The Top Ten Connections Between NIST and Nano-Thermites

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"*Was the steel tested for explosives or thermite residues? … NIST did not test for the residue of these compounds in the steel.*"
NIST Responses to FAQs, August 2006

The National Institute of Standards and Technology (NIST) has had considerable difficulty determining a politically correct sequence of events for the unprecedented destruction of three World Trade Center (WTC) buildings on 9/11 (Douglas 2006, Ryan 2006, Gourley 2007). But despite a number of variations in NIST's story, it never considered explosives or pyrotechnic materials in any of its hypotheses. This omission is at odds with several other striking facts; first, the requirement of the national standard for fire investigation (NFPA 921), which calls for testing related to thermite and other pyrotechnics, and second, the extensive experience NIST investigators have with explosive and thermite materials.

One of the most intriguing aspects of NIST's diversionary posture has been their total lack of interest in explosive or pyrotechnic features in their explanations. Despite the substantial evidence for the use of explosives at the WTC (Jones 2006, Legge and Szamboti 2007), and the extensive expertise in explosives among NIST investigators (Ryan 2007), explosives were never considered in the NIST WTC investigation. Only after considerable criticism of this fact did NIST deign to add one small disclaimer to their final report on the towers, suggesting they found no evidence for explosives.

The extensive evidence that explosives were used at the WTC includes witness testimony (MacQueen 2006), overwhelming physical evidence (Griffin 2005, Hoffman et al 2005, Jones and Legge et al 2008) and simple common sense (Legge 2007). There is also substantial evidence that aluminothermic (thermite) materials were present at the WTC (Jones 2007), and the presence of such materials can explain the existence of intense fire where it would not otherwise have existed. Additionally, despite agreement from all parties that the assumed availability of fuel allowed for the fires in any given location of each of the WTC buildings to last only twenty minutes (NIST 2007), the fires lasted much longer and produced extreme temperatures (Jones and Farrer et al 2008).

These inexplicable fires are a reminder that the WTC buildings were not simply demolished, but were demolished in a deceptive way. That is, the buildings were brought down so as to make it look like the impact of the planes and the resulting fires might have caused their unprecedented, symmetrical destruction. Therefore, shaped charges and other typical explosive configurations were likely used, but there was more to it than that. Those committing the crimes needed to create fire where it would not have existed

otherwise, and draw attention toward the part of the buildings where the planes impacted (or in the case of WTC 7, away from the building altogether).

This was most probably accomplished through the use of nano-thermites, which are high-tech energetic materials made by mixing ultra fine grain (UFG) aluminum and UFG metal oxides; usually iron oxide, molybdenum oxide or copper oxide, although other compounds can be used (Prakash 2005, Rai 2005). The mixing is accomplished by adding these reactants to a liquid solution where they form what are called "sols", and then adding a gelling agent that captures these tiny reactive combinations in their intimately mixed state (LLNL 2000). The resulting "sol-gel" is then dried to form a porous reactive material that can be ignited in a number of ways.

The high surface area of the reactants within energetic sol-gels allows for the far higher rate of energy release than is seen in "macro" thermite mixtures, making nano-thermites "*high explosives*" as well as pyrotechnic materials (Tillitson et al 1999). Sol-gel nano-thermites, are often called energetic nanocomposites, metastable intermolecular composites (MICs) or superthermite (COEM 2004, Son et al 2007), and silica is often used to create the porous, structural framework (Clapsaddle et al 2004, Zhao et al 2004). Nano-thermites have also been made with RDX (Pivkina et al 2004), and with thermoplastic elastomers (Diaz et al 2003). But it is important to remember that, despite the name, nano-thermites pack a much bigger punch than typical thermite materials.

It turns out that explosive, sol-gel nano-thermites were developed by US government scientists, at Lawrence Livermore National Laboratories (LLNL) (Tillitson et al 1998, Gash et al 2000, Gash et al 2002). These LLNL scientists reported that --

> "*The sol-gel process is very amenable to dip-, spin-, and spray-coating technologies to coat surfaces. We have utilized this property to dip-coat various substrates to make sol-gel Fe,O,/ Al / Viton coatings. The energetic coating dries to give a nice adherent film. Preliminary experiments indicate that films of the hybrid material are self-propagating when ignited by thermal stimulus*" (Gash et al 2002).

The amazing correlation between floors of impact and floors of apparent failure suggests that spray-on nano-thermite materials may have been applied to the steel components of the WTC buildings, underneath the upgraded fireproofing (Ryan 2008). This could have been done in such a way that very few people knew what was happening. The Port Authority's engineering consultant Buro Happold, helping with evaluation of the fireproofing upgrades, suggested the use of "alternative materials" (NIST 2005). Such alternative materials could have been spray-on nano-thermites substituted for intumescent paint or Interchar-like fireproofing primers (NASA 2006). It seems quite possible that this kind of substitution could have been made with few people noticing.

Regardless of how thermite materials were installed in the WTC, it is strange that NIST has been so blind to any such possibility. In fact, when reading NIST's reports on the WTC, and its periodic responses to FAQs from the public, one might get the idea that no

one in the NIST organization had never heard of nano-thermites before. But the truth is, many of the scientists and organizations involved in the NIST WTC investigation were not only well aware of nano-thermites, they actually had considerable connection to, and in some cases expertise in, this exact technology.

Here are the top ten reasons why nano-thermites, and nano-thermite coatings, should have come to mind quickly for the NIST WTC investigators.

1. NIST was working with LLNL to test and characterize these sol-gel nano-thermites, at least as early as 1999 (Tillitson et al 1999).

2. Forman Williams, the lead engineer on NIST's advisory committee, and the most prominent engineering expert for Popular Mechanics, is an expert on the deflagration of energetic materials and the "*ignition of porous energetic materials*"(Margolis and Williams 1996, Telengator et al 1998, Margolis and Williams 1999). Nano-thermites are porous energetic materials. Additionally, Williams' research partner, Stephen Margolis, has presented at conferences where nano-energetics are the focus (Gordon 1999). Some of Williams' other colleagues at the University of California San Diego, like David J. Benson, are also experts on nano-thermite materials (Choi et al 2005, Jordan et al 2007).

3. Science Applications International (SAIC) is the DOD and Homeland Security contractor that supplied the largest contingent of non-governmental investigators to the NIST WTC investigation. SAIC has extensive links to nano-thermites, developing and judging nano-thermite research proposals for the military and other military contractors, and developing and formulating nano-thermites directly (Army 2008, DOD 2007). SAIC's subsidiary Applied Ordnance Technology has done research on the ignition of nanothermites with lasers (Howard et al 2005).

   In an interesting coincidence, SAIC was the firm that investigated the 1993 WTC bombing, boasting that -- "*After the 1993 World Trade Center bombing, our blast analyses produced tangible results that helped identify those responsible* (SAIC 2004)." And the coincidences with this company don't stop there, as SAIC was responsible for evaluating the WTC for terrorism risks in 1986 as well (CRHC 2008). SAIC is also linked to the late 1990s security upgrades at the WTC, the Rudy Giuliani administration, and the anthrax incidents after 9/11, through former employees Jerome Hauer and Steven Hatfill.

4. Arden Bement, the metallurgist and expert on fuels and materials who was nominated as director of NIST by President George W. Bush in October 2001, was former deputy secretary of defense, former director of DARPA's office of materials science, and former executive at TRW.

   Of course, DOD and DARPA are both leaders in the production and use of nano-thermites (Amptiac 2002, DOD 2005). And military and aerospace contractor

TRW has had a long collaboration with NASA laboratories in the development of energetic materials that are components of advanced propellants, like nano-gelled explosive materials (NASA 2001). TRW Aeronautics also made fireproof composites and high performance elastomer formulations, and worked with NASA to make energetic aerogels.

Additionally, Bement was a professor at Purdue and MIT. Purdue has a thriving program for nano-thermites (Son 2008). And interestingly, at MIT's Institute for Soldier Nanotechnology, we find Martin Z. Bazant, son of notable "conspiracy debunker" Zdenek P. Bazant (MIT 2008), who does research on granular flows, and the electrochemical interactions of silicon. Zdenek P. Bazant is interested in nanocomposites as well (Northwestern 2008), and how they relate to naval warfare (ONR 2008). MIT was represented at nano-energetics conferences as early as 1998 (Gordon 1998).

Bement was also a director at both Battelle and the Lord Corporation. Battelle (where the anthrax was made) is an organization of "experts in fundamental technologies from the five National Laboratories we manage or co-manage for the US DOE." Battelle advertises their specialization in nanocomposite coatings (Battelle 2008). The Lord Corporation also makes high-tech coatings for military applications (Lord 2008). In 1999, Lord Corp was working with the Army and NASA on "*advanced polymer composites, advanced metals, and multifunctional materials*" (Army 1999).

5. Hratch Semerjian, long-time director of NIST's chemical division, was promoted to acting director of NIST in November 2004, and took over the WTC investigation until the completion of the report on the towers. Semerjian is closely linked to former NIST employee Michael Zachariah, perhaps the world's most prominent expert on nano-thermites (Zachariah 2008). In fact, Semerjian and Zachariah co-authored ten papers that focus on nano-particles made of silica, ceramics and refractory particles. Zachariah was a major player in the Defense University Research Initiative on Nanotechnology (DURINT), a groundbreaking research effort for nano-thermites.

6. NIST has a long-standing partnership with NASA for the development of new nano-thermites and other nano-technological materials. In fact, Michael Zachariah coordinates this partnership (CNMM 2008).

7. In 2003, two years before the NIST WTC report was issued, the University of Maryland College Park (UMCP) and NIST signed a memorandum of understanding to develop nano-technologies like nano-thermites (NIST 2003). Together, NIST and UMCP have done much work on nano-thermites (NM^2 2008).

8. NIST has their own Center for Nanoscale Science and Technology (CNST 2008). Additionally, NIST's Reactive Flows Group did research on nanostructured materials and high temperature reactions in the mid-nineties (NRFG 1996).

9. Richard Gann, who did the final editing of the NIST WTC report, managed a project called "Next-Generation Fire Suppression Technology Program", both before and after 9/11. Andrzej Miziolek, another of the world's leading experts on nano-thermites (Amptiac 2002), is the author of "Defense Applications of Nanomaterials", and also worked on Richard Gann's fire suppression project (Gann 2002). Gann's project was sponsored by DOD's Strategic Environmental Research and Development Program (SERDP), an organization that sponsored a number of LLNL's nano-thermite projects (Simpson 2002, Gash et al 2003).

10. As part of the Federal Laboratory Consortium for Technology Transfer, NIST partners with the Naval Surface Warfare Center at Indian Head (NSWC-IH) on Chemical Science and Technology (FLCTT 2008). NSWC-IH is probably the most prominent US center for nano-thermite technology (NSWC 2008). In 1999, Jan Puszynski, a scientist working for the DURINT program, helped NSWC-IH design a pilot plant to produce nano-size aluminum powder. It was reported that "*At that time, this was [the] only reliable source of aluminum nanopowders in the United States"* (SDSMT 2001), however, private companies like Argonide and Technanogy were also known to have such capabilities.

    Among an interesting group of contractors that NSWC-IH hired in 1999 were SAIC, Applied Ordnance, Battelle, Booz Allen Hamilton, Mantech, Titan, Pacific Scientific Energetic (see below), and R Stresau Laboratories for "*demolition materials*" (NSWC 2000).

    A tragic coincidence left William Caswell, an employee of NSWC-IH, dead on Flight 77 when it hit the Pentagon. He had for many years worked on "*deep-black*" projects at NSWC-IH (Leaf 2007).

The presence of Pacific Scientific Energetics (PSE) in this list of 1999 NSWC-IH contractors is interesting because PSE was the parent company of Special Devices, Inc (SDI). SDI specializes in explosives for defense, aerospace and mining applications, and was acquired in 1998 by John Lehman, 9/11 Commissioner, member of the Project for a New American Century, and former Secretary of the Navy (SDI 2008). Lehman divested in 2001.

With this in mind, it is worthwhile to reiterate that nano-thermite materials were very likely used in the deceptive demolition of the WTC buildings, but most certainly played only a part in the plan. However, other high-tech explosives were available to those who had access to nano-thermite materials at the time. Like SDI, several other organizations with links to military, space and intelligence programs (e.g. In-Q-Tel, Orbital Science) have access to many types of high-tech explosives to cut high-strength bolts and produce pyrotechnic events. These organizations also have connections to those who could have

accessed the buildings, like WTC tenant Marsh & McLennan and former NASA administrator and Securacom director, James Abrahamson.

In any case, it is important for those seeking the truth about 9/11 to consider what organizations and people had access to the technologies that were used to accomplish the deceptive demolition of the WTC buildings. It is also important to recognize the links between those who had access to the technologies, those who had access to the buildings, and those who produced the clearly false official reports.

To that end we should note that NIST had considerable connections to nano-thermites, both before and during the WTC investigation. It is therefore inexplicable why NIST did not consider such materials as an explanation for the fires that burned on 9/11, and long afterward at Ground Zero. This fact would not be inexplicable, of course, if those managing the NIST investigation knew to not look, or test, for such materials.

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