill's air pollution, would need to be actually monitored for a minimum of one year. This monitoring would need to include EVERY chemical, including every kind of radiation and every kind of dioxin by-product, and every known conversion chemical or metal, such as methyl mercury.

Location and calibration of the air monitors would be a key factor. Pottstown Landfill gas composition is ever changing and is affected by many factors such as weather, seasons, etc.

Health risks need to be included from spikes of high-level exposures, such as those emitted during times of uncontrollable air pollution, such as that experienced over the six-month period for which Pottstown Landfill was fined. Locations and calibration would need to be evaluated regularly. The most sensitive monitors need to be used and calibrated at the lowest level possible, to report every level of every toxic substance found, for those levels are significant when added together with all the others and when you consider their effects on those who already have cancer and other serious illnesses, not to mention our children.

No more "below detectable level" games. Previous levels were never protective of our children. Levels used in all calculations for all hazardous substances would need to include the risks for fetuses and infants. This has never been done.

- March, 2003, EPA confirmed that levels established for certain chemicals many of which are found in Pottstown Landfill's air pollution, have never protected our children. EPA admitted that our youngest children can be 10 times more vulnerable to those chemicals, many of which cause cancer.

- The numbers of potent carcinogens in Pottstown Landfill's air pollution suggest this is a major factor in skyrocketing childhood cancer statistics around the Pottstown Landfill (now 92.5% above the national average), as well as the other significantly higher cancers around this landfill.

Synergistic risks, plus the effects of long-term, low-level additive doses would need to be established for every chemical, including radiation and dioxins. We need to consider the potential for enormous additive and synergistic health impacts as that is the way we are exposed to Pottstown Landfill's air pollution.

There are some risks which cannot be evaluated at this time. Pottstown Landfill's air pollution can include thousands of toxic substances, many of which have never been evaluated for their human toxicity, and therefore are not regulated. Yet, we are exposed to them in Pottstown Landfill's air pollution. This is one of the best arguments for the Precautionary Principle.

Will government spend the money necessary to hire independent experts to test for ALL chemicals likely to be in Pottstown Landfill's air pollution, all of their conversion chemicals, all metals and conversion metals from the bacterial breakdown, and all kinds of radiation and dioxins? Not likely! Is this an excuse to discount their enormous health threat? Absolutely NOT!

- Can we afford our regulators ignoring obvious health risks from Pottstown Landfill's air pollution just because it would cost more than anyone is willing to spend to try to get the whole truth?
- Can we afford our regulators or Waste Management making assumptions about health risks from Pottstown Landfill's air pollution based on partial information, which is even self-reported and not independently verified?
- Do we ignore health risks because Waste Management is opposed to finding the complete truth and even making attempts to circumvent Clean Air Act requirements?
- Or should our regulators finally take into consideration the shocking cancer statistics around the Pottstown Landfill and the other serious health problems, then use the Precautionary Principle to protect public health, making common sense air pollution permitting decisions?

Radiation and dioxin by-products are two of the best examples of why the Precautionary Principle must be used for Pottstown Landfill's air pollution permitting decisions.

These are two of Pottstown Landfill's most potent and dangerous air pollutants. Pottstown Landfill's air pollution continuously exposes us to radiation and dioxin by-products. Radiation and dioxin health risks are continuously present at some level from Pottstown Landfill's massive air pollution. The levels are of little significance considering there are no safe levels of radiation or dioxins.

For over five years, ACE has repeatedly reminded our regulators about Pottstown Landfill's radiation and dioxin threats to community air, yet we are no closer to protection from Pottstown Landfill's radiation and dioxin air pollution.

- DEP is well aware both radiation and dioxin are potent carcinogens.
- DEP should be aware that there are no safe levels of radiation or dioxin.
- DEP is aware that there are shocking childhood cancer statistics and other significantly elevated cancers around the Pottstown Landfill.
- Obviously, Ignoring the radiation and dioxin threats does not remove the danger.

What did we get from DEP?

A pending permit to legally allow undetermined amounts of radioactive waste to be dumped in the Pottstown Landfill, which will logically increase the radioactive air pollution from the Pottstown Landfill.

- DEP knows radiation is escaping with Pottstown Landfill gas.
- DEP knows radiation can not be filtered out once it contaminates the other wastes.
- Yet DEP has not denied Pottstown Landfill's permit to legalize the dumping of undetermined amounts of radioactive wastes.

A third flare to continuously burn Pottstown Landfill gas and produce even more dioxin by-products.

- DEP admitted in writing that flares are not the safest technology and not the safest way to manage Pottstown Landfill gas.
- DEP recognized that burning landfill gas is a form of incineration.
- DEP should know that burning landfill gas in flares produces dioxin by-products, likely far more than incinerators.

- Yet, DEP has allowed Pottstown Landfill to install a new full time flare, which will expose our community to even more dioxin by-products. Two full time flares have been continuously burning massive amounts of Pottstown Landfill gas, 24 hours a day, 365 days a year. That was more than enough dioxin exposure risk. We cannot afford three flares making dioxin by-products from massive landfill gas burning. All three will be producing dioxin by-products at some level.

- When EPA says that people living near sources of dioxin are as much as 10 times more at risk from dioxin than the average population, can we afford another full time flare?

- It is past time to require the safest non-burn technology, not add another flare.

To prevent further threats to an already toxic damaged community, the landfill must be closed, and flaring must be stopped. More waste equals more hazardous gas which equals increased health risks, especially to children. This is a heavily populated area with over 30,000 residents within 3 miles of the Pottstown Landfill. This is already a severely toxic damaged community, where people, especially children, are already obviously overexposed to dangerous air pollution.

Families of those already sick around the Pottstown Landfill, especially children, may already be forced to evacuate to try to live normal healthy lives. Would it be financially possible to relocate tens of thousands of area residents around the Pottstown Landfill if the health risks get worse? Not likely! So what will happen? Cover-ups, such as those we have experienced for at least 5 years already, will hide the truth while more and more area residents become victims.

Closing the Pottstown Landfill is the only true prevention. It is long past time for common sense and the Precautionary Principle to prevail, concerning all air pollution permitting decisions for the Pottstown Landfill. If you evaluate this report with an unbiased common sense approach, we believe you will agree:

All Pottstown Landfill's air pollution permit requests must be revoked. Pottstown Landfill must be closed immediately. Waste Management must be required to use the safest non-burn technology to manage decades of Pottstown Landfill's air pollution from waste already in place. Vast numbers of area families will face extremely hazardous exposure risks over the next several decades from waste already in place. The safest non-burn technology could minimize those risks.

The Following Report Shows
Pottstown Landfill's Air Pollution
Is Extremely Hazardous to Our Health

Area Families Are Forced to Breathe Synergistic and Additive
Combinations of All The Following Toxic Substances
24 Hours a Day, 7 Days a Week, 365 days a year.

Over 30,000 residents and 29 schools and day-cares are within 3 miles of the Pottstown Landfill.

Evaluate this report and decide if you can believe Waste Management's claim that there are no off-site health risks from the Pottstown Landfill's air pollution.

How do we know just how hazardous Pottstown Landfill gas really is?

Proof! To burn Pottstown Landfill gas in its boilers for fuel, instead of

natural gas, Occidental Chemical asked DEP to INCREASE its HAZARDOUS AIR EMISSIONS by 310%. Take a careful look at the documented harmful health impacts for a few chemicals listed in Oxy's permit application to DEP.

Vinyl Chloride ~ Confirmed potent human carcinogen. Causes liver damage, immune system damage, nerve damage, reproductive effects, and even mutation.

Benzene ~ Causes cancer, leukemia, anemia, Hodgkin's disease and lymphoma, and immune system damage increasing the chance for infections, allergies, asthma, and other auto-immune diseases. Symptoms: fatigue, drowsiness, headache, dizziness, blurred vision, nausea, weakness, tremors, confusion, excessive bleeding.

Dichloroethene ~ Liver damage, nervous system damage, lung damage.

Methylene chloride ~ Causes cancer. Inhalation can cause convulsions and change cardiac rate. Reported to cause mutation.

Tetracloroethene ~ Liver damage, kidney damage. Symptoms: dizziness, headache, sleepiness, confusion, nausea, difficulty speaking and walking, unconsciousness.

Trichloroethene (TCE) ~ Liver damage, lung damage, nervous system effects, abnormal heartbeat, coma.

Mercury ~ Affects central nervous system. May damage the brain, kidneys, developing fetus, cause lung damage. Symptoms: irritability, depression, tremors, eye irritation, change in vision or hearing, memory loss, insomnia, nausea, vomiting, diarrhea, skin rashes, increases in blood pressure or heart rate.

A draft study by the Energy Department and Florida officials indicate mercury emissions from municipal solid waste landfills, like the Pottstown Landfill, can be equal to the mercury released from power plants.

The Florida study found that landfills emit methyl-mercury, known to cause severe health problems in humans. Methyl mercury is extremely bio-accumulative.

"Landfills Make Mercury More Toxic" - Science News, Week of July 7, 2001 - Science is showing how the mixing of hazardous substances in landfills, like the Pottstown Landfill, makes the original substance dumped much more toxic to human health. Mercury, a nerve poison, is toxic. However, its most poisonous embodiment is methyl mercury, the result of chemical changes to mercury by bacteria in a landfill. This is just one example of how hazardous substances become even more hazardous in landfills, which are then emitted into our air and water through landfill gas and leachate.

Methane and Methane Compounds

Even Methane (which makes up approximately 50% of Pottstown Landfill gas), has its own significant off-site health risks. Methane also combines with other materials in the landfill to form many extremely toxic and dangerous compounds which escape with the landfill gas. Some 39 methane compounds were identified from testing reports. Pottstown Landfill produces massive amounts of methane continuously released off-site into Greater Pottstown Area air, 24 hours a day. The waste already in place will continue to produce massive amounts of methane for decades. The landfill needs to be closed in order to minimize Pottstown Landfill's off-site health risks for area residents. Look at the symptoms and

health risks.

Health Risks from Methane

Methane affects the Central Nervous System causing NERVOUS SYSTEM DISORDERS National Toxicology Program (NIEHS).

While Methane has never been adequately tested for its carcinogenic potential, testing has shown that inhalation of methane is linked to BLADDER CANCER. Siemiatycki, PHD, Gerin PHD, Stuart BSC, Madon PHD, and Richardson MSC say there is an association between several sites of cancer, especially bladder cancer. 1988 Natural Gas magazine Pages 79 to 90.

Methane and its compounds may burn the throat, nose, mouth and skin.

Methane can cause eye irritation, blurred vision, to even causing corneal turbidity.

High methane concentrations cause oxygen deficiency, which can lead to nausea, vomiting, pressure in forehead and eyes, to even unconsciousness.

High methane concentrations can cause shortness of breath, coughing, wheezing, and burning lungs.

Short-term exposure can cause tingling sensation, dizziness, suffocation convulsions, and coma.

Chlorine Chemicals and Compounds

Chlorine chemicals in the Pottstown Landfill can produce very serious toxic health effects through inhalation. Chlorine compounds and by-products of combustion produce ever worse toxic effects. Some 35 chlorine compounds were identified in testing reports.

Health Effects of Chlorine Chemicals and Compounds

"There is an association between chlorinated by-products and cancer" - Fred Hauchman of EPA. Chlorine Chemicals have been linked to breast cancer. The area around the Pottstown Landfill is higher than the national average in every age group for breast cancer and 51% higher for ages 30 ~ 44.

Chlorine is a very corrosive chemical to humans. Inhalation of chlorine into moist lungs forms hydrochloric acid, which can damage the lungs.

Chlorine with other chemicals can produce other dangerous acids and asphyxiates.

Chlorine can damage the immune system.

Chlorine exposure can have reproductive effects.

Chlorine exposure can affect the heart and have effects in the blood.

Chlorine exposure can affect the nose with everything from irritation, and burning to olfactory fatigue.

Chlorine exposure can irritate the eyes and cause tearing, reddening, or even

permanent damage to the eyes.

Breathing chlorine can irritate, burn and redden the throat, cause laryngitis or even cause changes in the trachea.

Chlorine exposure can irritate the mouth, erode enamel of the teeth and affect mucous membranes.

Chlorine can affect the skin.

Chlorine can cause headaches, dizziness, fatigue, and coughing.

Dioxin - One of the most carcinogenic chemicals known to mankind, is a combustion by-product of chlorinated chemicals. Logically, massive amounts of chlorine chemicals and their compounds are in Pottstown Landfill gas.

Undetermined amounts of dioxins are being produced 24 hours a day, 365 days a year, at the Pottstown Landfill from 5 full time combustion sources.

- a. Dioxin affects human health at parts per trillion, it accumulates in the body fat, and is passed on to our children.
- b. EPA says every man, woman, and child's body in the nation may already contain enough dioxin to cause adverse health effects.
- c. EPA also says that people who live near sources of dioxin (like those who live near the Pottstown Landfill) are at far greater risk from inhalation of dioxin.
- d. There are 5 continuous combustion sources burning Pottstown Landfill gas (loaded with chlorinated chemicals) producing dioxin 24 hours a day, 7 days a week.
- e. We breathe unknown amounts of dioxins 24 hours a day, 7 days a week in combination with other hazardous chemicals, heavy metals, and radiation.

Health effects of Dioxin:

- Cancer
- Hormone Disruption
- Birth Defects - Low Birth Weight
- Miscarriages
- Infertility ~ Low Sperm Count
- Endometriosis
- Chloracne
- Diabetes
- Learning Disabilities
- Decreased IQ
- Nervous System Damage
- Hyperactivity in children ~ Short Attention Span
- Immune System Damage ~ Leading to Asthma, Allergies, and Increase Infections

Radiation in Pottstown Landfill Gas

Low levels of radiation are emitted into our air with Pottstown Landfill gas 24 hours a day, 7 days a week.

- a. Low-level radiation has been linked with leukemia. We have double leukemia compared to the rest of the state of PA.
- b. There is no safe level of radiation exposure.
- c. Combined with all other toxic substances in Pottstown Landfill gas, the cancer causing effects of radiation exposures are intensified.

- d. For example - It has been reported to Congress that Ozone (formed at the landfill) intensifies the cancer causing effects of radiation.
 - e. Our air is in the top 10% of the nation for ozone levels ~ We are classified a SEVERE NON-ATTAINMENT ZONE, according to national health standards under the Clean Air Act. This makes any level of radiation from Pottstown Landfill a far greater cancer risk.
 - f. Radiation can not be removed or filtered out from landfill gas.
 - g. Waste Management has applied for a permit which will open the floodgates for more radioactive wastes to be legally dumped in the Pottstown Landfill.
 - h. As more radioactive wastes are permitted, the gas will become even more radioactive.
- Criteria Air Pollutants VOC's, NOx, SO2, CO, and PM10

Pottstown Landfill is considered a MAJOR AIR POLLUTION SOURCE of criteria air pollutants under federal Clean Air Act standards.

- Criteria air pollutants are regulated under the federal Clean Air Act. These air pollutants have been documented to cause human health harm.
 - National Ambient Air Quality Standards are health-based standards under the federal Clean Air Act to identify levels of risks and areas of concern.
 - The Greater Pottstown Area is in a Severe Non-Attainment Area. We breathe the top 10% of the most unhealthy air in the nation.
 - In severe non-attainment areas, such as those around the Pottstown Landfill, the Clean Air Act requirements call for reductions of Criteria Air pollution to protect public health.
- The MAJOR amounts of this air pollution emitted by Pottstown Landfill, does not remain in the air above the Pottstown Landfill, nor magically disappear. This harmful Pottstown Landfill air pollution escapes into the air around the landfill and undeniably threatens the health of area residents.

Problems:

- a. Levels of these harmful air pollutants emitted from the Pottstown Landfill are determined mostly by calculations of Waste Management employees, who have a vested interest in the levels reported.
- b. There is little, if any, true independent verification of Waste Management's calculations for these harmful air pollutants emitted into our air in massive amounts by the Pottstown Landfill.
- c. Levels of Pottstown Landfill's criteria air pollution for air pollution permits are all self monitored, calculated, tested, and reported by Waste Management.
- d. There is little, if any, verification of any of this self-reported data. There can be no trust, without independent verification. We are talking about air pollution permits for dangerous poisons emitted into our air by the Pottstown Landfill.

Consider the following health risks for criteria air pollutants:

VOCs Volatile Organic Compounds

VOC's Are Extremely TOXIC In Small Amounts

► VOC's include many dangerous chemicals such as: Vinyl Chloride, Benzene, Toluene, Methylene Chloride, and many more

► Pottstown Landfill pollutes our air with VOC's from EIGHT different sources at the landfill. Pottstown Landfill VOC sources:

- a. VOC's from fugitive emissions ~ off the landfill itself
- b. VOC's from 2 Landfill Gas Turbines
- c. VOC's from 3 Flares

- d. VOC's from its leachate treatment facility
- e. VOC's from storage tanks for the leachate collection system

VOC's ~ HARMFUL HEALTH IMPACTS

- Cancer
- Leukemia
- Liver Damage
- Kidney Damage
- Digestive Disorders
- Neurological Disorders
- Reproductive Problems
- Decreased Immune Function Leading to Many Illnesses

How could anyone possibly believe there are no off-site health risks from Pottstown Landfill's air pollution when it emits massive amounts of VOC's every year into community air?

VOC's emitted with Pottstown Landfill's air pollution obviously present significant off-site health risks. It is inaccurate to claim otherwise. Even ^IF~ Pottstown Landfill emitted only its yearly permitted amount of 25 TONS of VOC's, there are great off-site health risks, including cancer, especially to our children. How much harm do residents around the Pottstown Landfill face from 25 TONS of VOC's emitted into their air, knowing that health harm can come from very tiny amounts of VOC's?

Consider this:

► There are no accurate independent measurements for VOC's from Pottstown Landfill's air pollution. All Pottstown Landfill's VOC air pollution data is calculated and reported by Waste Management, with no independent checks and balances.

► Calculations are made with no regard to mechanical failure and incomplete combustion.

► Continuous exposure to even tiny amounts of VOC's from EIGHT different sources at the Pottstown Landfill present enormous health risks to area residents. VOC's travel into community air, they don't remain over the Pottstown Landfill, then disappear.

► Even when VOC violations were admitted, nothing was done.

(NOx) Nitrogen Oxides

"Reducing emissions of NOx is a crucial component of EPA's strategy for cleaner air." "NOx reacts with ammonia, moisture, and other compounds to form nitric acid and related particles."

Pottstown Landfill is considered a MAJOR SOURCE OF NOx, by federal Clean Air Act standards. The Greater Pottstown Area is in a SEVERE NON-ATTAINMENT AREA, where reductions of NOx are required. Still, DEP issued a Title V, five year air permit to the Pottstown Landfill with increases in NOx in January, 2002. Now Pottstown Landfill is back for another legal increase.

- a. There are FIVE sources of combustion at the Pottstown Landfill, emitting enormous quantities of NOx, 24 hours a day, 365 days a year.
- b. Ammonia is emitted in large quantities from the Pottstown Landfill, from an air stripper used with the leachate collections system.
- c. If NOx + Ammonia + Moisture forms nitric acid and related particles, it is easy to see why there is so much lung damage and lung cancer around the Pottstown Landfill.

d. Recognizing the enormity of Pottstown Landfill's continuous NOx and ammonia air pollution, it is irresponsible to blame lung cancer and problems around the Pottstown Landfill, only on smoking and cars.

Health concerns include:

- Effects on breathing and the respiratory system
- Damage to lung tissue
- Premature death.

NOx Emissions are a Toxicant to:

- Blood
- Cardiovascular
- Lungs and Respiratory System
- Endocrine
- Immune System
- Reproductive
- Neurological
- Skin and Sense Organ

- Knowing that "Reducing emissions of NOx is a crucial component of EPA's strategy for cleaner air", why would Pottstown Landfill be given increases in NOx emissions for any reason in this severe non-attainment area?

a. Pottstown Landfill is a MAJOR source of NOx emissions in a severe non-attainment area. NOx should be reduced, under all circumstances.

b. Why would PA DEP even consider NOx increases for Pottstown Landfill?

c. Why isn't DEP requiring reductions from the Pottstown Landfill?

- Knowing that there Pottstown Landfill itself has an air stripper emitting large quantities of ammonia, why would DEP consider NOx increases also knowing "NOx reacts with ammonia, moisture, and other compounds to form nitric acid and related particles."?

- Knowing there is significantly elevated lung cancer around the Pottstown Landfill, and that human health concerns of NOx include damage to lung tissue, and that Pottstown Landfill is a MAJOR SOURCE of NOx emissions, why would DEP allow NOx emissions to be increased by any amount at the Pottstown Landfill?

VOC's + NOx = Ground-Level OZONE

VOC and NOx emissions, when mixed with sunlight, increase ground-level ozone. Pottstown Landfill emits enormous VOC's and NOx emissions, and therefore increases ground-level ozone.

Individual health impacts of Pottstown Landfill's MAJOR VOC and NOx air pollution are not the only health threats to area residents. Ground-level ozone is increased from Pottstown Landfill's VOC and NOx emissions, as are OZONE's off-site health threats to area residents. While Waste Management's paid scientist wants us to focus on what ozone does to the environment, he ignores what it is doing to the people exposed around the Pottstown Landfill.

Acute, Short Term Health Effects of Ozone Include:

- Shortness of Breath
- Phlegm Build Up
- Coughing, Wheezing
- Watery Eyes, Runny Nose
- Sore Throat
- Head Colds
- Chest Colds
- Chest Pain

Repeated Exposure Can Result In:

- Permanent Lung Damage
- Respiratory Infection
- Lung Inflammation
- Aggravated Asthma

Tens of thousands of residents who live around the Pottstown Landfill are repeatedly exposed to MAJOR AMOUNT of OZONE from Pottstown Landfill's MAJOR air pollution. Lung cancer is significantly higher around the Pottstown Landfill than in the tri county area. Knowing that Ozone can cause permanent lung damage and lung inflammation, why would anyone believe that people around the Pottstown Landfill smoke so much more than those in Reading, Norristown, or other like communities? Such a claim is an insult.

RADIATION INTERACTING with OZONE Enhances Cancer Risks

From Mc Donnell, M.D. Health Effects Research Laboratory EPA Testimony, April 9, 1987, to U.S. Senate: "OZONE WORKS SYNERGISTICALLY WITH RADIATION TO ENHANCE THE CANCER-CAUSING EFFECTS OF RADIATION."

Another Example of How Synergism Intensifies the Off Site Health Risks of Pottstown Landfill's Major Amounts of VOC's and NOx Air Pollution. When VOC's and NOx create Ozone, that Ozone can actually intensify the cancer causing risks from Pottstown Landfill's radiation.

Increased VOC's and NOx means increased OZONE, which means greater risks of getting cancer from the radiation emitted with Pottstown Landfill's air pollution. Why wouldn't we believe this is a major factor in the significantly elevated cancers around the Pottstown Landfill? Around the Pottstown Landfill, OZONE levels are already too high ~ CANCER statistics are already shocking.

PM10 Particulate Matter

There are SEVEN ways PM 10 escapes into off-site air from the Pottstown Landfill.

- Garbage Trucks - If expansion is permitted, about 300 garbage trucks every business day will produce PM 10. Many hazardous substances are also carried with PM 10.
- The Open Landfill
- 2 Turbines
- 3 Flares

Harmful Health Impacts of PM 10

- Increased Hospital Admissions
- Increased Emergency Room Visits
- Heart and Lung Disease
- Increased Respiratory Disease
- Decreased Lung Function
- Premature Death

(CO) Carbon Monoxide POISONOUS GAS

- Brain Damage
- Cardiovascular Disease.
- Pulmonary Disease
- Nervous System

(CO) Symptoms Include:

- Poor Concentration
- Visual Impairment
- Reduced Work Capacity
- Reduced Manual Dexterity
- Poor Learning Ability

(SO₂) Sulfur Dioxide

High levels of sulfur dioxide exposures can be life threatening. The sulfur content of Pottstown Landfill gas is enormous.

Proof: Occidental Chemical asked DEP for a THREE FOLD INCREASE IN SULFUR EMISSIONS to burn Pottstown Landfill gas in its boilers, instead of the natural gas Oxy now uses.

Sulfur dioxide is formed when Pottstown Landfill gas is burned. There are five combustion sources at the Pottstown Landfill producing sulfur dioxide 24 hours a day, 365 days a year. In air, sulfur dioxide can be converted to sulfur trioxide, which slowly converts to sulfuric acid and sulfates salts.

► We are exposed to sulfur dioxide through inhalation and skin contact.
► It can be absorbed through the nose and lungs and get from there into your bloodstream.

Health Effects of Sulfur Dioxide

- Sulfur dioxide can cause nose and throat burning, breathing difficulties, possible severe airway obstruction, and dyspnea.
- Sulfur dioxide can cause bronchial hyper sensitivity.
- Sulfur dioxide can cause conjunctivitis, superficial corneal burns, eye irritation, and tearing.
- As little as 0.4 to 3.0 ppm of sulfur dioxide showed change in lung function.
- Sulfur dioxide can affect the lungs with respiratory problems, asthma, chronic lung diseases, and even permanent lung damage.
- Inhaling sulfur dioxide can produce coughing, decrease nasal mucous flow, irritate mucous membranes, and affect the trachea.
- Sulfur dioxide exposure can increase heart rate and pulse, aggravate cardiovascular diseases, and cause heart failure.
- Nausea and vomiting have been observed after higher levels of sulfur dioxide exposure.
- Children inhaling sulfur dioxide pollution may develop more breathing problems and more wheezing episodes and respiratory illnesses.

Summary Health Effects:

- Asthma
- Chronic Lung Diseases
- Respiratory Problems
- Permanent Lung Damage
- Heart Failure
- Aggravates Cardiovascular Diseases

Symptoms Include:

- Wheezing, Chest Tightness, Shortness of Breath

These health effects are not the only off-site health risks we face from Pottstown Landfill gas's high sulfur content. It turns to other things, which affect our health in many other ways. For example:

Sulfuric Acid

Sulfuric Acid can be formed from Pottstown Landfill gas when the sulfur dioxide turns to sulfur trioxide, then to sulfuric acid. When sulfuric acid decomposes from water humidity, or heat, it can produce sulfuric acid fumes, sulfur dioxide, oxides of sulfur, carbon dioxide, particulates, and sulfur trioxide. Sulfuric acid mists contain particulates. Toxicity of the mist particulates depends on size, synergistic effects with metals, humidity, and other chemicals. Sulfuric acid affects humans through inhalation and skin and eye contact.

Health Effects of Sulfuric Acid:

- IARC and EPA say that inorganic acid mists, like sulfuric acid, can cause lung and laryngeal cancer. Since it is likely that sulfuric, hydrochloric, and nitric acids are all being emitted from the Pottstown Landfill, there is the potential for inorganic mists to be formed.
- Sulfuric Acid may cause coughing, choking, wheezing.
- Sulfuric Acid may irritate the respiratory tract causing shortness of breath with chest tightness and pain.
- Sulfuric Acid can cause pneumonia, bronchitis, and pulmonary edema.
- Sulfuric Acid can irritate the nose and throat, cause ulceration of the mucous membranes, and throat cancer.
- Sulfuric Acid may burn the mouth, pit and discolor the teeth, burn and sting the skin, cause dermatitis or cause a permanent rash.
- Sulfuric acid may burn and sting the eyes, cause corrosion, conjunctivitis, or even blindness.

Hydrogen Sulfide

In the landfill, hydrogen sulfide gas is formed from the result of bacterial breakdown of organic matter. In the air, hydrogen sulfide is released as a gas. It may form sulfur dioxide and sulfuric acid in the atmosphere. People around the landfill could be exposed to significant amounts of hydrogen sulfide gas. EPA has established hydrogen sulfide as a regulated toxic substance. It is a hazardous substance under the federal Water Pollution Control Act.

Hydrogen sulfide enters the human body through inhalation, skin absorption, or through the gastrointestinal tract. In our body, it may react with proteins or may leave unchanged.

Because hydrogen sulfide is heavier than air, and because children are shorter than adults, children may have larger exposures to this chemical. In a report by Martila, et al., in 1994, the impact of long term exposure of malodorous exposures on children in communities, showed nasal symptoms and coughing.

Health Effects of Hydrogen Sulfide:

One brief high level exposure can cause many of the following symptoms:

- Inhalation of high levels may be fatal with a few breaths.
- Significant increases in incidences of nervous system and sense organ diseases

were also found.

- Inhalation on a long term basis may result in fatigue, insomnia, headache, dizziness, nausea, unusual sweating, vomiting, loss of appetite, olfactory paralysis, nasal and pharyngeal irritation (1995 Martilla, et al.), eye irritation including tearing, keratoconjunctivitis, and photophobia.
- Hydrogen sulfide exposure may cause neurobehavioral changes, irritability, poor memory, migraine headache, delirium, and disturbed equilibrium.
- Hydrogen sulfide may result in tremors, convulsions, dyspnea, severe vertigo, and coma.
- Hydrogen sulfide may cause respiratory insufficiency, coughing, breathlessness or wheezing, pulmonary edema and cyanosis.
- Hydrogen sulfide has not been classified for its ability to cause cancer.
- There is some evidence that some exposure may lead to an increase of spontaneous abortions in humans.
- In a 1991 study by Tvedt, 6 men lost consciousness after acute hydrogen sulfide exposure. One man with probable exposure from 8 to 16 ppm had peeling facial skin.

Based on What's Been Dumped, HUNDREDS, if not THOUSANDS, of Other TOXIC CHEMICALS Are In The Pottstown Landfill. NO ONE knows, for sure, exactly what's in the air pollution. Landfill gas consistency is ever-changing. Only comprehensive continuous perimeter monitoring over an entire year, for all contaminants in Pottstown Landfill's air pollution, including consideration of the synergistic effects, could possibly begin to establish off-site health risks.

Following are examples of the documented health effects of just 4 chemicals and their compounds in the Pottstown Landfill, which have been studied for their toxicity.

Benzene and Benzene Compounds - 20 Compounds Identified

Health Effects:

Leukemia
Lung Cancer
Bladder Cancer
Lymph Gland Cancer
Cell Mutation
Birth Defects

Low level exposures can cause:

Dizziness
Drowsiness
Rapid Heart Rate
Headache
Tremors
Unconsciousness
Immune System Changes
Neurological Effects
Memory Loss
Aplastic Anemia ~ NIEHS noted exposure causation from 0.28 ppm

Ethane and Ethane Compounds - 21 Compounds Identified

Health Effects (Inhalation):

Central Nervous System Effects
Tightness in the head
Rapid Breathing
Muscular Incoordination

Propane and Propane Compounds - 8 Compounds Identified

Health Effects:

Central Nervous System Disorders
Heart Damage
Anemia
Headache
Dizziness
Nausea
Tingling
Numbness

Propane can irritate the nose, burn the skin, and affect the eyes with tearing

Butane and Butane Compounds - 9 Compounds Identified

Health Effects:

Nervous System Effects
Irritation
Oxygen Deficiency
Sensitization of the heart
Irritation of the eyes, skin and lungs

Heavy Metals

Massive amounts of heavy metals, such as mercury, lead, arsenic, cadmium, and chromium have all been dumped in the Pottstown Landfill from industrial sewage sludge, incinerator ash, construction debris, etc. Since most people are aware of the health risks associated with heavy metals, we have not listed them here.

What we don't know is at what levels heavy metals may be escaping into the community's air with PM 10 or some other way. There is no actual testing for heavy metals, even though they are concentrated in the landfill.

About 80,000 to 90,000 gallons of Pottstown Landfill leachate are sent EVERY DAY to be treated at the Pottstown Sewage Treatment Plant, where the heavy metals are removed. The heavy metals become more concentrated in the sludge, which is sent back to the landfill. The landfill becomes continuously more concentrated with heavy metals.

Learning Disabilities

Developmental processes are extremely vulnerable to environmental insult, according to the reports *^In Harm's Way ~ Toxic Threats to Child Development,~* by Greater Boston Physicians for Social Responsibility and *^Polluting Our Future: Chemical Emissions in the U.S. that Affect Child Development and Learning,~* by Physicians for Social Responsibility. (202) 898-0150 e-mail: psrnatl@psr.org website: www.psr.org

ACE had growing concerns about anecdotal reports of record numbers of increasing

neurological problems, ADD, ADHD, autism, etc. among children living around the Pottstown Landfill and attending vast numbers of schools within 3 miles of the landfill. Concerns were based on a eight-year investigation of what went into the Pottstown Landfill, and what children would logically be exposed to from Pottstown Landfill gas.

Neurological exposure risks from Pottstown Landfill gas could be vast from emissions such as mercury, lead, vinyl chloride and other chemicals listed earlier, especially dioxins. There are five combustion sources burning massive chlorine compounds 24 hours a day, 7 days a week.

ACE asked a group of Penn State Graduate Students to compare statistics here with the least polluted areas of the state. The students were unable to get specific data by township, but they reported county statistics.

Sources:

Montgomery County Intermediate Unit (IU 23) compared to (IU 17)

Statewide Statistics: PA Department of Health

Census figures: 1990 to 2000

► Montgomery County learning disability rates have risen three fold in comparison to the population from 1990 to 2000.

► 1990 to 2000 Montgomery County's learning disabilities rates increased by 94%, more than twice the state average.

► During that same time, the state learning disabilities rate increased by 46.6%, and the least polluted comparison area increased by a similar amount of 40.2%.

► Montgomery County ADD/ADHD rates increased by 32.7% (1990 to 2000)

► Montgomery County Autism increased by 310% (1990 to 2000)

There is new understanding about the effects of environmental chemicals on learning disabilities, ADD/ADHD, autism, and related neuro-developmental diseases on children.

Pottstown Landfill continuously emits the very kinds of neurotoxins that are toxic to the developing brain such as metals like lead, mercury, cadmium, and manganese as well as chemicals like organophosphates, dioxins, vinyl chloride, and PCB's. They bioaccumulate and are directly toxic to cells and neurotransmitters. ACE would like to note that the Pottstown Landfill is at the far western end of Montgomery County, and that the county is in the general wind direction of Pottstown Landfill gas.

Conclusions:

The costs of not closing the Pottstown Landfill are far too high both financially and physically, especially to our children.

Taking a comprehensive look at all the potential health risks from Pottstown Landfill's air pollution, it is clear that neither DEP, nor EPA, has adequately protected families around the Pottstown Landfill.

What's dumped in landfills poisons our air and health for decades. Protective agencies and elected officials must begin to address landfill gas threats to human health with a whole different approach, making every conceivable effort to reduce the risks. That includes eliminating the use of flares and requiring safer non-burn technology.

In the absence of the financial ability or political will to find and tell the truth about the enormous additive and synergistic health risks from landfill gas and its air pollution, our protective agencies must start to use common sense, logic, and the Precautionary Principle to protect public health.

Protective agency officials must also: a. start to educate everyone about the very real dangers of air pollution from landfills; b. stop all land filling close to residents; c. stop making public health decisions about air pollution based on legal threats from the waste industry.

It is imperative, especially in PA, a state riddled with landfills in some regions, for our government agencies to begin to use its discretionary power to interpret regulations in favor of public health.

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