

WHITEMOSS HAZARDOUS WASTE SITE MYTHS AND TRUTHS

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March 2014

WHITEMOSS HAZARDOUS WASTE SITE MYTHS AND TRUTHS

Myth: We all create waste and the extension is needed for Lancashire's waste.

Truth: There is sufficient capacity in existing hazardous waste sites in the North West to last for over 70 years.

Evidence presented by ARROW based on Environment Agency data (36) at an Examination in Public into the County Council's Local Waste Plan in 2011 demonstrated that there is *over 5 million cubic metres of unused capacity in hazardous waste sites* sufficient to last for over 70 years. As a result the proposal to extend Whitemoss was removed from the Lancashire Local Waste Plan in 2012.

Myth: We need the proposed extension to support recycling

Truth: Hazardous waste landfilling isn't needed to support genuine recycling

The company claim we should support the activities at Whitemoss because they take the hazardous by-products from recycling processes and regeneration of brownfield sites. Whitemoss recycles and treats waste before landfilling.

The treatment and recycling that takes place at Whitemoss can be described as partial. This is why it leaves a residue that requires landfilling. When used properly and on site, alternative systems create little or no waste

Most of what goes to Whitemoss is contaminated soil. Many forms of hazardous waste from old industrial sites and historical pollution can be dealt with through various biological, organic and technical treatments **on site**. It is shortsighted to dig and dump contaminated soil. For example fungi can be used to clean up contaminated soils on site. (3-6) Thermal desorption is another technique that uses heat to enable contaminants to be removed or separated from soil or sludge. This is not incineration.

Hazardous waste landfilling survives because it is cheaper than the more sustainable alternatives. It doesn't reliably cover the full cost of damage to the environment from disposal and this is one of the reasons why landfill manages to remain cheaper

Hazardous material from televisions and computer monitors is landfilled unnecessarily at Whitemoss. A company called Nulife Glass Processing, in Irlam, Manchester has developed technology for recycling the cathode ray tubes from TVs and old style computer screens that are landfilled at Whitemoss. As well as separating the lead

from the glass the process extracts the phosphor and results in clean materials that can be reused in industrial processes.

Simon Greer, of Nulife Ltd said: *"The process has no emissions, creates no waste and avoids export of hazardous material around the globe."*



A pair of cuff links made with glass taken from old TVs was presented to Boris Johnson in June 2010 by Nulife Ltd.

Does Whitemoss takes the waste from recycling processes including that from Nulife Limited?

The Nulife system does not create waste. If material is going to landfill from them, it is probably material that could be recycled.

Myth: Skelmersdale has only 2 landfill sites

Truth: Skelmersdale is surrounded by 13 landfill sites

There are 11 landfill sites within 5 km of Skelmersdale, which are filled and closed as well as 2 active one. It is irresponsible to disregard landfill sites that are filled and closed as it is accepted that they will continue to pollute the surrounding soil, air and water for hundreds of years after closure (2).

Waste Management Paper 26B (1995) points out: "It is now recognized that this [total containment and isolation of wastes] is unattainable and that it may be more responsible to design for controlled release than to attempt indefinite containment". Site aftercare is not seen as foolproof. The area in an around Skelmersdale has a far

greater concentration of waste sites than other areas. As a result we have taken far more than our fair share of other people's rubbish and the risks that accompany such sites.

Myth: Whitemoss hazardous waste is well engineered and will not leak

Truth: All landfill sites leak

Recent studies published in Engineering journals demonstrate that all landfill liners degrade and allow toxic material to escape into the environment (37,38,39,40).

Myth: Skelmersdale has to take its fair share of rubbish

Truth: As a low income community, Skelmersdale has been subjected to Environmental Racism or Elitism

It's time to stop Environmental Racism and end 40 years of excessive tipping in 13 landfill sites in and around Skelmersdale.

Numerous studies show that low income and ethnic minority communities are chosen more frequently for waste sites. There are many studies which give evidence of this (27 - 35). A Lancashire County Council website, MADE, records indices of multiple deprivation, ward by ward. Examples are low birth weight and shorter life expectancy. The wards that are downwind of Whitemoss show the greatest deprivation and the most deprived communities are those most vulnerable to other threats to health. One shouldn't use poor diet and lifestyle as an excuse to carry on polluting certain places.

The disproportionate dumping of polluting industries and sites on low income communities is known as 'Environmental Racism'. This is a term coined by US civil rights activists. Environmental racism also accounts for the exclusion of minority groups from decision-making or regulatory bodies in their communities.

Myth: The Planning system balances the needs of industry and residents

Truth: Repeated extensions of planning permissions to the Whitemoss site makes a mockery of the planning system

Whitemoss has had 8 successive extensions of the original planning permission granted in 1977 ref 08/77/76.

- 1) 1985 ref 08/85/527
- 2) 1994 ref 08/94/208
- 3) 1996 ref 08/96/993
- 4) 2000 ref 08/02/1283
- 5) 2002 ref 08/02/1218
- 6) 2006 ref 08/06/0918
- 7) 2009 ref 08/09/0148 allowing activity to 2013
- 8) Allowing activity until 2018

In 1987 a condition was imposed that "in the interest of local amenities" the site should be completed by 1995! A further extension would quadruple the time allowed in the original permission. The proposed extension will continue the blight created by Whitemoss.

These planning extensions have worn down the community and created disillusionment with the planning system. People no longer believe it is effective in protecting them.

Myth: ARROW is scaremongering about likely health impacts from Whitemoss

Truth: ARROW highlights a substantial body of scientific evidence linking landfill and increased sickness that is sufficient to warrant changes in policy.

A body of scientific studies demonstrates that landfills (even those using the most advanced technology) are associated with increased birth defects, cancers, respiratory problems, skin problems and increased rates of hospitalisation (7,8,9,10, 14, 15, 16, 17, 18, 42, 43).

Researchers say that increased sickness rates are found in populations living close to ALL hazardous waste sites.

A professor of environmental health and biomedical sciences at the University at Albany School of Public Health in New York. Dr. David O. Carpenter, has spoken of his concerns about the proposed extension to Whitemoss hazardous waste site. Professor Carpenter is a leading researcher on landfill sites who received his doctorate from Harvard Medical School. He has received prestigious medical honours for his work on the human health effects of environmental pollution.



Prof. Carpenter said, "*Those who are making decisions about Skelmersdale landfill sites need to take a precautionary approach. Our studies clearly show that people who live near to waste sites are more at risk for a variety of diseases.*" (25, 14,16,17,18)

Conclusions of studies looking at health impacts of landfill sites include:

- "Living near a hazardous waste site increases risk of respiratory disease in children." *Paediatric Respiratory Reviews* 2007 (18)
- "There was a statistically significant increase in the rate of hospitalization for diabetes among the population residing in the zip codes containing toxic waste sites." *Environmental Health Perspectives* 2006 (14)
- Living near a contaminated site "constitutes a risk of exposure and development of coronary heart disease and acute myocardial infarction [heart attack]." *Environmental Health Perspectives* 2005 (17)

The cumulative health impact

Whitemoss Landfill adds to the impact of the deprivation described earlier. There is also a cumulative impact from the existing waste tips that surround Skelmersdale. The proposed extension to Whitemoss will put these deprived communities, downwind of Whitemoss, under further health pressure. 22 West Lancashire doctors were concerned about the health impacts from proposed landfilling at Round O Quarry. Local doctors continue to be concerned about the impact of Whitemoss on health.

Myth: Well managed modern landfill sites do not pose a significant risk to public health.

Truth: Government Agencies sometimes make misleading claims based on inhouse reports or just one study, rather than an accurate peer-reviewed analysis of the large body of scientific research.

Government Agencies are often slow to accept scientific findings. 20 years after the first studies were published linking smoking with lung cancer, the Government was still handing out free cigarettes to armed forces personnel!

Public Health England (PHE) has said that well managed modern landfill sites are not a risk. However, there is evidence in the Environment Agency files that Whitemoss is not well managed (1).

We need to look at the large library of scientific literature on landfill as a whole. Public Health England has ignored the latest landfill study from 2013 which says that the most consistent result is that risks of birth defects and hospitalisation due to respiratory disease are likely to be real nearby hazardous waste landfills (43).

The PHE comments appear to be based on an in house report (41) rather than research which has been 'peer reviewed' or rigorously analysed by a team of scientists working in this field. Their report leaves out some important findings linking birth defects and low birth weight with landfill which are highlighted in the respected Porta review (42).

The following statement from the Porta review was conveniently omitted from the HPA/PHE review...

"For community studies, at least for some processes, there was limited evidence of a causal relationship and a few studies were selected for a quantitative evaluation. In particular, for populations living within two kilometres of landfills there was limited evidence of congenital anomalies and low birth weight with excess risk of 2 percent and 6 percent, respectively. The excess risk tended to be higher when sites dealing with toxic wastes were considered."

Like the Metropolitan Police and The Environment Agency, Public Health England has a major credibility gap – and with good reason! Their landfill report of 2011 seems like a political rubber stamping exercise for the waste industry rather than a serious review of the research.

As well as relying on inhouse reports, Government Agencies will often rely on just one study, the report by the Small Area Health Statistics Unit (45), that included a large number of inert waste sites that are inherently less likely to cause harm. Nevertheless the authors concluded:

"We found small excess risks of congenital anomalies and low and very low birth weight in populations living near landfill sites. No causal mechanisms are available to explain these findings, and alternative explanations include data artefacts and residual confounding. Further studies are needed to help differentiate between the various possibilities."

It is notable that the researchers found this association as the data had been 'diluted' by the inclusion of all the inert waste sites. It seems likely that had the inert sites been screened from the analysis then the results would have indicated higher levels of health effects.

Myth: Professor David O. Carpenter has been discredited in two court cases.

Truth: Far from being discredited Professor Carpenter is on advisory boards to the US Government, the World Health Organisation, and is the founding Dean of the University at Albany School of Public Health in New York.

Prof. Carpenter is an expert in the human health effects of environmental contaminants, including metals and organic compounds. He is a hugely respected author of a large body of over 360 peer reviewed scientific studies.

The court cases referred to by Whitemoss Ltd were to do with electro smog and *nothing to do with landfill*. The claim that he was discredited is false because expert witnesses who give testimony in court cases will inevitably occasionally be involved in cases that are lost by the prosecuting or defending organisation. A barrister is not discredited if he or she loses a case. It is also inaccurate to say that Professor Carpenter, or any other expert witness, has been discredited if they give evidence in a case that is lost. If a case is lost it usually means that there is some debate about the scientific evidence.

Polluting industries are terrified of Prof. Carpenter because he was an expert witness in the case of massive toxic contamination of the American town of Anniston, which resulted in many sicknesses and deaths. The case ended with the company responsible having to pay out 700 million dollars in compensation to poisoned residents. No wonder Whitemoss Landfill wants us to think he's discredited (2).

Myth: There is no evidence of risk to health from Whitemoss and ARROW has admitted this.

Truth: ARROW has admitted no such thing as there is substantial body of evidence of risk from sites such as Whitemoss!

When Whitemoss Ltd denies that there is any evidence of risk to health from their site, they are being like a cigarette manufacturer who insists on claiming that there is no evidence that their brand of cigarettes causes cancer, when we know all forms of smoking tobacco substantially increase the risk of getting lung cancer.

There is a large body of evidence showing a link or association between landfill and ill health. The Porta Review (42) says there is limited evidence of a *causal* relationship (a stronger link) between landfill and increased sickness.

Whitemoss Ltd seem to have difficulty distinguishing between *evidence of risk* and *proof*. Science rarely proves anything. There is ample evidence of risk to health from sites similar to Whitemoss. Research to establish an exclusive pathological link has yet to be funded. Direct work on Whitemoss Landfill to establish the level of increased sickness locally has not taken place, but there is sufficient evidence from similar sites for us to know that the findings apply to Whitemoss. It is highly inaccurate to say that there is no evidence or that the risk is insubstantial!

Professor Carpenter has said, "In biology and medicine there is nothing that is 100% proven. We rely on statistical significance and weight of evidence when drawing conclusions about health effects." (26)

Why is there such a gap between statements made by Government Agencies, Whitemoss Ltd and Scientists carrying out the research into landfill?

During the collection of scientific evidence, where a link has been demonstrated but no proof, polluters often try to dismiss the case building up against them by claiming there is lack of evidence. This happened in the debates on smoking, asbestos, leaded petrol, and a wide range of other chemicals, many of which have now been banned.

Once an association or link has been established, research of this nature works in stages and often takes decades to establish a *causal* link. The situation is similar to the connection between cigarette smoking and lung cancer. First of all a link is identified between the health effect and the pollutant. Then after some time as more studies are done, the evidence becomes stronger or weaker statistically and finally one gets evidence of causation or its lack. The statistical links between landfill

and a range of health impacts is sufficiently strong to justify a reduction of landfill by decision makers.

Councils under pressure to provide landfill capacity and companies anxious for more business sometimes make misleading claims. Corby Borough Council's dismissive attitude to risks from toxic waste will now cost them millions of pounds (22).

Myth: Residents are not affected by Whitemoss landfill

Truth: The findings of Scientific Studies are backed by anecdotal reports

The health effects highlighted in the studies we cite are backed up by the large number of anecdotal reports that we hear on the doorstep. There are many private heartbreaking stories from individuals. We are in a privileged, unique position having worked for ARROW for nearly 20 years and had so many local people tell us about personal health issues that they believe are connected to the tip. This gives us an overview of the devastating impact it has had on some residents. Concerns about health often seem to lock people into their homes. They fear that if they publicise these concerns they risk reducing the value of their home and becoming trapped in that neighbourhood. A number of people living adjacent to the tip told us that they found it very difficult to sell their homes at the time when the smell was at its worst.

Myth: Scientific studies about pollution and health effects from waste tips are not relevant to Whitemoss as it has modern engineering systems

Truth: Research has found health impacts from ALL types of waste sites including those that are directly comparable to Whitemoss.

The operators often say that waste sites referred to in the scientific literature about landfill are using different disposal methods than those used at Whitemoss. There are a number of studies based on sites using the most modern technology which have found evidence of materials such as arsenic, cadmium, copper, lead, mercury, dioxins and furans being emitted from landfill sites (7). Only a few studies on sites predating the 1980s may not apply.

The government accepts that ALL landfill sites leak, polluting the surrounding air, soil and water - even those sites using the most up to date technology (2). A recent review paper examined the literature and concluded that the relevant and reliable figures for health effects related to landfills include:

Health effect	Distance from the source	Relative Risk (Confidence Interval)	Level of confidence**
Landfills			
Congenital malformations [24]			
All congenital malformations	Within 2 km	1.02 (99% CI = 1.01-1.03)	Moderate
Neural tube defects	Within 2 km	1.06 (99% CI = 1.01-1.12)	Moderate
Hypospadias and epispadias	Within 2 km	1.07 (99% CI = 1.04-1.11)	Moderate
Abdominal wall defects	Within 2 km	1.05 (99% CI = 0.94-1.16)	Moderate
Gastroschisis and exomphalos*	Within 2 km	1.18 (99% CI = 1.03-1.34)	Moderate
Low birth weight [24]			
Very low birth weight	Within 2 km	1.04 (99% CI = 1.03-1.06)	High

[Porta,D., Milani,S., Lazzarino, A.I., Perucci, C.A., & Forastiere, F. (2009). Systematic review of epidemiological studies on health effects associated with management of solid waste, Environmental health, 8,60.]

Myth: Whitemoss burns landfill gas at a temperature well above that needed to destroy dioxins.

Truth: It is very likely that dioxins are being emitted at Whitemoss, but the tests are not being conducted at the stage of the process, after the gas leaves the flare, where dioxins are likely to be created.

Dioxins are some of the most poisonous chemicals in existence. Some scientists believe they are so poisonous that there is no safe level of production as even microscopic amounts can cause birth defects. A proportion of women of childbearing age have levels of dioxins already stored in their bodies that correlate with reduction in intelligence, reduced immune response and hormone disruption effects in their children (11).

Whitemoss Ltd says the gas is tested before being burned and the levels of dioxin are found below detection limits. Testing for dioxins before flaring is unlikely to detect dioxins because they are not likely to be created until after the gas leaves the flare and is cooling down.

It is almost inevitable that Whitemoss will be producing dioxins because most waste contains vinyl chloride and other chlorine compounds. It is when these compounds are burned that dioxins are created. Testing landfill gas for presence of *chlorine compounds* before burning would be more relevant than testing for dioxins. Independent testing at other sites has revealed dioxin production where operators claimed there were none.

Our concerns about flaring of landfill gas are based on evidence provided to public enquiries into landfill sites. For example at an inquiry into a landfill site in Wrexham in 2000 Professor Vyvyan Howard, a foetal toxicologist at the University of Ulster, was worried about 0.6 milligrams of dioxin being produced over a one year period at the site. He said this tiny amount was an enormous dose in terms of toxicity, and was enough to potentially affect a large population (12).

Large numbers of people living in Skelmersdale are potentially at risk from dioxins emitted at Whitemoss. Friends of the Earth recommends that landfill operators should have to monitor regularly their gas emissions for a broad range of non-methane volatile organic compounds. This is not required by the Environment Agency and means that the monitoring is inadequate.

Community Groups, Councillors and Local MP speak out about Whitemoss

A number of community groups have voiced their concerns in the local press and to the County Council. Groups in Lathom have been particularly vocal, because it is an area which is very close to the tip. These include:

WRATH (West Lancs Residents Against Toxic Hazards)

Lathom South Parish Council

Lathom Parish Council

South Lathom Residents' Association

Skelmersdale Senior Citizens

Ashurst Tenants and Residents' Association

Together Making a Difference (made up of community groups from Digmaor and Tanhouse)

Six members of Skelmersdale Clergy led by The Rev. Duncan Petty. Please see www.osadvertiser.co.uk/.../skelmersdale-clergy-object-to-plans-to-expand-whitemoss-landfill-site-80904-26477643/

The West Lancs branch of the Campaign to Protect Rural England

Friends of Tawd Valley Park

Rosie Cooper MP

Several local councillors including Cllr Nicola Pryce-Roberts, Cllr Betty Lowe

Myth: The Environment Agency monitoring ensures safety at Whitemoss

Truth: The Environment Agency has failed to protect the people of Skelmersdale.

Four enforcement notices and a non-compliance notice were served on Whitemoss by the Environment Agency (1). This suggests that operational practices at the tip were below standard. The problem with smell is continuing and intermittent.

The Environment Agency hotline received 275 complaints from the public from between December 2004 and April 2005 about the smell from Whitemoss. When people got tired of complaining and nothing improved, the complaints petered out, the Agency stopped serving enforcement notices, but the smell continues. Only a very small percentage of residents are aware of whom to ring to register a complaint.

Within hours of being granted a previous extension to the tip, Whitemoss Ltd were served with an enforcement notice to do with smell from the part of the site they had claimed was free from odorous material

Managers at the Agency denied there was a smell from Whitemoss in years gone by and were proved wrong by their own staff. It was only when many complaints were received that they bothered to send out staff to investigate immediately upon a smell

being reported. On these occasions, where they acted quickly, staff confirmed that the smell was from the tip. Normally the Agency does not respond to complaints of smell quickly and by the time an officer has visited the site several days later, the problem has disappeared.

As soon as Environment Agency staff start to understand the problem they get moved on. This means that staff find difficulty in coping with the complexity of the geography of smell. Instead of investigating complaints they have been known to make disparaging remarks at public meetings about complainants.

Continuing impact of Whitemoss on local residents

Whitemoss continues to be source of foul smells even though the problem has lessened in recent years. Residents are adamant that the smell from the tip is quite distinct from farm smells. The smell settles in low lying pockets and does not cover the affected area evenly.

This has a detrimental impact on quality of life, deterring people from opening windows, enjoying their gardens, hanging out washing and inviting visitors for fear of embarrassment. In 2003 26 households, out of 50, surveyed attributed health problems to the tip. At the height of the problem, the smell led to nausea, vomiting and headaches. Anxiety about it created further health problems.

We understand that public perception is a material planning consideration and are concerned about the potential health and environmental impacts of the proposed extension on residents.

Myth: There are good regulatory and monitoring systems at Hazardous Waste Sites

Truth: The Environment Agency's testing programme is sporadic and not comprehensive.

Testing for all potentially dangerous substances present in leachate is not required. One study found that only 4% of potentially harmful organic chemicals in leachate were being identified. Therefore it is not possible for the Agency to ensure that pollution and harm to human health are prevented (19).

The Environment Agency denials that any hazardous material was escaping from the Bishops Cleeve landfill site were proved wrong by a local chemist. Please page 14. This is not an isolated incident. The Agency has recently been criticised by a parliamentary committee. In 2010 it was slammed by the Parliamentary and Local Government Ombudsman in a report entitled 'Environmentally Unfriendly'. The called the agency's actions "alarming" and its attitude "astonishing" (23). When the Agency claims Whitemoss is an exemplary site they appear not to realise that many of the problems experienced before 2006 are still continuing.

Friends of the Earth recommends that the Environment Agency should adopt a more positive and open-minded approach to the concerns voiced by residents and community groups in relation to health impacts of regulated operations in the future.

Myth: The Waste Management Licence will safely address all aftercare issues

Truth: The length of time that the Environment Agency requires aftercare to take place often does not correspond to the lengths of time landfill sites remain reactive as identified in research literature.

Myth: We can rely on the Environment Agency to protect the public from harmful dust produced by Hazardous waste sites such as Whitemoss

Truth: Independent testing has highlighted the fact that the monitoring required by the Environment Agency is inadequate.



Hazardous waste escaping from Bishop's Cleeve landfill site

In Bishop's Cleeve, Gloucestershire, a local research chemist, Dr A Tubb. C.Chem, C.Sci, FRSC, from Greenfield Science Ltd, sent samples taken from verges near to a hazardous waste landfill site, known as Wingmoor Farm, to be analysed. They were found to contain highly hazardous material from the tip. The Environment Agency had consistently denied that there was any harmful dust escaping from the site, but Dr. Tubb's results showed that the Agency were wrong and their monitoring system was proven to be flawed.

There have been many complaints from residents about dust from the Whitemoss site. The Whitemoss operators claim that this dust is mainly from the motorway, but this does not mean that the proportion of dust originating from the tip is safe.

Unfortunately, Whitemoss residents do not have the funds to pay for the type of testing done at Bishop's Cleeve. Whitemoss Ltd have not said what is in the dust from the tip. Landfill dust is another potential pathway for pollution to affect people. It should be analysed for principal components.

The Environment Agency measure of a 'significant risk' is young men driving fast cars. They dismiss increases in sickness seen around landfill as insignificant – but this is misleading. See section on health effects.

The impact on Whitemoss Business Park

The site lies adjacent to junction 4 on the M58 which is the gateway to the new town and the surrounding villages. The site provides an unwelcome greeting to investors, business people, retailers and local residents. This junction is also the main entrance to the Whitemoss Business Park. The business park is strategic in the Borough Council's attempt to diversify employment opportunities for the town. The fact that this major investment opportunity lies half empty is testament to the difficulties the town has with attracting inward investment. Whitemoss landfill would only add to this difficulty.

What do Lancs County Council and West Lancs Borough Council say about Whitemoss?

The Borough Council objected to the proposed extension at the consultation and hearings into the Lancashire Local Waste Plan in 2011/12. The Council has recently said that the extension could damage Skelmersdale's economic regeneration at Whitemoss Business Park.

The County Council has removed Whitemoss from its Waste Plan. In September, 2010, the chair of the Lancashire County Council's Joint Advisory Committee for Strategic Planning, Cllr Ian Fowler said: *"We don't want any waste that can be recycled to be landfilled. In fact, ideally we don't want any landfill at all."*

Cllr Jennifer Mein, the leader of Lancashire County Council, has spoken in detail about the need for Lancashire County Council to be more proactive in promoting the latest developments in recycling.

Will the Whitemoss extension harm upland moss land?

Peat bogs are protected under new legislation. The extension should be dismissed for this reason alone. Not only would the peat's removal contravene the Councils planning regulations, it would also destroy a natural absorber of the area's greenhouse gas emissions.

In addition to peat bogs, groundwater is also protected by law unless it has been declared permanently unsuitable for use. This is so that it can be used as drinking water in the future if necessary. Because all landfill sites leak, aquifers below Whitemoss are likely to be at risk. Damage to the environment from Whitemoss is likely to occur through emissions to groundwater and river systems.

Risks of discharging effluent from Whitemoss into the sewage system

Persistent hazardous compounds from Whitemoss landfill effluent are not treated effectively by on-site landfill systems nor the sewage system. Dumping of effluent from Whitemoss into the sewage system is likely to result in contaminants polluting local rivers and aquatic life. Untreated chemical waste is discharged into watercourses during storms through the sewage overflow system. The overflow from the sewage plant is into the River Douglas which has been found highly polluted from Hoscarr to the sea.

Will current environmental standards prevent health effects ?

There has been a great deal of material published indicating that low dose exposure to endocrine disruptors brings into question current standards for chemical exposure. For example, there has been a major report by the US National Toxicology Programme (20) in which a panel of academic, government and industry scientists has determined that there is "credible evidence" that some hormone like chemicals can affect test animals' bodily functions at very low levels – well below the "no effect" levels determined by traditional testing. A paper published in the Lancet (21) finds association between incinerators and health impacts (including reduced testes and breast sizes) and concludes, "that current environmental standards do not prevent measurable biological effects."

CONCLUSION

The extension to Whitemoss hazardous waste landfill is not needed. There is enough existing capacity. Better alternatives to hazardous waste landfilling exist that. There is significant health risk associated with landfilling. Skelmersdale has already been subjected to excessive amounts of waste dumping and this should be stopped.

References:

- 1) Extracts from Environment Agency Whitemoss enforcement notices:
 - June 2003 Routledge were served with a section 42 non-compliance notice by the Environment Agency following an audit. Among the issues raised were the lack of up-to-date monitoring reports. In particular, the operators were unaware whether they were complying with limits set on heavy metal contamination.
 - Notice 1 December 2004 - "Emissions to the air have been found to be offensive outside the site boundary. The site is not taking all appropriate measures to prevent or where it is not practicable, to reduce, odorous omissions"
 - Notice 2 (No date signed on it but actions were to be completed by 31/01/06) "Emissions to the air have been found to be offensive outside the site boundary. The site is not taking all appropriate measures to prevent or where it is not practicable, to reduce, odorous omissions"
 - Notice 3 (No date signed on it but actions were to be completed by 31/05/06) – "Emissions of landfill gas to air, from the installation have resulted from poor design, construction and maintenance of the gas extraction system. The site is not taking all

appropriate measures to prevent or where it is not practicable, to reduce, odorous omissions" This was as a result of a 'Gas System Audit on 9th March 2006

- Notice 4 - (No date signed on it but actions were to be completed by 05/05/06) - "Levels of landfill gas in external borehole BH36 has exceeded trigger levels. Landfill gas detected above background levels in perimeter borehole."

2) "Once the unit is closed , the bottom layer of the landfill will deteriorate over time and, consequently will not prevent leachate transport out of the unit." United States Federal Register 56 (196) 9th October 1991 The UK acknowledgement of the flawed concept of 'dry tomb' containment came with the publication of Waste Management Paper 26B in 1995. This points out: "It is now recognized that this [total containment and isolation of wastes] is unattainable and that it may be more responsible to design for controlled release than to attempt indefinite containment"

3) Tigini, V., et al., *Isolation and characterisation of polychlorinated biphenyl (PCB) degrading fungi from a historically contaminated soil*. Microbial Cell Factories, 2009. **8**(1): p. 5. Zhao, Y., et al., *Biodegradation Kinetics of DDT in Soil under Different Environmental Conditions by Laccase Extract from White Rot Fungi*. Chinese Journal of Chemical Engineering, 2010. **18**(3): p. 486-492. Pieper, D. and W. Reineke, *Engineering bacteria for bioremediation*. Current Opinion in Biotechnology, 2000. **11**(3): p. 262-270.

4) In Situ Soil Remediation: Bacteria or Fungi? Published in Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, Volume 17, Issue 4 July 1995 , pages 413 - 419

5) **Environmental Health Perspectives Volume 101, Number 3, August 1993**

6) White rot fungi also degrades Lindane and benzo[a]-pyrene and can oxidize highly chlorinated chemicals. A lead researcher in this field is mycologist Paul Stamets, the author of "Mycelium Running -how mushrooms can save the world".

7) A 1992 study by Yale University/New York State Dept. of Health on 590 inactive (completed) landfill sites containing hazardous wastes found that pregnant women living within a mile of the dumps had a 12% greater risk of bearing children with major birth defects, compared with people living further than a mile from the dumps. Among the 590 sites studied, 90 were ranked as high risk sites because there was evidence that **chemicals had migrated off the sites**. The study found that women living within a mile of these sites had a 63% greater chance of bearing a child with a major birth defect, compared with women living further than a mile from all of the 90 sites (Geschwind et al., "Risk of Congenital Malformations Associated with Proximity to Hazardous Waste Sites," *American Journal of Epidemiology*, vol. **135**, 1992).

8) A 1997 study of women living within a quarter-mile of a Superfund site showed a two-to four-fold increased chance of having a baby with a neural tube defect, or a heart defect. L.A. Croen and others, "Maternal residential proximity to hazardous waste sites and risk of selected congenital malformations," **EPIDEMIOLOGY Vol. 8, No. 4 (July 1997)**, pgs. 347-354.

9) In August 1998 the results of the Eurohazcon study prepared for the European Commission in relation to the drafting of the Landfill Directive were published in '**The Lancet**' **1998**; 352:423-27. The paper was a study of the risk of birth defects associated with residence near hazardous waste landfill sites in Europe by Dolk, Vrijheid et al. This study showed that residence within 3 km of a hazardous waste landfill site was associated with a

33% increase in risk of birth defects. The authors specifically noted their view that the risks from sites receiving municipal waste could be as great as those reviewed.

10) A second EUROHAZCON paper on birth defects was published in the Lancet in early 2002. This studied 245 cases of chromosomal anomalies and 2412 controls who lived near 23 landfill sites in Europe. After adjustment for confounding by maternal age and socio-economic status, they noted a higher risk of chromosomal anomalies in people who lived close to sites (0–3 km) than in those who lived further away (3–7 km; odds ratio 1.41, 95% CI 1.00–1.99). These results suggest an increase in risk of chromosomal anomalies similar to that found for non-chromosomal anomalies. *Chromosomal congenital anomalies and residence near hazardous waste landfill sites* M Vrijheid, H Dolk, B Armstrong, L Abramsky, F Bianchi, I Fazarinc, E Garne, R Ide, V Nelen, E Robert, J E S Scott, D Stone and R Tenconi. **The Lancet 2002** Volume 359, Issue 9303, Pages 320-322

11) Koppe et al (2000) have reviewed the published literature on effects of dioxin compounds on children, the most vulnerable members of society.

12) Proof of Evidence by Dr. C.V. Howard MB ChB PhD FRCPath in connection with the Inquiry on the application by Shanks Waste Services for Landfill Gas Powered Electricity Generation at Garden Lodge Landfill Site, Wrexham. Planning Inspectorate ref. APP/H6955/A/00/1044075. (Please note Dr. Howard is now Prof. Howard and has moved from the University of Liverpool to the University of Ulster since the evidence was given).

13) According to the company they have 160,000 cubic metres of capacity. Because they mainly take contaminated soil, the 160,000 m³ would allow approximately 320,000 tonnes to be tipped. If the rate of tipping was 38,000 tonnes a year, as in 2008, this means the site would last until around 2019.

14) **'Increased Rate of Hospitalization for Diabetes and Residential Proximity of Hazardous Waste Sites'**, Maria Kouznetsova, Xiaoyu Huang, Jing Ma, Lawrence Lessner, and David O. Carpenter, Environmental Health Perspectives, Online 18 August 2006

15) Elliott P, Briggs D, Morris S, de Hoogh C, Hurt C, Kold Jensen T, et al. 18 August 2001. Risk of adverse birth outcomes in populations living near landfill sites. British Medical Journal 323:363-369.

16) 'Respiratory disease in relation to patient residence near to hazardous waste sites', Rustam Kudyakov, Akerke Baibergenova, Michael Zdeb, David O. Carpenter *Environmental Toxicology and Pharmacology*, 29 June 2004 Available online 12 October 2004

17) 'Hospitalization Rates for Coronary Heart Disease in Relation to Residence Near Areas Contaminated with Persistent Organic Pollutants and Other Pollutants' Alexander V. Sergeev and David O. Carpenter, Environmental Health Perspectives v113 i6 pp756-761 2005.

18) Ma Jing, Kouznetsova Maria, Lessner Lawrence and Carpenter David O. (2007) Asthma and infectious respiratory disease in children - correlation to residence near hazardous waste sites. Paediatric Respiratory Reviews 8: 292-298.

19) "The unidentified 96% of the organic chemicals is of unknown toxicity," said the National Research Council when it reported EPA's findings in 1991 (Anthony B. Miller et al, *Environmental Epidemiology, vol. 1, Public Health and Hazardous Wastes*. Washington, D.C.: National Academy Press, 1991, p 107).

- 20) Report by the US National Toxicology Programme of evidence of effects of hormone disrupting chemicals at levels well below the levels of traditional testing <http://ntp-server.niehs.nih.gov/htdocs/liason/LowDosePeerFinalRpt.pdf>
- 21) Renal function, cytogenetic measurements, and sexual development in adolescents in relation to environmental pollutants: a feasibility study of biomarkers, *The Lancet* Volume 357, Number 9269 26 May 2001
- 22) ENDS (2009). Industry looks to Corby's contamination ruling - the high court has ruled that Corby council was negligent in exposing the public to airborne contaminants during the clean-up of a former steelworks site. *Environmental Data Services (ENDS)*, (415), 20-21}.
- 23) ENDS 2010. Ombudsmen damn Environment Agency for serious failings – the Environment Agency and two Councils have been censured for failing to close an illegal waste dump which "devasted" the life of a family in rural Lancashire and could have led to serious pollution. *Environmental Data Services (ENDS)*. (421), 20.21
- 24) David O. Carpenter, M.D. Director, Institute for Health and the Environment, University at Albany, Rensselaer, NY 12144,
Email: carpent@uamail.albany.edu Professor David O. Carpenter has received the Medical Society of the State of New York 's Albion O. Bernstein, M.D. Award, given to the physician, surgeon or scientist who has made outstanding contributions to medicine or the prevention of disease during the previous calendar year. The award was presented March 8, 2010, in Albany.
- 25) This statement was made in an email to Nicola Escott with express permission to publish it.
- 26) Quote taken from point 6 of David O. Carpenter's report on CCST Review of Health Effects of Smart Meters see www.schoolmoldhelp.org/index2.php?option=com_content&do...
- 27) Abundant evidence suggests that poor people and ethnic minority residents tend to bear a disproportionate burden of toxic contamination, through the generation as well as the management of hazardous and solid wastes. **Waste Management and Risk Assessment: Environmental Discrimination through Regulation.** Special Issue of *Urban Geography* by Michael K. Heiman, Environmental Studies, James Center, Dickinson College, Carlisle, PA 17013 USA heiman@dickinson.edu April 1995, Revised April 1996
- 28) Bowen, William, Mark Salling, Kingsley Haynes, and Ellen Cyran, 1995, Toward environmental justice: Spatial equity in Ohio and Cleveland. *Annals of the Association of American Geographers* 85 (4): 641-663.
- 29) Bryant, Bunyan and Paul Mohai (eds.), 1992, *Race and the Incidence of Environmental Hazards: A Time for Discourse.* Boulder, CO: Westview Press
- 30) Bullard, Robert, 1990, *Dumping in Dixie: Race, Class, and Environmental Quality.* Boulder, CO: Westview Press
- 31) Goldman, Benjamin, and Laura Fitton, 1994, *Toxic Wastes and Race Revisited.* Washington, DC: Center for Policy Alternatives
- 32) Hamilton, James, 1995, Testing for environmental racism: Prejudice, profits, political power? *Journal of Policy Analysis and Management*, 14 (1): 107-132.
- 33) Lavelle, Marianne, and Marcia Coyle, 1993, Unequal protection: The racial divide in environmental law. P.p. 136-143 in Hofrichter, Richard (ed.), *Toxic Struggles: The Theory and Practice of Environmental Justice.* Philadelphia: New Society Publishers.
- 34) Lazarus, Richard, 1993, Pursuing "environmental justice:" The distributional effects of environmental protection. *Northwest University Law Review* 87(3): 787-857.

35) Perlin, Susan, R. Woodrow Setzer, John Creason, and Ken Sexton , 1995, Distribution of industrial air emissions by income and race in the United States: An approach using the Toxic Release Inventory. Environmental Science & Technology 29(1): 69-80.

36) <http://www.environment-agency.gov.uk/research/library/data/123744.aspx>
See table below

Landfill Type	Sub-Region				NORTH WEST
	Cheshire	Cumbria	Greater Manchester	Lancashire	
Hazardous Merchant	1,933	38	-	155	5,309
Hazardous Restricted	-	-	-	170	170
Non Hazardous with SNIRHW cell*	-	5,469	7,764	2,271	15,505
Non Hazardous	17,442	76	6,805	9,612	35,142
Non Hazardous Restricted	2,603	-	750	210	3,563
Inert	10,000	6,159	2,392	270	18,826
Total	31,978	11,742	17,711	12,688	78,515

*Some non-hazardous sites can accept some Stable Non Reactive Hazardous Wastes (SNIRHW) into a dedicated cell, but this is usually a small part of the overall capacity of the site.

37) Allen, A. (2001). **Containment landfills: the myth of sustainability.** Engineering Geology 60(1-4): 3-19.

38) Buss, S.E., Butler, A.P., Sollars, C.J., Perry, R. Johnston, P.M. (1995) **Mechanisms of Leakage through Synthetic Landfill Liner Materials.** Water and Environment Journal 9(4): 353-359.

39) Laner, D, Fellner, H, Brunner, P. H (2009) **Flooding of municipal solid waste landfills – An environmental hazard?** Science of the Total Environment 407(12):3674-3680,

40) Weber, R., Watson, A., Forter, M., & Oliaei, F. (2011). Review article: **Persistent organic pollutants and landfills - a review of past experiences and future challenges.** *Waste Management & Research*, 29(1), 107-121

41) Macklin, Y, A Kibble, and F Pollitt. 2011. Impact on Health of Emissions from Landfill Sites Advice from the Health Protection Agency RCE-18

42) Porta D, Milani S, Lazzarino AI, Perucci CA and Forastiere F (2009). **Systematic review of epidemiological studies on health effects associated with management of solid waste.** *Environ Health*, 8, 60,

43) Mattiello, Amalia, Paolo Chiodini, Elvira Bianco, Nunzia Forgione, Incoronata Flammia, Ciro Gallo, Renato Pizzuti, and Salvatore Panico. 2013. **Health effects associated with the disposal of solid waste in landfills and incinerators in populations living in surrounding areas: A systematic review.** *Int J Public Health* doi:10.1007/s00038-013-0496-8.

The conclusion states "The most consistent result is that the risks of congenital anomalies and hospitalization due to respiratory disease are likely to be real nearby special waste landfills."

44) This figure is taken from average gate fees for hazardous waste material

45) The report by the Small Area Health Statistics Unit (SAHSU) was published in summer 2001.

ARROW Northwest
ACTION TO REDUCE AND RECYCLE OUR WASTE

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ARROW Northwest is a voluntary organisation with no paid workers committed to achieving its aims through peaceful and legal means.

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