

**Response to criticisms by (1) WISE Amsterdam and (2) Dan Fahey of
C. Busby and S. Morgan's study of Uranium contamination in
Berkshire in March /April 2003**

In a study reported in the *Sunday Times* in March and published in the *European Journal of Biology and Bioelectromagnetics*¹, a peer reviewed journal, we reported increases in Uranium in High Volume Air Samplers deployed both onsite and offsite at the Atomic Weapons Establishment Aldermaston Berkshire at the time of Gulf War 2. The increases began with the first filters measured after the beginning of Gulf War 2 and stopped with the filters that followed the close of the bombing. The period was from 27th March to the end of April 2003. The authors ascribed the increase to Uranium from the GW2 bombing campaign and showed how the weather patterns at the time were consistent with this interpretation.

WISE Amsterdam's web site² criticises our thesis. We have synthesised the criticisms here:

1. An isotopic analysis was not made, so it is not known whether the excess found in the Aldermaston Berkshire offsite and onsite filters was from Depleted or Natural Uranium.
2. It is not clear what was actually measured, since Busby and Morgan report numbers converted by themselves into nBq/cu metre. Busby and Morgan use the figure of 12.5MBq/kg for 'Uranium' while this figure is valid only for U-238. The three uranium isotopes present rather would give depleted uranium a specific activity of 14.7 MBq/kg. It is also unclear what the mineralogic composition of the dust was.
3. Even if one accepts the possibility that uranium dust may have been airlifted to Europe in the same way as Saharan sands sometimes are no evidence is presented this has actually happened with the depleted uranium dust released in Iraq. Busby and Morgan spent no thought in ruling out other origins e.g. large Uranium mines in Niger, phosphate mines in Morocco etc.

The WISE site also carries an unsolicited 'Peer Review' which Dan Fahey offered to the *European Journal of Biology and Bioelectromagnetics*. He made the same points and the following additional ones:

4. [We] The authors do not provide evidence to support the claim that the US uses natural uranium in their weaponry.
5. The authors do not provide sufficient evidence showing that air flows in March April 2003 could have transported natural Uranium from Iraq to England
6. The authors do not consider any alternative explanations.

¹ *Did the use of Uranium weapons in Gulf War 2 result in contamination of Europe? Evidence from the measurements of the Atomic Weapons Establishment, Aldermaston, Berkshire, UK. Chris Busby, Saoirse Morgan. Occasional Paper 2006/1, January 2006 Aberystwyth: Green Audit. [European Biology and Bioelectromagnetics](http://www.ebab.eu.com) [http://www.ebab.eu.com]*

² <http://www.wise-uranium.org/dissgw.html>

We do not propose to spend a lot of time answering these points, but will deal with each one briefly in sequence. It seems clear that neither the WISE reviewer nor Dan Fahey has properly read our report. Let us just list the evidence again. Let's look at the logic, something Fahey seems weak on.

There was a statistically significant increase in uranium in all the filters near Aldermaston which was **only** at the time of GW2. The filters were measured every two weeks from 1998 to 2004 and it was only in this six week period in 2003 that there was a significant increase in Uranium in the filters. The statistical tests we reported showed that this could not have occurred by chance but was associated with this exact period, the period of the war. The offsite filters were situated 30 km apart, and so any alternative explanation would have to be able to explain an increase **at this exact time** in filters 30km apart. So it was not the result of local road works, as in one suggestion. It was not a release from Aldermaston itself, since the offsite levels were higher than the onsite levels. If it was a release from a nuclear site, in England or France why was this the only one in the whole period from 1998 to 2004?

Then there is the fact that, of all the data released following our Freedom of Information request, it was this block that was missing until we insisted on its release. We find that significant; others may think it was an accident. We then looked to see whether the winds were in the right direction. We consulted a particle geophysicist. He said they were. We obtained global northern hemisphere synoptic charts from the archives of the UK Meteorological Office. We analysed the air patterns around the various depressions, anticyclones and troughs. We used the noaa computer modelling programme to track the air from Iraq and to carry out retrospective analysis of the air masses in Berkshire over the entire period. We discovered that in February and also in April there were anomalous weather systems and Sahara sand events in the UK. We report these and cite the evidence in our paper. Although there was a Saharan sand event in February, there was no increase in the uranium in the filters in February. So the Uranium wasn't from the Saharan sand. The noaa computer systems access the historic archive data and show clearly that air masses moved from Iraq to the UK at the time of the Gulf War. Fahey believed this was impossible because he told us the 'prevailing winds are westerly'. He would have had a hard time explaining the Chernobyl fallout in the UK, some 1800 miles to the west of the accident. At this stage we applied Occam's Razor and decided that the most likely explanation was the one we gave. We will now briefly address the numbered points listed above.

1

An isotopic analysis was not made and so we do not know if the excess found in the Aldermaston Berkshire offsite and onsite filters was from Depleted or Natural Uranium.

That is true

2

It's not clear what was actually measured as Busby and Morgan report numbers converted by themselves into nBq/cu metre. They use the figure of 12.5MBq/kg for 'Uranium' while this figure is valid only for U-238. The three uranium isotopes present rather would give depleted uranium a specific activity of 14.7 MBq/kg. It is also unclear what the mineralogic composition of the dust was.

The units are those published by AWE Aldermaston. No conversion was carried out by us. We did not say it was Depleted Uranium so did not need to use the DU activity. The mineralogic composition is not reported.

3

Even if one accepts the possibility that uranium dust may have been airlifted to Europe in the same way as Saharan sands sometimes are no evidence is presented this has actually happened with the depleted uranium dust released in Iraq. The authors spend no thought in ruling out other origins e.g. large Uranium mines in Niger, phosphate mines in Morocco etc.

Our report is such evidence. Sahara sand events have occurred regularly in the period of the analysis from 1998 to 2004, indeed in February 2003, but no other increase in Uranium has occurred. We say this in the paper. The same is true for all other sources. The point is that the dates tie up with the GW2.

4.

The authors do not provide evidence to support the claim that the US uses natural uranium in their weaponry.

That is true. To our mind this is such evidence. There is also other evidence which one of us reviewed in Hamburg and elsewhere and there is other evidence also. The only evidence that the US have not used natural uranium is that **they say so**.

5.

The authors do not provide sufficient evidence showing that air flows in March April 2003 could have transported natural Uranium from Iraq to England

We have. There is more, but there were space limitations. Fahey was invited by us to examine the noaa data and programs himself but does not seem to have done so or he would be apologising.

6.

The authors do not consider any alternative explanations.

We did. This was the most likely. See above.

It would be good if some of these armchair warriors and critics actually did some research of their own instead of sitting at their PCs looking at other people's hard work and making analyses based on superficial and facile arguments. If Dan Fahey had been analysing the early evidence of the Chernobyl radiation he would have made the same idiotic mistake about wind directions. We did a great deal of difficult work and spent a lot of time with maps and computer programmes and statistics. We clearly convinced the *Sunday Times* and the reviewers of the journal.

It is not clear in what way Fahey considers himself to be a peer: he is apparently not a scientist and has no publications presenting any data in this field apart from speculation and his own analysis. He and whoever wrote the WISE critique of our report seem to have done the following hard work: they sat in a chair and thought, *Gosh, that doesn't seem likely, surely the winds blow from the West, isn't that we learnt at school, and anyway didn't the US Department of Defense say they weren't*

using uranium any more? Maybe it was from a phosphate mine in Africa. We'd better write an unsolicited peer review and send it not only to the journal, but to everyone on the internet.