

Why has contaminated ash been used to build homes?

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RICHARD WATSON: Household rubbish in, heat and power out. Incineration seems the perfect environmental solution. But incinerating rubbish also releases deadly cancer-causing chemicals. Newsnight has investigated a series of alarming mistakes made by an industry that sees itself as greener than green. This story concerns chemicals that are amongst the most deadly known to mankind. They can cause cancer and birth defects in tiny amounts, and are the unwanted by-products of burning rubbish. We've spent three months investigating the incineration business, and can report how these potentially lethal substances have been allowed into the environment. Tonight we can exclusively reveal how ash contaminated with these substances has even been used for building blocks for housing. Stand over the abyss and the scale of Britain's waste problem becomes clear, a tonne of rubbish for every family in Britain every year. Most goes to landfill, but we're fast running out of space. The Government has backed a massive expansion of the incineration programme. 13 plants are working today, another 70 or so are being considered. Some are at the planning stage, and we'd need all that extra capacity to replace lost landfill sites. But Newsnight has obtained fresh evidence that exposes serious flaws in the incineration industry's record. Our investigation begins in Newcastle, scene of one of Britain's worst ever pollution incidents, where the city council stands accused of poisoning its own rate-payers. In the 1970s they built an incinerator here in the old dockyard suburb of Byker. Household and industrial waste was turned into special fuel pellets, then burnt to generate heat for local housing. This story has its roots with a piece of PVC. PVC turns white when you fold it over. Push this stuff through an incinerator and you get a family of chemicals known as dioxins which go on to contaminate the ash left over after the rubbish has been burned. Astonishingly, here in Newcastle, ash contaminated with dioxins was spread on paths and tracks across the city, even on allotments where food was produced.

ALAN WATSON (Environmental Consultant): The most toxic of the dioxins is a carcinogen, and has been classified by the International Agency on Research on Cancer, together with the World Health Organisation. The United States authorities also recently accepted that this dioxin is carcinogenic. It's very likely that the other dioxins will act in a similar way and be carcinogenic also.

WATSON: Toxic Byker ash ended up on this allotment. Throughout the 1990s, the city council helpfully delivered 2,000 tonnes of the stuff to allotments across Newcastle. Grateful gardeners like Eddie Baldwin shovelled it onto their paths to keep them dry. The ash contaminated the soil. Dioxin levels here rose to 200-300 times usual background readings. But the biggest concern was dioxins in chickens. Chickens eat ash and in turn concentrate even more dioxins in their eggs.

EDDIE BALDWIN: I was taking the eggs home for the kids.

WATSON: How many eggs were you eating, as a family?

BALDWIN: As a family we ate 12 eggs a day, from here.

WATSON: What about other people round here? Were kids on the allotment?

BALDWIN: My own kids, my brother's kids. They all used to come out and play.

WATSON: To give an idea of just how deadly dioxins are, consider the following limits. Average background levels in British soils are 6 nanograms per kilogram of soil. That's 6 billionths of a gram. Above 40ng, and it's considered potentially dangerous in some countries to eat vegetables. Above 100ng and it's considered unsafe for children to play. In Vietnam, the Americans dropped 50 million litres of Agent Orange, and birth defects are still being recorded. Agent Orange left up to 900ng of dioxin in every kilogram of soil. In Newcastle, ash with 9,500ng of dioxin, ten times as much as Agent Orange left behind, was laid around allotments.

A WATSON: I was astonished. It's quite amazing, given that we've known about the toxicity of the ash certainly since 1977, and probably earlier, that the authorities acted in this way. It's grossly irresponsible. The contamination incident at Byker was extremely bad, certainly one of the worst in the UK, possibly the world. Very rarely do you get such high levels of dioxin put straight into areas where it can go straight into the food chain.

WATSON: The council have paid for new dioxin-free chickens. The old ones were killed. Eggs from the contaminated birds were tested as part of a scientific inquiry into the Byker affair. One had more than 30 times the background level of dioxin. So how did dioxins get into incinerator residues in the first place? When an incinerator burns waste, two kinds of residue are formed. The first kind falls down to be collected in grates. This "bottom ash" is relatively uncontaminated. But as hot gases are funnelled away from the furnace, so are fine particles, which do carry dioxins. Even more dioxins are formed as the gas cools. At Byker, this highly toxic dust, "fly ash", was mixed with the bottom ash and then spread around the city. So far, the council has identified 46 sites where this potentially deadly mixed ash was dumped, although campaigners put the true figure far higher. Newcastle Council says all the ash has now been removed. Eddie doesn't think so. You think that is original ash down there?

BALDWIN: I do.

WATSON: It is a darker colour, it has air bubbles in it. It is in no way natural stone, is it?

BALDWIN: That's definitely ash.

WATSON: The council told us this could be old coal ash, but agreed to investigate if they received a formal complaint. The council declined to be interviewed but said they were planning new dioxin tests, and confirmed that removing soil at five allotments, including Eddie's, is still being considered. The pro-incineration lobby likes to portray Byker as an isolated case. But Newsnight has discovered that the Environment Agency, the Government's own regulator, has been conducting a confidential inquiry into all of Britain's incinerator plants, trying to find out where the ash has gone. We've learned that one plant, near London, has been mixing the ash in much the same way as at Byker. The latest controversy once again concerns mixing two kinds of ash from the incinerator. Newsnight has learned that, up until August last year, this waste ash from the boilers at Edmonton was being mixed with potentially deadly fly ash from these cleaning towers. This is the toxic fly ash, laden with dioxins. By chance, we found a worker sweeping up in the open air. It was lying in piles under the plant. We've discovered that this contaminated material was recycled into roads and buildings. So where did this mixed ash go? We approached David York, who runs the company supplying construction projects with Edmonton ash.

DAVID YORK: On this particular road, the road base required 12,000 tonnes of aggregate, and in this

instance, we used the bottom ash from the Edmonton incinerator, which replaced the need to import 12,000 tonnes of limestone from Somerset.

WATSON: Mr York's firm, Ballast Phoenix, sent around 50,000 tonnes of mixed ash to sites like this. We wanted to know precisely where. Will you specify where all that material went?

YORK: No.

WATSON: Why not?

YORK: It is not relevant. All the material has been used in accordance with an agreed policy with the Environment Agency.

WATSON: Surely, it is responsible to be public about this and say, 10,000 tonnes went there, 10,000 somewhere else. Why not be open with it?

YORK: Only if you would do the same with other materials. We regard this as a routine construction material.

WATSON: No joy there. So we decided to search for clues. First stop, Ballast Phoenix's company website. Six projects are named, including the road we filmed at Waltham Abbey. But there's also a reference to Contract 41 Road, East London Hard-standing. We set off to find it, driving eastwards out of London. This is where the ash went, 30,000 tonnes into car parks at the Ford factory in Dagenham. The ash was mixed on site with cement and laid as a base for these blocks. Ballast Phoenix told us they'd separated out the bigger lumps of ash for use at Ford, and these contained less dioxin.

YORK: The coarse fraction tends to include glass and porcelain, it does not contain dioxin.

WATSON: This road, you're saying, contains more of the coarser ash?

YORK: Absolutely. We need the strong, hard, durable particles which are contained in the coarser fraction.

WATSON: But where did the finer ash go, the most contaminated material? During our research we received an anonymous telephone call, alleging that tens of thousands of tonnes of building blocks had been made from this most heavily contaminated mixed ash from Edmonton.

YORK: It has been used in masonry blocks.

WATSON: What sort of blocks?

YORK: Breeze blocks.

WATSON: The sort used for house construction.

YORK: Yes.

WATSON: The grey ones? How big are they?

YORK: They are about 450 mm by 225mm.

WATSON: Yet these blocks will be made with the fine material which by your admission contains the high levels of dioxin?

YORK: It is 10-0, and it has higher levels of dioxin, but the manufacturers use it as a 30% content of the aggregate they put into their block.

WATSON: At Edmonton, boiler ash and toxic fly ash has been mixed for years. It was part of the original design. Given the new evidence about construction materials, will the company that runs it, London Waste Ltd, take action? We know that Ballast Phoenix also made building blocks out of this material, which went into housing or construction projects. It is not bound at all, and if someone drills into it, they could release dust, isn't that a serious issue?

PAUL EGAN: It is a question for Ballast Phoenix. As far as I'm aware, we are talking about minute amounts. A nanogram is a millionth of a couple of drops of water.

WATSON: But this is the most toxic chemical known to mankind.

EGAN: We have to put this into perspective. Any combustion process, you get some dioxins created. We are talking about such minute amounts that we don't think there is a problem.

A WATSON: Once people have done DIY work in houses which are built with contaminated blocks, it is difficult to say what will happen to the dust and residues. It is fair to say that children will be exposed to it, and they are extremely vulnerable.

MICHAEL MEACHER MP: Far more dioxins are released on Guy Fawkes night from the burning of wood than from the regular use of incinerators.

WATSON: Michael Meacher reassuring the Commons about dioxin emissions last summer. Answering a parliamentary question about the use of the ash, he said:
"Processed ash entering the construction market has dioxin concentrations of between 20-50ng/Kg, which falls within the range of naturally occurring soils". That assessment is echoed by the industry's trade body.

MALCOLM CHILTON (Energy from Waste Association): The ash that was being recycled from this plant back then was similar to the level found in naturally occurring soils. It's not a major issue.

WATSON: What sort of levels are you talking about?

CHILTON: Around 30ng/Kg, that sort of level.

WATSON: So the industry's trade body thinks that the levels of dioxins in the mixed ash from Edmonton are about the same as in naturally occurring soils. It would have to be a pretty toxic garden according to our research. Newsnight obtained a sample of mixed ash from sources here at Edmonton, on the condition that we didn't reveal their identity. We took it to an independent laboratory for analysis. We took our sample to this laboratory in Southampton. They're specialists in measuring

dioxins. They found that it contained: 343 ng/Kg of dioxin. That's 60 times the level in average soils, and around ten times the estimate for dioxins in construction products given by Michael Meacher in his parliamentary answer. Our ash block sample is the kind of material that was used for construction projects until the practice of mixing the ash at Edmonton was stopped last year.

A WATSON: It is essential that a proper audit of where this contaminated ash has gone to is carried out. The consequences of that may be that some of the ash can be recovered and disposed of sensibly. But other ash, which may be in housing, then warnings can be posted so that workers in the future don't expose themselves without knowledge of the potential hazards, and so that children aren't exposed to this extremely hazardous material.

YORK: There is no danger to public from the use of the blocks in their homes.

WATSON: Wouldn't it be responsible to give people warnings, saying don't drill into these blocks.

YORK: No more so than with cement, which can be a hazardous material.

WATSON: It does not contain dioxins.

YORK: But in the trade press, there was a chap who had been kneeling in concrete during the day and had to have one of his legs amputated.

WATSON: The point is in the breeze blocks you can have drilling, cutting and dust in the house. Is it right in simple terms to put hazardous waste into Britain's housing stock?

YORK: Yes there are dioxins in many everyday materials. Again, drilling a hole will not create a health hazard. It is a short, one-off exposure.

WATSON: But Newsnight has discovered that this view is not shared by the Environment Minister's own advisers. A leaked memo, sent by the Environment Department to the Greater London Authority six months ago, recommended that: "Where fly ash is mixed with bottom ash it should be disposed of in special waste landfill sites". It goes on to suggest mixed ash is so hazardous that it should be buried in bitumen, which considerably lessens the opportunity for the leaching of dioxins. It seems Mr Meacher's own advisers now think that mixed ash poses a real threat, but what about the industry view? Was it wrong to mix fly ash and bottom ash at this plant last year or at any plant?

MALCOLM CHILTON: (Energy from Waste Association): It does not represent best practice today.

WATSON: Was it wrong?

CHILTON: It was not wrong, because it was not harmful.

WATSON: It wasn't wrong?

CHILTON: No, it wasn't wrong.

WATSON: But it did not represent best practice you are saying?

CHILTON: Best practice moves on.

EGAN: We did things by the book. We were open about what we were doing. We informed, provided the relevant information, so therefore I cannot go back in time and criticise the people who were working on the project at the time.

WATSON: It was a mistake, wasn't it? The Government are concerned about it, the Environment Agency have launched an investigation into the usage of mixed ash, why can't you say it was a mistake?

EGAN: I am not prepared to say it was a mistake.

WATSON: A reluctance to admit mistakes won't help the industry turn back a rising tide of public concern about dioxins. A couple of months ago, Greenpeace occupied the stack at Edmonton and shut the plant down. They were prosecuted for criminal damage, but, in yet another severe blow for the industry, the jury refused to convict. And there's political flak too. Both opposition parties want an end to new incinerators until the health effects have been assessed. But the industry's trade body condemns such a moratorium.

CHILTON: It's nonsense. Maybe we should pile up the waste outside their houses. I don't know what they expect us to do with waste! We have to dispose of it safely, hygienically. Those are the key issues. This moratorium leads us nowhere. Incinerators like this are the most heavily regulated industrial process in the UK. Emissions from this plant are held to lower levels than in any other equivalent plant, such as power generation or any other industrial process.

WATSON: The energy-from-waste industry points out that steelworks pump out far more dioxins into the air than incinerators, which have been cleaned up since new pollution laws were introduced. But contaminated ash remains a problem. Following the Byker scandal, the Environment Agency launched an investigation into the use of mixed ash. But already the signs are it's a toothless affair.

YORK: I did have an informal telephone call from an EA officer, where he said you may not wish to answer this question, but can you tell me where the ash from Edmonton has been used. I said, well I prefer not to, because I can imagine if the wrong people knew, then they would use it for adverse purposes. My answer was based on the fact that we've used the ash in accordance with the policy. We have used it safely.

WATSON: How can you possibly justify not giving the Government's own environmental regulator that information?

YORK: In the, I was asked, I didn't feel that I was obliged to. If I was formally asked, and I had to, then I would.

A WATSON: The agency have powers to require information provided. They can take criminal injunctions or sanctions against the people that don't provide it. When you have a serious case of contamination like this, it is important that the Environment Agency acts as a toughened regulator. They claim to be, but the public are finding time and time again that that is not the case.

WATSON: Edmonton stopped mixing the ash last August, and now the more toxic waste is buried in

special landfill sites. The industry is convinced that incineration must play a major part alongside recycling if our monumental waste problem is to be addressed. But first with Byker in Newcastle, and now at Edmonton, a dangerously slack attitude to dioxins has emerged. An industry once portrayed as the ultimate green solution has an uphill struggle on its hands.

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