Statement Regarding Thermite: Part 1

In Response to some issues raised in

***Question 12** of the National Institute of Standards and Technology's (NIST) Fact Sheet Concerning The Federal Building and Fire Safety Investigation of the World Trade Center Disaster*[i]

By Robert Moore, Esq.

January 12, 2007

On August 30, 2006 a taxpayer funded entity known as the National Institute of Standards and Technology (NIST) published responses to what they deemed "frequently asked questions" regarding the demise of World Trade Center building 1, 2 and 7.[ii]

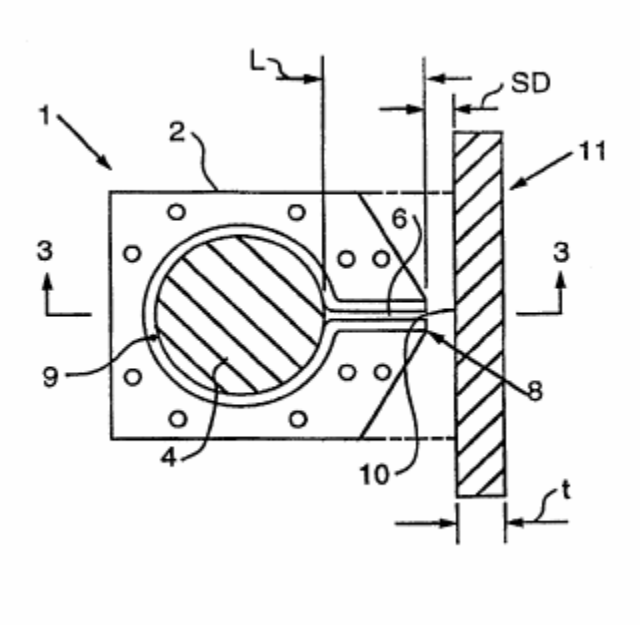
I will briefly examine some of the issues raised in question number 12 of the institute's response. The factors I will examine are in **bold** and underlined.

NIST's question 12:

> *12. Did the NIST investigation look for evidence of the WTC towers being brought down by controlled demolition**? Was the steel tested for explosives or thermite residues?** The combination of thermite and sulfur (called thermate) "slices through steel like a hot knife through butter."*
>
> ***NIST did not test for the residue of these compounds in the steel**.*
>
> *The responses to questions number 2, 4, 5 and 11 demonstrate why NIST concluded that there were no explosives or controlled demolition involved in the collapses of the WTC towers.*
>
> *Furthermore, a very large quantity of thermite (a mixture of powdered or granular aluminum metal and powdered iron oxide that burns at extremely high temperatures when ignited) or another incendiary compound would have had to be placed on at least the number of columns damaged by the aircraft impact and weakened by the subsequent fires to bring down a tower**. Thermite burns slowly relative to explosive materials and can require several minutes in contact with***

> ***a massive steel section to heat it to a temperature that would result in substantial weakening.*** *Separate from the WTC towers investigation, NIST researchers estimated that at least 0.13 pounds of thermite would be required to heat each pound of a steel section to approximately 700 degrees Celsius (the temperature at which steel weakens substantially). Therefore, while a thermite reaction can cut through large steel columns****, many thousands of pounds of thermite would need to have been placed inconspicuously ahead of time, remotely ignited, and somehow held in direct contact with the surface of hundreds of massive structural components to weaken the building****. This makes it an unlikely substance for achieving a controlled demolition*[iii].
>
> *Analysis of the WTC steel for the elements in thermite/thermate would not necessarily have been conclusive. The metal compounds also would have been present in the construction materials making up the WTC towers, and sulfur is present in the gypsum wallboard that was prevalent in the interior partitions.*

In question 12 NIST states that, "***Thermite burns slowly relative to explosive materials and can require several minutes in contact with a massive steel section to heat it to a temperature that would result in substantial weakening."***[iv] Now, bear in mind that NIST admittedly did not test available WTC steel samples for "explosives or thermite residues."[v] Therefore, NIST's above response seems more of a rhetorical answer to a hypothetical set of facts regarding the use of thermite. So, I will also address the use of thermite in hypothetical terms, as it is the scientists who must test the material (to the extent it still exists) for such substances. It is the scientists who must review and interpret the data.



Above: Cross Section, Linear Thermite Cutting Apparatus; US Patent 6183659.

The operative word used by NIST in their answer to question **12** regarding "duration for cut" is the word "**can**".[vi] This is not a parsing of words. NIST states that thermite ***"can require several minutes in contact with a massive steel section to heat it to a temperature that would result in substantial weakening***." In actual fact, thermite also "**can**" cut through a structural steel target material **in less than one second**.[vii] Moreover, there are at least two devices that have the capability of cutting through steel in a matter of *fractions* of a second.[viii]

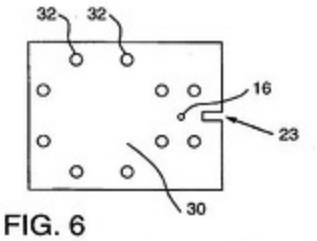


FIG. 6

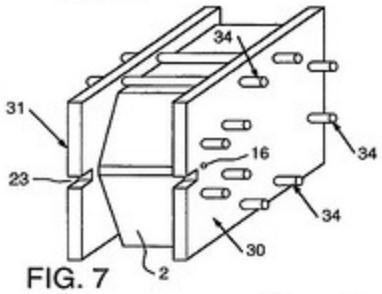


FIG. 7

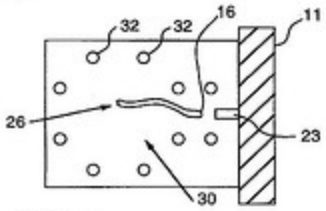


FIG. 8

Above: "Ganged Application;" Linear Thermite Cutting Device; US Patent 6183569[ix]

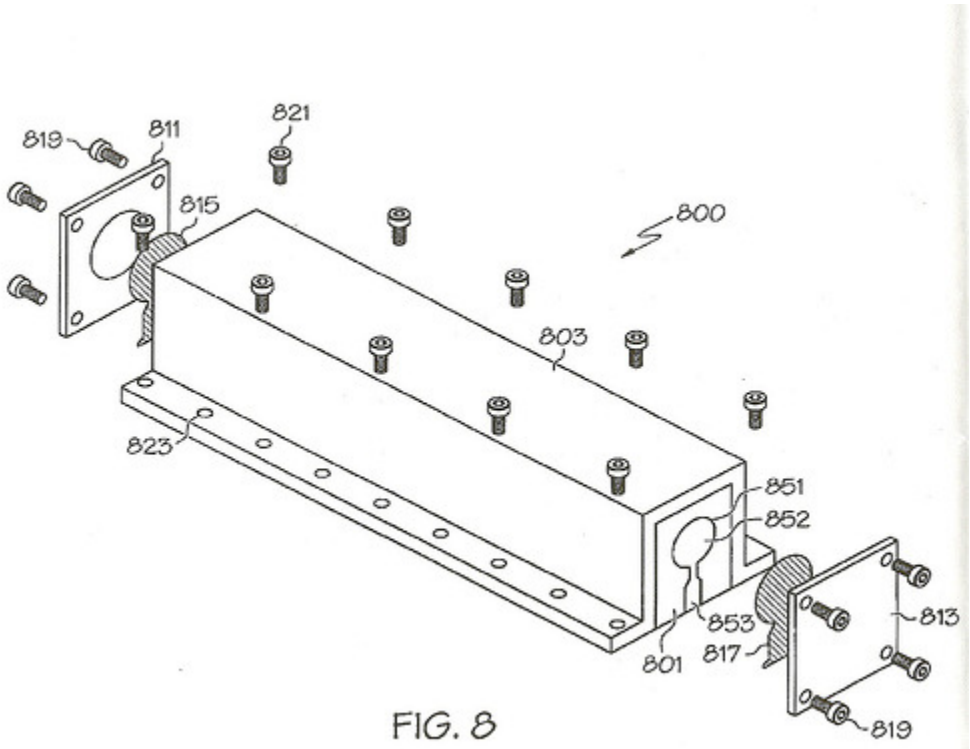


FIG. 8

Above: Linear Thermite Cutting Apparatus; US Patent Application No. 2006/0266204.

Next, in NIST's hypothetical, they state that the thermite would ***"need to have been somehow held in direct contact"*** with the target material (In this case, we are referring to structural steel). Here the operative words *are* ***"need to have been."*** NIST claims that thermite *must* be held in direct contact with structural steel in order for it to slice through it.[x]

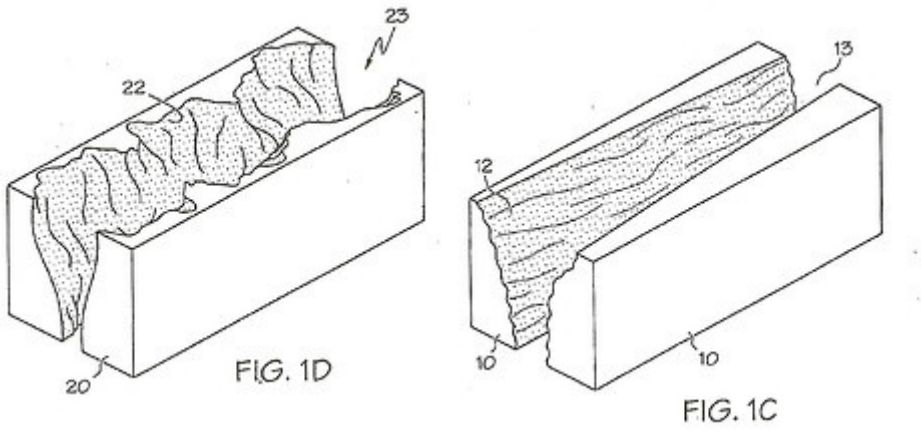


FIG. 1D FIG. 1C

Above: Oblique views of "a typical elongated hole" or "linear cut" that can be made according to embodiments of a mounted thermite cutting device.[xi]

Does thermite have to be held in direct contact with structural steel in order for it to react and slice through the target material? No. To the contrary, an apparatus developed in 1999-2001 actually **requires that the nozzle of the linear thermite cutting apparatus be at a "controlled stand-off" distance** from the target material." The term "stand-off distance" is defined as having the elongated nozzle positioned "generally adjacent" to a target material to be cut.[xii] The term "generally adjacent" is further defined as requiring the nozzle to be approximately 1/16 inch to ¼ inch away from the target material (depending on the thickness of the material to be cut).[xiii] Moreover, the ***"somehow held"*** aspect of NIST's statement is readily dealt with in available patents.[xiv] The ease that such devices can be attached to a target surface is quite evident, and can be accomplished by various conventional means.[xv]

Above: Photograph of the Linear Thermite Cutting apparatus; US Patent 6183569 (Feb. 6, 2001). Shown in its "ganged application" embodiment.

NIST also raises the issue of **inconspicuous** placement of thermite in their hypothetical. NIST intimates that such surreptitious placement of hypothetical incendiaries would not be possible. Although the issue of inconspicuous behavior is not a scientific matter, the patents do suggest accommodations for ease of deployment in the field .[xvi]

NIST next states that ignition of the apparatus would likely be by remote. Assuming NIST's claim regarding remote detonation is correct, it seems that various embodiments of the linear thermite cutting device ***do*** address NIST's concerns quite

admirably. For example, the device patented in February 2001 indicates that conventional fuses from "Pyrofuse Corporation in Mt. Vernon, N.Y." may be utilized as the activation device and can be accessed for **remote ignition**.[xvii]

So as can be seen, NIST *(in an apparent effort to "debunk" some sound questions surrounding the WTC disaster)* has created an unnecessary mystique around data and technology--much of which has been available for over half a decade. Rather than dismiss such data, NIST should test available steel samples for residues of thermite and other anomalous substances.

---

[i] National Institute of Standards and Technology (NIST) Federal Building and Fire Safety Investigation of the World Trade Center Disaster**,** Answers to Frequently Asked Questions, http://wtc.nist.gov/pubs/factsheets/faqs_8_2006.htm (last modified Aug. 30,2006).

[ii] *Id.*

[iii] *Id.*

[iv] *Id.*

[v] *Id.*

[vi] *Id.*

[vii] Interview with representative from Spectre Corporation (the assignee company for the 1999-2001 patented linear thermite cutting device, US Patent 6183569 (Feb. 6, 2001.) Spectre Corporation tested the device on various target materials. The cutting time was between .4 (point four) seconds, and 2 (two) seconds for an I-beam. The number of cutters needed for an I-beam test were 3 devices ("ganged").These were then attached to the I-beam with either a simple "bracket" or a "rare earth magnet." US Patent Application 20060266204 (application published Nov. 30, 2006), further states that the linear thermite charge apparatus is to be used for "**demolition of structures, buildings**-steel reinforcing (I-beams in concrete); steel bridges, steel hulls (ships for rescue applications and hostile applications); and general concrete removal." The jet of thermite is to cut through a ½ (one half) inch thick steel target "**in less than one second**."

[viii] See *id*. Also, one such linear cutting product was patented in February 2001 (See, US Patent 6183569 (Feb. 6, 2001). The application on said patent was filed in 1999. The device, known as "Cutting Torch and Associated Methods" incorporates a nozzle onto a mounted thermite linear cutting device for the "purpose of cutting substantially thick material" using an extended "linear cut in a piece of material." Furthermore, another embodiment in US Patent Application 20060266204 reiterates the goals of the 1999-2001 device and states that the "anticipated timing for material penetration is typically on the order of **hundreds of milliseconds."** Note that according to the Statement of James E. Rogan Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark office before the Subcommittee on Courts, the Internet and Intellectual Property Committee on the Judiciary U.S. House of Representatives, July 18, 2002, http://www.uspto.gov/web/offices/com/speeches/speech2002jul18.htm (visited Dec. 23, 2006),

"…patent pendency rates in the United States now average over two years, and without significant changes to our method of processing applications, data shows pendency soon will reach three to four years. The backlog of unexamined patent applications continues to grow as well."

[ix] See, US Patent No 6183569 (Feb. 6, 2001), where it states that the "ganged application" embodiment provides for "a relatively longer and more sustained linear cutting effect [and] is achieved by use of consecutively coupled individual housings."

[x] *Supra* note I.

[xi] See, US Patent Application No. 20060266204 (application published, Nov. 30, 2006) for drawing references. The provisional application was granted on Mar. 8, 2005, and initial research commenced earlier. Additionally, the 1999-2001 patent for a linear thermite cutting device cites US Patent No. 4815384 (Mar. 28, 1989), which sought "to avoid formation **of a saw-tooth cutting profile on a target work surface** acted upon by the device discussed in the patent. See also, http://www.911scholars.org/Media/Jones_ppt/LAJun24_Jones.pdf, where Professor Steven Jones displayed a photo of a saw tooth profile that one could expect to see "from thermite cutting through steel." See also, the photo of the structural steel from a memorial park as referenced in Professor Jones' presentation: http://www.911scholars.org/Media/Jones_ppt/LAJun24_Jones.pdf, and as shown below:

.

Note: Photo is for reference purposes only. This metal has not been tested to the best of author's knowledge..

[xii] *Supra,* note IX.

[xiii] See *Id.*

[xiv] See, US Patent No. 6183569 (Feb. 6, 2001), where it claims that any conventional means can be utilized to hold the devices in place, with the nozzle at a standoff distance from the target material, including "clamps, thermite welding magnets, suction devices, or counter thrust devices." Such counter thrust devices can easily be installed using a commercial stud gun as explained in detail in US Patent Application No. 20060266204(application published, Nov. 30, 2006).

[xv] *Id.*

[xvi] See, US Patent Application No. 2006/0266204 (application published, Nov. 30, 2006), where it states: A "linear thermite charge's modular unit design will allow adaptation for a desired geometry and will be easily deployed in the field." See also, US Patent No. 6183569, where it states: "The present invention also provides a formable, and separately storable, thermite powder charge…" In addition, several embodiments mentioned in US Patent Application No. 2006/0266204 provide that the devices can be deployed in the field with a smaller degree of preparation and "preconditioning" of the target. In fact, thermite cutting device kits can be provided, which contain "modular linear thermite charges," connectors, wiring, mounting, mechanisms, and an ignition system. Remote detonation can be accomplished as stated in, US Patent 6183569 (Feb. 6, 2001).

[xvii] See US Patent No. 6183569, where it states that in one embodiment, the "ganged apparatus" is "accessible for receiving external or remote activation."