

## **FAQ #15: Various authors claim that nuclear blasts caused or contributed to the destruction of the World Trade Center on September 11, 2001. Why does AE911Truth not endorse this claim?**

By AE911Truth Writing Team

Architects & Engineers for 9/11 Truth is not aware of any evidence that supports the claim that nuclear blasts occurred at the World Trade Center on September 11, 2001. AE911Truth does not endorse that claim, nor does it endorse any theories resulting from it, nor does it link to websites and publications where such theories are promoted, for the reasons given below.

### **I. No evidence exists for elevated levels of alpha, beta, and/or gamma radiation consistent with nuclear blasts**

No evidence exists that the WTC destruction and its aftermath resulted in elevated radiation levels consistent with nuclear blasts.

Explosive fission reactions contaminate the environment with radioactive fission products like cesium-137 (half-life 30.08 years) and strontium-90 (half-life 28.79 years); with unreacted fissile fuels like plutonium-239 (half-life 24,110 years) and/or uranium-235 (half-life 703,800,000 years); and with radioactive neutron activation products like cobalt-60 (half-life about 5.27 years).<sup>1</sup> The fusion of deuterium and tritium in nuclear bombs leads to a contamination of the environment with radioactive neutron activation products and with tritium.<sup>2</sup> The radioactive contamination that is caused by fission products, unreacted fissile fuels, and/or neutron activation products is detectable for many years at the sites of nuclear blasts, in the areas affected by the fallout and rainout of nuclear blasts, and in contaminated materials removed from these areas.<sup>3</sup> If fission bombs, fusion-boosted fission bombs, neutron bombs, thermonuclear bombs, or exploding nuclear reactors had destroyed the WTC on September 11, 2001, multiple sites would still be radioactively contaminated today with fission products like cesium-137 and strontium-90, with unreacted fissile fuels like plutonium-239 and/or uranium-235, and with neutron activation products like cobalt-60. These sites would include the WTC site itself and Lower Manhattan,<sup>4</sup> the Fresh Kills landfill (where large amounts of WTC debris were processed), other parts of New York, and parts of New Jersey.

Some have suggested that the WTC was possibly destroyed by pure fusion deuterium-tritium bombs that do not involve a fission stage. If such bombs existed,<sup>5</sup> and if they were used on September 11, the sites listed above would be radioactively contaminated by neutron activation products such as cobalt-60. Neutron activation products would also be detectable for all the aforementioned nuclear blast scenarios in recovered WTC steel and in steel and masonry of the still-standing buildings near the WTC site. All the isotopes listed above emit alpha (uranium-235, plutonium-239) or beta (cesium-137, strontium-90, cobalt-60) radiation, and, except for strontium-90, also gamma radiation. Radioactivity measurements can be performed independently. Devices to detect elevated levels of alpha, beta, and gamma radiation are neither large nor difficult to use, and are available at affordable prices.<sup>6</sup>

It would be appropriate to perform radioactivity measurements and to publish the results if one wants to prove that nuclear blasts occurred at a certain place. Yet none of those who claim that nuclear blasts occurred at the WTC has ever provided evidence that elevated radioactivity levels consistent with nuclear blasts have been found there.<sup>7</sup> Moreover, many residents of New York and New Jersey own detection devices such as Geiger counters,<sup>8</sup> and many use such devices and/or wear personal dosimeters when working.<sup>9</sup> Thus, elevated radioactivity levels caused by nuclear blasts in New York would be publicly known if they existed.

Therefore, since no evidence has been shown to exist for elevated radioactivity levels consistent with nuclear blasts at the WTC, we conclude that the likelihood is virtually zero that the WTC's destruction caused such elevated radioactivity levels. Consequently, we also regard as virtually zero the likelihood that any nuclear blasts occurred at the WTC.

Those who claim that nuclear blasts occurred at the WTC have brought forth arguments that directly or indirectly address the absence of evidence for elevated radioactivity levels consistent with nuclear blasts at the WTC. These arguments can be divided into two groups:

1. Performing radioactivity measurements has been rendered impossible.
2. Special nuclear devices were used that do not produce radioactive contamination that the general public could measure independently.

The first group includes the suggestion that it has not been possible to take radioactivity measurements due to restrictions. For example, some authors point out that access to the WTC site was restricted after September 11, and one author suggests that it might have been forbidden to bring dosimeters to the WTC memorial. This group also includes the suggestion that radioactive evidence existed at the WTC site but was disposed of soon after September 11. For example, one author suggests that radioactive sand and earth were rapidly removed from the WTC.

We do not regard these and similar suggestions as plausible. If nuclear blasts had occurred at the WTC, the radioactive contamination would have affected a much larger area than just the WTC site (see above). For example, the WTC dust and

smoke plumes covered parts of Lower Manhattan, and WTC debris was processed at the Fresh Kills landfill. It would have been impossible to decontaminate all these areas in secret.<sup>10</sup> Thus, independent radioactivity measurements that allow for meaningful results (either negative or positive) have been feasible.

Also, contrary to what is claimed by some, solid objects that are radioactively contaminated due to neutron capture cannot be “cleaned.” The radioactive contamination caused by neutron activation products is not limited to the surfaces of materials, because neutrons penetrate into materials. Thus, if nuclear blasts had occurred at the WTC, radioactive neutron activation products would still be detectable for decades in recovered WTC steel and in buildings surrounding the WTC site, even if there had been efforts to clean contaminated materials.

The second group of arguments includes the suggestion that there might be a variety of fission-fusion bomb that leaves little or no radioactive contamination behind. It also includes the suggestion that there might be a nuclear weapon that leaves a type of radiation that is detectable for only five or six days and/or that is not detectable with common equipment. The arguments are invalid: All types of nuclear blasts leave long-lasting radioactive contamination that can be detected with common equipment (see the earlier statements in this section). The invalid arguments are not backed up with substantiated references, but they rest on the incorrect assumption that all neutron activation products are very short-lived,<sup>11</sup> on a misrepresentation of data from a 1961 Soviet nuclear test,<sup>12</sup> on statements derived from private email communication and from a radio show,<sup>13</sup> and on a misrepresented statement from an autobiography.<sup>14</sup>

Some of those who claim that nuclear blasts destroyed the WTC refer to US Army manual “FM 101-31-1” as if it supported the no-radioactivity-after-a-short-time claim. In fact, it does not. Rather, FM 101-31-1 includes several statements that contradict this claim, such as: “Neutron-induced radiation, fallout, base surge, and rainout have common characteristics. First, the residual radiation persists for relatively long periods. The affected areas are difficult to decontaminate . . . .”<sup>15</sup>

## **II. No evidence exists that people suffered from acute radiation syndrome**

Nuclear blasts produce extremely high radiation levels during the explosion and in the immediate aftermath of the explosion. Highly elevated radiation levels prevail at the blast site and in the surrounding areas for the first several hours after the blast.<sup>16</sup> Many survivors (first responders, WTC occupants) as well as journalists and bystanders close to the WTC were caught in the dust clouds. Hundreds of others worked at the WTC site in the immediate aftermath of the destruction. So, if nuclear blasts had occurred at the WTC, many severe cases of acute radiation syndrome<sup>17</sup> would have resulted. But no evidence exists that the WTC destruction and its aftermath resulted in people suffering from that condition.<sup>18</sup>

## **III. Further problems in the reviewed publications, and our assessment of four frequently repeated claims**

Substantiated evidence for elevated radioactivity levels consistent with nuclear blasts at the WTC must be provided in order to make a sound argument that nuclear blasts occurred there. We have not seen that evidence provided. It is not appropriate to attempt to substitute arguments that are based, for example, on second-hand witness statements,<sup>19</sup> on data concerning the concentration of individual chemical elements in WTC dust samples, or on references from dictionaries concerning the term “ground zero”<sup>20</sup> for evidence of elevated radioactivity levels consistent with nuclear blasts.

Nevertheless, we have scrutinized what has been presented in various publications as evidence that nuclear blasts occurred at the WTC, but found none of the arguments substantiated. We noticed many problems — for example: Relevant claims are not backed up by suitable references and/or reasonable arguments;<sup>21</sup> relevant facts are addressed only inadequately or not at all;<sup>22</sup> some authors’ theories are compromised by internal contradictions;<sup>23</sup> alleged evidence is conjured up through misquoted and misinterpreted references;<sup>24</sup> there are references to nuclear reactions that do not occur;<sup>25</sup> fake evidence<sup>26</sup> and bizarre claims<sup>27</sup> are presented; one author seems to be unaware that quotations from other authors should not just be incorporated into his own texts but should be properly marked as citations;<sup>28</sup> and some publications contain *ad hominem* attacks.<sup>29</sup>

Below, we provide an assessment of four claims that have been presented frequently to support assertions that nuclear blasts occurred at the World Trade Center:<sup>30</sup>

- (1) The claim that data from the USGS WTC study prove radioactive fallout in the WTC dust
- (2) The claim that tritium found at the WTC site is evidence that nuclear blasts occurred at the WTC
- (3) The claim that the structural steel of the Twin Towers was largely “dustified”
- (4) The claim that the WTC-related cancer cases affecting first responders and site workers are evidence of their exposure to radiation from nuclear blasts

### **(1) Our assessment of the claim that data from the USGS WTC study prove radioactive fallout in the WTC dust**

Based on data of the USGS WTC dust study,<sup>31</sup> several authors claim that the barium and strontium concentrations in those samples prove the occurrence of nuclear blasts; i.e., only nuclear blasts could account for the barium and strontium concentrations in the dust samples. They allege that both elements are highly toxic, and they claim that the only process capable of explaining mass correlation patterns between strontium and barium in the USGS WTC dust samples is nuclear

fission.<sup>32</sup> They make similar claims with respect to the mass correlations of many more elements, such as titanium, sodium, manganese, chromium, and copper.<sup>33</sup> They cite the uranium and thorium concentrations in the samples, the mass correlations of these elements with lithium, and mass correlations of other trace elements as further proof that uranium fissioned at the WTC.<sup>34</sup>

Some of the problems inherent in the claim that the USGS WTC dust study data prove the presence of radioactive fallout in the WTC dust are as follows:

#### • **The claim is contradicted by fission product yield data**

The claim that the USGS WTC dust study data reveal the signature of nuclear fission is contradicted by fission product yield data.<sup>35</sup> Based on these data it is, for example, obvious that cesium has a high fission yield similar to that of strontium.<sup>36</sup> The low mean cesium concentration in the USGS samples of 0.64 ppm (with a maximum concentration of 0.88 ppm) rules out the possibility that the strontium (mean concentration 762.61 ppm) and the barium (mean concentration 533.38 ppm)<sup>37</sup> in the dust could be fission products.<sup>38</sup> If the strontium in the WTC dust had been a fission product, the concentrations of cesium and strontium in the dust samples should be roughly comparable, but they differ by three orders of magnitude.<sup>39</sup>

William Tahil ignores the low cesium content of the USGS WTC dust samples in his 2006 publication, *Ground Zero: The Nuclear Demolition of The World Trade Centre. Incontrovertible Proof that the World Trade Center was destroyed by Underground Nuclear Explosions*.<sup>40</sup> Jeff Prager, who knows that cesium is a relevant fission product, states incorrectly that the USGS “did not test” for cesium.<sup>41</sup>

According to fission product yield data, several of the alleged fission products — sodium and titanium, for example — are rarely generated in the fission reactions of nuclear blasts. The fact that alleged fission products are usually not created in nuclear blasts is acknowledged and discussed by Tahil and others, especially with respect to zinc. They suggest that unusual nuclear events took place at the WTC: very energetic nuclear blasts that involved ternary, quaternary and maybe even higher levels of fission, and maybe also the fission of the fission products.<sup>42</sup> We note that no feasible mechanism has been suggested for how such unusual nuclear events could have been produced at the WTC. In addition, research data for high-energy incident neutron fission do not support the suggestion that unusual energetic nuclear blasts at the WTC could have generated tons of potassium, titanium, manganese, or zinc (their mean concentration in the USGS WTC dust samples is: 0.50%, 0.26%, 0.11%, and 1004.70 ppm, respectively).<sup>43</sup>

Fission product yield data are publicly available. We do not regard it as reasonable to neglect them and to claim nevertheless — without any evidence that the strontium and the barium in the WTC dust were indeed radionuclides — that the USGS data confirm the presence of radioactive fallout in the WTC dust.

#### • **The suggested neutron-induced alpha decay of uranium-235, and the alleged decay of helium-4**

The claim that the concentrations of uranium, thorium, and lithium in the USGS WTC dust samples show “correlations which are the signature of a nuclear explosion”<sup>44</sup> is based on the assertion that thorium-232 is produced in nuclear blasts by neutron-induced alpha decay of uranium-235, and that lithium is produced by beta decay of the alpha particles generated in the first reaction.<sup>45</sup> Neutron-induced binary fission as it occurs in nuclear blasts, however, splits the parent nucleus into nuclei that have a mass ratio of roughly 2:3 — but certainly not a mass ratio of 1:58. Tahil even uses a diagram in *Ground Zero: The Nuclear Demolition of The World Trade Centre . . .* that contradicts the alleged existence of a “favoured fission pathway” from uranium-235 to thorium-232,<sup>46</sup> but he makes the incorrect claim nevertheless. Tahil ignores in his equation “EQ 10” (see footnote 45) the fact that uranium-236 has to be generated before alpha decay of uranium to thorium-232 can occur. Alpha decay of uranium to thorium cannot be indicative of nuclear blasts; alpha decay is a natural process that releases energy only at a low rate (uranium-236 and uranium-235 have half-lives of more than 23 million years and more than 700 million years, respectively). The suggested beta decay of an alpha particle into lithium is simply impossible: Alpha particles are helium-4 nuclei. Helium-4 is stable and cannot decay.<sup>47</sup>

In addition, it is not reasonable to expect that any general mass correlation constituting the “signature of a nuclear explosion” can exist between the unreacted potential fuel (such as uranium-235) and the fission products.<sup>48</sup> The “elevated” levels of many trace elements in the WTC dust samples (like those of thorium and uranium) simply mirror the fact that building materials like concrete or mineral wool are made from mineral-rich phases that contain such “elevated” levels of trace elements naturally.<sup>49</sup>

#### • **The existence of common substances is neglected**

Several authors state that certain elements (such as barium and strontium) that were found in the WTC dust are highly toxic and therefore would not have been permitted to be in the WTC buildings. Compounds<sup>50</sup> of all these elements do have common uses in buildings, however. Barium sulfate, for example, is commonly used as a filler in paints. The use of strontium chromate in the primer paint of the Twin Tower trusses is documented, as is the use of zinc chromate in the primer paint used on Twin Tower steel columns.<sup>51</sup> Zinc oxide<sup>52</sup> and strontium sulfate are commonly used as pigments in paints, as are compounds of the alleged fission products titanium, copper, chromium, and manganese.<sup>53</sup> Compounds of another alleged fission product, lead, were also once used as pigments in paints.<sup>54</sup> The mass correlations among barium, strontium, and zinc observed in USGS WTC dust samples, alleged to be proof that fission reactions occurred at the WTC,<sup>55</sup> suggest only that some of the paints that were

used in the WTC might have contained compounds of two or three of these elements in combination. The alleged fission products sodium, potassium, and titanium are common constituents in many types of glass.<sup>56</sup> In addition, they were constituents of the rock wool and slag wool used in the WTC.<sup>57</sup> Tahil, Prager, and others do not consider those common uses of compounds of the alleged fission products, which readily provide plausible explanations as to why these elements showed up in the USGS WTC dust samples in the given amounts. Tahil and Prager list meticulously niche uses of some of these elements — uses that cannot possibly explain the USGS data.<sup>58</sup> The authors who promote the “USGS data prove fission” argument do not even consider the information about the elemental make-up of glass fibers and paint pigments that is contained in the very same USGS WTC dust study that they use for their argument (see quotes/screen shots in footnote 59).<sup>59</sup>

We do not think it reasonable to assume that very common elements found in the WTC dust must be fission products, when their compounds have common uses in buildings, and when some of these elements are not even known to be produced in nuclear blasts.

#### ● **The massive scale of the claimed nuclear blasts is implausible**

The mean amounts of the alleged fission products in the USGS WTC dust samples add up to more than one percent. Therefore, the argument that the USGS data prove that the WTC dust contained fission products implies inescapably the assertion that the WTC dust contained many tons of fission products. This fact is even explicitly acknowledged by Tahil and Prager: Tahil estimates, for example, that the WTC dust contained 145 tons of strontium and alleges that this strontium is a fission product,<sup>60</sup> and both authors state that at least 470 tons of uranium fissioned at each of the Twin Towers.<sup>61</sup> The latter implies a suggested energy release of more than 940,000 times the energy release of the bomb that destroyed Hiroshima (which fissioned less than one kilogram of uranium-235). To address the energy release implicit in the massive scale of the suggested nuclear blasts, Tahil and Prager discuss possible differences between the characteristics of nuclear blasts caused by bombs and those caused by reactors that “go supercritical” (Tahil), and those caused by “hundreds of tons” of uranium-238 “under[going] instantaneous fission” (Prager), respectively.<sup>62</sup> Their attempts to explain the massive scale of the suggested nuclear blasts are not sound — both authors (and those who also promote the tons of fission products in the WTC dust argument) are obviously unaware of the practical implications of the scale of the energy release per mass when uranium fissions. Even if the proposed energy release is stretched over two hours, it equals at least the energy release of 130 Hiroshima bombs per second. Prager also postulates that fission-fusion bombs were used in the destruction of the WTC; the proposed fusion reactions further add to the absurdly high energy output implicit in his argument.

We do not regard it as reasonable to assume that tons of uranium fissioned at the WTC on September 11, because the implicit energy release is implausible.

#### ● **Internal contradictions in the arguments**

Some authors (including Prager, Ed Ward, and Donald Fox) combine the claim that the USGS data prove fission products in the WTC dust with the assertion that the WTC towers were destroyed by “mini- or micro-nukes.”<sup>63</sup> They ignore the fact that fission does not create mass. On the contrary, its energy release entails a small “mass defect.” Thus, several small-sized and/or low-yielding “mini-/micro-nukes” cannot account for tons, and especially hundreds of tons, of fission products.

An internal contradiction also arises when authors claim on the one hand that the USGS data prove that tons of fission products were in the WTC dust (including strontium-90, half-life 28.79 years) but assert on the other hand that special nuclear weapons were deployed at the WTC that left no long-lasting and/or easy-to-detect radioactivity.

### **(2) Our assessment of the claim that tritium found in a split water sample collected in WTC 6 is evidence that nuclear blasts occurred at the WTC**

Up to 3.7 nanocuries of tritium per liter of water was found in a split water sample that was collected in basement level 5 of WTC 6 on September 21, 2001.<sup>64</sup> Compared with the typical background level of 0.1-0.2 nanocurie tritium per liter water,<sup>65</sup> the amount of tritium in the split water sample is clearly elevated, but tritium levels up to two orders of magnitude higher than in the WTC water samples are common in leachate of municipal solid waste sites and in landfill gas condensates (see quote/screen shot in footnote 66).<sup>66</sup>

The materials and the debris at the WTC site included common tritium sources. WTC 6 housed two weapon vaults of the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) that contained weapons with tritium night sights.<sup>67</sup>

The amount of tritium in the three tritium lights of a typical new night sight adds up to about 54 millicuries.<sup>68</sup> Many of the weapons stored in WTC 6 could have been mechanically damaged and/or subjected to high temperatures on September 11 and/or in the following days, thereby releasing their tritium into the environment.<sup>69</sup> Only a part of the tritium from broken gun sights might end up in water under the conditions that existed at the WTC site. Considering this, and assuming, as several authors suggest, that the WTC 6 split water sample is representative of the 30 million gallons of water that were pumped out of the main WTC area<sup>70</sup> between September 11 and the day the WTC 6 sample was collected, the tritium level measured in the WTC 6 split water sample is still readily explicable. One only needs to assume that the tritium night sights of some of the weapons stored in the AFT vaults were damaged.<sup>71</sup> Additional tritium sources also existed at the WTC site — notably in the night sights of weapons probably carried by some of the more than 60 police officers who lost their lives at the WTC.<sup>72</sup>

The tritium detected in the WTC water samples is therefore not suspicious at all. Yet several authors present the elevated

tritium levels in the water samples as evidence that nuclear blasts occurred at the WTC. They use two alternative lines of reasoning. Both are compromised because common tritium sources are excluded from consideration:

#1. They deliberately avoid mentioning the common tritium sources that existed at the WTC site<sup>73</sup> and claim that “[t]ritiated water in any significant quantity is a telltale sign of a thermonuclear explosion.”<sup>74</sup>

This argument is not reasonable, given their exclusion of the common tritium sources and given the high tritium levels in leachate of municipal solid waste sites and in landfill gas condensates (see quote/screen shot in footnote 66).

#2. They concede that common tritium sources existed at the WTC but declare that any tritium from gun night sights is irrelevant: “The supposed Tritium level only significant source is the 34 Ci in the ‘commercial airliners.’”<sup>75</sup> They make the reasonable assumption, supported by a reference, that the tritium from the airplanes must have evaporated almost completely during the fires, and they insist that only nuclear blasts can account for the tritium in the WTC 6 split water sample. Their argument is not sound, because it rests on the exclusion of tritium from gun night sights.<sup>76</sup>

### **(3) Our assessment of the claim that structural steel was “dustified”**

Several authors claim that the structural steel of the Twin Towers was “dustified” (i.e., “turned to dust”<sup>77</sup>). This claimed “dustification” of steel, they allege, constitutes evidence that nuclear blasts must have occurred at the WTC. We already discussed and rejected the alleged “dustification” of steel in our answer to FAQ #3<sup>78</sup>: “Upon studying the video of the ‘spire,’ however, we find that the steel did not ‘turn to dust’ (see, for example, the next-to-last segment in <http://www.youtube.com/watch?v=7W0-W582fNQ>). The spire clearly simply fell after being ‘shaken’ — most likely by explosive charges, leaving behind, in mid-air, the pulverized concrete that had been resting on, or statically stuck to, the steel. As is well known, air resistance causes dust to fall slower than structural steel (note the final remaining column falling faster than the dust in the third photograph of the sequence [see footnote 78]).

“Also, if the structural steel was ‘dustified,’ one would expect to see at least some evidence for partially ‘dustified’ steel members in the debris, yet nothing of the sort is shown . . . . One would also expect a much higher fraction of the dust to be consistent with iron-rich material than the 5.87% maximum of iron-rich spheres detected by RJ Lee Group . . . .”

Dimitri Khalezov, author of the e-book *9/11thology: The “third” truth about 9/11* . . . (see footnote 18), and one of the main proponents of the “dustification”-of-steel claim, exempts from the claimed “dustification” only the steel at and above the aircraft impact areas, and those perimeter wall sections at and near ground level that obviously remained standing.<sup>79</sup> His “dustification” claim is contradicted by several documented perimeter wall sections (composed of prefabricated panels) that originated in stories of the towers that were allegedly “dustified,” and by numerous documented core columns that originated in allegedly “dustified” stories.

By screening photographs and videos for perimeter wall sections that comprise perimeter panels of a type that was only used on two of the four mechanical floors — namely, stories 75-76 and 41-42<sup>80</sup> — many perimeter wall sections are easily identifiable that contradict Khalezov’s “dustification” claim. For example, large WTC 2 perimeter wall sections comprising panels from stories 75-76 or stories 41-42 stood in Church Street (a photo of them can be found even in Khalezov’s book),<sup>81</sup> and in the middle of West Street,<sup>82</sup> and lay at the corner of Church Street and Liberty Street.<sup>83</sup> A WTC 1 perimeter wall section that was nearly 70 meters tall and up to 30 meters wide, and that comprised panels from stories 75-76 or 41-42, landed next to the World Financial Center in West Street. A smaller WTC 1 perimeter wall section that also comprised panels from stories 75-76 or stories 41-42 landed at the Winter Garden.<sup>84</sup> Twin Tower core columns were stamped or penciled with codes identifying their locations in the structure, and some of these codes — on columns that were allegedly “dustified” — are documented on photographs.<sup>85</sup>

Other Twin Tower core columns that originated in lower stories are easily recognizable in photographs based on their distinctive shapes and plate thickness.<sup>86</sup> Khalezov, for example, uses a photograph that shows a column that fits the general shape of core corner columns that were located between the 12<sup>th</sup> and the 41<sup>st</sup> stories.<sup>87</sup> The cross-section-length-to-plate-thickness ratio of this column corresponds most closely to core corner columns that spanned stories 24 to 30.<sup>88</sup> The column is one of the many documented pieces of structural steel<sup>89</sup> that contradict Khalezov’s “dustification” claim.

### **(4) Our assessment of the claim that “The WTC-related cancer cases affecting first responders and WTC site workers are evidence of their exposure to radiation from nuclear blasts”**

The sad fact that many first responders and many people who worked at the WTC site after September 11 have developed cancer is cited as evidence that nuclear blasts occurred at the WTC.<sup>90</sup> Certainly, radiation exposure increases the risk of developing cancer, but it is also true that other hazards, including the exposure to certain chemicals, can cause cancer. It is undisputed that a cocktail of toxic and/or harmful substances, which included a number of known carcinogens, such as asbestos fibers and dioxins, was inhaled (often for weeks) by those who now suffer from WTC-related cancers.<sup>91</sup> In arguing that the WTC-related cancers are evidence that nuclear blasts occurred at the WTC, some authors point to the short time between exposure at the WTC site and the manifestation of many WTC-related cancers<sup>92</sup> and to the fact that many relatively young people have been affected.<sup>93</sup> They then suggest that these patterns match the experience of Hiroshima and Nagasaki<sup>94</sup> and conclude that the WTC-related cancers are caused by radiation. The data from Hiroshima and Nagasaki do not support this argument, however. Instead, the data from Japan show that any particular radiation-related cancer will typically emerge only at an age when the risk of developing that type of cancer also increases in control groups.<sup>95</sup>

The WTC-related cancer cases do not match this pattern. The time between exposure and manifestation of the WTC-related cancers is comparatively much shorter. Also, many WTC first responders and site workers contracted cancer at an age when the risk of being affected by these types of cancers is low in the overall population. The differences are most pronounced for multiple myeloma, though that disease is nonetheless singled out in some publications as evidence that the WTC-related cancers are caused by exposure to radiation. Victims of the 1945 atomic bombings contracted multiple myeloma typically after a 30-year latency period, but the WTC-related cases of multiple myeloma were contracted after only a few years. Thus, the data from Hiroshima and Nagasaki do not support the claim that the WTC-related cancers are effects of nuclear blasts.

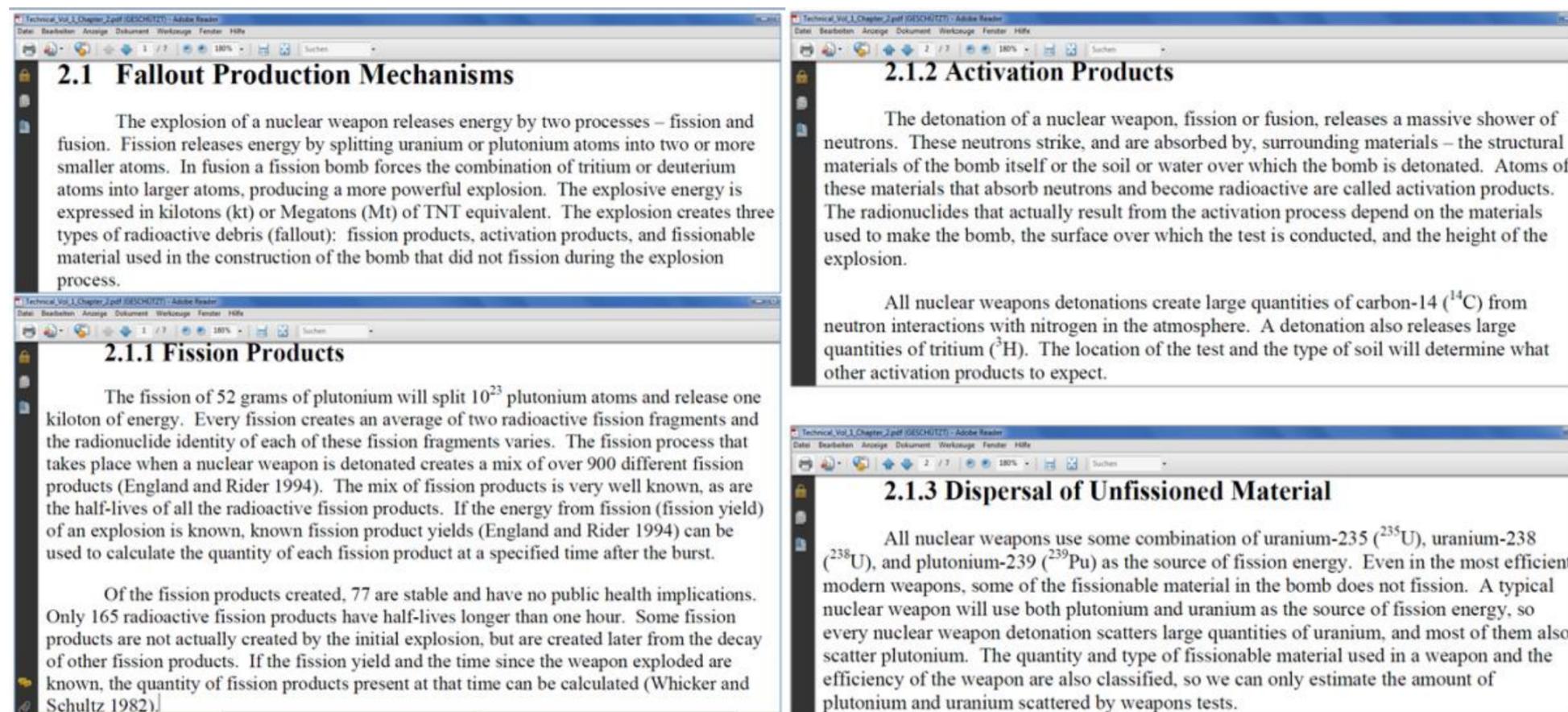
See, too, our assessment of some other claims in footnotes 18 (“cases of acute radiation syndrome”), 19 (“witnesses’ statements: people were vaporized”), 20 (“the term ‘Ground Zero’ is used exclusively for the site of nuclear blasts”), 24 (“extremely low-yielding nuclear weapons were used”), 26 (“distorted WTC steel”), and 27 (“China Syndrome,” “signs of neutron activation”).

#### Footnotes (including references):

To simplify, we use the term “screen shot(s)” to describe the cutouts of computer screen shots.

<sup>1</sup> For all half-life, decay mode and fission product yield data here and in the following: “IAEA NUCLEUS. LiveChart of Nuclides – Advanced version” published by the International Atomic Energy Agency (<http://nucleus.iaea.org/CIR/CIR/LiveChart-AV.html#> / <http://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html>). Other sources of such data exist, for example, the “WWW Chart of the Nuclides 2010” provided by the Nuclear Data Center of the Japanese Atomic Energy Agency (<http://wwwndc.jaea.go.jp/CN10/>).

With respect to the contamination with fission products, unreacted fissile material, and activation products, see, for example: “REPORT ON THE FEASIBILITY OF A STUDY OF THE HEALTH CONSEQUENCES TO THE AMERICAN POPULATION FROM NUCLEAR WEAPONS TESTS CONDUCTED BY THE UNITED STATES AND OTHER NATIONS”; Volume 1, Technical Report, Chapter 2, “Fallout from Nuclear Weapons,” Prepared for the U.S. Congress by the Department of Health and Human Services, Centers for Disease Control and Prevention, and the National Cancer Institute, May 2005, [http://www.cdc.gov/nceh/radiation/fallout/feasibilitystudy/Technical\\_Vol\\_1\\_Chapter\\_2.pdf](http://www.cdc.gov/nceh/radiation/fallout/feasibilitystudy/Technical_Vol_1_Chapter_2.pdf). Quotes/screen shots:



Also, see the following excerpt from an abstract (<http://www.ncbi.nlm.nih.gov/pubmed/10568285>, screen shot with highlights added):

Sci Total Environ. 1999 Sep 30;237-238:311-27.

**Radionuclide characterization and associated dose from long-lived radionuclides in close-in fallout delivered to the marine environment at Bikini and Enewetak Atolls.**

Robison WL, Noshkin VE.

Lawrence Livermore National Laboratory, CA 94551-0808, USA.

**Abstract**

Between June 1946 and October 1958, Enewetak and Bikini Atolls were used by the US as testing grounds for 66 nuclear devices. The combined explosive yield from these tests was 107 million t (million t TNT equivalents). This testing produced close-in fallout debris that was contaminated with quantities of radioactive fission and particle activated products, and unspent radioactive nuclear fuel that entered the aquatic environment of the atolls. Today, the sediments in the lagoons are reservoirs for tens of TBq of the **transuranics and some long-lived fission and activation products**. The larger amounts of contamination are associated with fine and coarse sediment material adjacent to the locations of the high yield explosions. Radionuclides are also

[. . .]

If, as is alleged, nuclear blasts had occurred at the WTC, neutron activation products would have been created in many materials and substances — in stones, earth, and steels, for example. The main pathway for the production of cobalt-60 is based on cobalt-59. Cobalt is, in small amounts, a constituent of many steels.

<sup>2</sup> See, for example: “REPORT ON THE FEASIBILITY OF A STUDY OF THE HEALTH CONSEQUENCES TO THE AMERICAN POPULATION FROM NUCLEAR WEAPONS TESTS CONDUCTED BY THE UNITED STATES AND OTHER NATIONS”; Volume 1, Technical Report, Chapter 2, “Fallout from Nuclear Weapons. 2.1.2 Activation Products,” see above, footnote 1.

The subject of neutron activation caused by fusion reactions is discussed in the scientific literature mainly with respect to fusion-based nuclear reactors. See, for example: R. Hancox, G.J. Butterworth: "The management of fusion waste," in *Fusion Engineering and Design*, Volume 14, Issues 1-2, 1 April 1991, Pages 37-47, <http://www.sciencedirect.com/science/article/pii/092037969190232F>. "Abstract: Fusion reactors based on the deuterium-tritium fuel cycle will generate radioactive waste as a result of neutron irradiation of the structural materials and absorption of the tritium fuel. . . ."

Also see: N. P. Taylor et al.: "OVERVIEW OF INTERNATIONAL WASTE MANAGEMENT ACTIVITIES IN FUSION" Paper presented at 14th ANS Topical Meeting on the Technology of Fusion Energy, October 15-19, 2000, Park City, Utah, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.135.1187&rep=rep1&type=pdf>.

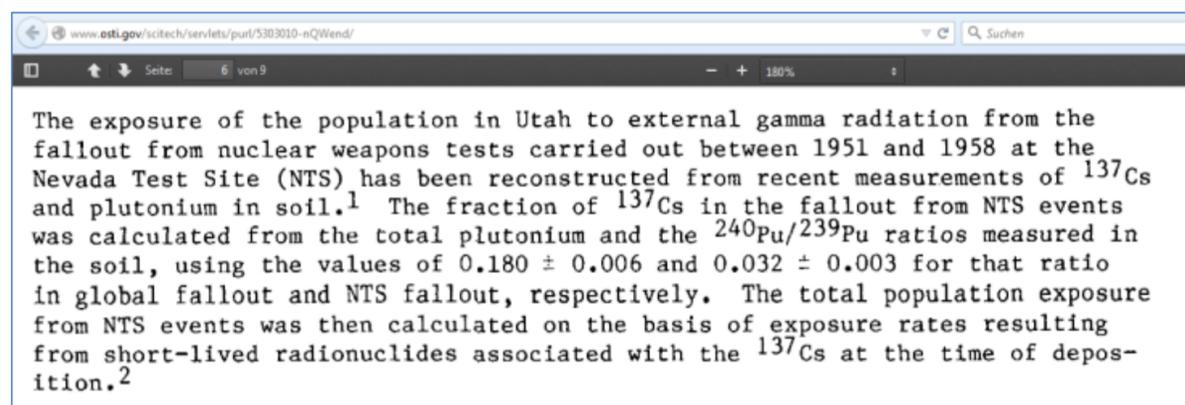
<sup>3</sup> This time scale is given by the half-lives of the fission products, fissile fuels, and/or activation products. Measurements performed in Utah confirm that the contamination that is caused by nuclear weapons can be measured for decades.

See, for example: Beck HL, Krey PW, "Radiation exposures in Utah from Nevada Nuclear Tests," *Science*, 1983 April 1; 220 (4592):18-24, <http://www.ncbi.nlm.nih.gov/pubmed/6828876> :

"Abstract: The exposure of the population of Utah to external gamma-radiation from the fallout from nuclear weapons tests carried out between 1951 and 1958 at the Nevada Test Site has been reconstructed from recent measurements of residual cesium-137 and plutonium in soil. Although the highest exposures were found in the extreme southwest part of Utah, as expected, the residents of the populous northern valleys around Provo, Salt Lake City, and Ogden received a higher mean dose and a significantly greater population dose (person-rads) than did the residents of most counties closer to the test site. However, population doses from external exposure throughout Utah were far too low to result in any statistically observable health effects."

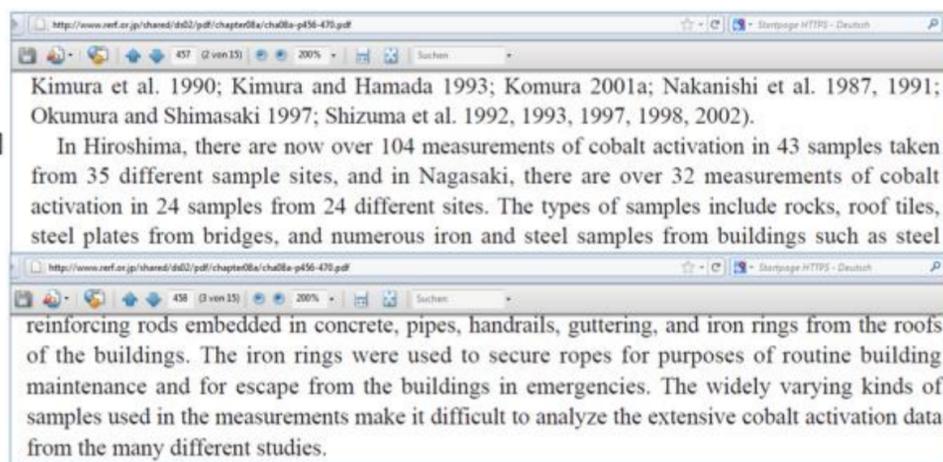
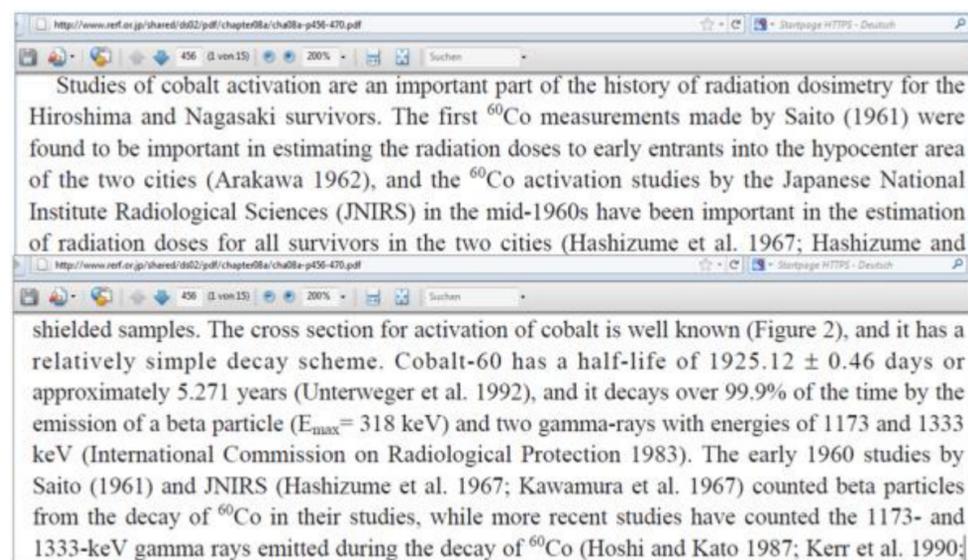
Note that the measurements are described as "recent" in this 1983 publication.

Similarly, see H.G. Hicks, D.W. Barr, "Nevada test Site Fallout Atom Ratios: <sup>240</sup>Pu/<sup>239</sup>Pu and <sup>241</sup>Pu/<sup>239</sup>Pu," Livermore, California, 1984, (<http://www.osti.gov/scitech/servlets/purl/5303010-nQWend/>). Quote/screen shot:



[. . .]

Neutron activation products are detectable for many years. See, for example, G. D. Kerr et al.: "Chapter 8. ACTIVATION MEASUREMENTS FOR THERMAL NEUTRONS. Part A. Cobalt (<sup>60</sup>Co) Activation" (<http://www.rerf.or.jp/shared/ds02/pdf/chapter08a/cha08a-p456-470.pdf>), in Robert W. Young, George D. Kerr (editors): "Reassessment of the Atomic Bomb Radiation Dosimetry for Hiroshima and Nagasaki--Dosimetry System 2002," Radiation Effects Research Foundation, Japan, 2005 (<http://www.rerf.or.jp/shared/ds02/index.html>). Quotes/screen shots:



<sup>4</sup> Note that WTC dust covered parts of Lower Manhattan.

<sup>5</sup> We are not aware of any evidence that the proposed "pure fusion bombs" exist.

<sup>6</sup> The Gamma-Scout Geiger Counter pictured below (left, <http://www.gammascout.com/>, accessed May 2015) is intended for professional use and offered in the standard version on the internet for \$409 (May 2015). Lower-priced devices are available; see, for example, the Geiger Counter Gamma-Easy pictured below (right). They are just two examples of the many different types of radiation measurement devices one can buy.



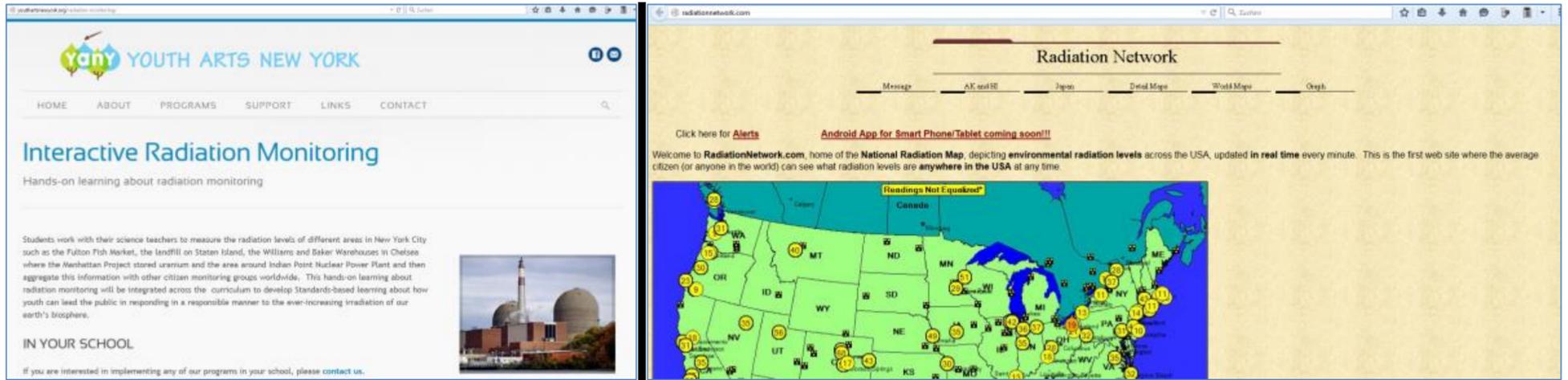
<sup>7</sup> The uranium concentration in the USGS WTC dust samples, which is named by some as evidence that nuclear blasts occurred at the WTC, is in a range that is common for construction materials. Building materials like concrete or mineral wool are made from mineral-rich phases that contain "elevated" levels of trace elements naturally. See, for example, European Commission, "Radiation Protection 112. Radiological Protection Principles concerning the Natural Radioactivity of Building Materials," Directorate-General. Environment, Nuclear Safety and Civil Protection 1999

(<https://ec.europa.eu/energy/sites/ener/files/documents/112.pdf>), and Idaho State University, "Radioactivity in Nature" (<http://www.physics.isu.edu/radinf/natural.htm>, accessed June 2015). See excerpts in footnote 49.

Tritium levels up to two orders of magnitude higher than in the WTC water samples are common in leachate of municipal solid waste sites and in landfill gas condensates (see quote/screen shot in footnote 66). Also, see below: "III. Further problems in the reviewed publications, and our assessment of four frequently repeated claims"/ "(2) Our assessment of the claim that tritium found in a split water sample collected in WTC 6 is evidence that nuclear blasts occurred at the WTC." The elevated tritium levels found in WTC water samples show radioactive contamination, but not contamination that is in line with nuclear blasts.

<sup>8</sup> The independent ownership of devices that can monitor environmental hazards is so common that the NYPD wanted to have it regulated; see "A License to Check for W.M.D.'s?" by Sewell Chan, *New York Times*, January 8, 2008, [http://cityroom.blogs.nytimes.com/2008/01/08/a-license-to-check-for-wmds/?\\_r=1](http://cityroom.blogs.nytimes.com/2008/01/08/a-license-to-check-for-wmds/?_r=1) (accessed June 2015).

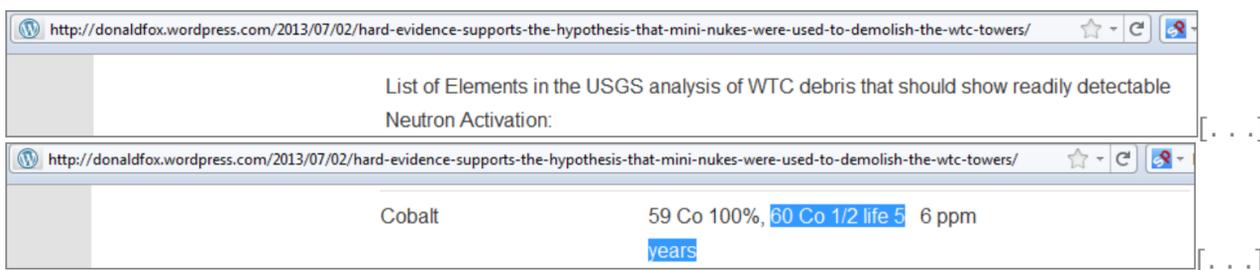
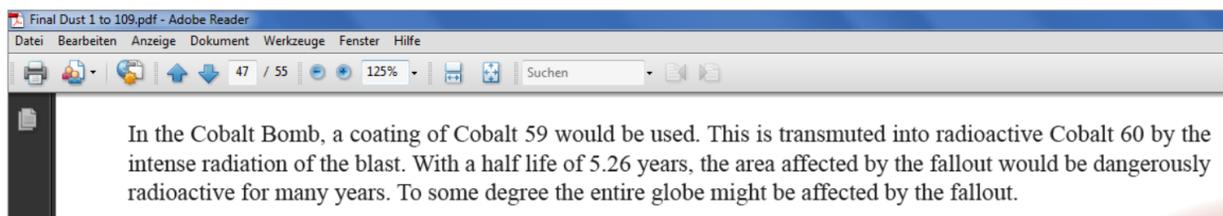
See also the radiation monitoring organized by Youth Arts New York (<http://youthartsnewyork.org/radiation-monitoring>, see screen shot below left) or the independent radiation monitoring by Radiation Network (<http://radiationnetwork.com/>, see screen shot below right):



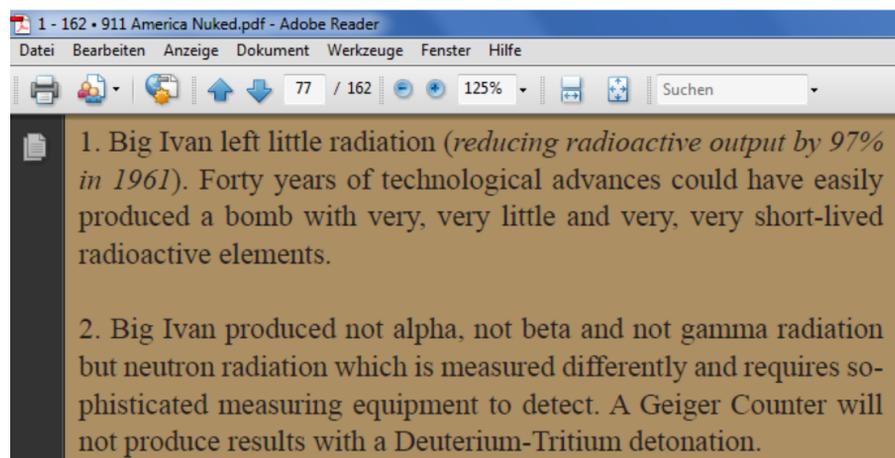
<sup>9</sup> The use of radioactive material and radiation-producing equipment is widespread in the medical profession and common at universities and colleges (see, for example, New York State, Department of Health, Radioactive Materials Licensing, 10 NYCRR Part 16 and Appendices ([http://www.health.ny.gov/environmental/radiological/radon/radioactive\\_material\\_licensing/](http://www.health.ny.gov/environmental/radiological/radon/radioactive_material_licensing/), accessed June 2015). To avoid exposure to harmful doses, personal dosimeters and other radiation measurement devices are used by those who work with radioactive material and radiation-producing equipment. Devices that detect radioactivity are also commonly used by teachers (to demonstrate to students, for experiments), by custom officers and first responders (to detect or exclude hazards), by people working in scrapyards (to check for radioactive materials), and by geologists (to search for and test minerals). See, for example, the website [www.gammascout.com](http://www.gammascout.com) (accessed June 2015).

<sup>10</sup> The decontamination of any larger area cannot be done secretly in any populated area because it takes so much effort. It includes, among other steps, the removal of the top soil layer.

<sup>11</sup> Neutron activation products are detectable for many years; see reference (G. D. Kerr et al.) above, footnote 3. Donald Fox and Jeff Prager are aware that the half-life of the neutron activation product cobalt-60 is about five years (see screen shots below). They suggest, nevertheless, that neutron activation products "would be radioactive for a few days only." Quotes/screen shots from J. Prager's e-book, *DUST: Part 1*, 2011, and from D. Fox and J. Prager, "Hard Evidence Supports the Hypothesis that Mini-Nukes Were Used to Demolish the WTC Towers," 2013 (highlights added):

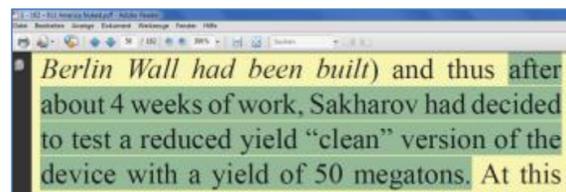
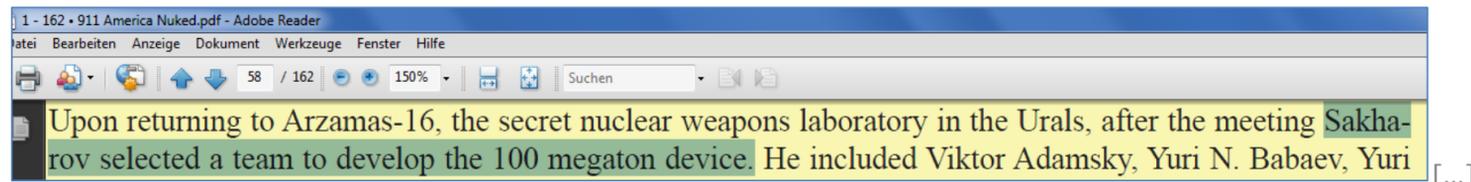
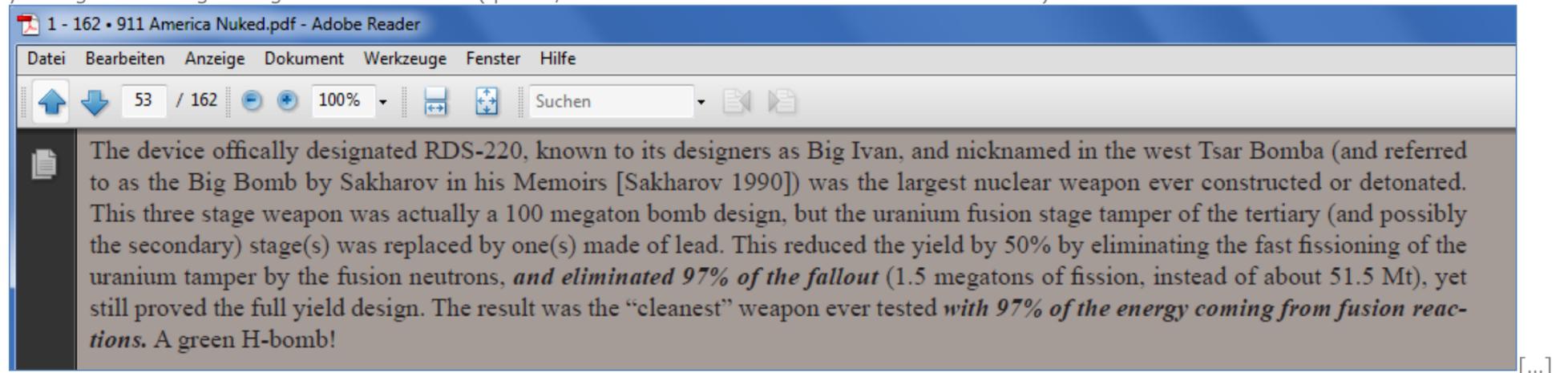


<sup>12</sup> Prager claims in his e-book *911: AMERICA was NUKED\** that a 50 megatons TNT equivalent bomb that included a fission yield of 1.5 megatons TNT equivalent left only "little radiation" and that it produced "not alpha, not beta and not gamma radiation." Quote/screen shot:

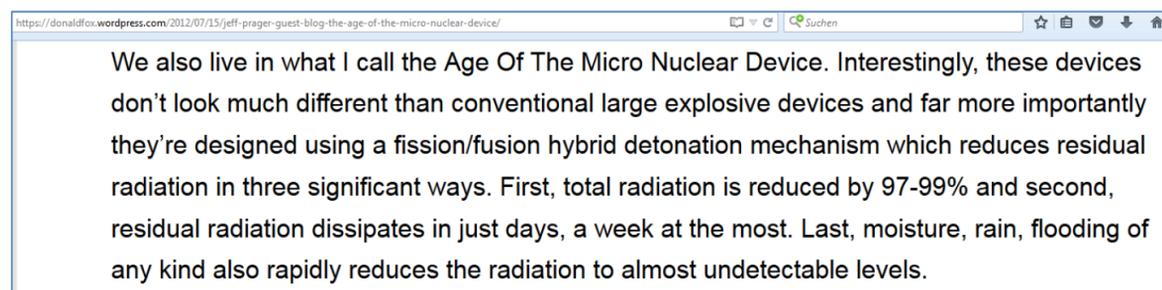


In fact, the bomb must have produced high amounts of radioactive fallout and alpha, beta, and gamma radiation. Its fission yield was 1.5 megatons TNT equivalent — about 100 times as much as the bomb that destroyed Hiroshima. In addition, unreacted fissile fuel and neutron activation products must have contributed to its radioactive fallout. The radioactive fallout of the bomb was "reduced by 97%" from that of the

original design of the bomb, which included an additional 50 megatons TNT equivalent fission stage (i.e., compared to the tested bomb); and the radioactive fallout of the bomb was also not low in absolute terms, but only relative to the extreme destructive power of the bomb, which had a high-yielding fusion stage. Prager is aware of this (quotes/screen shots from *911: AMERICA was NUKED*):



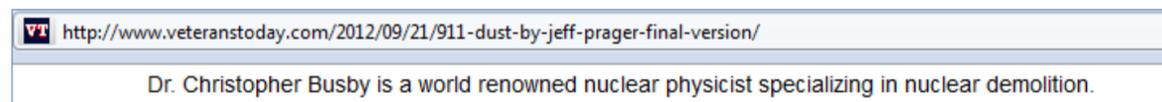
Thus, while Prager is aware that the “reduced” fallout was simply due to a design change that reduced the designed fission yield of the bomb, he suggests nevertheless (based also on an incorrect assumption with respect to neutron activation products) that the test allowed the conclusion that nuclear weapons exist that leave no long-lasting radiation. See, for example, *911: AMERICA was NUKED*, pages 19 and 52, and see “Jeff Prager Guest Blog: The Age Of The Micro Nuclear Device,” 2012 (quote/screen shot):



\* *911: AMERICA was NUKED*, Jeff Prager and No Copyrights Productions. A corrected version, which was announced (“Jeff [Prager] . . . noticed a ‘significant error’ on page 8, and will repair and provide a new link soon”), might have a different page number count.

<sup>13</sup> One refers to statements by Dr. Busby that were made in a radio show and in private email communication. Due to their informal quality, Busby’s statements cannot substantiate claims that do not comport with the scientific literature. Prager presents Busby as “a world renowned nuclear physicist specializing in nuclear demolition”<sup>\*</sup> and as the “the world’s premier nuclear physicist”<sup>\*\*</sup> who publishes in scientific journals, when Busby is in fact a chemist (BSc in Chemistry, PhD in chemical physics)<sup>\*\*\*</sup> whose journal publications cover health implications of the civil use of nuclear energy and of the military use of radioactive materials.

\* See “911 Dust by Jeff Prager — Final Version” (2012) and <sup>\*\*</sup>a blog post by Prager. Quotes/screen shots:



<sup>\*\*\*</sup> <http://www.llrc.org/misc/subtopic/cvbusby.pdf>; [https://en.wikipedia.org/wiki/Christopher\\_Busby](https://en.wikipedia.org/wiki/Christopher_Busby) (accessed June 2015)

<sup>14</sup> The “no lingering radioactivity” statement is derived from Sam Cohen’s autobiography *F\*\*\* You! Mr. President: Confessions of the Father of the Neutron Bomb*.<sup>\*</sup> Cohen’s autobiography does not support the allegation that neutron bombs leave no radioactive contamination. The statement “Per Sam Cohen there will be no lingering radioactivity from the neutron bomb”<sup>\*\*</sup> misrepresents Cohen’s statement and neglects the technical background. A neutron bomb is a special type of fission-fusion bomb. Like all fission-fusion bombs, it inevitably produces radioactive contamination. A neutron bomb triggered in a steel-frame building would produce local radioactive fallout and neutron activation products (such as cobalt-60). Both would be detectable for decades.

Cohen and others proposed to trigger neutron bombs at several hundred meters altitude. They assumed that the radioactive fallout of the bombs would then be dispersed in a manner in which local fallout at high doses could not occur (at least in the absence of heavy rain). Cohen’s statement is also restricted; he refers to “civilian areas” that are not much affected by fighting: “[W]hen the war is over the civilian areas — villages, towns, cities — will be in just about the shape they were in before it started. There will be no lingering radioactivity to prevent occupation of these areas; in fact, they can be reentered almost immediately” (page 124). Cohen proposed the use of neutron bombs above “battlefields.” (Page 124: “In the real world, it is weapon [sic!] that fulfills the dream of civilized nations; namely, a weapon that restricts the battle to the battlefield.”) Note, that Cohen proposes with respect to the civilian areas that “they can be reentered almost immediately” but not immediately. Thus, Cohen expects some level of radioactive contamination for the “civilian areas” even while he assumes that the neutron bombs are triggered at high altitudes and used only above “battlefields.”

\* 3rd Edition, 1996-2006, Los Angeles, [http://www.athenalab.com/Confessions\\_Sam\\_Cohen\\_2006\\_Third\\_Edition.pdf](http://www.athenalab.com/Confessions_Sam_Cohen_2006_Third_Edition.pdf)

\*\* “Hard Evidence . . .” by D. Fox and J. Prager.

<sup>15</sup> The rule of thumb stated in FM 101-31-1, which is cited by some authors, is given with respect to the question of how to estimate dose levels (absorbed radioactivity per mass of human tissue) that military personnel might receive in contaminated areas. Those who refer to this rule of thumb as if it supported the claim that nuclear blasts could have occurred at the WTC without leaving any detectable radioactive contamination, fail to note that elevated radioactivity levels that are not considered harmful to human health are still elevated radioactivity levels — and easily detectable. See,

for example, the measurement of plutonium-240 and -241, and of cesium-137 in Utah and the measurement of cobalt-60 in samples from Hiroshima and Nagasaki (see above, footnote 3).

Some refer also to decades-old reports that ways have been found to avoid radioactive fallout. But these reports were given from a military point of view: Ways were found to minimize the possibility that local radioactive fallout might affect one's own troops. These reports do not imply that no radioactive fallout is produced.

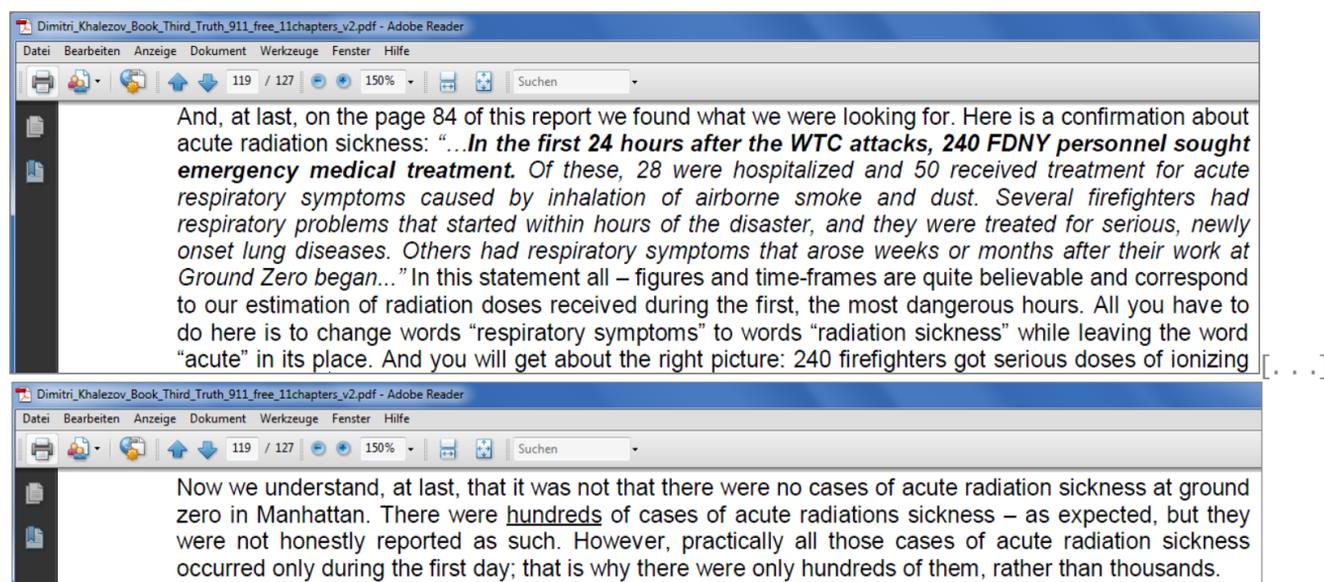
<sup>16</sup> Many of the fission products created by the initial explosion and by the decay of fission products are very short-lived and decay with a half-life in the range of milliseconds, seconds and minutes, respectively. The decay of these short-lived fission products causes high levels of radiation in the immediate aftermath of nuclear blasts.

<sup>17</sup> See, for example: Oak Ridge Institute for Science and Education, U.S. Department of Energy, "Guidance for Radiation Accident Management — Radiation Emergency Assistance Center/Training Site (REAC/TS) — Managing Radiation Emergencies — Guidance for Hospital Medical Management," <http://orise.orau.gov/reacts/guide/syndrome.htm> (accessed June 2015): "Acute radiation syndrome (ARS) is an acute illness caused by irradiation of the whole body (or a significant portion of it). It follows a somewhat predictable course and is characterized by signs and symptoms which are manifestations of cellular deficiencies and the reactions of various cells, tissues, and organ systems to ionizing radiation. Immediate, overt manifestations of the acute radiation syndrome require a large (i.e., hundreds of rem, usually whole-body) dose of penetrating radiation delivered over a short period of time. Penetrating radiation comes from a radioactive source or machine that emits gamma rays, X-rays, or neutrons. The signs and symptoms of this syndrome are non-specific and may be indistinguishable from those of other injuries or illness. The ARS is characterized by four distinct phases: a prodromal period, a latent period, a period of illness, and one of recovery or death. During the prodromal period patients might experience loss of appetite, nausea, vomiting, fatigue, and diarrhea; after extremely high doses, additional symptoms such as fever, prostration, respiratory distress, and hyperexcitability can occur. However, all of these symptoms usually disappear in a day or two, and a symptom-free, latent period follows, varying in length depending upon the size of the radiation dose. A period of overt illness follows, and can be characterized by infection, electrolyte imbalance, diarrhea, bleeding, cardiovascular collapse, and sometimes short periods of unconsciousness. Death or a period of recovery follows the period of overt illness. In general, the higher the dose the greater the severity of early effects and the greater the possibility of late effects. Depending on dose, the following syndromes can be manifest:

- Hematopoietic syndrome - characterized by deficiencies of WBC, lymphocytes and platelets, with immunodeficiency, increased infectious complications, bleeding, anemia, and impaired wound healing.
- Gastrointestinal syndrome - characterized by loss of cells lining intestinal crypts and loss of mucosal barrier, with alterations in intestinal motility, fluid and electrolyte loss with vomiting and diarrhea, loss of normal intestinal bacteria, sepsis, and damage to the intestinal microcirculation, along with the hematopoietic syndrome.
- Cerebrovascular/Central Nervous System syndrome - primarily associated with effects on the vasculature and resultant fluid shifts. Signs and symptoms include vomiting and diarrhea within minutes of exposure, confusion, disorientation, cerebral edema, hypotension, and hyperpyrexia. Fatal in short time.
- Skin syndrome - can occur with other syndromes; characterized by loss of epidermis (and possibly dermis) with "radiation burns."

See also, for example: U.S. Department of Health & Human Services. Radiation Emergency Medical Management. Acute Radiation Syndrome (ARS). [http://www.remm.nlm.gov/ars\\_summary.htm#whatisars](http://www.remm.nlm.gov/ars_summary.htm#whatisars), accessed June 2015, and J. M. M. Darte and Walter M. Little, "Management of the Acute Radiation Syndrome," *Can Med Assoc J.* 1967 January 28; 96(4): 196–199. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1936913/> (abstract), <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1936913/pdf/canmedaj01200-0015.pdf> (full text), and Centers for Disease Control and Prevention, Emergency Preparedness and Response "Acute Radiation Syndrome: A Fact Sheet for Clinicians," <http://www.bt.cdc.gov/radiation/arsphysicianfactsheet.asp>, accessed June 2015.

<sup>18</sup> Referring to an article by John Howard,\* Dimitri Khalezov\*\* claims that cases of acute radiation syndrome occurred but were covered up (quotes/screen shots):



In the same publication, Khalezov argues that no cases of acute radiation syndrome occurred (see quote below, footnote 23); therefore even Khalezov's own belief in the claimed cover-up might be very limited.

The differences in the symptoms and in the necessary treatments of acute radiation sickness (see above, footnote 17), and of acute respiratory problems, are very obvious; thus, the alleged cover-up is not feasible. In addition, it is quite reasonable to assume that the 240 firefighters mentioned in Howard's report would indeed have sought treatment for problems related to their respiratory tracts — the respiratory tract is adversely affected when one is caught in dust and smoke plumes. Howard gives a detailed account how the FDNY dealt with the health implications of the WTC destruction after September 11. A short summary of Howard's account: The FDNY "quickly initiated medical screenings of their members who responded to the WTC disaster and began reporting their findings in the peer-reviewed medical literature," a study initiated by the FDNY examined 370 firefighters' body fluids "to learn whether any of their personnel had internally absorbed any of 110 potentially fire-related chemicals as a result of being exposed to the WTC site." . . . 332 firefighters had developed severe cough; thus they were evaluated for the presence of bronchial hyperreactivity about one month after September 11, and 362 firefighters underwent spirometric lung function tests in October 2001. Bronchial hyperreactivity was found in 103 firefighters that responded to the WTC. "Reductions in lung functions were greater than the expected annual reductions measured in a reference group of FDNY firefighters prior to September 11, 2001. . . . Additionally, there was a 60 percent increased risk of a decline of greater than 450 milliliters in forced vital capacity in one second (FEV1) for those personnel arriving at the WTC site during the first 48 hours. . . . Based on these initial findings, and to better define the respiratory consequences of WTC exposures, FDNY analyzed longitudinal lung function from 1997 through 2002 in the entire FDNY WTC medical screening cohort of 12,079 individuals. . . . Results showed that WTC-exposed firefighters experienced a substantial reduction (372 milliliters) in average FEV1 during a single year after September 11, 2001. . . . The 372 milliliter loss equaled 12 years of age-related decline and the loss in lung function correlated linearly with exposure intensity as assessed by initial arrival time. . . ."

\*J. Howard: "THE WORLD TRADE CENTER DISASTER: HEALTH EFFECTS AND COMPENSATION MECHANISMS" in *Journal of Law and Policy*, Volume 16, Issue 1, 2007, pages 68[69]ff, [http://www.brooklaw.edu/~media/PDF/LawJournals/JLP\\_PDF/jlp\\_vol16i.ashx](http://www.brooklaw.edu/~media/PDF/LawJournals/JLP_PDF/jlp_vol16i.ashx)

\*\*D. A. Khalezov, *9/11thology: The "third" truth about 9/11 or Defending the US Government, which has only the first two . . . ; Free 11-Chapters Edition v.2 - July 2010*

<sup>19</sup> A critical discussion of witness statements is standard in all professions that deal regularly with such statements. Authors promoting the claim that nuclear blasts occurred at the WTC interpret literally, without any such critical discussion, the terms that witnesses have used — or might have used. For example, Prager claims that people were “vaporized” and “disintegrated” at the WTC and suggests that this is evidence that nuclear blasts occurred (*911: AMERICA was NUKED*, page 151: “vaporized human beings ... only radiation does this ...”). But, the statements are not reported first-hand (*911: AMERICA was NUKED*, page 155), and if people had seen with their naked eyes that other people “vaporized” or “disintegrated” due to nuclear blasts, they would not have been able to survive and report it, but they themselves would also have died immediately. Note that we do not dispute that witnesses might have used terms like “disintegrated.” The problem is in the literal, uncritical interpretation of witness statements, and even second-hand witness statements.

<sup>20</sup> Khalezov claims that the term “ground zero/Ground Zero” has been used for decades exclusively for the site of nuclear blasts (Khalezov, *9/11thology: . . .*, page 26/PDF page 27). But emergency services in the U.S. have been using the term “ground zero” for the site of conventional explosions. See, for example, the use of the term “ground zero” by the Marietta Fire and Emergency Services in 1996/1997, [http://www.floridadisaster.org/EMTOOLS/Terrorism/Bomb\\_sem/bomb\\_fd.pdf](http://www.floridadisaster.org/EMTOOLS/Terrorism/Bomb_sem/bomb_fd.pdf). Quotes/screen shots (highlights added):

**MARIETTA FIRE AND EMERGENCY SERVICES**  
**AUC 305**  
**Revised 3/25/97**

**DATE:** March 22, 1996  
**TO:** All Personnel  
**FROM:** Chief of the Department  
**RE:** Bomb Search Policies & Procedure

There is a significant probability of joint fire-police-medical operations involving the following events:

Consequence Management	Crisis Management
Fire	Police
Fires/Rescue/Medical	Shots fired - officer down
Accidental chemical release/explosion	Hostage situation
Intentional chemical release/explosion	Armed/barricaded suspect
Structure collapse	Crisis response team deployed
Detonated explosive device	Bomb threat

arriving emergency unit will (1) confirm location, (2) report estimated casualties/damage, (3) wind direction/drainage. Upon confirmation of the fact that an explosive device has been detonated, incoming equipment should stage from 1000' to 3000' from zero from an assembly point to capture walking wounded and witnesses who should be guided into the safety/holding area. Additional in-coming equipment should be instructed to stage 2000' from ground zero. When multiple threats to the same location have been received, vary staging area locations. The treatment and transport sector will initially be established in this area to track all injury transports. An air control area should be requested defining at least a 3000' minimum approach distance to ground zero (NoTAMs).

9. Hot Zone/Division - The innermost perimeter of the event. It is all the area inside the warm zone/division representing the maximum risk area. This is the area where the offending element (person/group/hazard) would inflict reversible/irreversible harm/death to personnel. It begins at ground zero progressing outward through the blast, secondary and cautious areas abutting against the warm zone. Frequently it reaches approximately 1000' from ground zero, and may be as much as 2000'.

In addition, the term “ground zero/Ground Zero” has been used in a figurative sense in American English.

<sup>21</sup> Khalezov’s destruction scenario, for example, depends on the claim that underground nuclear explosions create a special state in solid matter (see quotes/screen shots below and in footnote 79). No references or substantiated arguments are provided to back up the extraordinary claim that parts that appear to be large solid structures are in fact dust.

of the “terrorist plane”. The Tower, even though it still looked like a “rigid” structure, indeed has totally lost its rigidity and became in fact just a formed pile of dust. To be totally exact, we could say that the Tower was actually not “dust” yet, in reality it was still a bar of the “pulverized matter” which was still sticking together, but it was as fragile as a completely dried-up “sandy castle” which was about to become disintegrated under its own weight. Immediately the heavy upper part [...]

pressure. The state of being “dustified” in this particular case is in fact a kind of very interesting state of any material. Except only after an underground nuclear explosion, it can not be found anywhere else in the nature. It looks like this: while remaining seemingly “solid” the so “dustified” rock (or whatever other material) will be immediately reduced to microscopic dust under slightest mechanical pressure. You can even crush this kind of material to fine dust by simply pressing it with your bare hands for example – it is that fragile. It could be probably compared with an extra dry (means deprived of any oil) halva or with a snowball made from snow which was not sticky. Such a “dustified”, yet looking like still “solid” matter will

Prager claims in *911: AMERICA was NUKED* (page 161) that cold fusion “does produce powerful explosive devices.” No substantiated reference or any convincing line of argument is provided that could back up this extraordinary claim.

Prager (*DUST: Part 1*, PDF page 45) and William Tahil\* (page 45/PDF page 57) suggest that the products of neutron-induced fission can fission again due to neutron radiation. No reference is provided to back up the extraordinary statement.

\* William Tahil, *Ground Zero: The Nuclear Demolition of The World Trade Centre. Incontrovertible Proof that the World Trade Center was destroyed by Underground Nuclear Explosions*, 2006, page 45/PDF page 57.

<sup>22</sup> Tahil, for example, does not adequately address that all standard methods to provide “evidence for radioactive fallout” are based on measurements of radioactive radiation. The subject “radiation measurements” is not even mentioned in the 67-page chapter “Evidence of Radioactive Fallout,” which is part of his book *Ground Zero: . . .*

The subject “radiation measurements” is also not discussed straightforwardly by some other authors. D. Khalezov’s suggestion that dosimeters might have been forbidden at Ground Zero is, for example, presented in a chapter that discusses “Levels of radiation and personal radiation doses received at ‘Ground Zero’” (*9/11thology: . . .*, page 111/PDF page 112).

<sup>23</sup> For example, several authors claim on the one hand that USGS WTC dust study data prove radioactive fallout in the dust (including strontium) but suggest on the other hand that special nuclear bombs were used at the WTC that leave only radioactive contamination that lasts five to six days (see below “(1) Our assessment of the claim that data from the USGS WTC study prove radioactive fallout in the WTC dust”).

Khalezov, for example, claims that many cases of acute radiation syndrome occurred but were covered up (see above, footnote 18). In the same publication, he states that no cases of acute radiation syndrome occurred. (Note, with respect to Khalezov’s “were chronic” statement, that Khalezov interprets the WTC-related cancer cases as cases of chronic radiation sickness.) Quote/screen shot:

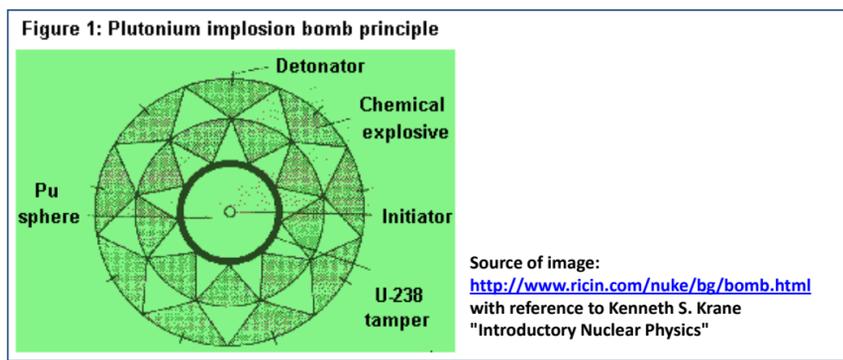
treatment. Apparently, this did not happen as well – nobody is known to be hospitalized with any symptom of acute radiation sickness immediately after 9/11. Actually, all cases of radiation sickness related to the WTC nuclear demolition (practically only among ground zero workers and among nearby Manhattan residents) were chronic rather than acute – being caused not by penetrating radiation, which [ . . . ]

24 For example, "Anonymous Physicist" ("Proof of the Existence of Mini-Nukes and Micro-Nukes," 2007) misquotes and misrepresents a statement by P. Leitner to constitute "proof" of his allegation that extremely low-yielding nuclear weapons do exist (quote/screen shot):

The .01 kiloton (kt) TNT equivalent is about 1/1000th of the Hiroshima (20KT) blast. **And here is a govt scientist, Peter Leitner, PhD, speaking to a Congressional Committee, in 1998.** This is proof of nuclear bombs down into the range of "several pounds of TNT." He stated, "These experiments involve the ACTUAL TESTING of extremely low-yield fission devices (as low as the equivalent of several pounds of TNT) within a confined environment." Several pounds of TNT is equivalent to about 1/10,000,000th (one ten millionth) of the Hiroshima blast. Thus the U.S. Govt admitted having micro-nukes, and beyond in 1998. Note that this public admission stated that the testing was done "in a controlled environment."

In fact, Leitner did not report any extremely low-yielding nuclear weapons, but he did report on the subject of computer-aided nuclear weapon research in combination with hydronuclear and hydrodynamic tests, and his statement does not support "Anonymous Physicist's" claims. "Anonymous Physicist" altered Leitner's sentence. The original sentence is longer, see below. Moreover, he took it out of context (see a quote from Leitner's statement below).

The assertion that very low-yielding nuclear weapons were used to destroy the WTC is also compromised by a lack of motive. At any rate, chemical high explosives are used in nuclear weapons; they are necessary to assemble the critical mass. Usually some tens of kilograms of chemical explosives are arranged spherically in a sophisticated manner around the fissile material (the so-called "implosion geometry"):



Thus, it is not reasonable that anyone who wanted to covertly compromise the structural integrity of a steel-frame building could have the motive of using very low-yielding nuclear bombs instead of chemical high explosives, given that the latter are required in any case and are known to cut steel easily when appropriately used. Chemical high explosives are also more reliable in their effects (in terms of blast yield/energy release) than any very low-yielding nuclear bomb (if they exist) can be. Moreover, chemical high explosives do not leave any radioactivity, whereas nuclear bombs leave radioactivity that is easily detectable for decades.

It is in general questionable if anyone would construct low yielding nuclear bombs — which are sophisticated and therefore expensive, and which also need expensive fissile fuel — given that low yielding bombs can be made using just chemical explosives. Leitner speaks in 1998 not about "nuclear bombs" but about "weapons-related research envisioned for the U.S. National Ignition Facility." Weapons-related research conducts so-called "hydronuclear experiments/test" to address, or circumvent, commitments resulting from nuclear test ban and non-proliferation treaties. The first hydronuclear experiments, with the aim "to assure the safety of U.S. nuclear weapons in the event of accidental detonation of their high explosive components,"\* were performed in 1960-61 during a nuclear test moratorium. The main yield in these tests resulted from the detonation of the chemical explosives; the nuclear fission yields ranged from zero to a maximum of 0.01 pound TNT equivalent. (See "The Comprehensive Nuclear Test Ban Treaty — Technical Issues for the United States," Committee on Reviewing and Updating Technical Issues Related to the Comprehensive Nuclear Test Ban Treaty, Policy and Global Affairs, National Research Council, page 102.)

\* R.N. Thorn, D.R. Westervelt, "Hydronuclear Experiments," Los Alamos National Laboratory, 1987, <https://fas.org/sqp/othergov/doe/lanl/docs1/00090266.pdf>, page 1/PDF page 4.

Excerpt from Leitner's statement (screen shots from <http://www.fas.org/asmp/resources/govern/leitner042898.html>, highlights added):

**Technology Decontrols: Striking at the Heart of U.S. National Security**

**Dr. Peter Leitner Author, "Decontrolling Strategic Technology, 1990-1992**  
 Statement before the Joint Economic Committee  
 United States Congress  
 Washington, D.C., April 28, 1998

Mr. Chairman, members of the committee, I am honored to appear before you today to discuss the issue of technology transfer and the release of so-called dual use technologies to potential military adversaries and countries engaged in nuclear, chemical, biological, and missile proliferation. I am obliged to point out that I am appearing today as a private citizen and not as a

There is growing speculation that the Clinton administration's furious push to decontrol supercomputers, widely seen as a payoff for generous campaign support and contributions,<sup>2</sup> was also intended to underwrite Comprehensive Test Ban Treaty (CTBT) signatures by providing an avenue for weapons testing, stockpile stewardship, and ongoing weapons development without the need for the physical initiation of a nuclear chain reaction.

**Going Virtual -- What Does It Mean?**

Virtual testing, modeling, and simulation are essential to clandestinely maintain or advance nuclear weapons technology. As the planet shows no sign of nearing the point where nuclear weapons are banned, it is reasonable to assume that current or aspiring nuclear weapons states will vigorously attempt to acquire high-performance computers to advance their nuclear programs with a degree of covertness hitherto impossible to achieve.

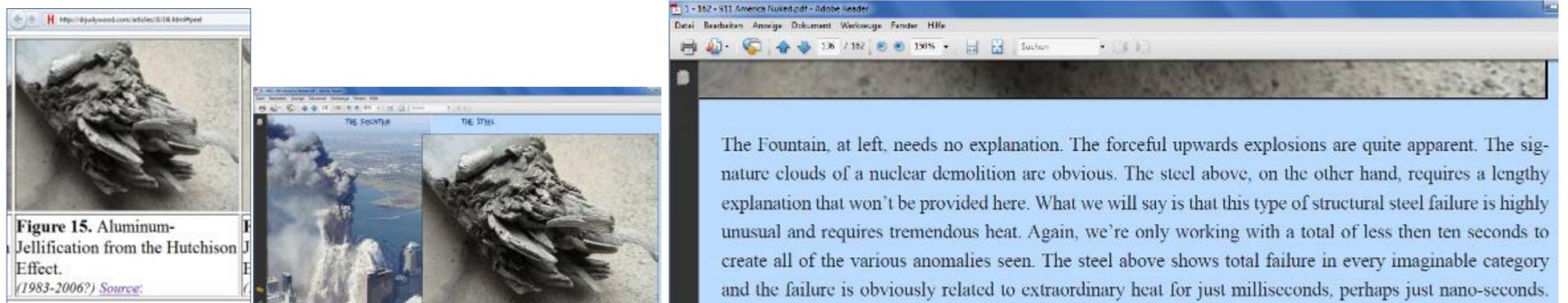
The weapons-related research envisioned for the U.S. National Ignition Facility would rely on high-performance computers and test equipment to explore a range of activities potential adversaries may duplicate. These include:<sup>4</sup>

**Mix and hydrodynamics:** These experiments involve the actual testing of extremely low-yield fission devices (as low as the equivalent of several pounds of TNT) within a confined environment . . . to study the physics of the primary component of thermonuclear warheads by simulating, often with high explosives, the intense pressures and heat on weapons materials. (The behavior of weapons materials under these extreme conditions is termed 'hydrodynamic' because they seem to flow like incompressible liquids.) Hydrodynamic experiments are intended to closely simulate, using non-nuclear substitutes, the operation of the primary component of a nuclear weapon, which normally consists of high explosive and fissionable material (the plutonium pit). In hydrodynamic experiments, the properties of surrogate pits can be studied up to the point where an actual weapon releases fission energy. High explosives are used to implode a surrogate non-fissile material while special X-ray devices (dynamic radiography) monitor the behavior of the surrogate material under these hydrodynamic conditions.<sup>5</sup>

With respect to the hydrodynamic experiments referred to by Leitner, see, for example, N. Roth, H. M. Kristensen and S. Young: "Hydrodynamic Tests: Not to Scale," <http://blogs.fas.org/security/2011/09/stockpileplan2011-3>, and "THE BOMBPLEX: HIGH EXPLOSIVES TESTING AT SITE 300," published by Tri-Valley Communities Against a Radioactive Environment (<http://www.trivalleycares.org/factSheet/6-site300FactSheet.pdf>).

- 25 One claims, for example, that alpha particles decay into lithium (see below). But alpha particles are stable helium-4 nuclei; they do not decay.
- 26 Prager presents a photograph that allegedly shows WTC steel. The pictured object obviously does not resemble WTC steel (WTC steel does not look like silvery, painted wood). Rather, it is an object that has been used by the Canadian John Hutchinson to illustrate his claims about the existence of a "Hutchinson Effect."

One screen shot from J. Wood's website (see our FAQ #3, see footnote 78) and two screen shots from Prager's *911: AMERICA was NUKED*:



The primary source of the photograph is a zip file by Hutchinson (<http://www.americanantigravity.com/graphics/Hutchison-Photos-Sept05.zip>), which is available at <https://archive.org/> (accessed June 2015).

- 27 It is claimed, for example, that hundreds of tons of uranium fissioned at the WTC on September 11, 2001. The massive scale of the alleged nuclear blasts is implausible (see below).

It is suggested that USGS WTC dust sample data\* show "signs of neutron activation." Quotes/screen shots from "Hard Evidence Supports . . ." by Fox and Prager; the table is shown in excerpts only:

<http://donaldfox.wordpress.com/2013/07/02/hard-evidence-supports-the-hypothesis-that-mini-nukes-were-used-to-demolish-the-wtc-towers/>

Some nuclear force has been able to inject neutrons into the nucleus of various elements present at the WTC area. See the table below.

List of Elements in the USGS analysis of WTC debris that should show readily detectable Neutron Activation:

Element Isotopes	Isotope Percentages in Nature	Mean Percentage in USGS analysis
Silicon	28 Si 92.23%, 29 Si 4.67%	15%
Iron	56 Fe 91.72%, 57 Fe 2.2%, 58 Fe 0.28%	1.63%

For an example, Iron is expected to have the Fe (58) isotope, which contains two additional neutrons, 0.28% naturally, but somehow there were 1.63% of these heavier, but still stable iron isotopes in the WTC sample.

In fact, the USGS study does not provide any data about the isotopic composition of the WTC dust samples. It therefore gives no indication that there "were 1.63% of these heavier, but still stable iron isotopes" in the USGS WTC dust samples. The natural isotopic compositions of some elements in Earth's crust, and the mean amounts of the respective elements in the USGS WTC dust samples (such as the mean iron concentration of 1.63%), do not allow the stated conclusions ("signs of neutron activation," etc.). Thus, the respective claim and the added explanation are absurd.

It is claimed that the pools of molten metal and the persistence of high temperatures at the WTC are evidence that a so-called "China Syndrome" occurred at the WTC. The term "China Syndrome" refers usually to an enduring, unmanageable generation of heat caused by the decay of fission products and unspent fuel in the event of a core meltdown in nuclear reactor accidents. If the molten pools at the WTC site had consisted of fissile fuels and fission products, radioactive substances contained in the pools would have spread as aerosols over New York and New Jersey (cesium, for example, melts at only 28.7 °C and boils at 690 °C). Given the obvious differences (in terms of habitability) between the area around the WTC and the area around Chernobyl the "China Syndrome occurred at the WTC" claim is implausible.

\* Roger N. Clark, et al., "Environmental Studies of the World Trade Center area after the September 11, 2001 attack." U. S. Geological Survey. Open-File Report 01-0429. Nov. 27, 2001, <http://pubs.usgs.gov/of/2001/ofr-01-0429/> : "Chemical compositions of the WTC dusts and girder coating material," <http://pubs.usgs.gov/of/2001/ofr-01-0429/chem1/index.html>.

- 28 Prager's e-books *911: AMERICA was NUKED* and *DUST* contain plenty of material produced by other persons that are not appropriately referenced, such as diagrams, literal quotes, and marginally rephrased texts. In Prager's *DUST*, Tahil is not mentioned, but large parts of the book rely heavily on Tahil's diagrams, arguments, and statements, which are used by Prager either word for word or slightly rephrased. See, for example, the paragraph "The major elements" (Tahil, *Ground Zero: . . .*, page 22/PDF page 34; Prager, *DUST: Part 1*, PDF page 20), and the paragraph "Diphenyl" (Tahil, page 113/PDF page 125; Prager *DUST: Part 2*, PDF page 10). Also see the quotes in footnote 61. It is not uncommon to skip the

typical academic-style references when arguments are reused in the discussion of the WTC destruction, but Prager handles Tahil's statements in a manner that is close to plagiarism.

<sup>29</sup> Most of these attacks are directed against physicist Steven E. Jones, who rejected the claim that "mini-nukes" were used during the WTC destruction based on data from various publications and on radioactivity measurements that he performed on WTC dust and WTC steel. We are not aware of any evidence that contradicts Jones' assessment, which is published in his 2006 article, "Hard Evidence Repudiates the Hypothesis that Mini-Nukes Were Used on the WTC Towers" (<http://www.journalof911studies.com/letters/a/Hard-Evidence-Rebudiates-the-Hypothesis-that-Mini-Nukes-were-used-on-the-wtc-towers-by-steven-jones.pdf>). On the contrary, his assessment is supported by the fact that those who claim that nuclear blasts occurred at the WTC do not provide evidence for elevated radioactivity levels consistent with that claim. His assessment is also in line with our conclusion that, given the large number of people with access to suitable measuring devices, elevated radioactivity levels in New York would not have gone unnoticed. While Jones' article addresses the proposed use of "mini-nukes" specifically, Jones' argument is also applicable to the other proposed nuclear blast scenarios.

Prager's *911: AMERICA was NUKED* contains several statements suggesting that Jones covers up a nuclear destruction of the WTC. Prager claims that Jones omits crucial evidence deliberately. But, to cite one example, the persistence of very high temperatures at the WTC site allegedly omitted by Jones (*911: AMERICA was NUKED*, page 142) has actually been discussed by Jones since 2005. Prager is even aware of this (for example, *911: AMERICA was NUKED*, page 103). The tritium levels in a split water sample from WTC 6 (which housed an AFT weapons vault with weapons that contained tritium night sights, see below) has been discussed by Jones, too (see Jones' "Hard Evidence . . ."). In addition, Jones indirectly addresses the alleged evidence for nuclear blasts at the WTC in his paper "Hard evidence . . ." when he rules out the use of nuclear bombs at the WTC based on the fact that no elevated radioactivity levels consistent with nuclear blasts have been reported, nor shown by his own measurements.

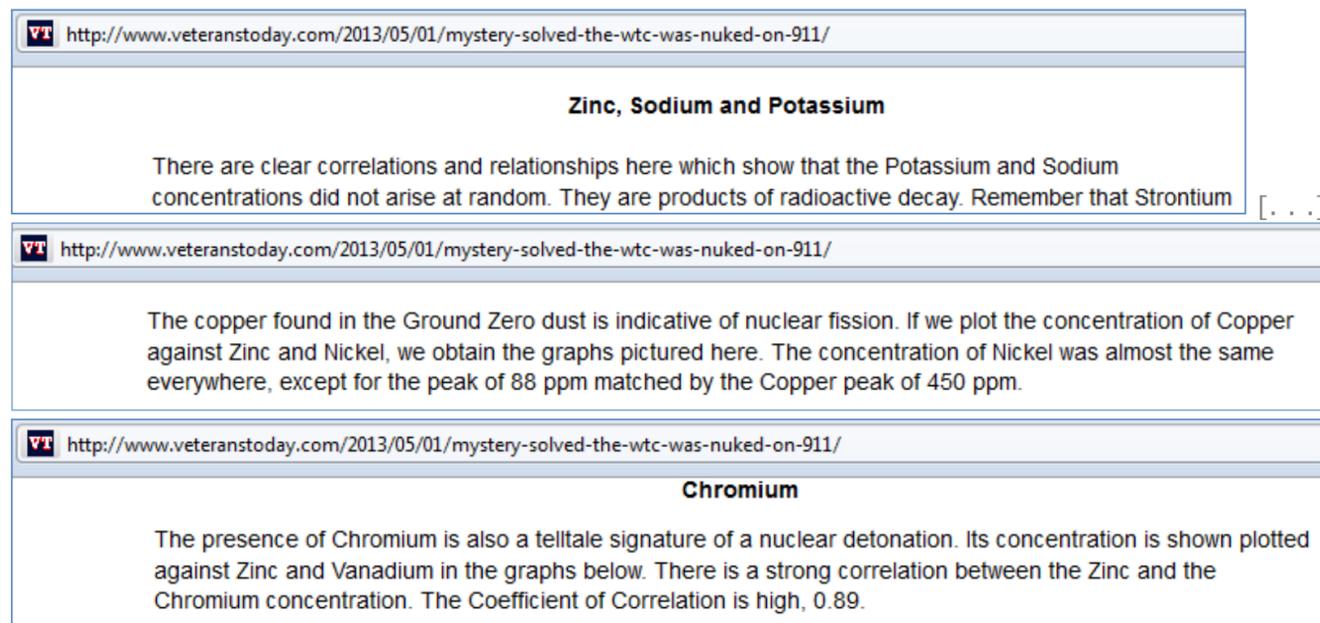
Nevertheless, this line of argument by Jones, which fits common scientific standards, is countered by Prager *ad hominem*: "Don't the people know how the government lies, in perpetuity, about the Pearl Harbor set-up, the Kennedy assassination, the USS Liberty and many more nefarious deeds it's perpetrated? In a similar vein, is anyone foolish enough to trust a certain physicist's alleged data on his tests of a single steel beam and some dust from a friend's apartment? . . . [W]hy would he use faulty science to rule out the nuclear facts?" (*911 AMERICA was NUKED*, page 141). Prager's statement is remarkable because Prager himself asserts that nuclear devices that leave no long-lasting detectable radioactivity might exist and have been used at the WTC (see, for example, *911: AMERICA was NUKED*, pages 7, 69, 98, and 142). Prager suggests also that Jones' research in the field of muon-catalyzed fusion yielded results that were useful for developing nuclear bombs [page 103]. No scientific (or any other) literature has been provided by Prager to substantiate his assertions that "muon-Catalyzed fusion detonations" were tested, or that muon-catalyzed fusion is used in nuclear bombs. The alleged "Muon-Catalyzed fusion detonations . . ." photograph [*911: AMERICA was NUKED*, page 104] was once available as photo NF1679, U.S. DoE. It depicts a test preparation at the Nevada atomic bomb test site according to its DoE caption.

<sup>30</sup> Also see our assessment of some other claims in footnotes 18 ("cases of acute radiation syndrome"), 19 ("witnesses' statements: people were vaporized"), 20 ("the term 'Ground Zero' is used exclusively for the site of nuclear blasts"), 24 ("extremely low-yielding nuclear weapons were used"), 26 ("distorted WTC steel"), and 27 ("China Syndrome," "signs of neutron activation").

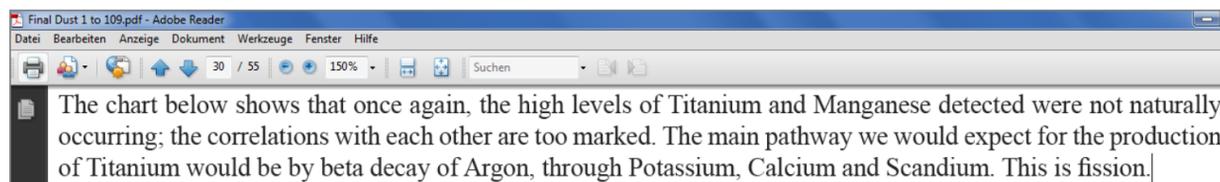
<sup>31</sup> Roger N. Clark, et al., "Environmental Studies of the World Trade Center area after the September 11, 2001 attack"; see above, footnote 27.

<sup>32</sup> See, for example, Tahil, *Ground Zero: . . .*, pages i, 1, 13ff/PDF pages 11, 13, 25ff; "Mystery Solved: The WTC was Nuked on 9/11," by D. Fox, Ed Ward, and J. Prager; Prager, *DUST: Part 1*, PDF pages 6, 15-26.

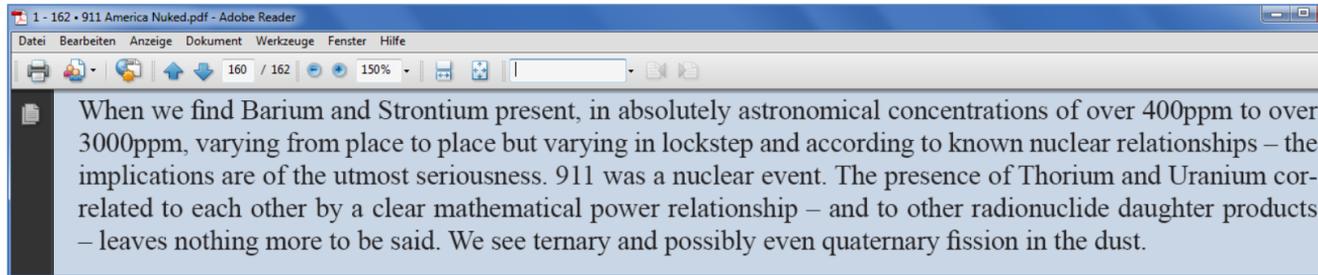
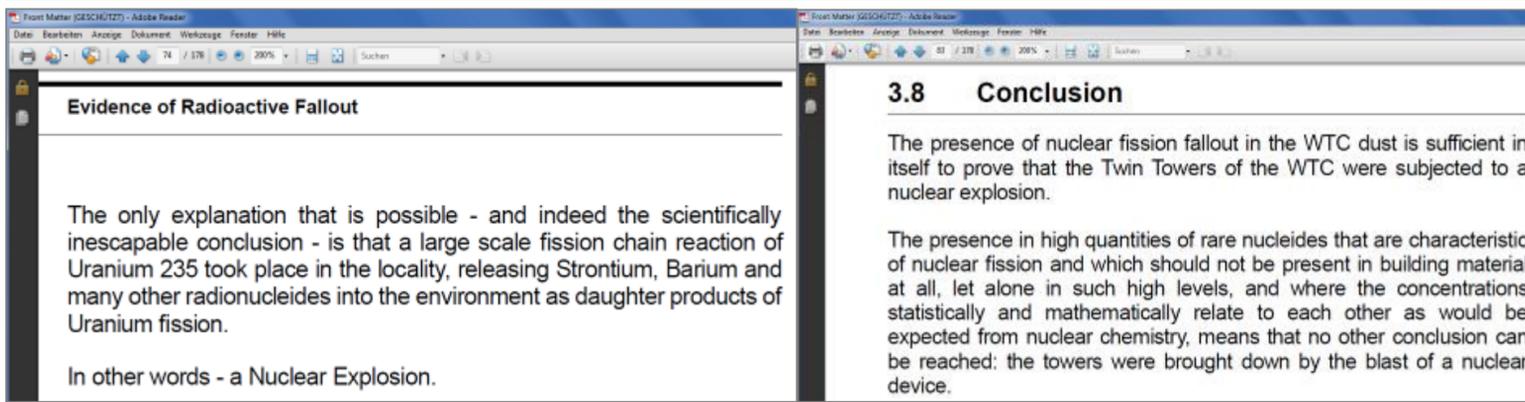
<sup>33</sup> For example, quotes/screen shots from "Mystery Solved . . .," by D. Fox, E. Ward, and J. Prager:



And, quote/screen shot from Prager's *DUST: Part 1*:



<sup>34</sup> With respect to the claims about uranium, thorium, lithium, and other trace elements, see, for example, Tahil, *Ground Zero: . . .*, pages 54-56/PDF pages 66-68, and Prager, *DUST: Part 1*, PDF pages 40-42, and quote/screen shot from "Mystery Solved . . .," by D. Fox, E. Ward, and J. Prager in footnote 37. With respect to Tahil and Prager's conclusion, see quotes/screen shots from W. Tahil's *Ground Zero: . . .* and Prager's *911: AMERICA was NUKED*:



35 See, for example, IAEA, "Nuclear Data for Safeguards," "C-3. Cumulative Fission Yields," <https://www-nds.iaea.org/snuclat/c3.htm>.

36 Screen shots from "IAEA NUCLEUS. LiveChart of Nuclides . . ." (note that half-life data have to be considered too):

Click on a nuclide symbol to show the level schema and ENSDF dataset

**Cumulative Fission Yield**  
Total number of atoms produced over all time after one fission

Nuclide	Parent	Thermal	Fast	14 MeV
<sup>90</sup> Sr	<sup>232</sup> Th		0.073227 0.0035976	0.061914 0.015357
<sup>90</sup> Sr	<sup>233</sup> U	0.066468 7.3257E-4	0.063916 0.0032608	0.050744 0.007967
<sup>90</sup> Sr	<sup>235</sup> U	0.05729 0.0013192	0.052208 0.00183	0.044081 0.0018079
<sup>90</sup> Sr	<sup>237</sup> Np	0.033348 0.005636	0.032672 7.2161E-4	
<sup>90</sup> Sr	<sup>238</sup> U		0.031109 0.001376	0.030669 0.0016339
<sup>90</sup> Sr	<sup>239</sup> Pu	0.020133 5.4396E-4	0.020307 5.6932E-4	

Click on a nuclide symbol to show the level schema and ENSDF dataset

**Cumulative Fission Yield**  
Total number of atoms produced over all time after one fission

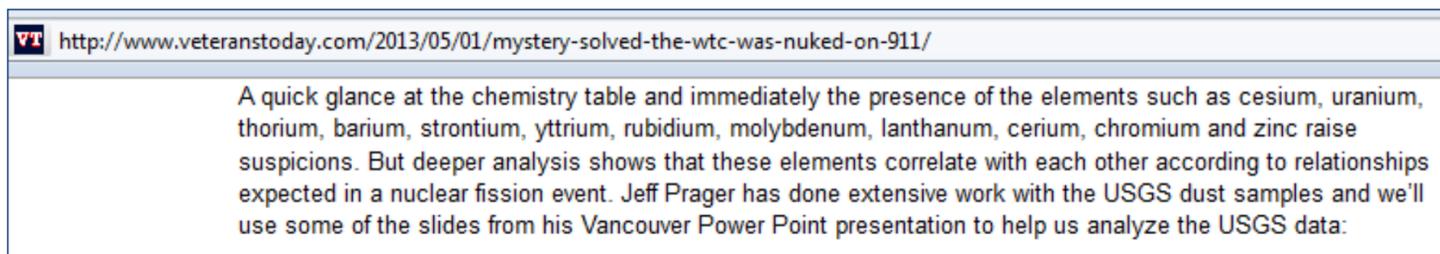
Nuclide	Parent	Thermal	Fast	14 MeV
<sup>137</sup> Cs	<sup>232</sup> Th		0.062965 0.0029677	0.062855 0.0099338
<sup>137</sup> Cs	<sup>233</sup> U	0.062045 0.0021733	0.064988 0.0031207	0.049534 0.0042627
<sup>137</sup> Cs	<sup>235</sup> U	0.062208 6.9358E-4	0.058889 9.5716E-4	0.055674 0.013084
<sup>137</sup> Cs	<sup>237</sup> Np	0.065115 0.009056	0.062654 0.002324	
<sup>137</sup> Cs	<sup>238</sup> U		0.060222 0.001519	0.056169 0.0068
<sup>137</sup> Cs	<sup>239</sup> Pu	0.065881 8.0262E-4	0.063518 0.0012123	

37 Excerpts/screen shots from the USGS Chemistry Table 1, <http://pubs.usgs.gov/of/2001/ofr-01-0429/chem1/WTCchemistrytable.html>

**Chemistry Table 1, continued**

	minimum	maximum	mean*
Barium ppm	317	3670	533.38
Strontium ppm	378	3130	726.61
Cesium ppm	0.18	0.88	0.64

In an article by Prager, Donald Fox, and Ed Ward, a different claim is made with respect to the cesium content (quote/screen shot from "Mystery Solved . . .," by D. Fox, E. Ward, and J. Prager):



In fact, the concentrations of cesium and of the other elements listed do not correlate in the claimed manner.

38 The problem is most obvious for cesium, but applies also to other elements that are typical fission products. For example, the mean cerium content in the USGS WTC dust samples is just 91.23 ppm. For fission yield data, see IAEA publications — for example, IAEA data on uranium-235 cumulative fission yields for some isotopes. See excerpts/screen shots from <https://www-nds.iaea.org/snuclat/safeg2008.pdf> below; note that half-life data have to be considered too.

Table C-3.3. U-235 cumulative fission yields for selected fission products.

Fission product	Thermal fission yields [% per fission]	Fast fission yields [% per fission]	14 MeV fission yields [% per fission]

Isotope	Value	±	Value	±	Value	±
38-Sr-90	5.73	± 0.13	5.22	± 0.18	4.41	± 0.18
40-Zr-95	6.502	± 0.072	6.349	± 0.083	5.07	± 0.19
41-Nb-94	0.00000042	± 0.00000011	2.90E-08	± 0.77E-08	0.000040	± 0.000015
41-Nb-95	6.498	± 0.072	6.345	± 0.083	5.07	± 0.19

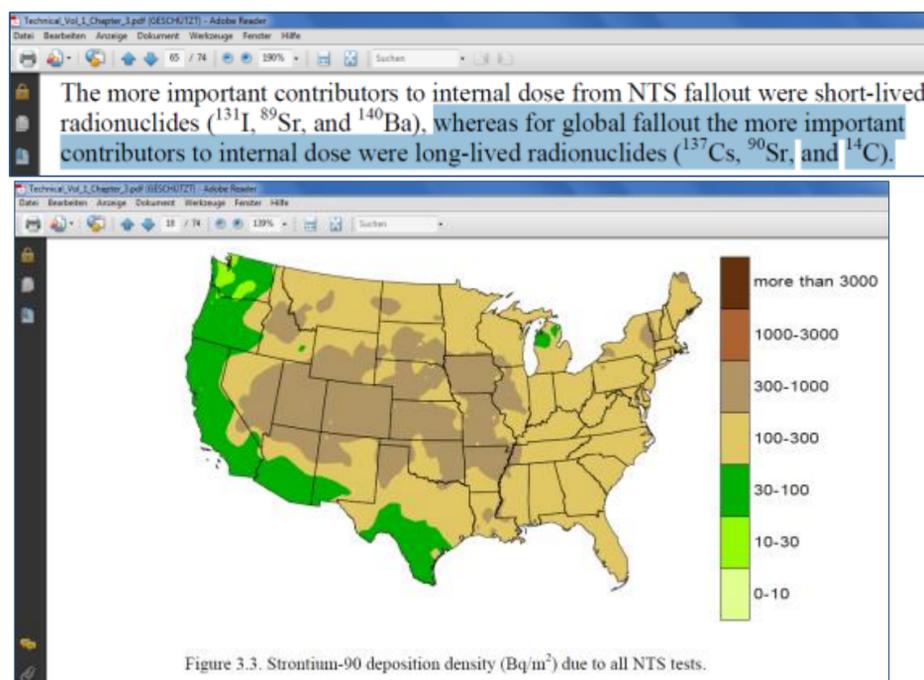
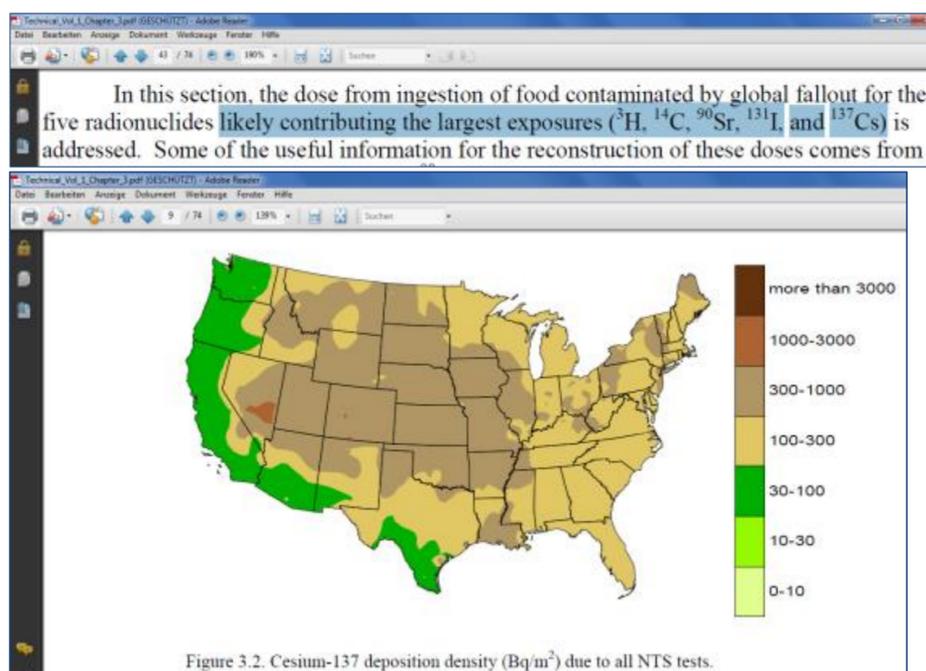
55-Cs-137	6.221	± 0.069	5.889	± 0.096	5.6	± 1.3
56-Ba-140	6.314	± 0.095	5.959	± 0.048	4.474	± 0.081
57-La-140	6.315	± 0.095	5.960	± 0.048	4.508	± 0.081
58-Ce-141	5.86	± 0.15	5.795	± 0.081	4.44	± 0.20
58-Ce-144	5.474	± 0.055	5.094	± 0.076	3.154	± 0.038

39 For the alleged case that nuclear blasts occurred at the WTC, it can be ruled out that fractionation could possibly account for the extremely low cesium-to-strontium ratio in the WTC dust samples. The behavior of the WTC dust and smoke clouds is documented.

40 W. Tahil: *Ground Zero: . . .*, see above footnote 21.

The fission products cesium-137 and strontium-90 are usually discussed together in the scientific literature and in popular media.\* Both products have medium half-lives, both have a relatively high fission yield in the same range, and both are readily assimilated by organisms; i.e., they are paired fission products harmful to human health and are of significance after nuclear disasters. When gathering information about fission products, it should be recognized that cesium-137 is a relevant fission product, too, and it should also be realized that the low mean cesium content in the USGS samples rules out the possibility that the strontium and the barium in the dust could be fission products.

\* See, for example, "REPORT ON THE FEASIBILITY OF A STUDY OF THE HEALTH CONSEQUENCES TO THE AMERICAN POPULATION FROM NUCLEAR WEAPONS TESTS CONDUCTED BY THE UNITED STATES AND OTHER NATIONS" (see above, footnote 1); Volume 1, Technical Report, Chapter 3, "Estimation of Doses from Fallout," [http://www.cdc.gov/nceh/radiation/fallout/feasibilitystudy/technical\\_vol\\_1\\_chapter\\_3.pdf](http://www.cdc.gov/nceh/radiation/fallout/feasibilitystudy/technical_vol_1_chapter_3.pdf). The report discusses cesium-137 and provides, for example, maps that show both the cesium-137 and the strontium-90 deposition density in the continental U.S. from nuclear weapons tests at the Nevada test site. Excerpts and maps (screen shots):



41 Prager, *DUST: Part 1* (PDF page 8). The USGS analyzed the cesium content of WTC dust samples, and even Prager's *DUST* contains a copy of a USGS table that shows that the cesium content was analyzed (Prager, *DUST: Part 1*, PDF page 19).

42 See, for example, Tahil, *Ground Zero: . . .* (quotes/screen shots):

Figure 8 shows that there is a very strong linear relationship between the levels of Zinc and Barium found at the WTC site. This may indicate that a closely related nuclear sub-process gave rise to them, which produced 3 times as much Zinc as Barium by weight.

If so, that would be a very unusual nuclear event.

There is a lesser known nuclear process that could perhaps account for this, which would be indicative of very high energies indeed. This process is known as Ternary Fission.

It is therefore very indicative indeed that we have these complex correlations and relationships between these different metals. Data of this type has probably never before seen the light of day, revealing the complex fission events and processes that take place in an energetic nuclear explosion. We can surmise that in the confined space of the nuclear blast, indeed not only ternary but quaternary and further levels of fission have taken place, with daughter nuclei not just decaying by ordinary alpha, beta or gamma radiation emission but literally being fissioned again by the intense neutron radiation, to create a complete smorgasbord of the Periodic Table.

The parent nucleus is split in ternary fission usually into one small nucleus (such as helium-4) and two other daughter nuclei that have mass ratios between (roughly) 2:3 and 1:1 (depending on the energy of the incident neutrons), but it is not split randomly into nuclei of any size, as Tahil suggests. The proposed alpha decay and the proposed neutron-induced fission of products of neutron-induced fission are extraordinary claims that are not substantiated by references.

43 The mass fission yield of elements with atomic numbers in the range 20 to 30 is below the one-percent range even for incident neutrons at 150MeV. See IAEA (International Atomic Energy Agency): "Fission Product Yield Data for the Transmutation of Minor Actinide Nuclear Waste," Vienna 2008, <http://www-nds.iaea.org/publications/tecdocs/sti-pub-1286.pdf>. "Annex to Appendix I, RECOMMENDED Evaluated mass Distribution Data For <sup>238</sup>U, <sup>239</sup>Pu, <sup>242</sup>Pu," "1. <sup>238</sup>U NEUTRON INDUCED FISSION," Table 1.10., Th. Ethvignot: "2.2. MEASUREMENTS OF THE ENERGY DEPENDENCE OF FISSION YIELDS FOR <sup>238</sup>U (n,f) FROM THRESHOLD TO 200 MeV." Diagram/screen shot:

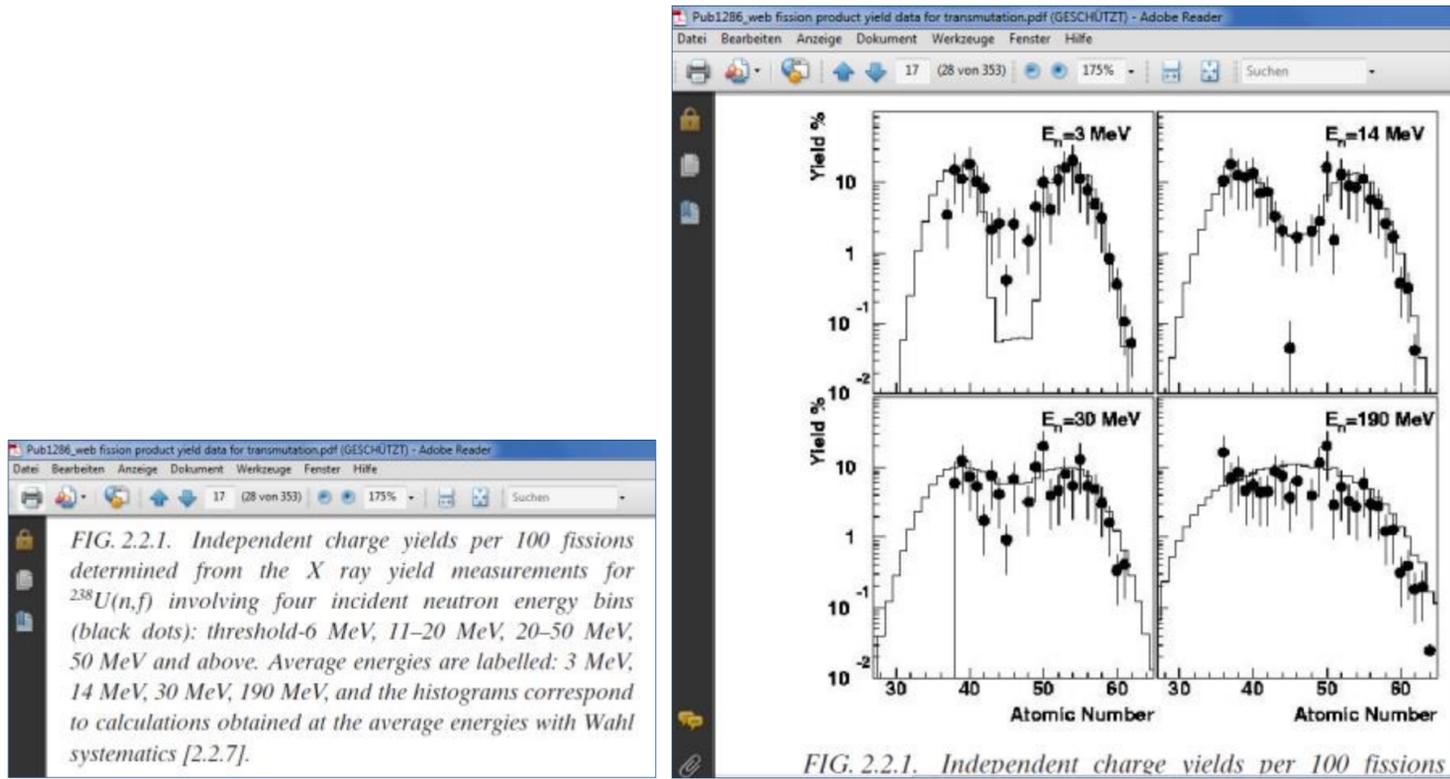


FIG. 2.2.1. Independent charge yields per 100 fissions determined from the X ray yield measurements for  $^{238}\text{U}(n,f)$  involving four incident neutron energy bins (black dots): threshold-6 MeV, 11–20 MeV, 20–50 MeV, 50 MeV and above. Average energies are labelled: 3 MeV, 14 MeV, 30 MeV, 190 MeV, and the histograms correspond to calculations obtained at the average energies with Wahl systematics [2.2.7].

FIG. 2.2.1. Independent charge yields per 100 fissions [...]

(The “point of symmetry” is roughly the same for uranium-235 and uranium-238. It is therefore justified to use the available uranium-238 data to estimate the mass fission yield of elements such as titanium and potassium in the fission of uranium-235.)

44 Tahil, *Ground Zero*: . . . , page 56/PDF page 68.

45 Tahil, *Ground Zero*: . . . , pages 55 and 56/PDF pages 67 and 68. The claim that the alpha decay of uranium-235 is neutron-induced (so it can be related to the alleged nuclear blasts) is made in Tahil’s equation 10. Quotes/screen shots:

As we said earlier, Thorium is formed from Uranium by  $\alpha$  decay. An  $\alpha$  particle is the same as a Helium nucleus, so this means we have one of the favoured fission pathways: Uranium fissioning into a Noble Gas and the balancing element, in this case Helium and Thorium:

(EQ 10)

$$^{235}_{92}\text{U} + ^1_0\text{n} \rightarrow ^4_2\text{He} + ^{232}_{90}\text{Th}$$

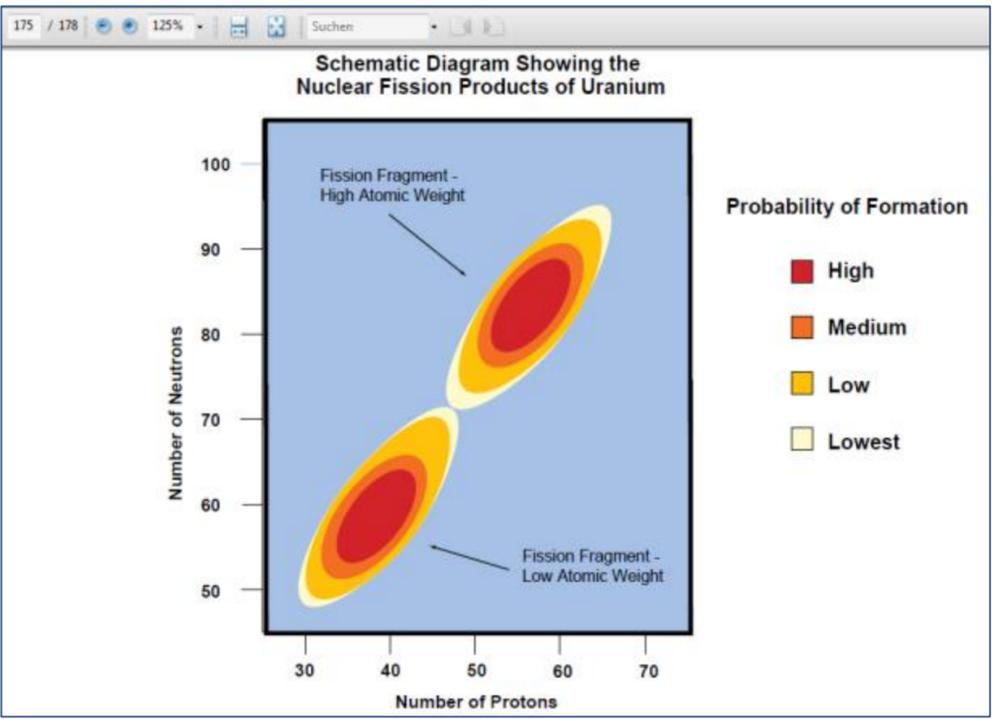
If the Helium formed follows the same pattern as Krypton and Xenon (which decay by beta emission through Strontium and Barium), then we would expect to find Lithium and Beryllium, the next elements after Helium in the Periodic Table, in quantities that correlate with Thorium.

The graph of [Th] vs [Li] including the girder coatings, has exactly the same form as Figure 33, showing [Th] vs [U] also including the girder coatings. Without the two girder coatings, the correlation of [Th] to [Li] in the dust is completely linear.

We therefore have compelling evidence that this fission pathway of Uranium to Thorium and Helium, with subsequent decay of the Helium into Lithium, has indeed taken place.

46 The diagram used by Tahil (see screen shot below) shows a likelihood of close to zero for thorium (which has 90 protons) to be a neutron-induced fission product. Tahil claims, “The following schematic diagram shows that when an atom of Uranium undergoes fission, into only two fission fragments or daughter nuclei, these can span the entire Periodic Table below Uranium from Thorium to Helium.” The diagram obviously illustrates, however, that many elements have no “Probability of Formation”:

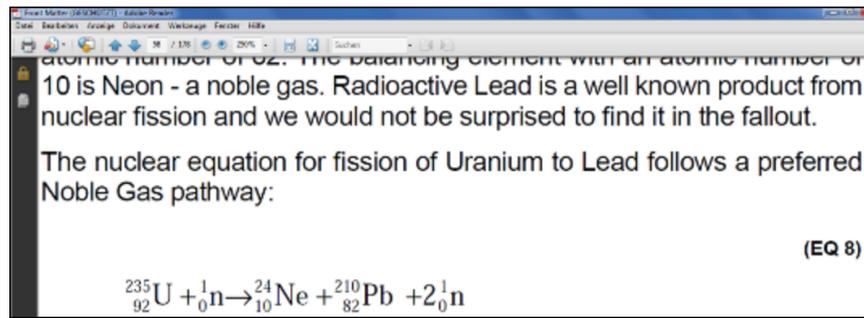
Nuclear fission is even more complex than the various pathways described in Chapter 3. The following schematic diagram shows that when an atom of Uranium undergoes fission, into only two fission fragments or daughter nuclei, these can span the entire Periodic Table below Uranium from Thorium to Helium.



The term “fission” is most commonly used synonymously with neutron-induced fission, but sometimes also in a broader sense, which includes alpha decay. Thus, the limited statement that fission can produce thorium can be correct if the term “fission” is used in this broader sense. Nevertheless,

Tahil's argument is not sound: His equation, "EQ 10" (see screen shot in footnote 45), is not correct, he misinterprets the diagram, he discusses alpha decay as evidence for nuclear blasts, and he conflates alpha decay and neutron-induced fission.

47 Tahil and Prager also present other equations and alleged fission pathways that are correct from a purely mathematical point of view, although the likelihood that the described nuclear reactions occur in the suggested manner is close to zero. For example (quote/screen shot):



The mass ratio of the two daughter nuclei in this reaction, allegedly occurring in nuclear blasts, is 1 to 8.75 (instead of about 2 to 3). Even the diagram Tahil uses (see screen shot in footnote 46) shows that lead, which has 82 protons, is too heavy to be a product of neutron-induced fission (see also footnote 43). Lead is the end product of natural decay chains; these natural processes do not produce nuclear blasts.

48 The amount of fission products produced depends on the amount of fissile (or fissionable) material that does, in fact, fission. The amount of fissile (or fissionable) material that remains unreacted can vary for a given amount of fuel that reacted, and vice versa.

49 See, for example, European Commission, "Radiation Protection 112. Radiological Protection Principles concerning the Natural Radioactivity of Building Materials," Directorate-General, Environment, Nuclear Safety and Civil Protection 1999, <https://ec.europa.eu/energy/sites/ener/files/documents/112.pdf>. Excerpts (screen shots):

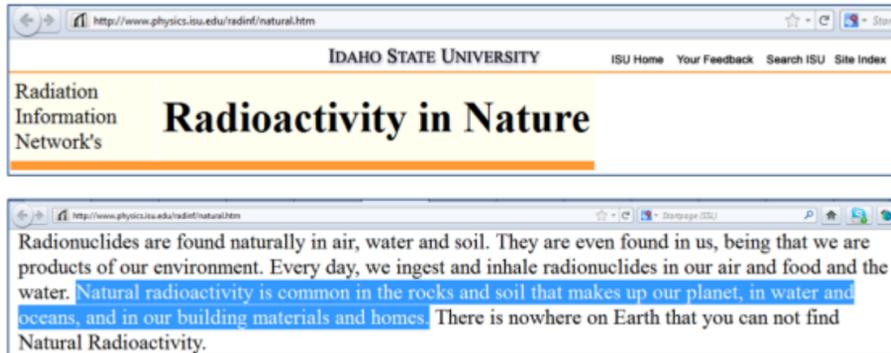
## 2. NATURAL RADIOACTIVITY OF BUILDING MATERIALS

(10) All building materials contain various amounts of natural radioactive nuclides. Materials derived from rock and soil contain mainly natural radionuclides of the uranium ( $^{238}\text{U}$ ) and thorium ( $^{232}\text{Th}$ ) series, and the radioactive isotope of potassium ( $^{40}\text{K}$ ). In the uranium series, the decay chain segment starting from radium ( $^{226}\text{Ra}$ ) is radiologically the most important and, therefore, reference is often made to radium instead of uranium. The world-wide average concentrations of radium, thorium and potassium in the earth's crust are about  $40 \text{ Bq kg}^{-1}$ ,  $40 \text{ Bq kg}^{-1}$  and  $400 \text{ Bq kg}^{-1}$ , respectively. The results of a literature study (Ref. 1) on the radioactivity of building materials in the EU are summarised in Table 1.

**Table 1.** Typical and maximum activity concentrations in common building materials and industrial by-products used for building materials in the EU. Typical concentrations are population-weighted national means of different Member States. Maximum concentrations are maximum values reported in reference (Ref. 1). Higher values might have been reported elsewhere.

Material	Typical activity concentration ( $\text{Bq kg}^{-1}$ )			Maximum activity concentration ( $\text{Bq kg}^{-1}$ )		
	$^{226}\text{Ra}$	$^{232}\text{Th}$	$^{40}\text{K}$	$^{226}\text{Ra}$	$^{232}\text{Th}$	$^{40}\text{K}$
Most common building materials (may include by-products)						
<b>Concrete</b>	40	30	400	240	190	1600
<b>Aerated and light-weight concrete</b>	60	40	430	2600	190	1600
<b>Clay (red) bricks</b>	50	50	670	200	200	2000
<b>Sand-lime bricks</b>	10	10	330	25	30	700
<b>Natural building stones</b>	60	60	640	500	310	4000
<b>Natural gypsum</b>	10	10	80	70	100	200
Most common industrial by-products used in building materials						
<b>By-product gypsum (Phosphogypsum)</b>	390	20	60	1100	160	300
<b>Blast furnace slag</b>	270	70	240	2100	340	1000
<b>Coal fly ash</b>	180	100	650	1100	300	1500

See also Idaho State University, "Radioactivity in Nature" (<http://www.physics.isu.edu/radinf/natural.htm>, accessed June 2015). Excerpts/screen shots (highlights added):



Estimates of concentrations of uranium, thorium and potassium in building materials (NCRP 94, 1987, except where noted)

Material	Uranium		Thorium		Potassium	
	ppm	mBq/g (pCi/g)	ppm	mBq/g (pCi/g)	ppm	mBq/g (pCi/g)
Granite	4.7	63 (1.7)	2	8 (0.22)	4.0	1184 (32)
Sandstone	0.45	6 (0.2)	1.7	7 (0.19)	1.4	414 (11.2)
Cement	3.4	46 (1.2)	5.1	21 (0.57)	0.8	237 (6.4)
Limestone concrete	2.3	31 (0.8)	2.1	8.5 (0.23)	0.3	89 (2.4)
Sandstone concrete	0.8	11 (0.3)	2.1	8.5 (0.23)	1.3	385 (10.4)
Dry wallboard	1.0	14 (0.4)	3	12 (0.32)	0.3	89 (2.4)
By-product gypsum	13.7	186 (5.0)	16.1	66 (1.78)	0.02	5.9 (0.2)
Natural gypsum	1.1	15 (0.4)	1.8	7.4 (0.2)	0.5	148 (4)
Wood	-	-	-	-	11.3	3330 (90)
Clay Brick	8.2	111 (3)	10.8	44 (1.2)	2.3	666 (18)

50 Note that the USGS table lists the elements independently of their chemical state. The authors who promote the argument that the USGS data prove the presence of tons of fission products in the WTC dust are aware that the elements are listed independently of their chemical state. For some elements, the pure form might be toxic, but some of its compounds are not. Strontium, allegedly "highly toxic," was, for example, once used in the food industry to extract sugar from sugar cane, and Prager himself lists possible medical applications of strontium compounds (see quote/screen shot below, footnote 58).

51 Screen shots from NIST NCSTAR 1-6B (strontium chromate) and NIST NCSTAR 1-3C (zinc chromate, listed as "zinc yellow"):

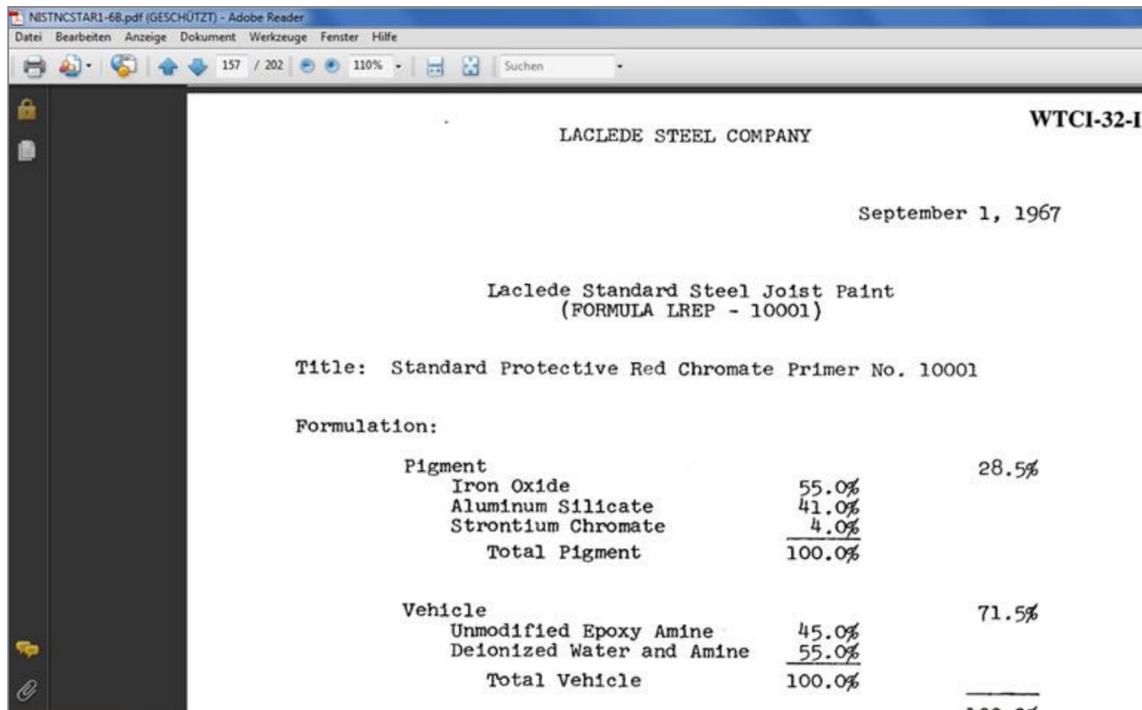


Table D-1. Composition of primer paint.

Pigment	Iron oxide	35.9 %
	Zinc yellow	20.3 %
	Tnemec pigment (proprietary composition)	33.7 %
	Diatomaceous silica	10.1 %
Vehicle	Soya alkyd resin solids	16.5 %
	Hard resin	2.8 %
	Raw linseed oil	35.1 %
	Bodied linseed oil	6.4 %
	Suspension agents	2.2 %
	Driers and anti-skin	4.8 %
Thinners	32.3 %	

Source: Sramek 1967.

52 Zinc metal powder is used for its protective effects in steel paints. See, for example, <http://www.zincchemicals.umicore.com/ZincMetalPigment/ZMPmarketApplications/ZMPzincRichPaint/> (accessed 2015). See also a screen shot from Wikipedia, [http://en.wikipedia.org/wiki/Zinc#Anti-corrosion\\_and\\_batteries](http://en.wikipedia.org/wiki/Zinc#Anti-corrosion_and_batteries) (accessed 2015):

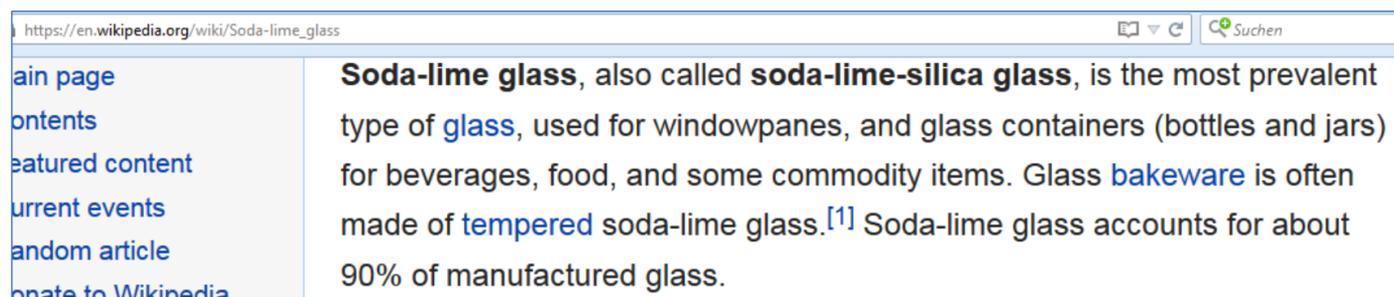


53 Note that we give examples for the possible use of the alleged "fission products." Given the documented use of strontium chromate and zinc chromate in protective paints in the Twin Towers, and given the large surfaces covered with these paints, at least a good part of the strontium and zinc that has been found in the USGS WTC dust samples must be attributed to paints. The use of barium sulfate in paints is very common, and, given some of the mass correlations, a good part of the barium that has been found was also most likely a constituent in paints. All elements could have been in the dust for many other commonplace reasons as well.

54 Lead compounds were used as pigments in paints at the time when the Twin Towers were built, but were subsequently banned in the US in 1978.

55 The claim is made explicitly with respect to barium and strontium. With respect to zinc, various explanations all based on nuclear blast scenarios are discussed.

56 Two screen shots from Wikipedia ([http://en.wikipedia.org/wiki/Soda-lime\\_glass](http://en.wikipedia.org/wiki/Soda-lime_glass), accessed June 2015):

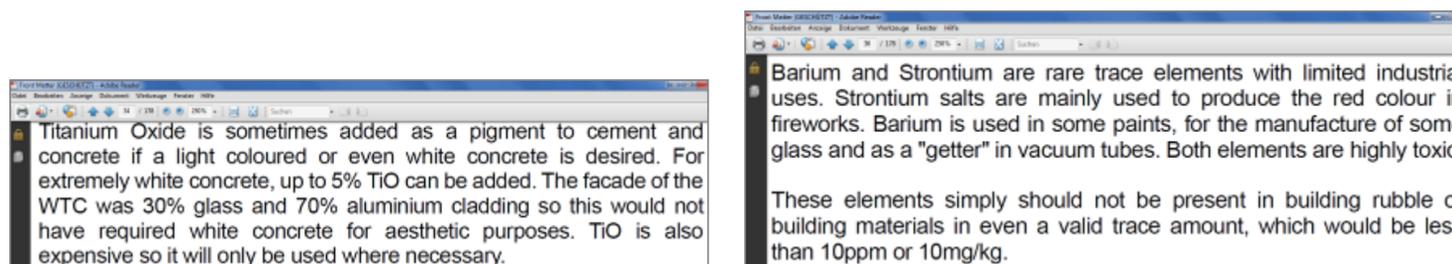


Properties	Container Glass	Flat Glass
Chemical composition, wt%	74 SiO <sub>2</sub> , 13 Na <sub>2</sub> O, 10.5 CaO, 1.3 Al <sub>2</sub> O <sub>3</sub> , 0.3 K <sub>2</sub> O, 0.2 SO <sub>3</sub> , 0.2 MgO, 0.04 Fe <sub>2</sub> O <sub>3</sub> , 0.01 TiO <sub>2</sub>	73 SiO <sub>2</sub> , 14 Na <sub>2</sub> O, 9 CaO, 4 MgO, 0.15 Al <sub>2</sub> O <sub>3</sub> , 0.03 K <sub>2</sub> O, 0.02 TiO <sub>2</sub> , 0.1 Fe <sub>2</sub> O <sub>3</sub>

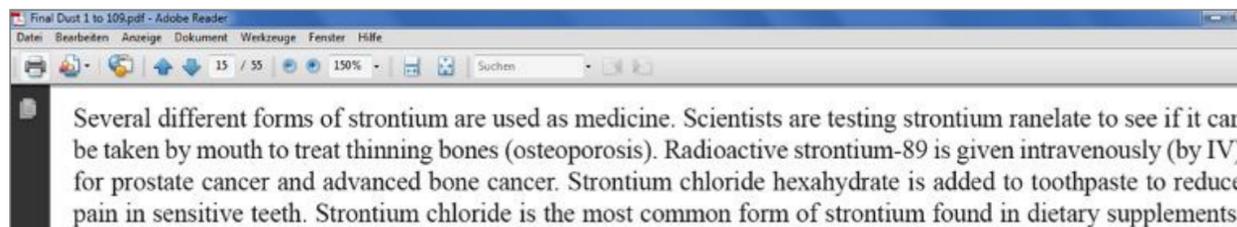
57 USGS, Open-File Report 2005-1165: Particle Atlas of World Trade Center Dust, by Heather A. Lowers and Gregory P. Meeker, <http://pubs.usgs.gov/of/2005/1165/508OF05-1165.html>, screen shots (excerpts) from "Table 1," [http://pubs.usgs.gov/of/2005/1165/table\\_1.html](http://pubs.usgs.gov/of/2005/1165/table_1.html)

Partide	Description	C	O	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Mn	Fe	Cu	Zn	Sr	Zr	Mo	Cd	Sn	Ba	Pb	Bi
Standard																								
Rock Wool-01																								
Rock Wool-02																								
Rock Wool-03																								
Slag wool-01																								
Slag wool-02																								
Slag wool-03	Bulbous																							

58 Tahil is aware, for example, that titanium dioxide is used as pigment in paints, but considers as a possible source of the titanium in the WTC dust only titanium dioxide used as pigment in concrete (quote/screen shot from Tahil's *Ground Zero*: . . . below/left). Tahil is also aware that barium is used in paints (quote/screen shot, below/right), but does not consider paints as a possible source of the barium that was in the WTC dust.



Prager, for example, lists niche uses of strontium (see quote/screen shot from Prager's *DUST: Part 1*, below), but seemingly misses the use of strontium compounds in paints:



59 Quotes/ screen shots from Open-File Report 01-0429: World Trade Center USGS Bulk Chemistry Results, <http://pubs.usgs.gov/of/2001/ofr-01-0429/chem1/index.html> :



The total element compositions of the dust samples reflect the chemical makeup of materials such as: glass fibers (containing silicon, aluminum, calcium, magnesium, sodium, and other elements); gypsum (containing calcium and sulfate); concrete and aggregate (containing calcium and aluminum hydroxides, and a variety of silicate minerals containing silicon, calcium, potassium, sodium, and magnesium); particles rich in iron, aluminum, titanium, and other metals that might be used in building construction; and particles of other components, such as computers, etc. Organic carbon in the dusts is most likely from paper, wallboard binder, and other organic materials.

The trace metal compositions of the dust and girder coatings likely reflect contributions of material from a wide variety of sources. Possibilities include metals that might be found as pigments in paints (such as titanium, molybdenum, lead, and iron), or metals that occur as traces in, or as major components of, wallboard, concrete, aggregate, copper piping, electrical wiring, and computer equipment. Further detailed SEM studies of dust and beam coating samples are

The USGS Open-File Report 2005-1165: Particle Atlas of World Trade Center Dust (see above, footnote 57) provides several statements about why many elements (alleged to be fission products) were in the WTC dust. See, for example, two excerpts/screen shots from "Table 1," USGS, Open-File Report 2005-1165 and the paragraph "MMVF and glass fragments" (quote/screen shot):

		O	Na	Mg	Al	Si	S		K	Ca	Ti		
<a href="#">Soda Lime Glass-01</a>	Shard												
<a href="#">Soda Lime Glass-02</a>	Fiber												

		C	O	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Mn	Fe
<a href="#">Concrete-03a</a>														
<a href="#">Concrete-03b</a>														
<a href="#">Concrete-03c</a>														

**MMVF and glass fragments**

Man-made vitreous fibers (MMVF) are abundant in WTC dust. Glass fibers range in diameter from < 1 μm to > 50 μm with lengths up to several hundred micrometers. The best compositional match for the majority (>85%) of WTC glass fibers is slag wool, a by-product of pig iron production (TIMA, 1991). Pieces of yellow thermal insulation found in bulk samples are composed of soda-lime glass fibers (Meeker and others, 2005b). Very few fibers of this composition exist in the fine (<150 μm) microscopic portion of the dust. Rock wool is also present as a trace constituent of the fine dust portion.

Rock wool and slag wool can have similar EDS spectra. The two can be distinguished based on the presence of iron. [Slag wool](#) will generally have less than 2 weight percent FeO whereas [rock wool](#) contains from 3 to 12 weight percent FeO (TIMA, 1991). Soda-lime glass has a distinct EDS spectrum from both slag wool and rock wool. The Na peak is higher and Ca, Mg, and Al peaks are smaller in the [soda-lime glass](#) spectrum than the slag wool and rock wool spectra.

Glass shards, fragments, and spheres are also present in the dust samples. The microscopic glass shards and fragments are less abundant than the ubiquitous slag wool fibers in the fine dust (<150 μm). Most of the glass fragments fall within the compositional range for soda lime glass, a common type used as window glass (TIMA, 1991). Other glass fragments are present which contain mostly Si with trace amounts of Na, K, and/or Al. The majority (> 90%) of glass spheres, generally less than 500 μm in diameter, are of slag wool composition.

60 Tahil, *Ground Zero: . . .*, page 164/PDF page 176.

61 Quotes/screen shots from Tahil's *Ground Zero: . . .* and Prager's *DUST: Part 3*:

With a minimum of 600ppm of Strontium and 1000ppm by weight of Zinc present in the dust, that amount of dust translates into approximately 60 and 100 tonnes of strontium and zinc respectively per tower. This is an absolutely astronomical amount. If we generously assume that as much as a third of the Uranium originally present transmuted into Strontium, this would put the original mass of Uranium present at about 470 tonnes *per tower*. This is a staggering amount. If a lower proportion of the Uranium in the reactors fissioned into Strontium, then even more Uranium would have had to be present.

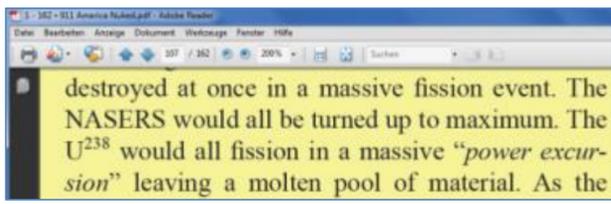
Earlier, when discussing the presence of 1000ppm of Zinc on page 66, we estimated that at least 700 tonnes of Uranium might originally have been present, at a conservative estimate - probably double that.

Conservatively, we can estimate that 100,000 tons of structural concrete from each of the towers was pulverized into dust from the force of the explosions.

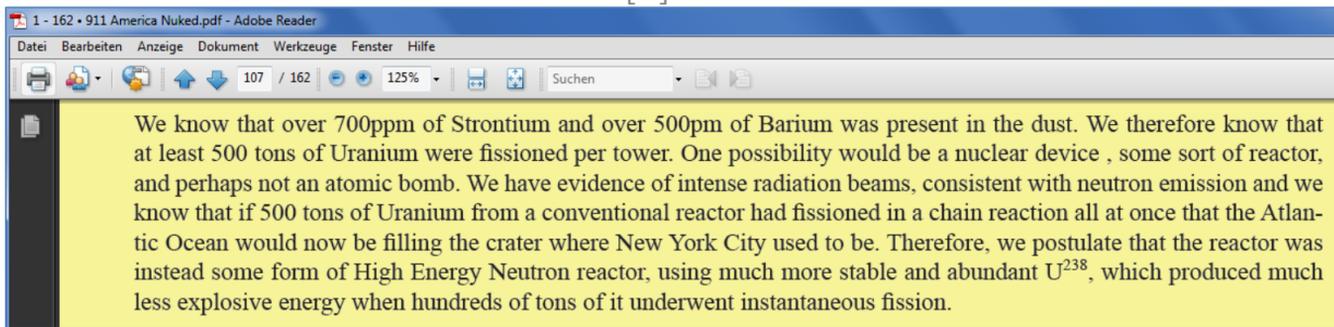
With a minimum of 600ppm of Strontium and 1000ppm by weight of Zinc present in the dust, that translates into 60 tons of Strontium and 100 tons of Zinc in the dust. If we generously assume that as much as one third of the Uranium originally present transmuted into Strontium, this would put the original mass of Uranium present at about 470 tons, per tower. This is a staggering amount. If a lower portion of the Uranium in reactors fissioned into Strontium, then even more Uranium would have been present.

Note that any argument that implies that fission products at a scale of tons were produced at the WTC on September 11 cannot be feasible given the implied energy release. It therefore does not matter if Tahil and Prager's estimate of the mass of WTC dust is close to other estimates or not. Even a very low estimate of the mass of WTC dust implies tons of strontium, barium, etc.

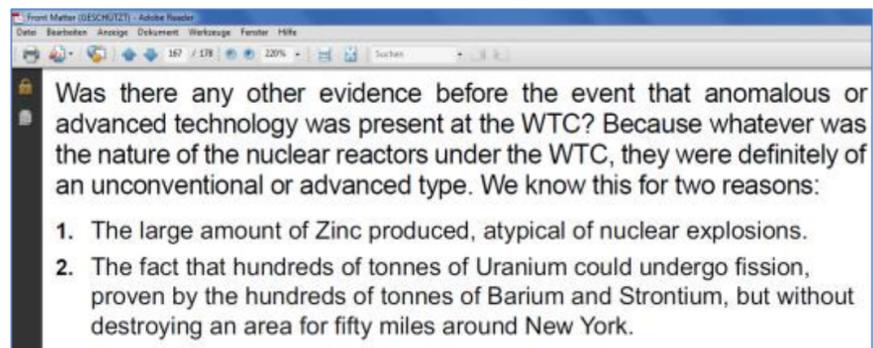
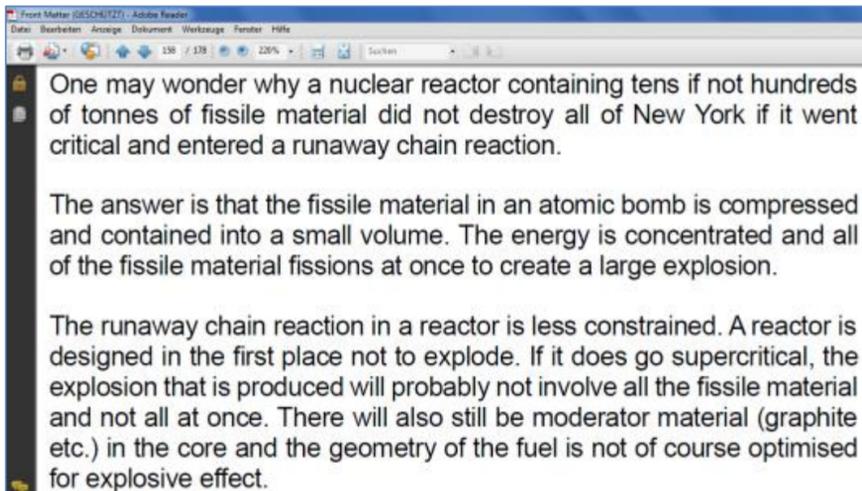
62 For Prager's hypothetical reactor scenario see *911: AMERICA was NUKED*, pages 106 and 107 (excerpts/screen shots):



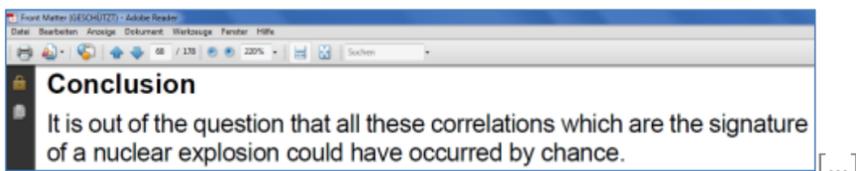
[...]



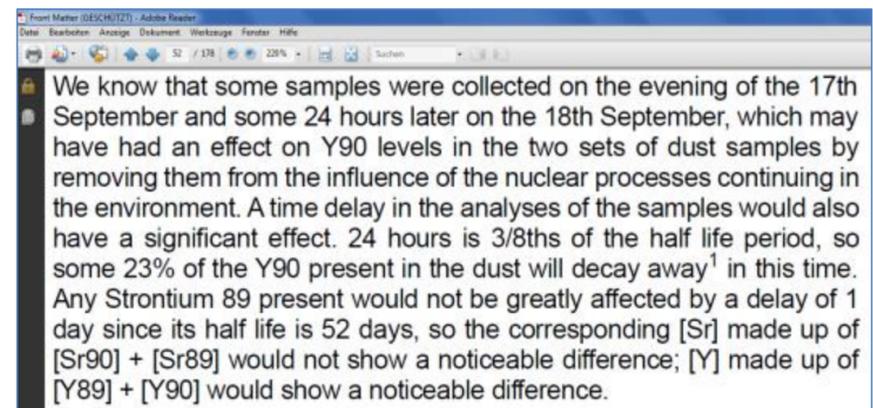
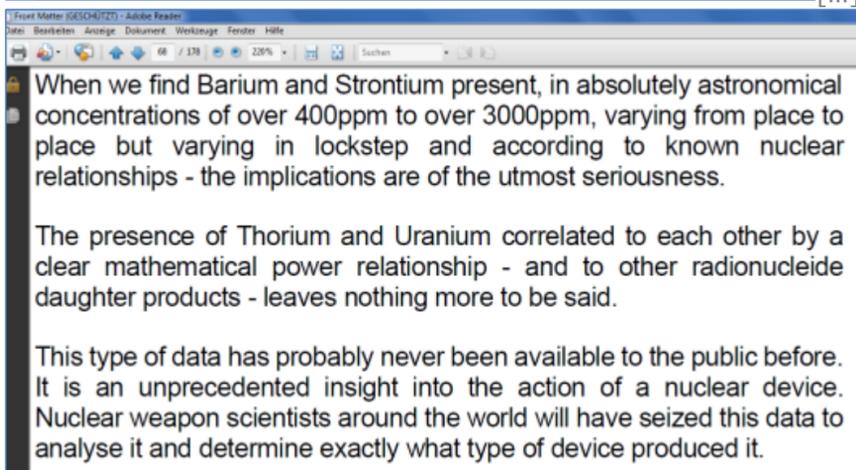
Two of Tahil's suggestions regarding the alleged nuclear reactors (quotes/screen shots from Tahil's *Ground Zero: . . .*):



Tahil, who in his book also repeatedly refers to the Chernobyl accident, addresses the alleged fission products in the WTC dust only in relation to the alleged nuclear explosions on September 11 (quotes/screen shots from Tahil's *Ground Zero: . . .*):

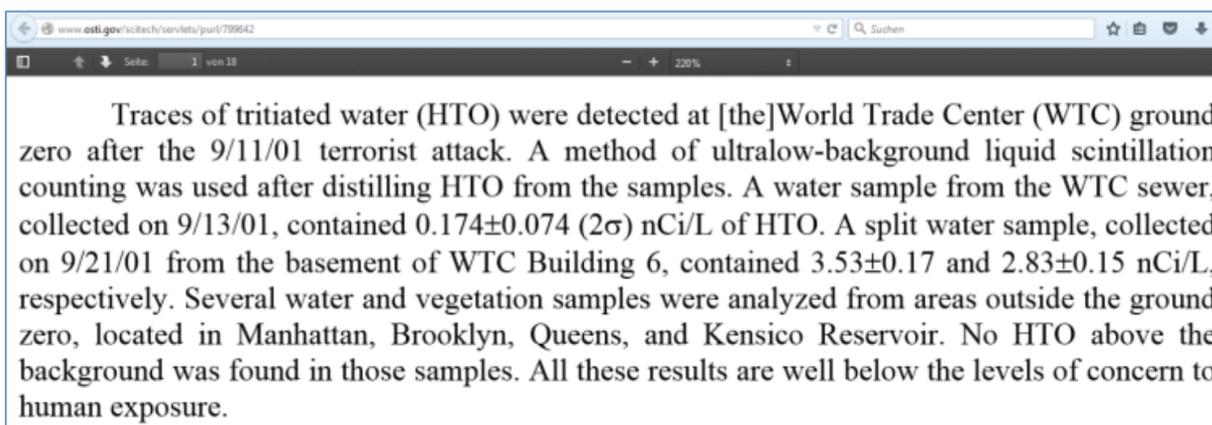


[...]



<sup>63</sup> See, for example, "Hard Evidence Supports . . ." by D. Fox and J. Prager.

<sup>64</sup> T. M. Semkow et al.: "Elevated Tritium Levels at the World Trade Center," 223rd American Chemical Society National Meeting, Orlando, FL, April 7-11, 2002; Division of Nuclear Chemistry and Technology, Proceedings of the Symposium on Radioanalytical Methods at the Frontier of Interdisciplinary Science: Trends and Recent Achievements, <http://www.osti.gov/scitech/biblio/799642>. Quote/screen shot:



<sup>65</sup> Semkow et al., page 4, reads: "Typical current concentrations of HTO in water in the US are 0.1-0.2 nCi/L (EPA, 1997)"

<sup>66</sup> R. D. Mutch et al., "A STUDY OF TRITIUM IN MUNICIPAL SOLID WASTE LEACHATE AND GAS," New Jersey/New York, 2007, [http://www.hydroqual.com/publications/rdm\\_07\\_01\\_p.pdf](http://www.hydroqual.com/publications/rdm_07_01_p.pdf). Quote/screen shot:

www.hydroqual.com/publications/rdm\_02\_01\_p.pdf

It has become increasingly clear in the last few years that the vast majority of municipal solid waste landfills produce leachate that contains elevated levels of tritium. The authors recently conducted a study of landfills in New York and New Jersey and found that the mean concentration of tritium in ten municipal solid waste landfills was 33,800 pCi/L with a peak value of 192,000 pCi/L. A 2003 study in California reported a mean tritium concentration of 99,000 pCi/L with a peak value of 304,000 pCi/L. Studies in Pennsylvania and the UK produced similar results. The USEPA MCL for tritium is 20,000 pCi/L. Tritium is also manifesting itself in landfill gas and landfill gas condensate. Landfill gas condensate samples from landfills in the UK and California were found to have tritium concentrations as high as 54,400 and 513,000 pCi/L, respectively. The tritium found in MSW leachate is believed to derive principally from gaseous tritium lighting devices used in some emergency exit signs, compasses, watches, and even novelty items, such as "glow stick" key chains.

Other studies about elevated tritium levels in landfill sites exist. See, for example, T. W. Hicks et al.: "Tritium in Scottish Landfill Sites," Oakham, Rutland UK, May 2000, [http://www.trainex.org/web\\_courses/tritium/reference\\_pages/TritiumInScottishLandfillSites.pdf](http://www.trainex.org/web_courses/tritium/reference_pages/TritiumInScottishLandfillSites.pdf).

67 Quotes/screen shots from Semkow et al.:

www.osti.gov/scitech/servlets/purl/799642

at the time of impact, contained in emergency signs. WTC hosted several law-enforcement agencies such as ATF, CIA, US Secret Service and US Customs. The ATF office had two weapon vaults in WTC Building 6. Also 63 Police Officers, possibly carrying handguns, died in the attack. The weaponry containing tritium sights was therefore a likely and significant source of tritium. It is possible that some of the 2824 victims carried tritium watches, however this source appears to be less significant than the other two.

[. . .]

www.osti.gov/scitech/servlets/purl/799642

Weaponry was another likely source of tritium. As described in Section 1, several federal and state law enforcement agencies were housed at WTC, in buildings 6 and 7. ATF had two vaults filled with tactical weapons and guns (Miller, 2001; WPVI, 2001; Gardiner and Hurtado, 2001; note: the ATF vaults were in WTC 6, where our sequences 6,7 were measured). A total of 63 Police Officers died in the attack (IUPA, 2001). They may have been carrying pistols equipped with tritium night sights. In fact, many guns have been recovered from the debris (WPVI, 2001; Gardiner and Hurtado, 2001; Koppel, 2002), some of them in good condition. It would take only 20 weapons destroyed to obtain approximately 1 Ci of tritium (Section 4).

68 Quote/screen shot from Semkow et al. ("GTLS" stands for "gaseous tritium light sources"):

www.osti.gov/scitech/servlets/purl/799642

GTLS are used extensively in weaponry and are standard equipment in military as well as law enforcement. Of interest to this work are gun sights containing GTLS capsules, either cylindrical or spherical, which facilitate{s} aiming at night. There are two categories of interest: scopes and night sights. The content of tritium depends on the configuration as well as the manufacturer. Trijicon Inc. uses 100 mCi in scopes and 3 capsules [of] 18 mCi each (54 mCi total) in night sights (Trijicon, 2002). Innovative Weaponry Inc. uses 54 mCi in their PT night sights (IWI, 2002). Meprolight Ltd. uses between 30 to 54 mCi per set of night sights (Kinder, 2002).

69 WTC 6 was hit by numerous parts of the perimeter wall during the destruction of WTC 1, and their impacts created a pit spanning many stories of the building (see the NOAA photograph below, view from top into WTC 6). Thus, it is likely that tritium was able to leak from the night sights of stored guns.



70 Various water sources were present at the WTC site after September 11 (rainfall, water used for firefighting, water that leaked via two WTC cooling water lines from the Hudson, and water that leaked from main water lines). Most water drained into the Port Authority Trans-Hudson (PATH) commuter line tunnel. The amount of water that was drained from the WTC site has been estimated based on pumping records. See Semkow et al., pages 9 and 10.

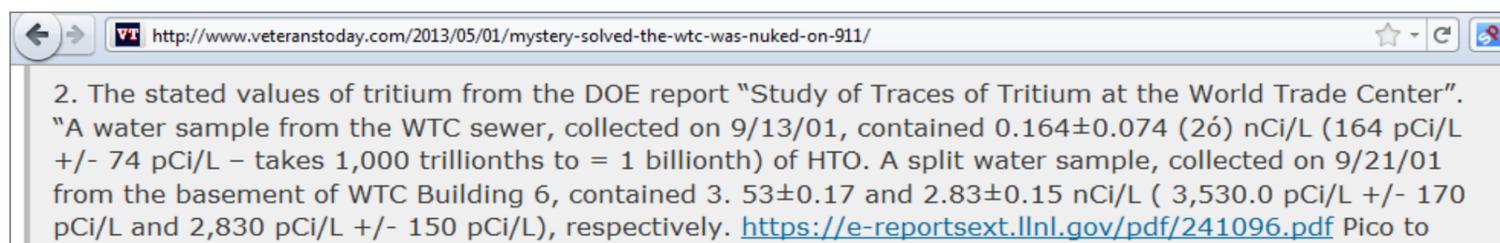
71 There is no factual basis for the assumption that the WTC 6 sample is representative of the 30 million gallons of water pumped out of the PATH-tunnel.\* Thus, only the tritium from a few broken gun night sights from weapons stored in the AFT vaults can explain the tritium found in the WTC 6 water samples.

\* The WTC 6 water sample was collected on a stairway in the 5th basement level — i.e., about four or more meters above of the foundation level. There is no reason to assume (as some do) that any or even all Hudson water found its way into the 5th basement of WTC 6; the Hudson water was drained into the PATH tunnel, and the perimeter walls in the basement levels of WTC 6 were most likely still standing, given that most of the above-grade perimeter walls of WTC 6 remained standing on September 11.

72 See above, footnotes 67 and 68.

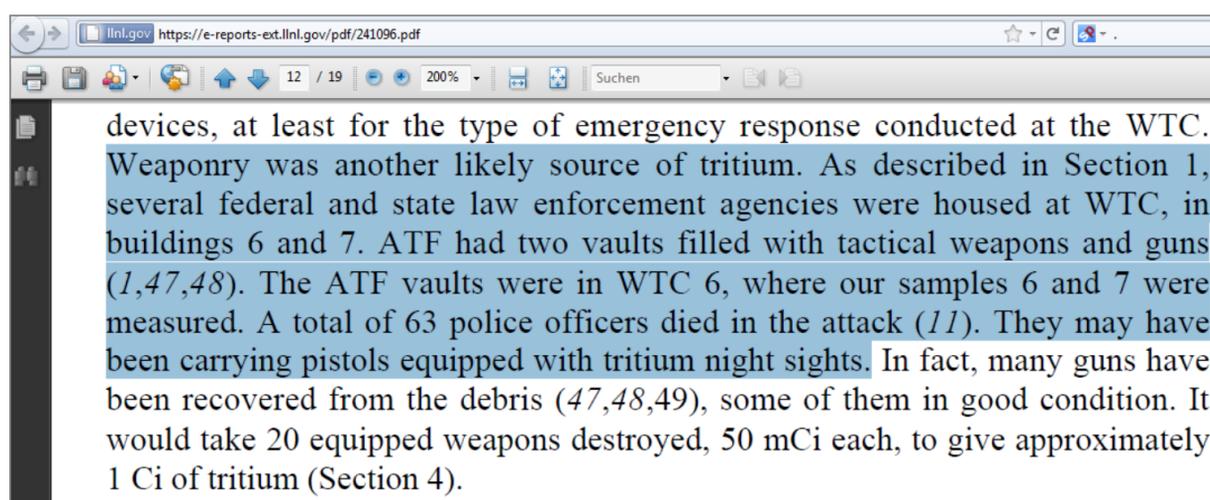
Semkow et al. also discuss wrist watches as a possible tritium source. The exit signs in the two airplanes contained about 34 curies of tritium. This tritium is not listed here because it might have evaporated due to the fires.

73 A report that lists the sources that are not mentioned and considered in the "Mystery Solved . . ." article's line of argument is quoted in this same article. Quote/screen shot from "Mystery Solved . . .," by D. Fox, E. Ward, and J. Prager:



The link is misspelled; the correct link is <https://e-reports-ext.llnl.gov/pdf/241096.pdf> (T.M. Semkow et al.: "Study of Traces of Tritium at the World Trade Center," submitted to 23rd American Chemical Society National Meeting, Orlando, FL, April 7-11, 2002, published by LLNL).

Quote/screen shot from the report by Semkow et al. (highlights added):



74 "Mystery Solved . . .," by D. Fox, E. Ward, and J. Prager.

75 For example, Prager, *911: AMERICA was NUKED*, page 132.

76 The model presented by Semkow et al. is "recalculated"; the input data used are based on the assumption that most of the airliner tritium evaporated. The result of the calculation is presented as proof that the tritium in the WTC samples is only explicable by nuclear blasts. Note that we do not dispute that most of the airliner tritium might have evaporated.

77 The terms "dustified" and "dustification," used by several proponents of the claim that nuclear blasts occurred at the WTC, were probably first used by Judy Wood (see our FAQ #3, see footnote 78).

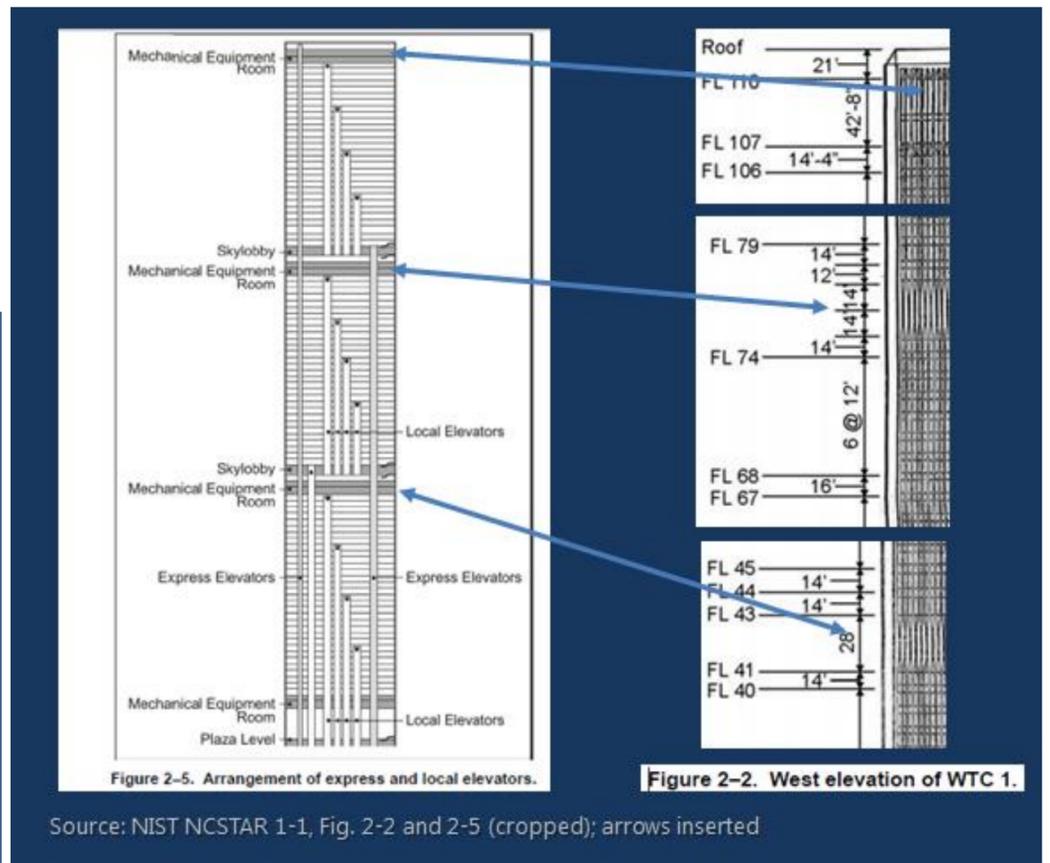
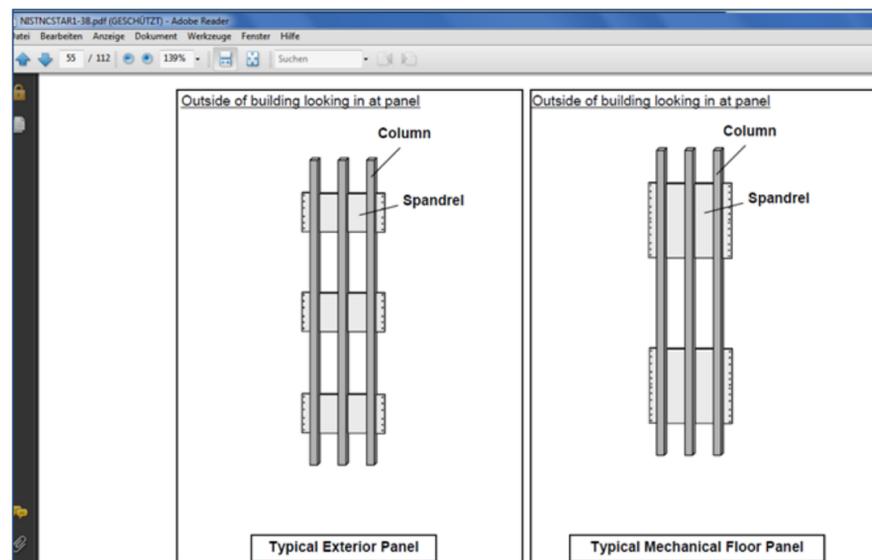
78 J. Cole, R. Gage, G. Roberts, "FAQ #3: What's Your Assessment of the Directed Energy Weapon (DEW) Hypothesis?" May 2011; paragraph "The Fall of the 'Spire'" , <http://www.911truth.org/en/news-section/41-articles/505-faq-3.html>. Images showing the movement of the spire that accompany the paragraph in FAQ #3, cited above:



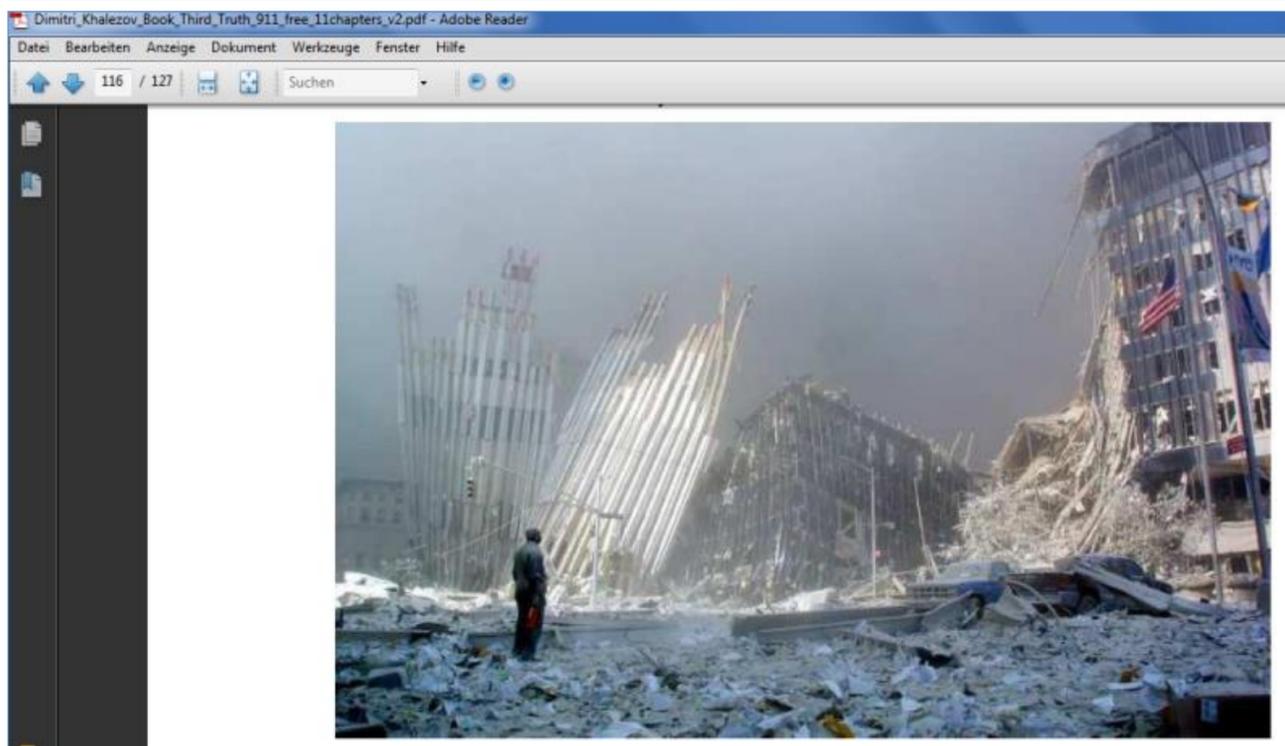
79 D. A. Khalezov, *9/11thology*: . . . (see footnote 18), quote/screen shot:

alienable part of the "crushed zone". Approximately first 300 meters of the Tower's structure became itself the "crushed zone" – and all steel and concrete in the structure (not to mention the furniture and the rest of the stuff inside, including remaining human beings, of course) were completely "dustified" i.e. they were reduced to a special condition which is typical during any nuclear explosion – when the matter has been crushed already, but still looks like "solid" (but only to be crushed to microscopic dust a few seconds later). Then approximately another 70 meters of the Tower's structure above were also crushed to something very small, but not actually "dustified" – so that this second degree of structural damage began to represent the "damaged zone" – which in any underground nuclear explosion is the third inner layer – immediately surrounding the "crushed zone" – as explained above. This is exactly why, when the Twin Towers just began to collapse, they first scattered some relatively big pieces of debris from their upper levels, and then only – roughly 30-40 meters downwards – the falling Towers continued to scatter only the fine fluffy dust – as everybody could see any available TV footage. Finally, the last upper 50 to 70 meters of the Towers were damaged to a much lesser extent, because they were located quite far from an actual hypocenter of an underground nuclear explosion.

80 See screen shot from NIST NCSTAR 1-3B below, which shows the shape of the typical perimeter panels and of the typical mechanical floor panels. The latter were used only in the mechanical floors in stories 41-42 and 75-76. The second image shows the location of the mechanical floors in the Twin Towers. The mechanical floor panels used at the top connected only at one end to typical perimeter panels and had a different shape.



81 Screen shot from Khalezov, *9/11thology*: . . . :



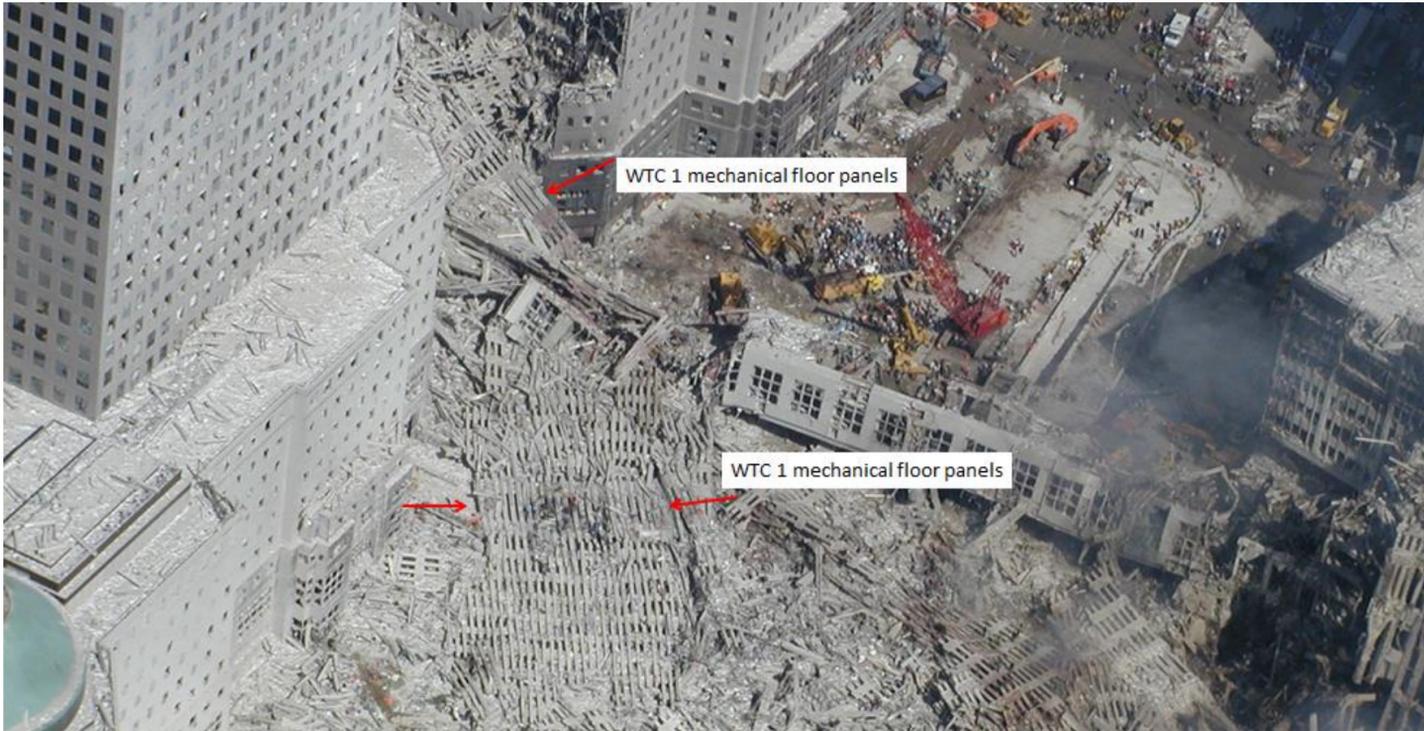
82 Two photographs that document the large sections standing on West Street:



83 One of the photographs that document the sections (red arrows and text inserted); the sections standing at the left-hand side are those shown on the photograph used by Khalezov (see footnote 81):



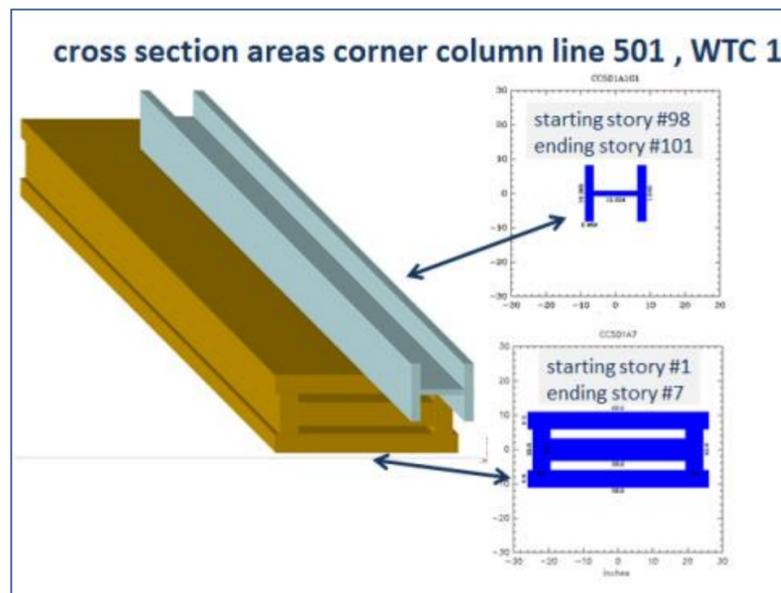
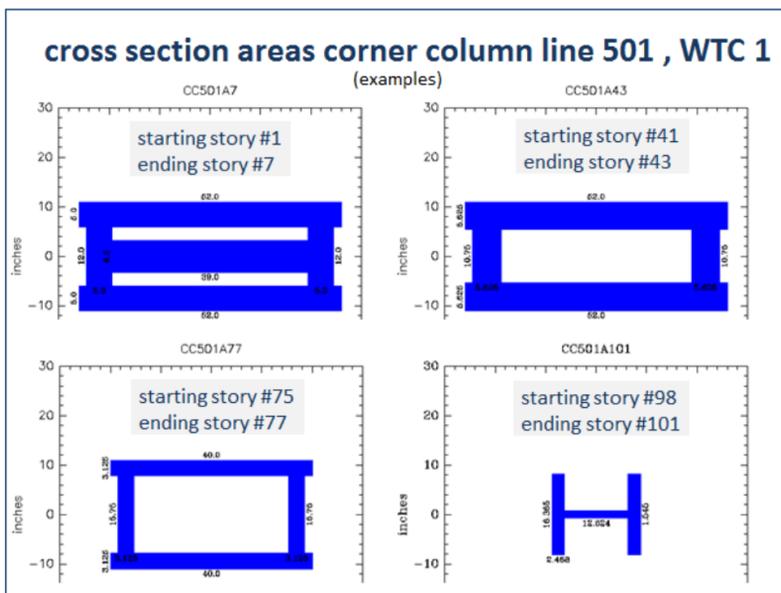
84 One of the photographs showing the two sections (arrows and text boxes inserted):



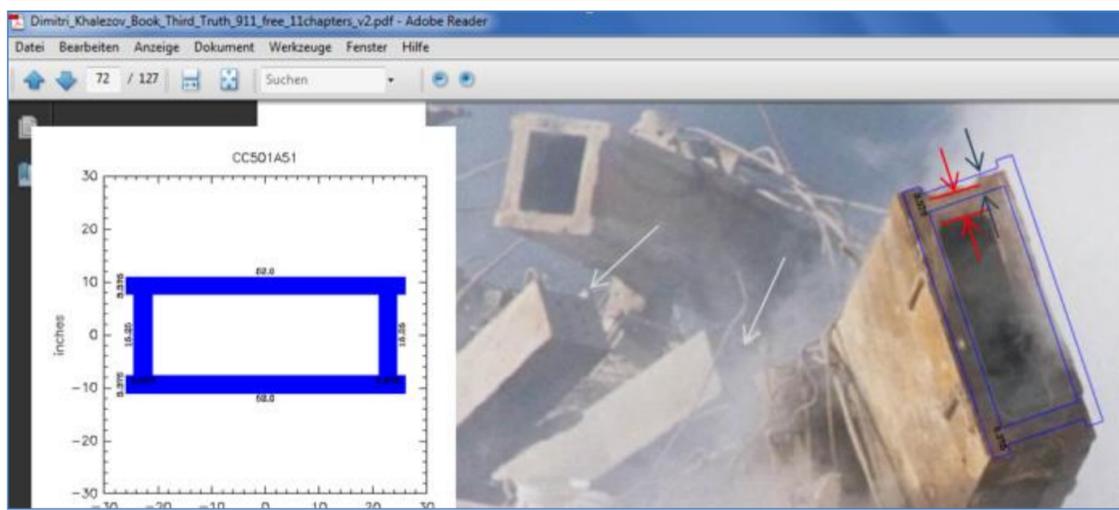
85 Below, see two of the many photographs that document such columns. The left photograph shows a core column that spanned stories 36-39 (the enlarged, rotated excerpt from the photo and the arrow are inserted). The right photograph shows two core columns that spanned stories 45-48.



86 The sketches below demonstrate the differences in shape and plate thickness. They are based on four different cross-section areas of column line 501, which was located at a corner of the WTC 1 core.



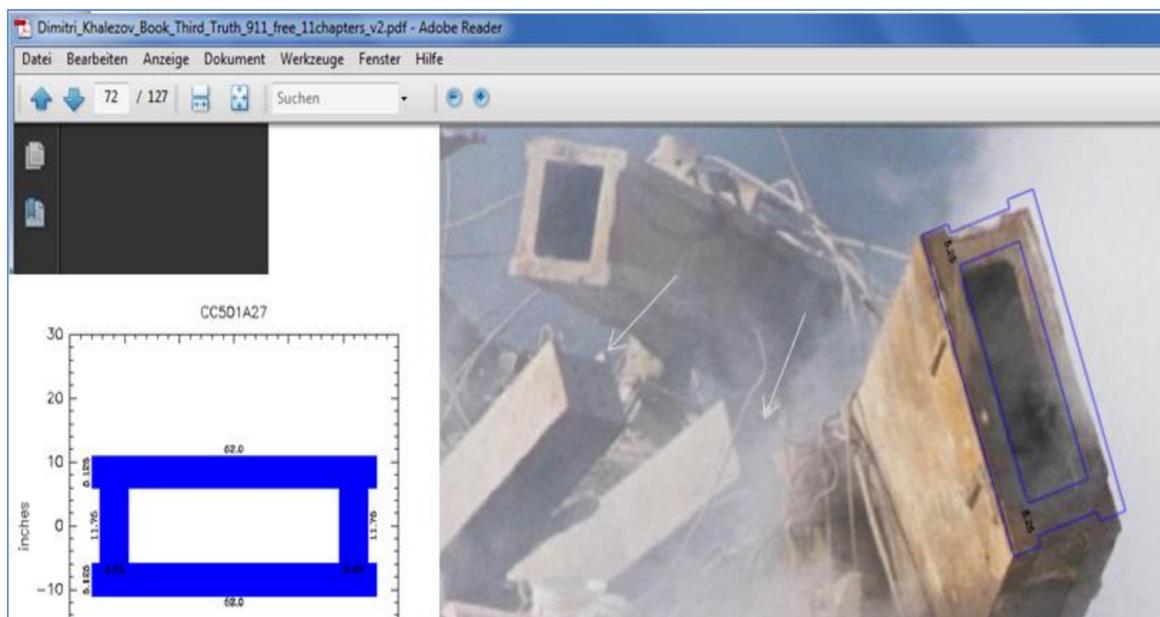
87 Screen shots from Khalezov's book (arrows, etc. inserted). Also shown are a diagram, at left, with the cross-section area of column line 501, WTC 1, stories 51 to 54, and blue lines showing this cross-section area superimposed on the photograph.



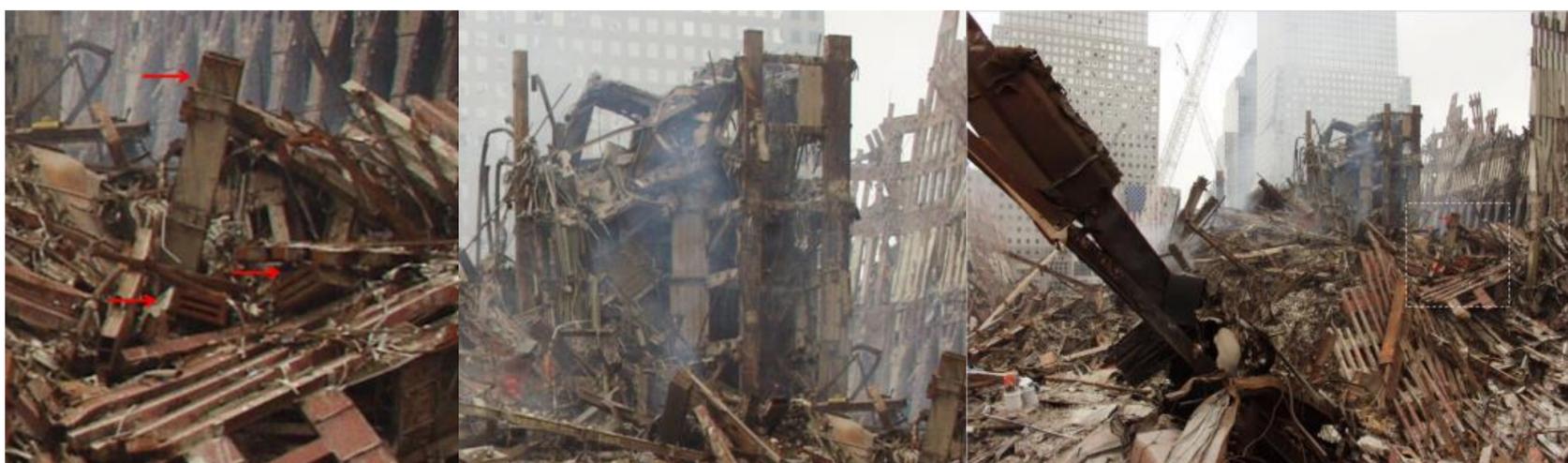
For those who forgot how the actual core and perimeter columns of the Twin Towers looked like here is a reminder: some remaining perimeter- and core columns of the Twin Towers (from their upper parts that were spared by the pulverization) at "Ground Zero". Each of their walls was thicker than a front armor of a tank. Make sure to imagine that the same kind of columns that belonged to the lower and middle parts of each of the Twin Towers (as well as to the entire length of the WTC-7) were instantly reduced to complete, fluffy microscopic dust that allowed the upper parts of the Twin Towers to reach the ground at freefall speed as if under them were not remnants of any steel columns by merely air alone.

The steel plates of core corner column line A 501, stories 51 to 54 (dark blue arrows), were thinner than those of the column shown on the photograph used by Khalezov (red arrows). The steel plates of the core corner columns that spanned stories 51 to 54 were not as thick as those of the pictured column. The four core corner column lines were the heaviest. Therefore, even if the column was from another core column line, it would have come from below the 50s, but not from the impact areas or above them.

88 Screen shot from Khalezov's book. Also shown are a diagram, at left, with the cross-section area of column line 501, WTC 1, stories 27 to 30, and blue lines showing this cross-section area superimposed on the photograph. The perimeter columns visible in the background of the photograph used by Khalezov (see the inserted white arrows) confirm the absolute size of the core column's cross-section. The outside dimensions of the two perimeter columns visible in the background were approximately 14 inches square. See NIST NCSTAR 1-1, PDF page 72.

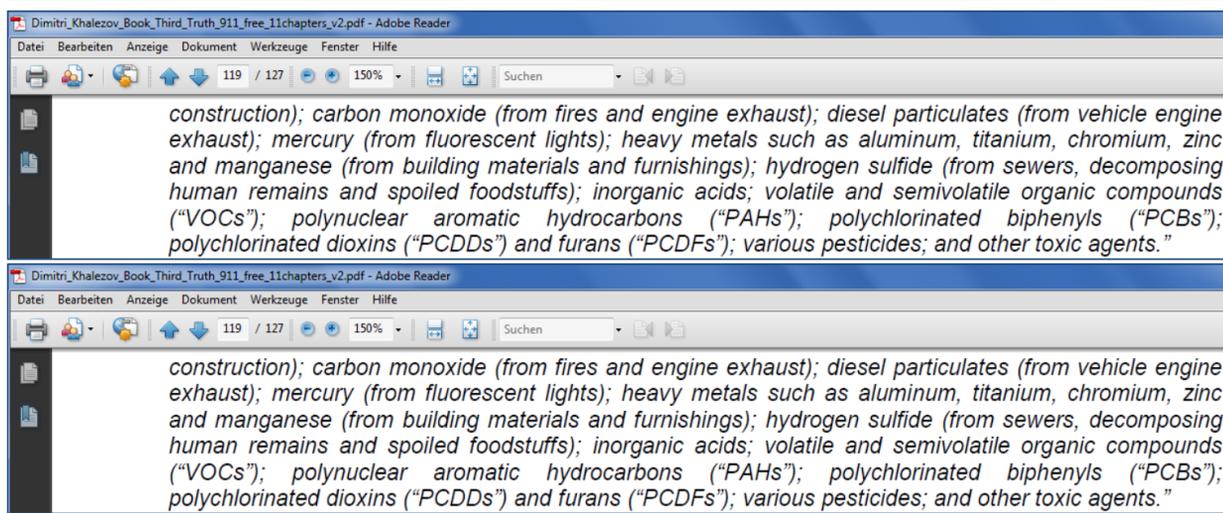


89 Many more core columns are documented that must have originated in the allegedly "dustified" parts of the Twin Towers, given their shapes and plate thicknesses. A few examples:  
 The left image shows two core corner columns that were used in stories 9 to 12 or lower and a third large core column from below the impact area (arrows inserted). The right image shows the remaining part of the WTC 1 core, which was allegedly (but obviously not) "dustified." The two images are enlarged cuts from the photograph further below (white rectangle inserted). The standard story height of 12 feet (3.66 meters) and the outside dimension of the standard perimeter columns (about 14 inches square) provide reference frames with respect to the absolute size of the core columns.

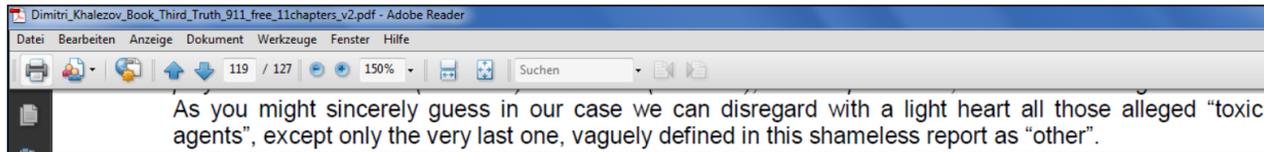


90 For example, D. Fox and J. Prager, "Hard evidence . . .": "Hiroshima effect cancers in responders and locals."

91 A quote from John Howard's "THE WORLD TRADE CENTER DISASTER: HEALTH EFFECTS AND COMPENSATION MECHANISMS" (*Journal of Law and Policy*, see above, footnote 18) as it is contained in Khalezov's book (screen shots):



Khalezov disputes that the toxic agents listed (the list above includes known carcinogens) might be responsible for the WTC related cancers:



92 See, for example, Prager, *911: AMERICA was NUKED*, page 36.

93 See, for example, "Jeff Prager Guest Blog: The Age Of The Micro Nuclear Device."

94 See, for example, Prager, *911: AMERICA was NUKED*, page 25, and "Hard Evidence Supports . . ." by D. Fox and J. Prager.

95 Genbaku Hoshasen no Jintai Eikyō, "Effects of A-bomb Radiation on the Human Body, Digest Edition," 1992, published by the Hiroshima International Council for the Radiation-exposed (HICARE). Atomic Bomb Survivors Support Division. Hiroshima Prefectural Government; Chapter 02. "Malignant tumors," [http://www.hicare.jp/en/press/pdf/e\\_chapter02.pdf](http://www.hicare.jp/en/press/pdf/e_chapter02.pdf). Quotes/screen shots:

**2. Latency period of malignant tumors**

Although consideration of the latency period of malignant tumors in atomic bomb survivors requires scrutiny of age at the time of bombing, the diagram uses reported incidence and mortality rates to illustrate for various cancers the latency period (-----), and

**4. Characteristics of atomic bomb-related solid cancers**

Atomic bomb-related solid cancers (tumors) exhibit the following characteristics:

1. The cancer risk increased with dose.
2. The cancer risk increased with decreasing age at the time of bombing.
3. Unlike leukemia, the latency period increased with decreasing age at the time of bombing (ATB), with a marked radiation effect evident when survivors reached the age level at which the cancers frequently occur.

The diagram shows the times at which a

the times at which an increase relative to the the controls became suggestive (-----) and significant (-----).

Cancers observed and the approximate dates at which significant increases became evident were leukemia (1950); thyroid cancer (1955); breast and lung cancer (1965); and multiple myelomas, gastric and colon cancer (1975).

radiation effect became apparent in the case of lung cancer. The cumulative mortality rates since 1950 are compared for the heavily exposed ( $\geq 1$  Gy) and control (0 Gy) populations by age ATB. The arrows in the diagram indicate the time at which the difference in mortality rates between the two groups first demonstrated a statistical significance (i.e. the time at which radiation-induced cancer clearly began to be manifested).

A radiation-related increase in mortality was observed in the 40 - 49 years ATB group at 15 to 20 years after exposure, and in the 10 - 19 years ATB group at 30 years after exposure.

