



Consultee Response to CERC Environmental Permit Application

Consultee
St.Dennis Anti Incinerator Group (S.T.I.G.)

Human Health



Human Health

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KEY FAILURES

SITA's application to the Environment Agency for a permit to operate a mass burn incinerator is fundamentally flawed and therefore a permit should not be issued.

The key failure areas of the application within this section are:

- Assumes optimal operation at all times.
- DEFRA ignores abnormal operating in its considerations of the effects of incineration for both human health and environmental degradation.
- Ignores exceedances typical and inevitable in the Incineration industry.
- Ignores interaction of ozone and air pollutants.
- Ignores pollution created by both construction and operational traffic.
- Ignores COMEAP findings regarding air pollution and cardiovascular damage.
- Ignores Department of Health statement regarding the need to **reduce** levels of pollutants in the air to protect public health.
- Ignores British Heart Foundation declaration regarding air pollutants as a risk factor in cardiovascular disease.
- Assumes air quality standards are adequate.
- Ignores hazardous nature of ultra-fine particulate matter.
- Ignores synergistic effects of combined air pollutants.
- Short and long term exposure risks.
- Effects of modest increases in pollution and lifetime exposure.
- Dismissive of human health impact significance.
- Possible 30-mile emission zone and the health impacts on those residents.
- Effects of wind dispersion of pollutants.
- Pre-existing local health inequalities.
- Pollutants arising from Incineration process combining with existing pollution and effects on increasing local health inequalities.
- Inadequacy of UK regulations for PM 2.5's and smaller.
- Mounting evidence of illness/disease caused by particulate matter.
- Adequacy of filtration systems.
- Persistent Organic Pollutants.
- The Stockholm Convention.
- IPEN report that waste incineration residues represent a serious threat to both the local and global environment.
- Latency periods for exposure effects.

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- Emerging harm potential of emission content.
- Failure to address underestimation of harm arising from only currently available knowledge.
- Dioxin production.
- Adequacy and sufficiency of monitoring procedures.
- Psychological effects on local population.
- Negative long-term, generational impacts on local populous.
- Wider public perception of the area and resulting local feelings about their own village.
- Failure to include the increased costs to the health service in the 'operational costs' of incineration.
- The PRECAUTIONARY PRINCIPLE.

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HUMAN HEALTH

DEFRA concluded that whilst the information on the health and environmental effects of waste management is incomplete and not ideal; the weight of evidence from the studies to date is that present day practices for managing MSW have at most a minor effect on human health and environment.

However in an article published in the Daily Mail in March of 2006 it reports that Government advisers have said that air pollution could trigger heart attacks and strokes. Clear links have been found between toxic air (mainly from traffic fumes) and deaths and hospital admissions for heart disease. The report concluded that the findings should concern the public and advised the Government that they should take precautionary action.

The report, written by the Committee on Medical Effects of Air Pollution, particularly focused on nitrogen dioxide, sulphur dioxide and carbon monoxide. All of which are found particularly in traffic fumes and concluded that there are clear associations from exposure to air pollutants and damage to the cardiovascular system in humans. It was unclear how the pollutants cause the damage, but it could be in a number of ways, such as particles affect the control of the hearts rhythm, breathing in particles can cause chemical reactions in the body which trigger strokes and that plaques break away from the artery walls and cause heart attacks. The Department of Health stated that the report underlined the need to reduce levels of pollution and particularly the need to reduce the levels of pollutants in the air to protect the UK's public health.

Another study published in the New England Journal of Medicine published in 2007 also concludes that particulates are far more hazardous than previously thought. Fine particles are measured in micrograms – millionths of a gram – per cubic metre. Research has shown that for each ten microgram rise it is matched by a 76% increase in people's chances of dying from any cardiovascular cause.

Professor Joel Kaufman said that soot particles that are created by fossil fuel combustion from vehicles and power plants contain a complex mix of chemicals. These tiny particles along with the pollutant gases that travel along them cause harmful effects when breathed in. It could lead to a cellular and biochemical process that starts in the lungs and goes into the cardiovascular system. It may also be that these very minute particles actually enter into the blood stream via the vessels in the lungs, which then began affecting blood vessels throughout the body. He states, "Preventing these effects requires reducing the pollution at source. If the average concentration of fine particulate air pollution can be reduced, it would potentially translate to the prevention or delay of thousands and thousands of heart attacks, strokes and bypass surgeries, not to mention fewer early deaths"

After reading this report Professor Jeremy Pearson, Associate Medical Director of the British Heart Foundation said "This robust research adds to the mounting evidence that air pollutants should be taken seriously as a risk factor for cardiovascular disease."

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In an article published in the August 26 2008 issue of the *Journal of the American College of Cardiology*, air pollution has both short- and long-term toxic effects that injure the heart and blood vessels, increase rates of hospital admissions for cardiac illness and can even cause death.

“We used to think air pollution was a problem that primarily effects the lungs. We now know it is also bad for the heart.” (Dr. Robert A. Kloner, PhD; Director of Research at the Heart Institute of Good Samaritan Hospital,CA).

When pollutants are inhaled, they trigger increases in “reactive oxygen species” - superoxidizing molecules that damage cells, cause inflammation in the lungs, and spark a cascade of harmful effects in the heart and cardiovascular system. Recent research suggests that ultrafine air pollutants may pass into the blood stream and damage the heart and blood vessels directly. Hearts directly exposed to ultra fine air pollutants show an immediate decrease in both coronary blood flow and the heart’s pumping function, as well as a tendency to develop arrhythmias (studies by HI/GS).

“There doesn’t have to be an environmental catastrophe for air pollution to cause injury”. (Dr. Boris Z. Simkhovich, PhD; Senior Research Associate, HI/GS). “We are talking about very modest increases. Air pollution can be dangerous at levels that are within the accepted air quality standards.”

Research obtained by STIG showed that “Incineration of waste causes a shortening of lifespan of up to 12 years, often in the prime of life, by increasing a range of diseases especially heart attacks and cancers”. The research highlighted “a 20-year university-led study in Belgium detailed diseases and deaths caused, ending up with a 480% rise in cancer incidence on top of the country’s rise”. (SINT-NIKLAAS/De Baere& De Leeuw, 07/01). Based on research findings, the proposed 120m chimneys could spread the damage some 26-30 miles, noting that: “Incineration of waste vaporises heavy metals making the particulates emitted even more lethal inhaled into your lungs. Emissions will consist of microscopic (PM2.5) particulates which mostly pass through the abatement equipment (filters) entering the deepest part of your lungs when inhaled...”

“Interaction of gases and ultrafine particles from other PM2.5 emitting facilities in the area will form secondary PM2.5 particulates increasing the incinerator’s devastating effects on health downwind. Wind direction, speed and temperature inversions are crucial factors. When you inhale PM2.5 particulates the soluble fraction gets into the bloodstream and your cells, while the insoluble fraction is partly dealt with by macrophages and T-lymphocytes with the remnants walled off in the lungs causing Chronic Obstructive Pulmonary Disease (COPD).

The resultant inflammatory process can cause asthma and clinical depression. When in the cells, mutations will occur due to heavy metals, Poly-Aromatic Hydrocarbons (PAHs), dioxins, PCBs, and any radioactivity. Without adequate selenium in your blood to neutralise the metals, mutations from these substances will cause birth defects, cancers and altered gene function. In USA even 12 year olds had 20% loss of lung peak-flow due to PM2.5 induced COPD. Unlike USA, where PM2.5s have been rigorously monitored and regulated since 1997, in the UK only PM10s (PM10

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down to PM4—none of which gets into your lungs) are measured using instruments that can be adjusted to minus (e.g. Brighton during June 2007 where PM2.5s read a fraudulent minus 107uG/m3.

There is no adequate regulation in the UK to protect the public.

Many studies assert that the range of illnesses caused by inhaling PM2.5 particulates and smaller from waste burning include: -

- Birth defects, low birth weight babies (in direct proportion to PM2.5 levels).
- Premature deaths of babies, infants and adults. e.g. In London the infant mortality in zones downwind of the incinerators is 7 times higher than in wards upwind. (9.0 cf 1.3/1000 --- ONS data 2003/5)
- T-lymphocyte diversion to lungs with depletion causes SIDS, cot deaths, autism, MS, and GBS.
- Attention deficit and other behaviour problems, some leading to crime.
- Lower IQ & educational achievement down 2 years, worse GCSE grades (due partly to pahs).
- Asthma, COPD, viral & bacterial respiratory & other infections.
- Coronary heart disease, heart attacks, arteriosclerosis, strokes, SADS.
- Diabetes type 2, (sometimes type 1). Endometriosis & other hormone disruption.
- Multiple chemical sensitivity with allergies & arthritis.
- ME, CFS, Hypothyroidism with low T3 level (adding to obesity).
- Clinical depression & suicides, apathy, which increases the obesity problem.
- CANCERS: non-Hodgkins lymphoma, brain, breast, colon, lung, prostate, kidney, liver etc.
- Breast cancer for example can be caused by faulty genes (2%), HRT (5%) radiation, OP pesticides/herbicides, and from chimneys—cadmium, dioxins (& similar), & pahs.

“Analysis of 9 health parameters in Telford by ward in 2005 revealed increases in illnesses, SMR & age adjusted mortality in 7 polluted wards compared with 24 less

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polluted wards. An incinerator built in Colnbrook 1990 caused Slough SMR to worsen from 88 to 121 by 2001 meaning 11 years off lifespan...”

The effects on the Psychological Health of the host community have not been addressed. This is a serious oversight.

A strong, healthy and just society is not facilitated by the imposition of a 240,000 tonne Mass Burn Incinerator upon one single community, effectively making it the scapegoat for all the waste from the entire County and possible industrial and commercial waste from outside the County.

Neither is it facilitated by twin 120m stacks that will emit pollutants, dominate the skyline, destroy remaining open vistas and a visual amenity that is valued and enjoyed by residents and visitors alike.

Visible from some 15km and inescapable for local residents, it will

- a) Have a detrimental effect on the public perception of the area.
- b) Have a psychologically damaging effect on the local population.
- c) Young people growing up in the area, will feel their village isn't valued or respected, but is merely regarded as a dustbin for Cornwall.

This may affect self-esteem, engender a sense of shame about where they live and foster a negative attitude towards their environment.

This may have serious repercussions for the future.

There appears to be no concern for the massive negative impact this Incinerator will have on the local population for generations to come.

The host community will derive no benefit, yet are required to relinquish their quality of life, and have their health and well-being sacrificed on the Altar of Waste.

In light of mounting scientific research evidence, who will ensure the health of human beings and animals living within the 25-30-mile vicinity of the proposed facility?

STIG believe that the Environment Agency should implement the 'Precautionary Principle' as there is no clear evidence to support the claims made by DEFRA. Any effect, no matter how minute, should not be tolerated; the public's health should not be put at any further risk than it already is in an area where there is already air pollution present from the Clay Industry and nearby Power Station.

PM 2.5 AND SMALLER (NANO) PARTICLES

Who would measure, monitor and manage the widely recognised serious risks posed by <PM 2.5, fine and ultra fine particles, and nanoparticles? How can these be controlled if they escape through modern filtration systems?

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PERSISTENT ORGANIC POLLUTANTS

Persistent organic pollutants (POPs) include a range of pollutants that persist in the environment for many years. The list of POPs includes toxic dioxins, furans and PCBs. Such is the level of concern over POPs that several countries, including the UK, have signed up to the Stockholm Convention on Persistent Organic Pollutants. The aim of the convention is to *reduce and eliminate* the production of persistent organic pollutants.

The Dioxin, PCBs and Waste Working Group of IPEN (International Persistent Organic Pollutants Elimination Network) Report demonstrates that waste incineration residues represent a serious threat to both [the] local and global environment as they contain high quantities of unintentionally produced persistent organic pollutants listed under Annex C of the Stockholm Convention (dioxins, PCBs and hexachlorobenzene). This study also shows that, especially, waste incineration fly ash and APC residues contain also high levels of other Persistent Organic Pollutants not listed under [the] Stockholm Convention.

LIKELY EMISSIONS

Many volatile organic compounds (VOC's) are found in incinerator flue gas - and many more could not be recognized with the library in the mass spectrometer. Current regulation addresses those few chemicals for which there is proof of harm, but such harm is likely to be the tip of the iceberg. There is a deeper level at which emerging harm can be identified but is not fully proven, despite clear warning signs. Below this, there are damages that occur with long latency periods, in which harmful exposure has occurred but the manifestation of the damage has yet to appear. And below this there are exposures that are doing harm but which will never be recognized due to the difficulties of detection. Chemical exposures proliferate much faster than their neurodevelopmental toxicities can be understood, the true dimensions of the toxic threat will always be underestimated by "currently available knowledge".

DIOXINS - ONLY MONITORED TWICE A YEAR, SOME NOT MONITORED AT ALL

The dioxin 'issue' has not gone away. Only 17 out of possible 5,100 halogenated dioxins are monitored - and then only twice each year. Brominated and mixed chloro-bromo dioxins are ignored, and ten percent of the UK incinerators failed the test in 2006 - as did Nottingham when continuously sampled. Most dioxins are now in the 'fly' ash, which presents serious problems for disposal.