$$s = \frac{1}{2}gt^2$$

$$t = \sqrt{\frac{2s}{g}} = \sqrt{\frac{2 \cdot 1,673.50ft}{32.16\frac{ft}{s^2}}} = \sqrt{\frac{2 \cdot 510.10m}{9.802\frac{m}{s^2}}} = 10.2s$$

THE

$$v = g \cdot t = 9.802\frac{m}{s^2}\sqrt{\frac{2 \cdot 510.10\,m}{9.802\frac{m}{s^2}}} = 100\frac{m}{s}$$

Ground Zero Model's

decays per second

$$4\text{ g Cs-137} = 12,557,800,000,000\text{ Bq}$$

$$N(t) = N_0 \cdot e^{-\frac{\ln(2)}{T_{1/2}}t}$$

CODE

Radioactive Contamination

HEINZ POMMER

Radioactive Contamination and Ground Zero

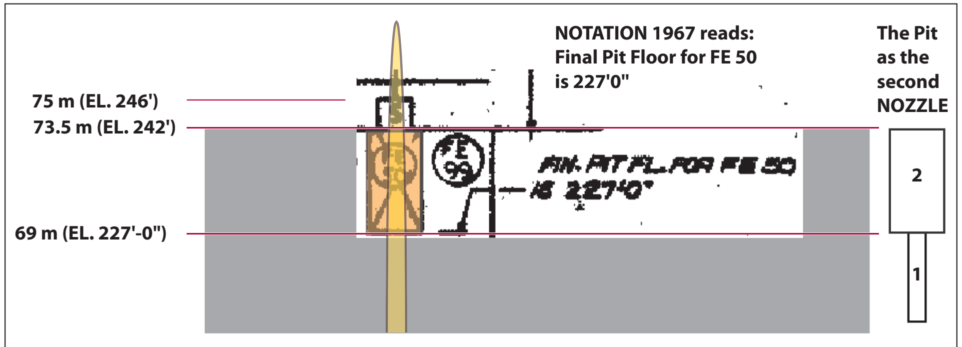
The booklet 'The Code' is meant as a supplement to the book "The Ground Zero Model", published by Jeff Prager: https://prager.academia.edu/research

Its aim is to show that the **radioactive load** below Ground Zero can be calculated correctly in decays per second and per gram dust – and in accordance to the findings in the laboratory. This is a huge step forward.

The advantage consists in the fact that not only a physical explanation is given for the extreme low readings above Ground Zero but that for the first time these physical parameters are expressed in real values (meaning in Becquerel per gram).

However, as nuclear engineering means not only "nuclear" but also "engineering" (!) we would like to underline some of the most important details right at the beginning:

- the small central elevator pit from Freight Elevator FE#50 had a key function for the destruction scheme; the pit was driven directly into the granite. It ended at Elevation 227'-0" above Zero (according to the blueprints of 1967)
- as radioactive contamination above ground depends largely how much material did escape from the centre of explosion the question of the correct nozzle geometry and function is critical. I apologize to stress this point first on the following pages
- mass flow will be shown by using the technique of volume packages (just think of a photographic long term exposure); each package holds the volume erupted within 1 second; thus different mass flows in the Tower can be visualized simultaneously



http://911research.wtc7.net/wtc/evidence/plans/doc/pac1TowerA/LA23_0.png

1 The blueprints (masterplan, 1963)

Important Features:

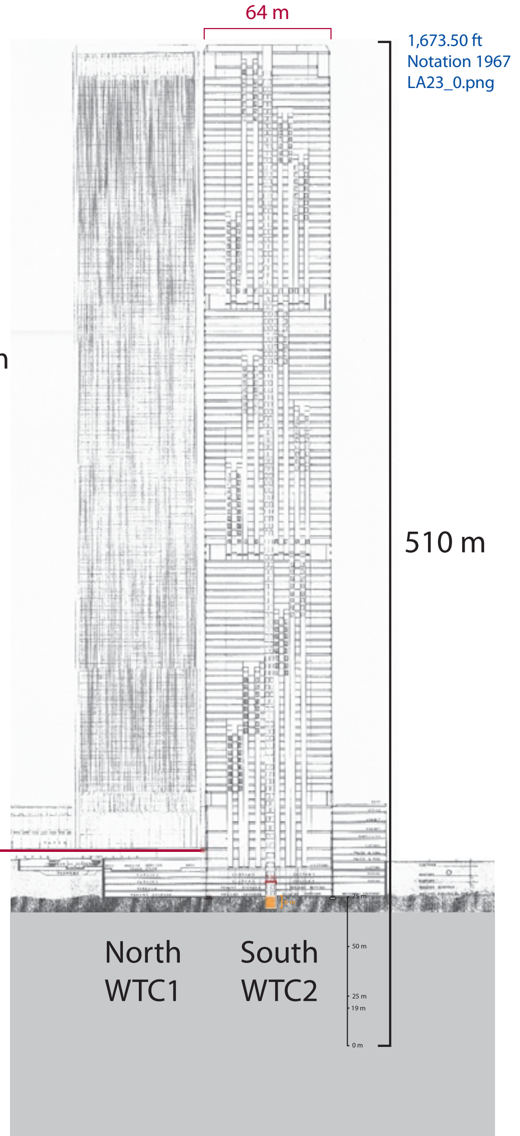
– height of each Tower: 400 m

– built on granite floor

– in the very center a small pit ■ is driven into the rock: depth: 6 m; area: 3.5 m x 3.5 m (freight elevator FE#50)

– the Zero Point (Elevation) of the blueprint is buried 75 m in the granite; seen from the Zero Point the tower's top is at 510 m (1,673.50 ft)

Street level
EL. 310 ft



The Reader may forgive that I will use ONLY photographic evidence of the NORTH Tower (which is of higher quality) while using at the same time the Masterplan blueprint-section, showing always the SOUTH Tower (right).

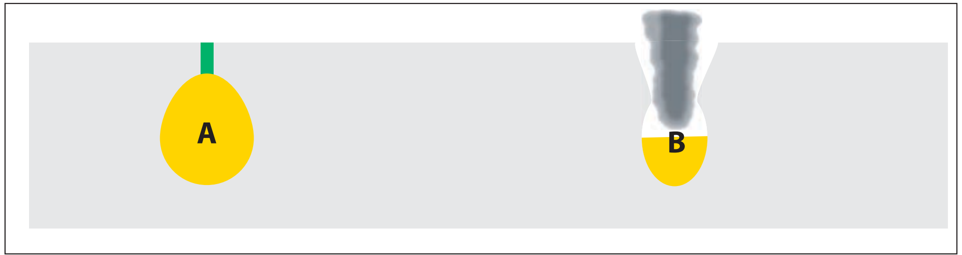
Drawing A-A-8_0.png with its dimensions as well as drawing LA23_0.png are specifically for the North Tower, named 'Tower A'.

http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

2 About inclusion of radioactive material

Assuming that a nuclear fission process in the granite soil lasting about one hour becomes supercritical and explodes deep underground, the energy will form a spherical or egg-shaped melt zone within seconds.

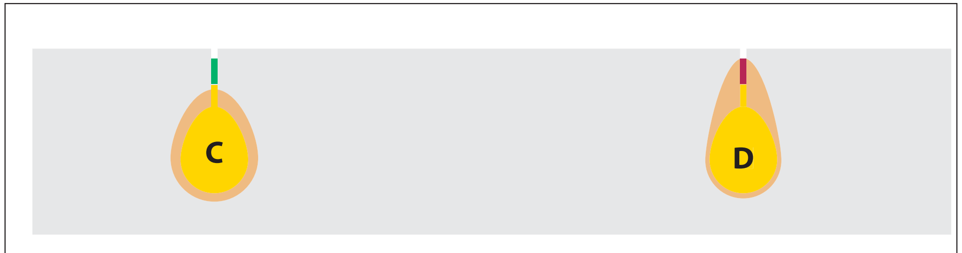
The formation of this egg-shaped melt zone can be influenced in form and speed by a guide channel. If the channel is completely closed (**A**), the melt zone becomes almost spherical. If the channel is very large and open, a good part of the energy escapes immediately and eruptively upwards: a crater is formed (**B**).



If the guide channel is open and relatively narrow at the same time, the liquid material will shoot upwards immediately, but will cool down quickly in the process and close the channel with a melt-plug (**C**). There will be no radioactive contamination above ground.

If sufficient residual energy of the plasma is available (about 30,000 °C), then the sudden closure only delays the eruptive burst, but it does not prevent it (**D**).

A burning through of the energy upwards with a preferred direction of propagation is (at this energy) identical with the passing on of energy impulse shocks by the atomic nuclei racing around. This is simultaneously a filtering process: the original highly radioactive material of the gas pressure chamber mixes only slightly with the eruptive material that is ejected. The main chamber cools down due to the sudden pressure discharge, so that most of the molten [contaminated] material remains underground.



3 The Chopper signal

About 13 seconds **BEFORE** the visible destruction of the North Tower the video signal from the WCBS News Chopper turned black twice, with a strong interference pattern.

It turns out that an additional interpretation – or fine structure – can be attributed to the pattern (which was not fully documented in the GZM book):

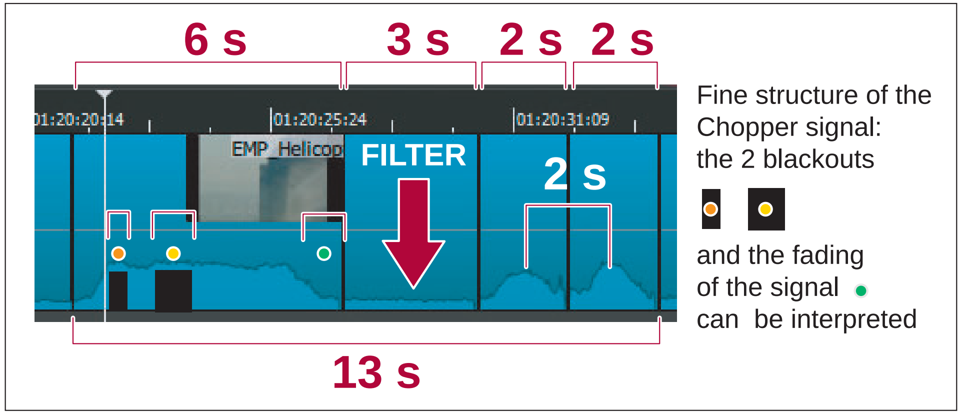
- orange dot (first blackout): explosion time
- yellow dot (second blackout): combination of booster head and main chamber / slowdown of the expanding sphere, forcing it into egg-shape
- green dot (ceasing of the first signal): sealing of the shaft by a hardened melt plug

The 6 seconds long interference is followed by a calm of 3 seconds, where the picture is stable and no interference can be detected.

- interpretation: the filter process through the granite (transfer of energy)

The last two short peaks are interpreted as the plasma breakthrough of the precursor (peak 1) and plasma impact in the Tower's top (peak 2, technically stopped by the resulting air cushion of the compressed air in the Tower's top).

As the Tower stood 400 m tall, this leads to a precursor speed of 200 m/s.



Backup: *www.911media.de/videos/01_WTC1_001.mp4*

4 Time: the great mystery (photo)

https://i.pinimg.com/736x/7d/93/7c/7d937ce48cb6be70407d2d95b963b261--wtc---american-history.jpg

5 Time: the great mystery (drawing)

The photo (left) shows the situation about 11 s after the onset of the visible destruction of the North Tower.

It is very hard to grasp that at this point of extreme movement the blowout has stopped for already 2 seconds and that the chamber is depressurized and calm.

Before going into details why the energy source has already run dry at this instant and why we have to look into the past (by our calculations) one small side note:

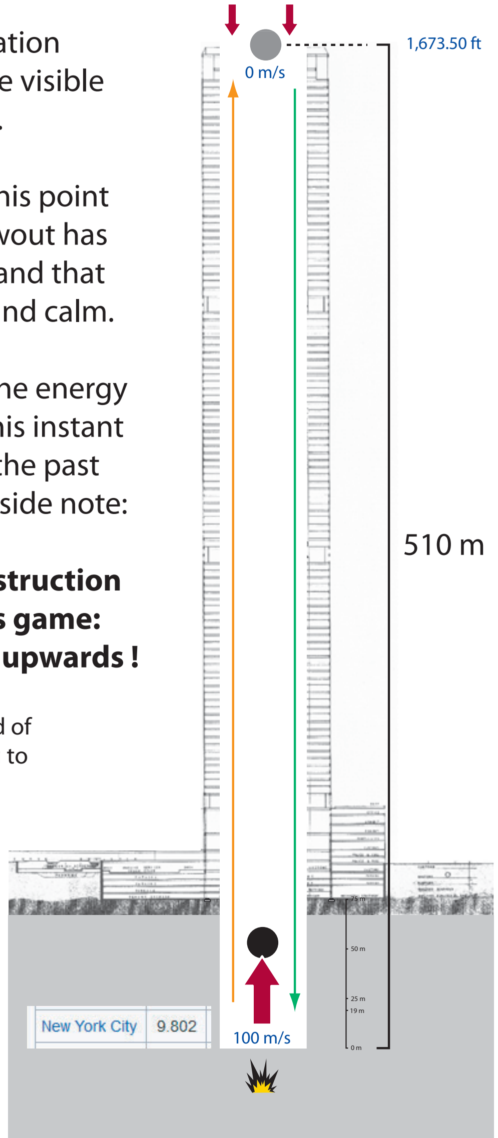
The whole concept of the destruction of the WTC is just a phycisist's game: a coded vertical cannon shot upwards !

A cannon ball shot upwards with a speed of 100 m/s will rise for 10.2 s before coming to a complete stop at a height of 510.10 m.

It will then start to drop and hit the ground 10.2 seconds later. The whole flight will thus take 20.4 seconds.

For NYC acceleration g is: 9.802 m/s^2
This leads EXACTLY to the height of the North Tower, being 1,673.50 ft.

This is a sick joke and it fits the mindset of the perpetrators par excellence!

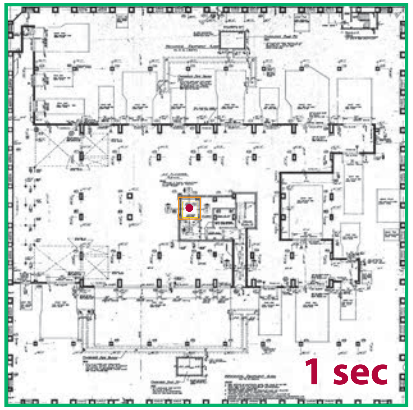


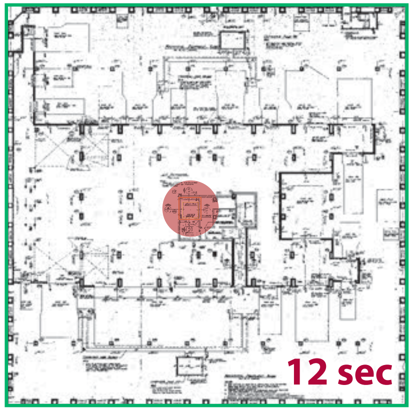
Gravitation New York is: 9.802 m/s^2 or 32.16 ft/s^2: *https://de.qaz.wiki/wiki/Gravity_of_Earth*

6 Core Evaporation: @2 seconds (photo)

Core Evaporation drawn to scale in drawing A-A-8_0.png

In the centre of the drawing sits FE#50; the size of the area through which the material flows grows from 4 m² to 64 m² in 12 seconds.





"Watch the camera shake on its tripod": *https://www.youtube.com/watch?v=3tuAcRur_fA&t=34m21s*

7 Core Evaporation: @2 seconds (drawing)

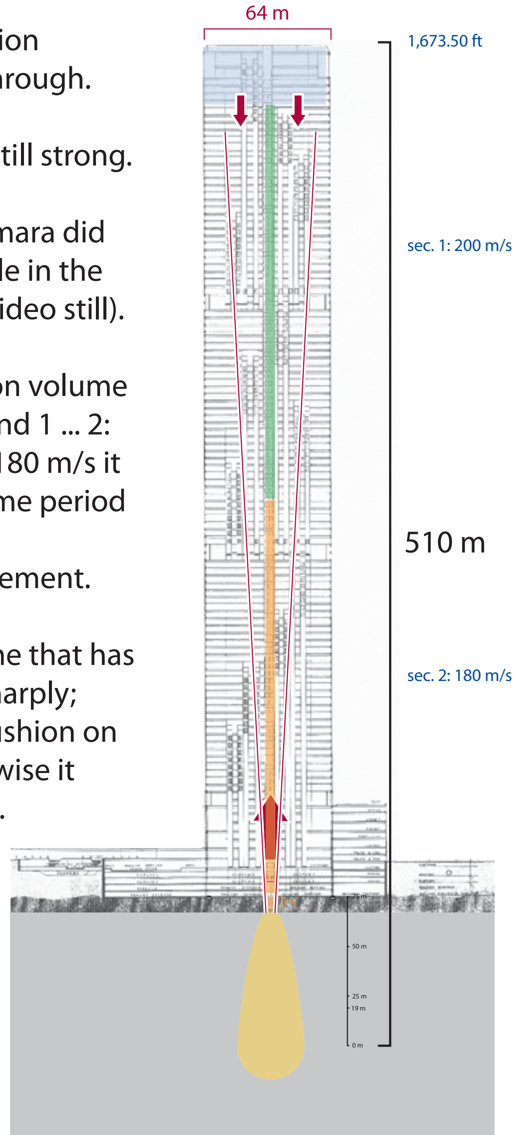
The video still shows the situation
2 seconds after plasma breakthrough.

From outside the Tower looks still strong.

About 10 seconds prior the camara did shake on its tripod. This is visible in the recording (see link below the video still).

The drawing shows the eruption volume leaving the nozzle during second 1 ... 2: being ejected with a speed of 180 m/s it gains 180 m in height in this time period (gravity neglected).
The orange area indicates movement.

The green area indicates volume that has stopped or is being stopped sharply; the flow is stopped by an air cushion on top, which pushes back (otherwise it would shoot through the roof).



http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

8 Outbreak: @5 seconds (photo)

http://911research.wtc7.net/wtc/evidence/photos/wtc1exp1.html

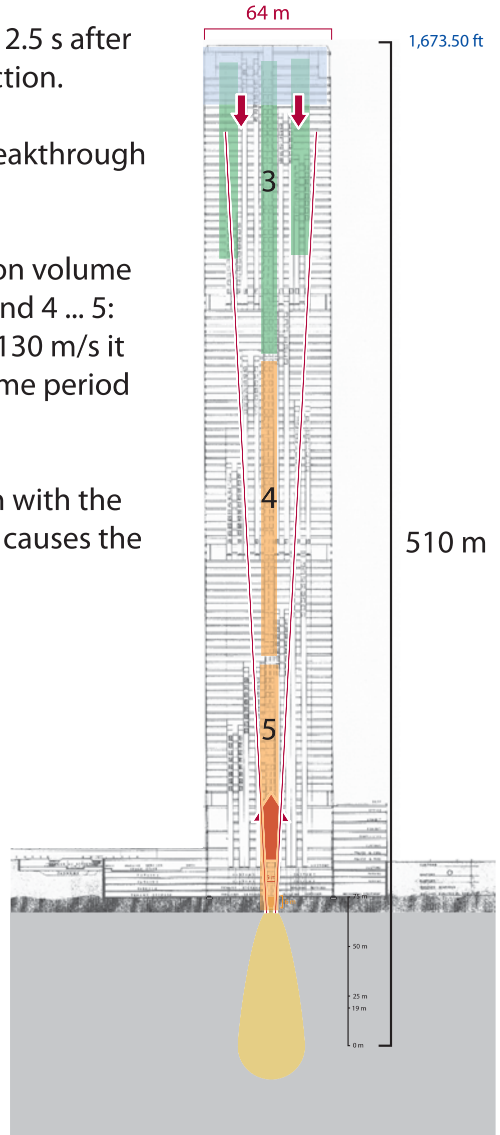
9 Outbreak: @5 seconds (drawing)

The photo shows the situation 2.5 s after the onset of the visible destruction.

This equals 5 s after plasma breakthrough (out of the ground).

The drawing shows the eruption volume leaving the nozzle during second 4 ... 5: being ejected with a speed of 130 m/s it gains 130 m in height in this time period (gravity neglected).

The air cushion in combination with the material following from below causes the outbreak of the ring of flames.



http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

10 Mushrooming: @8.5 seconds (photo)

http://911research.wtc7.net/wtc/evidence/photos/wtc1exp1.html

11 Mushrooming: @8.5 seconds (drawing)

The photo shows the situation 6 s after the onset of the visible destruction.

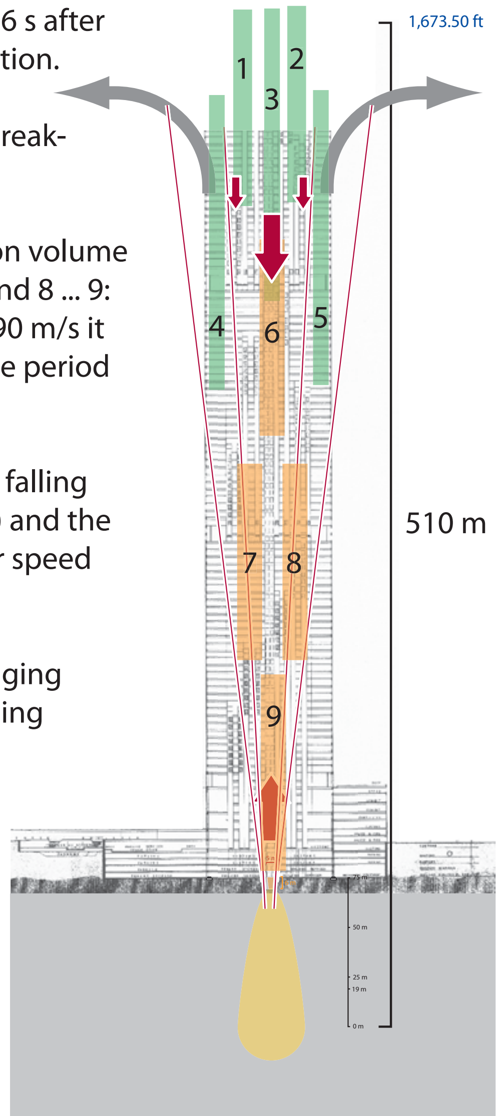
This equals 8.5 s after plasma break-through (out of the ground).

The drawing shows the eruption volume leaving the nozzle during second 8 ... 9: being ejected with a speed of 90 m/s it gains 90 m in height in this time period (gravity neglected).

Mushrooming is caused by the falling material on top (accumulating) and the increased volume flow at lower speed from below.

The sheer mass of the flow, sagging inwards in the center and pushing sideways from below...

... took the Towers down!



http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

12 Full eruption: @13.7 seconds (photo)

http://911research.wtc7.net/wtc/evidence/photos/wtc1exp1.html

13 Full eruption: @13.7 seconds (drawing)

The photo shows the situation 11.2 s after the initiation of the visible destruction.

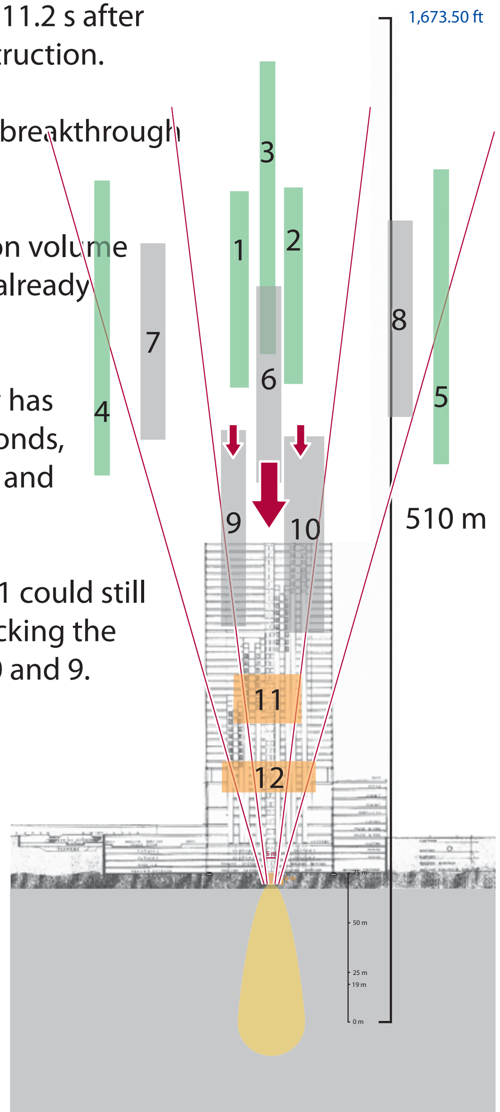
This equals 13.7 s after plasma breakthrough (out of the ground).

The drawing shows the eruption volume in the Tower, the nozzle being already depressurized.

At second 13 ... 14 volume flow has dropped to Zero since two seconds, all material is in free fall (inside and outside)

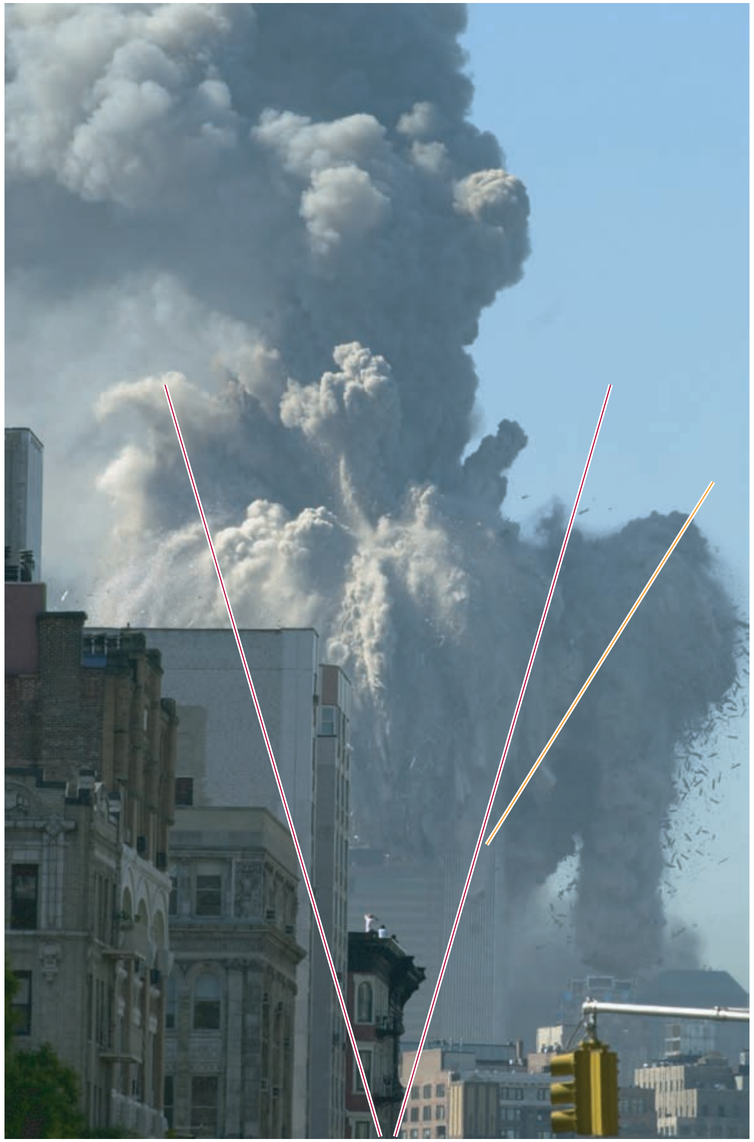
Individually volume package 11 could still rise to 180 m, however it is blocking the descent of volume package 10 and 9.

Volume package 11: speed 60 m/s



http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

14 A cutting knife is no shot (photo)



http://911research.wtc7.net/wtc/evidence/photos/wtc1exp21.html

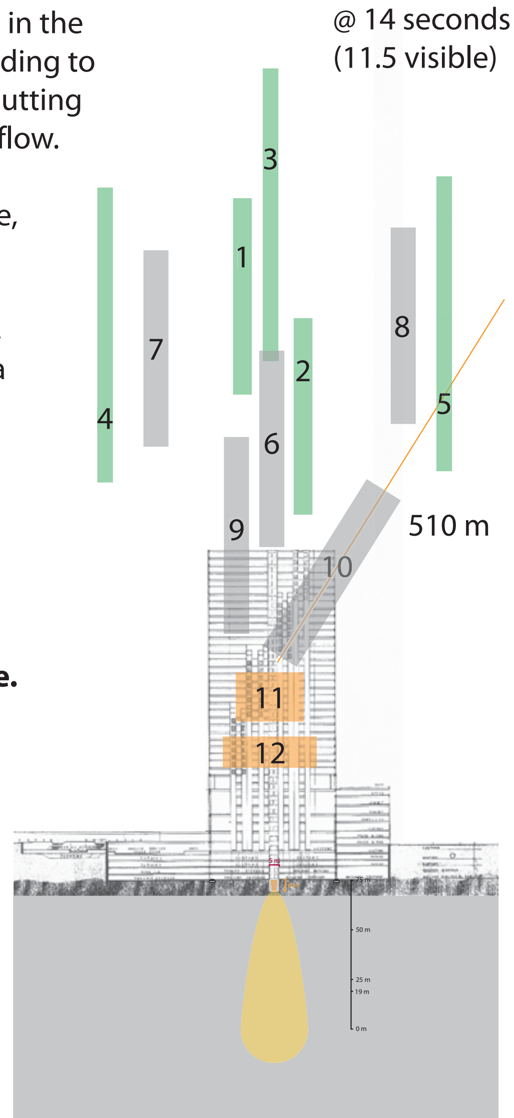
15 A cutting knife is no shot (drawing)

The pronounced "32° outshot" in the North Tower's facade is – according to this model – not a shot, but a cutting knife of the pyroclasting mass flow.

The "out" is coming from above, not from below.

It is this avalanche from above, which rips the Tower apart, in a moment where the nozzle's blowout is already zero.

In work mode each volume package holds 4,230 m^3 of granit as pyroclastic flow, which equals **11 million kg moving material per package.** (density as solid: 2,620 kg/m^3)



http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

16 The cauldron: @ 21.5 seconds

http://911research.wtc7.net/wtc/evidence/photos/wtc1exp1.html

17 The cauldron: @ 21.5 seconds

The heavy masses of the pyroclastic flow are reflected on the ground, moving shortly upwards again;

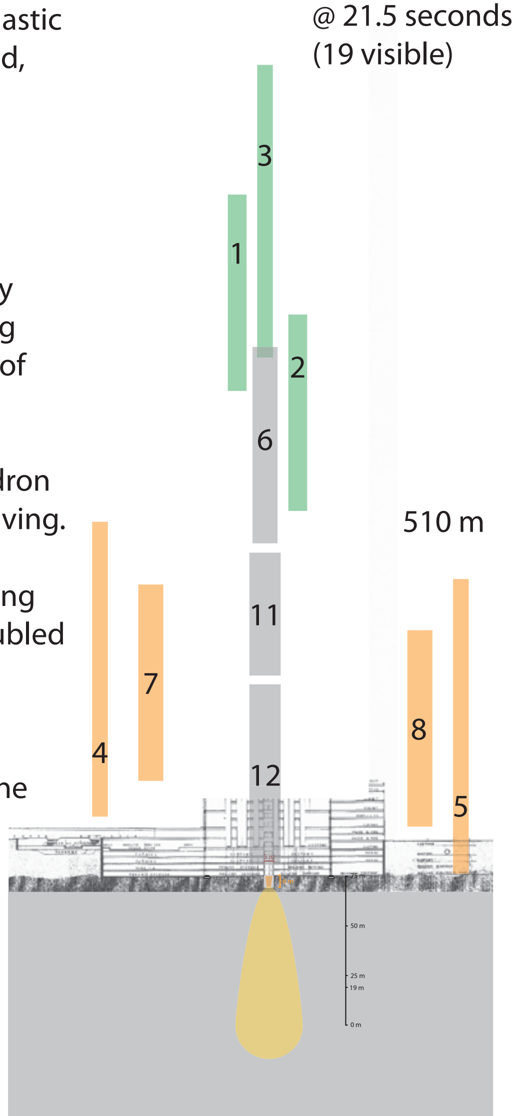
The still hot material flows through the streets of the City.

The central black cloud has only moderate thermal energy, rising slowly, starting a slow rotation of about 90 , which stops quickly.

It hovers over the still hot cauldron for a few seconds, before dissolving.

Only light fumes are still escaping from the nozzle (which has doubled its size during the eruption).

About 50 million kg of a dense, pyroclastic hot granite avalanche just wrecked a 100 million kg structure.   Most of the dust is therefore building dust (fibres, concrete, steel).



http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

18 Result: total volume flow (estimation)

During the 6 second full work mode mean volume flow is about 4,230 m^3 per second, mean speed is about 100 m/s. This means the Tower can be filled 1.5 times its height with eruptive material (through the nozzle). The 6 s work mode volume is: **25,380 m^3**.

Flow package and seconds	Speed	Package height	Nozzle (radius r)	Volume (cylinder)	Height of Tower
1: precursor	200 m/s	200 m	1.00 m	630 m^3	400 m
2: precursor	180 m/s	180 m	1.50 m	1,270 m^3	400 m
3: start	170 m/s	170 m	2.00 m	2,140 m^3	400 m
4: takeover	150 m/s	150 m	2.50 m	2,950 m^3	400 m
5: work mode	130 m/s	130 m	3.00 m	**3,680 m^3**	390 m (topples)
6: work mode	120 m/s	120 m	3.25 m	**3,980 m^3**	380 m (sinks)
7: work mode	110 m/s	110 m	3.50 m	**4.230 m^3**	370 m (mushr.)
8: work mode	100 m/s	100 m	3.75 m	**4,420 m^3**	360 m (mushr.)
9: work mode	90 m/s	90 m	4.00 m	**4,520 m^3**	340 m (fountain)
10: work mode	80 m/s	80 m	4.25 m	**4,540 m^3**	320 m (fountain)
11: drop out	60 m/s	60 m	4.50 m	3,820 m^3	300 m (fountain)
12: sealing	40 m/s	40 m	4.50 m	2,540 m^3	280 m (fountain)
13:stopped	0 m/s	0 m	4.50 m	0 m^3	250 m (slicing)
14:stopped	–	–	4.50 m	–	230 m (slicing)
15:stopped	–	–	4.50 m	–	200 m (slicing)
16:stopped	–	–	4.50 m	–	170 m (slicing)
17:stopped	–	–	4.50 m	–	140 m (slicing)
18:stopped	–	–	4.50 m	–	110 m (gravity)
19:stopped	–	–	4.50 m	–	80 m (gravity)
20:stopped	–	–	4.50 m	–	20 m (remains)

19 Result: total volume flow (drawing/geometry)

The energy of 150 kt can create a melt cavity with a size of r = 25 m, which thus holds a volume V of 65,500 m^3 of liquefied granite (at 5,000 °C and 200 bar).

With an open guide channel present, the sphere will not grow to its full size but rather start moving upwards in order to erupt. If the shaft is suddenly sealed by liquid granite present above the main sphere we suppose a geometry can be found that the movement can be sharply stopped at a size sphere of r = 17 m.

The sphere will nonetheless expand to, lets say a radius of r = 21 m, thus holding a volume of contaminated granite of V = 38,800 m^3. The eruptive egg, however, having received its energy through energy transfer only, may hold the rest of the volume. This sums up to a total eruptive relatively clean volume of: **V = 26,700 m^3**.

Gas pressure chamber @150 kt (maximum radius is r = 25 m)

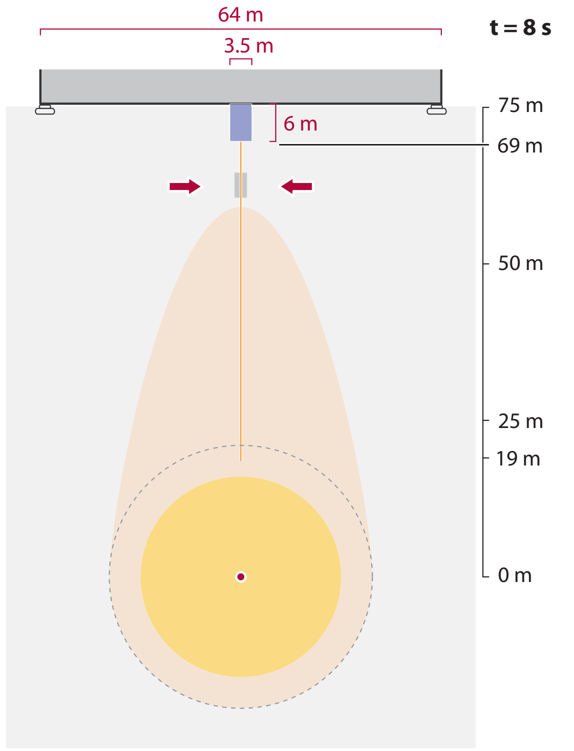
A split second after ZeroTime the yellow sphere has the size of r = 16 m;

The comparatively cool melt of the booster shoots upwards in the open channel; its seals the channel at about 60 m.

Thus the eruptive egg can form, taking its energy from the main sphere (growing to r = 21 m);

V(21 m) = 38,800 m^3

V(25 m) – V (21 m):
65,500 m^3 – 38,800 m^3 = 26,700 m^3



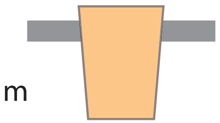
http://911research.wtc7.net/wtc/evidence/masterplan/docs/page14.jpg

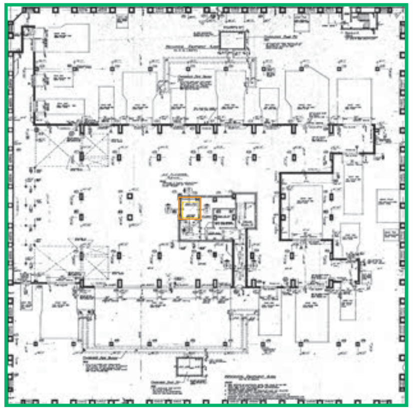
20 Geometry of the nozzle: dimensions

Right (drawing A-A-8_0.png):

Total area is 64 m x 64 m
The elevator pit of FE#50 is located in the centre

ESTIMATED DIMENSIONS:
Height: 6 m
Top: 4.5 m x 4.5 m
Bottom: 3.5 m x 3.5 m





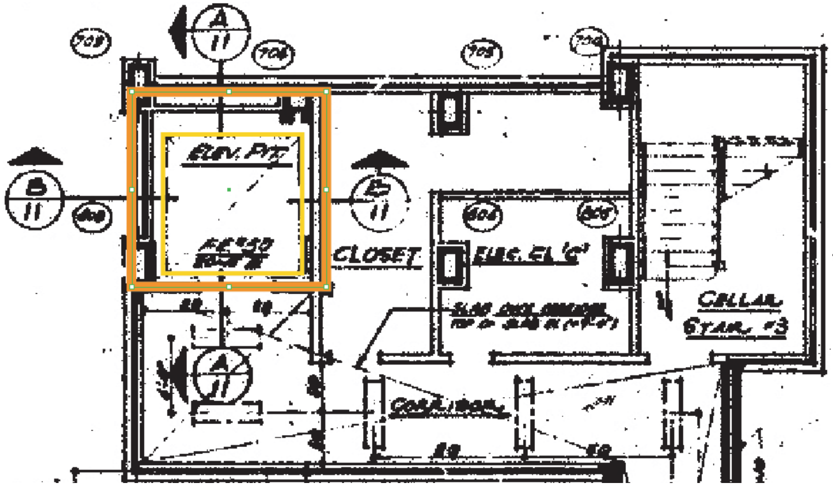
Screenshot (contrast optimized): https://www.youtube.com/watch?v=aPxqR8SNSCU&t=7m17s

21 The Architectural Drawings of B5 (1967)

Enlarged Screenshot of Drawing A-A-8_0 (1967; Subbasement B5)
shows: Elevator Pit of Freight Elevator #50 at Elevation 242'

Correct scales were achieved by scaling the entire floor plan to a square with size 64 mm x 64 mm (see left page, green square)

1. we note the size of elevator cage (yellow square): 2.5 m x 2.5m
2. we note the size elevator pit (orange square): 3.5 m x 3.5 m



In addition, the video screenshot on the left allows for two assumptions (based on the size of the moving workers, estimated to be 1.75 m):

1. the outlet (or entry) of the pit was about 1.5 m above the granite
2. its size on top was about 4.5 m x 4.5 m (not just 3.5 m x 3.5 m)

http://911research.wtc7.net/wtc/evidence/plans/doc/pac1TowerA/A-A-8_0.png

22 Step A: Meltdown and Melt Funnel

Starting at Elevation 19 m, the reactor core has to sink to Elevation Zero within one hour. Maximum penetration depth of neutron radiation in solids are just a few meters and so define the maximum size of the melt cap (growing because of the energy flow below).

We can thus assume that the maximum size of the melt cap has a radius of r = 5 m. The initial size is defined by the reactor core, melting its way down. It is about r = 2 m.

This leads to the following geometry, where we distinguish between the spherical **melt cap** on top, the **melt funnel** (as the mediator in between) and the **reactor core** (the future main sphere).

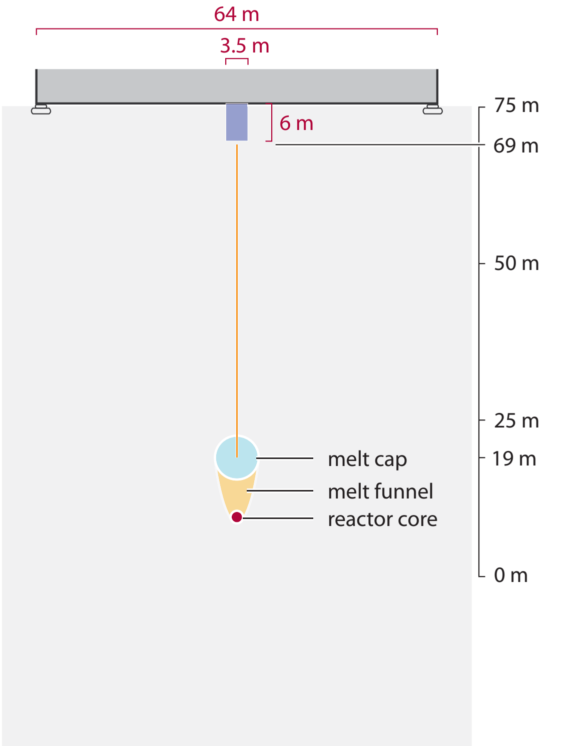
Situation for t = 1,800 seconds after startup

Main Sphere Meltdown:

(x; y): fix at (0; 19)
Radius grows from 2 m to 5 m
within one hour (3,600 sec)
R = (2 + 0.000833 · t)

Secondary Sphere Meltdown;
sinks 19 m down in 3,600 sec.:

(x; y) moving: (0; 19 – 0.0053 · t)
Radius is considered fix (2 m);



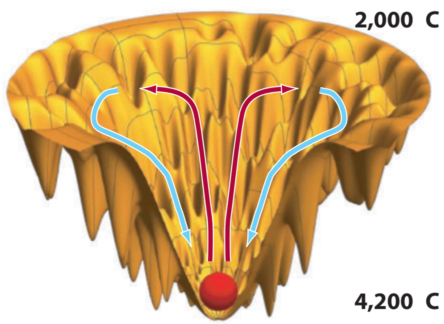
Early representation of the melt funnel

Shown below is an early representation of the melt funnel, specifically the natural heat convection and cooling process of the reactor fuel mix on the bottom.

The hot, liquid boiling granite will rise in the middle (red arrows), when reaching the top the liquid will cool and sink down on the outer cooler regions (blue arrows).

The funnel below – even in its original use by other authors – is a mere mathematical construct: a superposition of sine and cosine functions, with an additionally embedded exponential function causing the small sinks to be randomly distributed.

Such a sink (allowing the nuclear fuel to collect in more than just one place on the bottom) might be responsible for the faulty deflagration of the charge under Building 7. However, this remains pure speculation. At least for the Twin Towers and the eruption process the melt funnel will be depicted as shown on the left: as an easy geometrical construct between two spheres (or circles, in two dimensions).



In addition to the convection of the liquid granite during the cooling process some sinks are shown.

These sinks might form due to irregularities of the convection or cracks in the rock.

However, the representation of these "energy sinks" are arbitrary and randomly. In the "egg-solution" they are completly neglected.

Part of the [playful] formula to display the funnel:

$$\text{Do}\left[\text{MinimaHi} \mathrel{+}= \text{Random}[\text{Real},\ \text{HiMinimaScale}]\left(e^{-\frac{\left(\frac{\theta-\text{RandomReal}[\{\text{StartAngle},\text{StopAngle}\}]}{2\pi}\right)^2}{\text{HiMinimaTangentWidth}}}\right)\left(e^{-\frac{(z-\text{RandomReal}[\{\text{MiddleRadius},\text{TopRadius}\}])^2}{\text{HiMinimaRadialWidth}}}\right),\ \{\text{NhiMinima}\}\right];$$

iteriere zufällig reell

Geometry and equations taken from: http://oaslab.com/drawing_funnels.html

23 Step B: Ignition and Filtering

At Zero Time the geometric layout has to be flipped upside down.

The small reactor core suddenly transforms into the huge main sphere (now: the explosion chamber).

The hitherto [blue] bigger melt cap on top is now a comparatively small sphere.

Situation for t = 0.1seconds after Zero Time

In this representation the main sphere is allowed to grow spherically until reaching the lower rim of the melt cap. With a radius r of 17 m it holds a volume of approx. 20,500 m^3 of evaporated granite, still able to grow **by the factor of three** before reaching its maximum size of 65,500 m^3 at a temperature of 5,000 °C.

Main Sphere 150 kt:

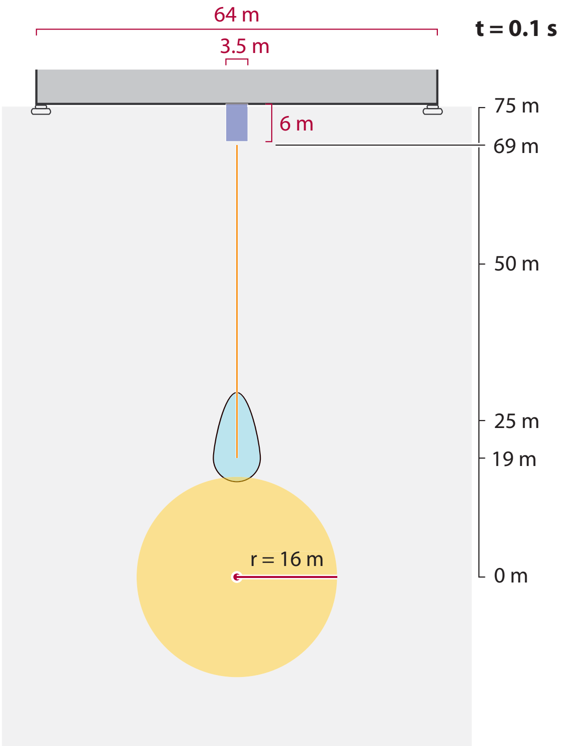
the main sphere expands in 0.1 s and will at once squeeze the much cooler melt cap upwards into the channel (filled with boiling water).

Melt cap ascend (@ 3,000 C):

ascending from 19 m to 60 m in 6 sec; the melt is accelerated by the pressure from below and slowed down by friction and binding forces, it will quickly turn viscous.

Melt plug stop

the melt will stop hard as soon as it has cooled down to about 1,000 C.



Situation for t = 10 seconds after Zero Time

Note: it is not the contaminated material which is ascending at this point (like an air bubble in water would do). Rather the energy is transmitted by the atomic nuclei (bumping into each other), which means that only their initial momentum is transferred.

In this representation of the model the eruption (thus: plasma breakthrough) will start exactly ten seconds after Zero Time – the moment when the height of the egg passes the position of the melt plug: the channel is then open again.

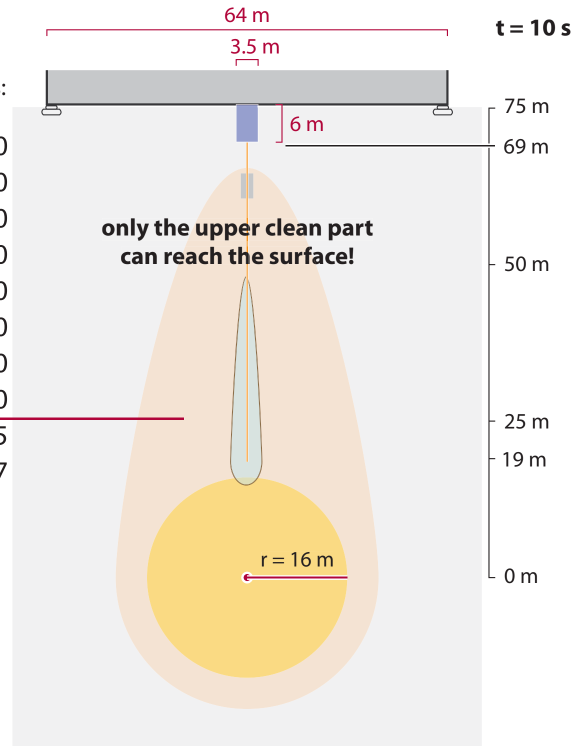
Start temperature of the eruption is only about 5,000 °C. Therefore effective work mode is limited to a few seconds. This is because the gaseous content of the chamber will liquefy immediately when reaching a temperature of 3,000 °C.

As about 40% of the contents is spewed up and out, this volume expansion of the chamber leads quickly to the critical drop in temperature of 2,000 °C: eruption stops.

If the total climb **c** is 50 m, and if we allow every 5 m a filter factor of 2.7, then the filter's efficiency is:

50 m	**c**	$e^{10} \approx 22{,}000$
		$e^{9} \approx 8{,}000$
		$e^{8} \approx 3{,}000$
		$e^{7} \approx 1{,}000$
		$e^{6} \approx 400$
		$e^{5} \approx 150$
		$e^{4} \approx 50$
		$e^{3} \approx 20$
		$e^{2} \approx 7.5$
0 m		$e^{1} \approx 2.7$

filter factor $f(c) = e^{\frac{c}{5}}$



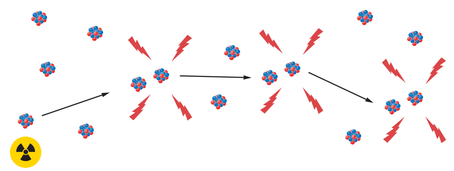
24 Energy and radioactive load

During fission of an uranium atomic nucleus approx. 204 MeV energy is released. These 204 MeV per nucleus equal $3.268 \cdot 10^{-11}$ Joule (both units are energy units).

More than 80% (167 MeV) of that energy is the kinetic energy of the atomic nuclei of the fission products flying apart – and bumping into other nuclei*.

So, since momentum is THE dominating factor for energy transfer, the contaminated mixture can be trapped deep in the granite, while the energy spreads upwards, transforming the clean hard and cold granite into a clean, pressurized hot melt.

Newton's cradle (shot-stop-pendulum) shows very nicely how the energy of the incident particle is transferred to the last particle via momentum transfer.



Energy type/radiation type	Average energy
Kinetic energy of the fission fragments	167 MeV
Prompt gamma radiation	6 MeV
Kinetic energy of the neutrons	5 MeV
Electrons from fission fragment β-decay	8 MeV
Gamma radiation from fission fragments	6 MeV
Electron antineutrinos from fission fragment β-decay	12 MeV
Total energy per fission	204 MeV

https://de.wikipedia.org/wiki/Kernspaltung

*) The Rutherford experiment conducted around 1910 studied the scattering of alpha particles by gold atomic nuclei. The experiment proves that the atom consists of an almost empty shell and an extremely small and extremely heavy center of mass.

Only about every 100,000th alpha particle is deflected by 90 degrees or more.

STEP 1: we determine the quantity of fuel involved

The total energy Q is determined by the number of particles involved:

- Q_{total} = Number of particles · Energy per particle

For the 9/11-event the energy per Tower was: Q = 150 kt
www.911media.de/download/The_Ground_Zero_Model_GZM.pdf

As 1 kt equals $4.18 \cdot 10^{12}$ Joule this leads to: $Q = 6.27 \cdot 10^{14}$ Joules

A simple division gives us the number of fissioned uranium atoms:

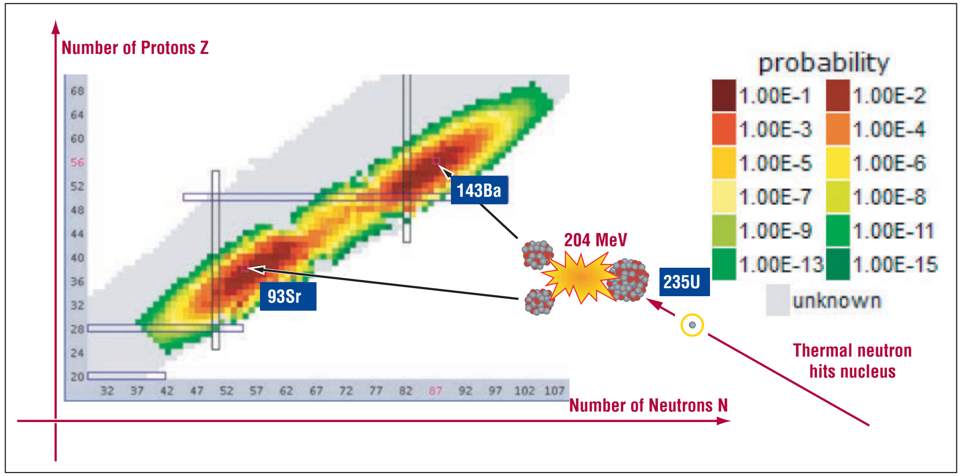
Number of atoms = $6.27 \cdot 10^{14}$ J / $3.268 \cdot 10^{-11}$ J = $1.7038 \cdot 10^{25}$ atoms

Since we know the Avogadro constant being $6.02214 \cdot 10^{23}$ per mol we can say that 28.29234 mol of uranium-235 were consumed.

However, as the uranium nucleus is split by an additional neutron the actual mass is that of the short-living uranium-236. By multiplication with 236 we get the final result:

- 6,677 grams of fissioned fuel per Tower (producing different fission products)

Probability of formation of fission product; red: high; green: low



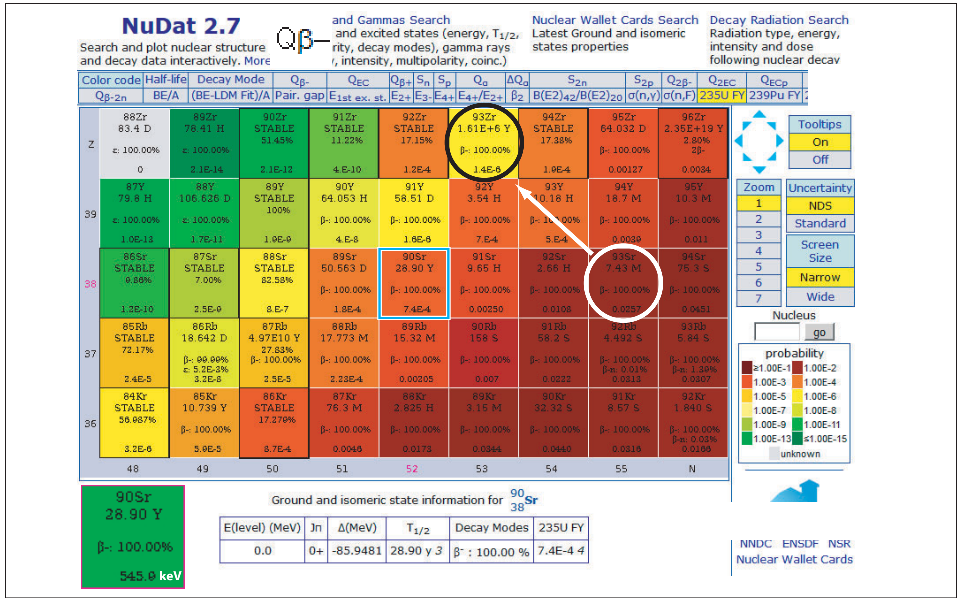
https://www.nndc.bnl.gov/nudat2/reColor.jsp?newColor=235ufy

STEP 2: we determine the quantity of specific fission products

The probability of a specific fission product forming is known with high accuracy.

We thus know the exact amount of iodine, strontium and cesium in the mix (that was formerly our 6,677 grams of nuclear fuel).

For getting the correct numbers for some chosen isotopes we refer to the Nuclid Chart of the 'National Nuclear Data Center' (b&w circles denote additional creation of Zr-93).



https://www.nndc.bnl.gov/nudat2/reCenter.jsp?z=38&n=52

For our study we select the following isotopes:

- Strontium: Sr-90; Half-life: 28.9 Years; expected with probability: $7.4 \cdot 10^{-4}$
- Zirconium: Zr-93; Half-life: $1.61 \cdot 10^{6}$ Years; expected with probability*: $1.4 \cdot 10^{-6}$
- Iodine: I -134; Half-life: 52.5 Minutes; expected with probability: 0.0036
- Iodine: I-135; Half-life: 6.58 Hours; expected with probability: 0.0293
- Cesium: Cs-137; Half-life: 30.8 Years; expected with probability: $6 \cdot 10^{-4}$

STEP 3: we unify the time scale (of the isotopes half-life)

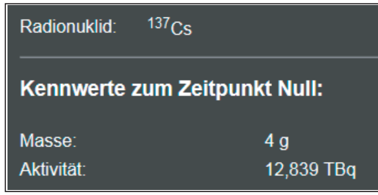
- Strontium: Sr-90: **10555.725 days**
- Zirconium: Zr-93: **588,053,000 days**
- Iodine: I-134: **0.0364583 days**
- Iodine: I-135: **0.2741667 days**
- Cesium: Cs-137: **11249.7 days**

STEP 4a (option): checking radioactivity using an online tool

In STEP 2 we already determined the probability of forming for each isotope.

If we multiply the given probability of formation with 6,677 grams of nuclear fuel consumed we get the isotope's mass in grams:

- Strontium: Sr-90: **4.94 grams**
- Zirconium: Zr-93: **0.0093 grams** +171.598 grams (after a few days)*
- Iodine: I-134: **24.037 grams**
- Iodine: I-135: **195.636 grams**
- Cesium: Cs-137: **4 grams**



The online tool calculates the activity of 4 g of the pure substance to be (after one day):

$12.839 \cdot 10^{12}$ Bq = 12,839,000,000,000 decays per sec.

http://www.periodensystem-online.de/index.php?id=calc&form=radioactivity

*Zirconium-93 is additionally created via beta-decay from Sr-93 (probability: 0.0257); This will add the enormous quantity of 171.598 grams to the matter, being detectable for millions of years to come.

STEP 4b: checking radioactivity by your own calculation

As we are interested in decays per second we don't even have to ask the question about the amount in grams, we simply need the number of atoms.

From STEP 1 we already know the number of uranium atoms which were split:

- Number of uranium atoms = $6.27 \cdot 10^{14}$ J / $3.268 \cdot 10^{-11}$ J = $1.7038 \cdot 10^{25}$ atoms

From STEP 2 we already know the probability of formation (for Cs-137 = $6 \cdot 10^{-4}$):

- Number of Cs-137 atoms: $6 \cdot 10^{-4}$ x $1.7038 \cdot 10^{25}$ atoms = $1.02228 \cdot 10^{22}$ atoms

Exponential decrease

The number ***N(t)*** of remaining atoms after a given time 't' is defined by:

$$N(t) = N_0 \cdot e^{-\lambda t}$$

In this case ***N(0)*** indicates the number initial particles, which still can undergo decay. The sign λ is named 'decay constant'.

A more convenient form of this equation with the isotope's specific half-life written directly as a variable reads:

$$N(t) = N_0 \cdot e^{-\frac{\ln(2)}{T_{1/2}}t}$$

https://de.wikipedia.org/wiki/Zerfallsgesetz

Linearization and decay per second

For a linearized representation of decay values of day one you simply calculate the amount of remaining atoms after one day. You subtract that number from the initial value and divide it with the seconds of one day (86,000), the formula is thus:

$$\text{decays per second} = \frac{N(0) - N(1)}{86{,}000 \text{ sec.}}$$

Beware of pocket calculators

The use of pocket calculators will get you a huge margin of error, since the important changes in numbers will only have an effect in the fifth digit after the decimal point.

I recommend even for a dry run with pure substances to use a mathematical tool. WIth the help of our own Mathematica Script* we get for 4 grams of Cesium-137:

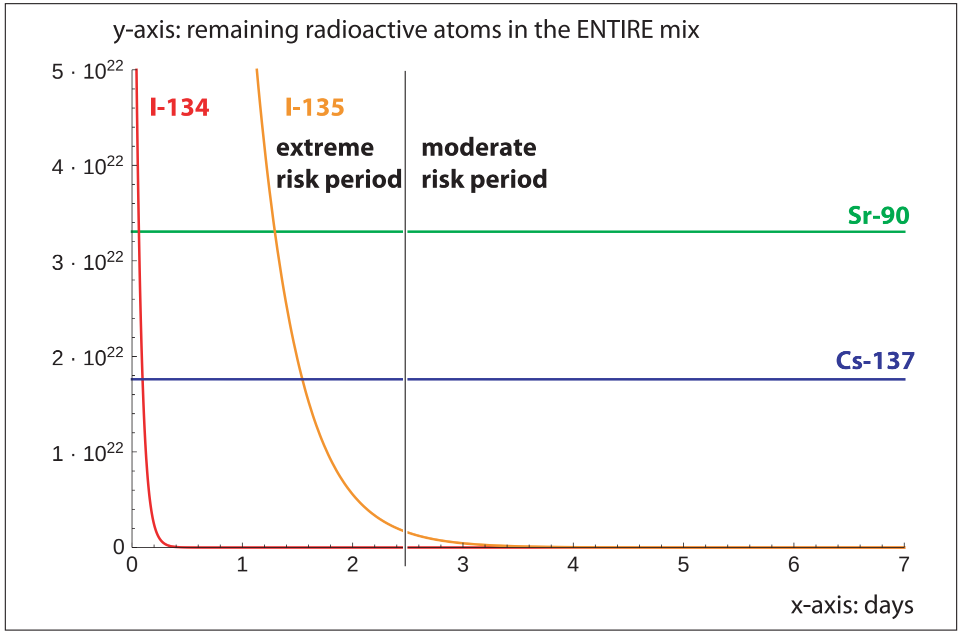
- $12.5578 \cdot 10^{12}$ Bq = 12,557,800,000,000 decays per second

This number is sufficiently close to the value given by the online tool.

Curves of REMAINING atoms in the ENTIRE mix

The shown curves are the result of a simple PLOT command in Mathematica, below is the needed expression for Cesium-137 only:

- amountCs137[t_]:= initialDustCs137 *Exp[-Log[2] t/halfLifeCs137];



***DOWNLOAD (simple script):** www.911history.de/911_mathematica_decay_week_1.cdf*

25 Power and weakness of dilution

Federal Office for Radiation Protection: game

In Germany it is NOT permitted to put food with a radiocesium content of more than **600 Becquerel per kilogram** on the market. This restriction does not apply to one's own consumption.

The Federal Office for Radiation Protection writes further:

Particular types of mushrooms and game in some parts of Germany are still heavily contaminated with cesium-137 due to the reactor catastrophe of Chernobyl. Areas in the south of Germany, especially southern Bavaria and the Bavarian forest, are especially affected. In recent years, values of up to several thousand Becquerel per kilogram were measured in game and particular edible mushrooms.

Contaminated mushrooms (1 mushroom = 0.1 kg)

Very contaminated wild sow (80 kg)

Small quantity of ragout (0.5 kg)

https://www.bfs.de/DE/themen/ion/umwelt/lebensmittel/pilze-wildbret/pilze-wildbret.html

Game is contaminated very differently depending on the region and type of animal. In the areas more affected, in wild boars, a few individual values have been measured that exceed the limit value for marketing of 600 Becquerel per kilogram by more than ten times.

Image example

- each mushroom (0.1 kg) contains 300 Bq
- each very contaminated wild sow (80 kg) contains 600,000 Bq [7,500 Bq/kg]
- each very contaminated wild sow ragout (0.5 kg of meat) contains approx. 3,750 Bq

The value of 3,750 Bq is stable for the whole meal (caused by 0.5 kg of meat). If you add further 0.5 kg of vegetables the final load is therefore: 3,750 Bq/kg.

SUMMARY

- maximum permitted activity of Cs-137 in food is: **0.6 Bq/g**
- a wild sow (80 kg) may have an activity of Cs-137 of **7.5 Bq/g** and is doing fine in the german woods (600,000 Bq/80,000 g)
- by winds/air the fallout of Chernobyl was extremely **diluted** first; due to biological processes the seemingly negligible fallout **accumulated again** in living organisms

The power and weakness of dilution is therefore:

- first: a seemingly harmless concentration is achievable
- second: it won't stay that way; some isotopes will be absorbed by the living body

9/11: Papal absolution and acquittal by the court

The experimental findings, performed by Paul J. Lioy, et. al. show that radioactive load per gamma-ray line of the dust samples taken above ground was:

- activity < 1 Becquerel per gram dust (with the exception: K-40)

contained 3.0% asbestos. We found only background levels of alpha radionuclide activity by liquid scintillation counter analysis of all three samples. Beta activity was slightly elevated, but not more than twice the background level. There were no levels of gamma activity ≥ 1 Bq/g except for naturally occurring potassium-40.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240917/pdf/ehp0110-000703.pdf

With the gained knowledge you already see the catch to these lab results. They leave ample room for radioactive contamination of, for example:

- radioactive load Cs-137 = 0.975 Bq/g

The notation **< 1 Bq/g** does not exclude high concentration of Cs-137 which (in case of food) would ALREADY be 50% higher than the maximum permitted value!

26 Power and weakness of the filter

If you dilute 4 g of Cs-137 in a granite melt sphere with a radius of r = 25 m (V = 65,500 m^3, which results with the density of granite of 2,026 kg/m^3 in 171.5 million kg granite), then you get for Day 1 a load per gram of:

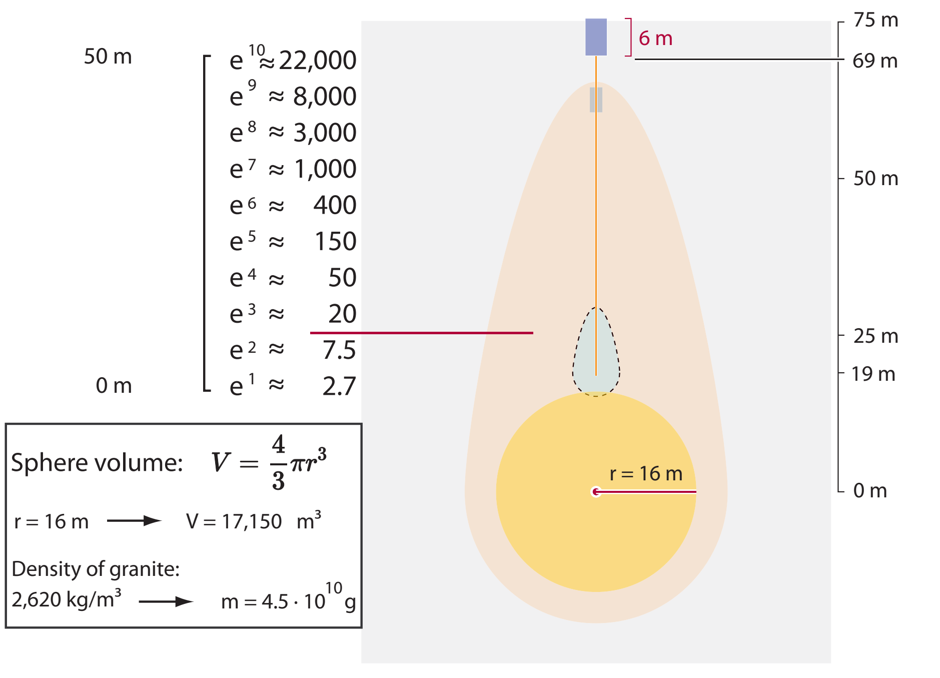
- radioactive load Cs-137 = $12.839 \cdot 10^{12}$ Bq / $1.715 \cdot 10^{11}$ g = 75 Bq/g

This is – for sure – at least 75 times the value the team of Dr. Paul J. Lioy's found in its analysis. This is where our filter factor comes in.

Now, lets dilute all Cs-137 in a sphere of just 16 m, which was bumping into the booster:

- radioactive load Cs-137 = $12.839 \cdot 10^{12}$ Bq / $4.5 \cdot 10^{10}$ g = 285 Bq/g

Radioactive Cs-137 LOAD inside the 16 m sphere: 287 Bq/g. Then. Apply. The.Filter.
Choose – by convenience – a mean factor of 1024; effective load of the blowout would be: 0.28 Bq/g



SUMMARY

- dilution of 4 g of Cs-137 in a 16 m melt sphere leads to: **285 Bq/g**
- a supposed filter factor of 1024 (2.7... 22,000) leads therefor to: **0.28 Bq/g**
- minimum filter value is about e^5 (in the range of 150); please note that the content of the eruption will be further diluted by evaporating the Tower, by pulverizing 160,000 tons of concrete; thus even lower values are thinkable (factor 20... 50)

The power and weakness of the filter is therefore:

- first: it might be very effective (e^{10} is about 22,000)
- second: without drilling its application is a matter of estimation; any value proposed can be ridiculed and denied

Day 1; ZeroTime; calculated load per gram rock (underground)

Based on a density of granite a sphere with r = 16 m has a mass of 45 $\cdot 10^9$ g (respectively with r = 21 m a mass of 102 $\cdot 10^9$ g; respectively with r = 25 m a mass of 171.5 $\cdot 10^9$ g).

Total amount diluted in	Sr-90 4.94 g	Zr-93 0.0093 g	I-134 24.037 g	I-135 195.636 g	Cs-137 4 g
pure material	25.123 TBq	0.865 MBq	23.771 EBq	25.537 EBq	12.839 TBq
sphere; r = 16 m	558 Bq	0.000019 Bq	528,244 kBq	567,589 kBq	285 Bq
sphere; r = 21 m	246 Bq	$8.5 \cdot 10^{-6}$ Bq	233,049 kBq	250,363 kBq	126 Bq
sphere; r = 25 m	146 Bq	$5 \cdot 10^{-6}$ Bq	138,606 kBq	148,903 kBq	75 Bq

Tab. 26-1 http://www.periodensystem-online.de/index.php?id=calc&form=radioactivity

Day 1; ZeroTime; calculated load per gram dust (above ground; filter applied)

Total amount diluted in	Sr-90 4.94 g	Zr-93 0.0093 g	I-134 24.037 g	I-135 195.636 g	Cs-137 4 g
sphere; r = 16 m and filter factor 1024	0.54 Bq	$1.8 \cdot 10^{-8}$ Bq	515,864 Bq	554,188 Bq	0.28 Bq

Tab. 26-2 http://www.periodensystem-online.de/index.php?id=calc&form=radioactivity

27 Iodine I-135: a long term killer?

Three days after the event, on September 14th, 2001, George W. Bush paid the first responders on place a short visit.

At that time concentration levels of iodine-135 had already dropped below the concentration levels of iodine-131. The use of iodine pills would have provided already a good and effective protection against this remaining iodine isotope.

W. Bush's bullhorn speech

"I can hear you!"

"I can hear you! The rest of the world hears you!"

"And the people -- and the people who knocked these buildings down will hear all of us soon!"

2001, September 14th

https://www.youtube.com/watch?v=9Iw6aDR2a6w&t=1m19s

NO acute radiation syndrome

The organization 'A&E for 9/11 truth' does not endorse the claim that nuclear weapons might have caused or even contributed to the WTC destruction.
https://www.ae911truth.org/news/227-news-media-events-faq-15

In a lengthy paper they address several issues, all of them correct (when seen isolated), but rather damaging to the truth in the whole.

However, one argument needs special attention:

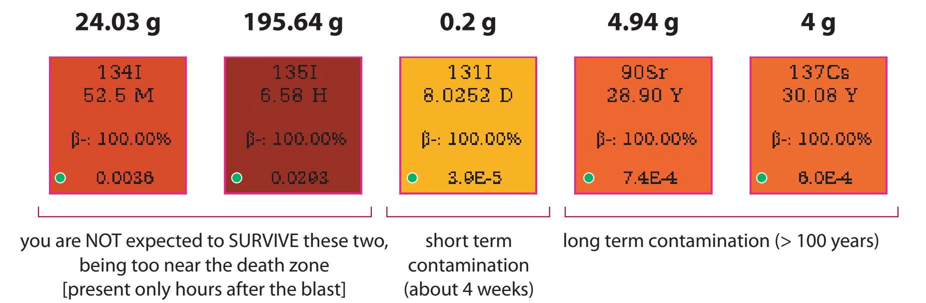
II. No evidence exists that people suffered from acute radiation syndrome
https://www.ae911truth.org/images/articles/2015/Aug_2015/FAQ-15b.pdf

In fact, this is a puzzling point. Although WTC Thyroid Cancer (2019) is an epidemic, we have to have a sharp look on iodine-135, being terribly abundant on Day 1 and Day 2.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6479621/

The fatal first three days

The decay of 195.6 grams of I-135 starts with 25 Exa Becquerel ($25 \cdot 10^{18}$ Bq);

Even with our filter of 1024 this results in 554,188 Bq/g in the blowout, which is about one million times above the "mushroom value" of 0.6 Bq/g for food (for cesium-137).

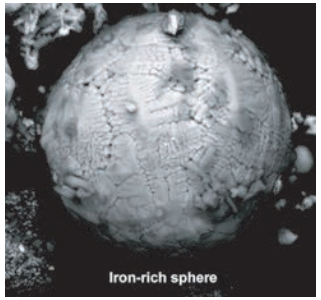


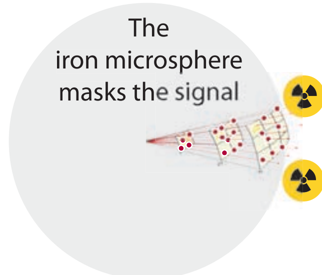
https://www.nndc.bnl.gov/nudat2/reCenter.jsp?z=38&n=52

However, the decay of cesium-137 occurs via an intermediate state of barium-137m, causing the emission of gamma line, which cannot be blocked easily. Iodine, on the other hand, will decay via beta-decay only (which means emission of an electron).

These electrons CAN be blocked further, especially with iron-rich dust present.

As iron-rich dust and even iron droplets were abundant, we have a good reason to allow – once again arbitrary and ONLY for alpha- and beta-decay – a factor of 1,000 for reducing the effective dose, that is: the radiation energy which causes harm in the body tissue.





http://www1.ae911truth.org/en/news-section/41-articles/348

Nonetheless, the effects caused by I-135 must have been severe, even when assuming that the dust was further diluted by huge amounts of tower dust, air and water vapor.

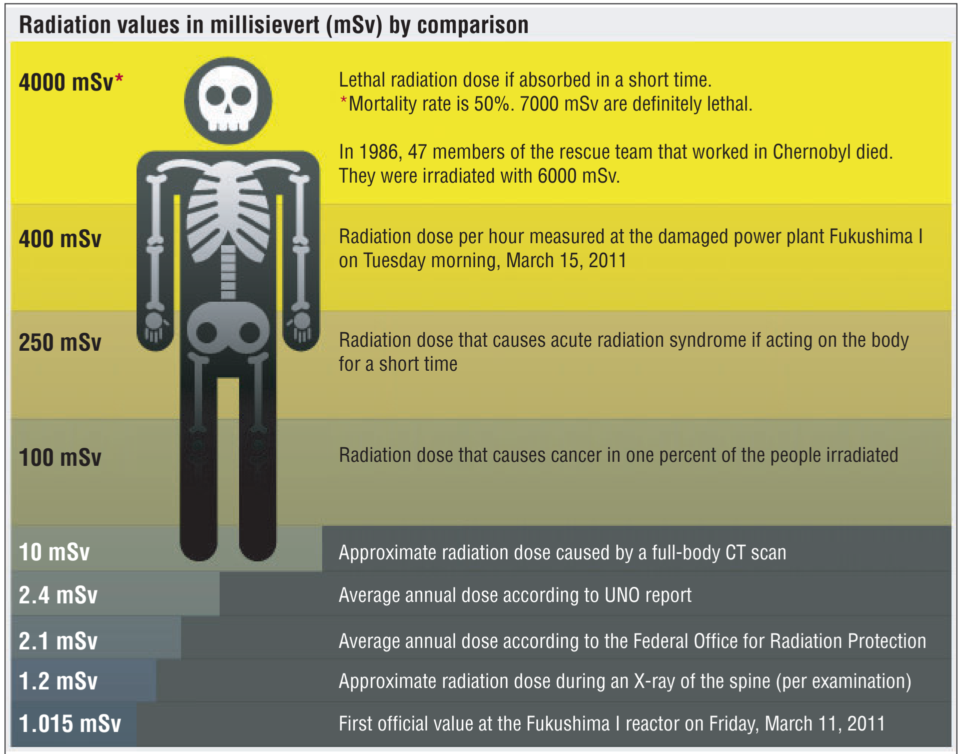
Delayed Effects and effective radiation dose

The average and normal effective dose is about 2.4 mSv per year.

A thousand times that dose can be survived, provided the exposure is short. For example: at 4,000 Sv mortality rate is 50%. This value, for sure, was not achieved on 9/11.

The table/picture below gives a rough overview about the risk for the occurrence of stochastic radiation damage (cancer and hereditary defects).

- 0.22 μSv **per hour**: natural exposure rate
- 100 mSv: causes cancer in one percent of the people irradiated; this value was most likely **exceeded** on 9/11 (9 Years Later, Nearly 900 9/11 Responders have died)
- 250 mSv: causes acute radiation syndrome if acting on the body for a short time



http://files.newsnetz.ch/upload/5/4/5436.jpg

Example 1 (so-called radiation hangover)

A person is in the dense dust cloud for 30 minutes, exposed to 240 mSv/h. After that, the person can completely wash off the fine dust.

The effective radiation dose received is:

- 30 minutes x 240 mSv/60 minutes = 120 mSv

Example 2 (can be fatal)

On the first day, a paramedic is10 hours in the direct haze from Ground Zero, which is contaminated with 120 mSv/h. After that, the person can completely wash off the fine dust.

The effective radiation dose received is:

- 10 hours x 120 mSv/hour = 1,200 mSv

Conclusion

The maximum exposure in the first 48 hours in the vicinity of Ground Zero can therefore have been a maximum of 250 mSv.

Directly on Ground Zero values up to 120 mSv/h might be possible, provided that the values caused by Iodine-134 and iodine-135 dropped within a few hours to nearly zero (I-134) or within three days (I-135, respectively).

As of 2020-06-30 about **19,150 cases** of 9/11-related cancers were diagnosed by the WTC Health Program.
https://www.cdc.gov/wtc/ataglance.html#top10Conditions

This exceedingly high number of cancers might not only be caused by a short-time (but elevated) radiation exposure, but as well by a a long-term (but low) radiation exposure.

As a matter of fact, the short-time presence of I-135 might well turn out to be a killer in the long term, years after the event, as well as those isotopes which produce only a modest but long-term radiation dose, accumulating in the body (Sr-90 and Cs-137).

28 One step from failure (past): the melt plug

About 6 minutes before the North Tower erupted and fell down (spouting, but nonetheless vertically), a remarkable radio message got out (radio 28; 470.83 FM; @32m09s):

"***If the building collapses its going to fall on top of Stuyvesant High School.***"
https://www.youtube.com/watch?v=W2ivj9uJKbw&t=56m53s

One step from failure: an outshooting plug

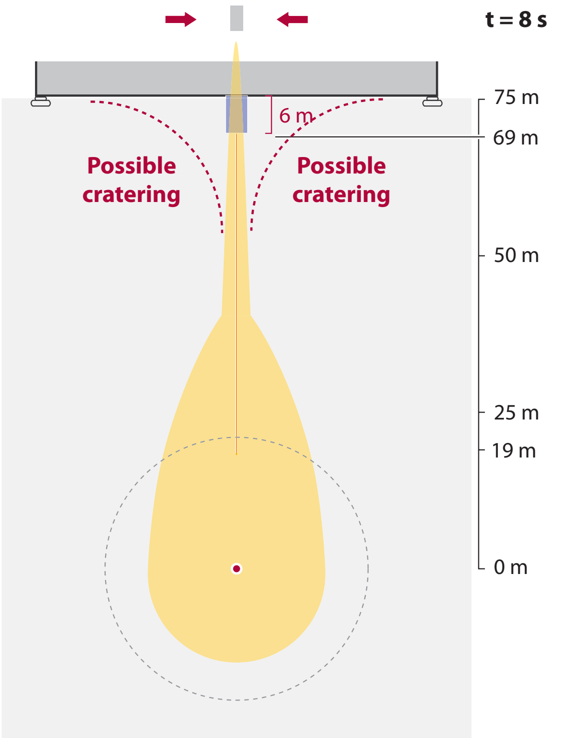
According to the GZM the North Tower was not only hit first, but its device was activated first.

Therefore, it was delayed, which means that supercriticality was achieved later, but already with highly purified fuel.

The seismic signal was stronger, the eruptive forces were stronger.

This includes the danger of an outshooting meltplug, leading to a contaminated eruption, a crater – and a Tower being lifted upwards.

The filter would not have been effective.



Only seconds before the North Tower erupted journalist N.J. Burkettt was also warned:

"The North Tower is leaning. The North Tower is leaning."
https://www.youtube.com/watch?v=iwd11ep_100&t=13m16s

I conclude that with this scheme the entire region was at risk of being severely contaminated (and the North Tower rather being at risk of being ejected, not erupting).

29 One step from failure (future): drilling

About 171.6 g of Zirconium-93 is now trapped in the rock below the Memorial Pools, molten into a sphere (or egg-shaped chamber) with a radius of approximately 16 m.

The 5 million year jackpot

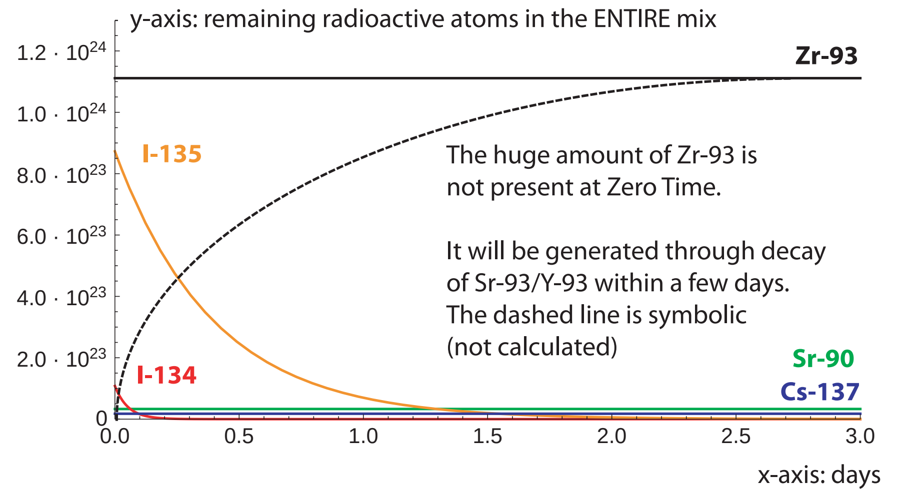
As powerful as the powerful might be, they are completely at loss should the question of drilling arise. The presence of that isotope cannot be undone. It will be there for about five million years (then still 10% remaining with an activity of 1.656 GBq [pure]).

After 20 years (after generation of Zr-93); per gram rock

Total amount diluted in	**Sr-90 4.94 g**	**Zr-93 171.6 g**	**I-134 24.037 g**	**I-135 195.636 g**	**Cs-137 4 g**
pure	15.55 TBq	15.952 GBq	0 Bq	0 Bq	8.098 TBq
sphere; r = 16 m	346 Bq/g	0.354 Bq/g	0 Bq/g	0 Bq/g	180 Bq/g

Tab. 29-1 *http://www.periodensystem-online.de/index.php?id=calc&form=radioactivity*

Generation of Zr-93



DOWNLOAD: www.911history.de/911_mathematica_decay_week_1.cdf

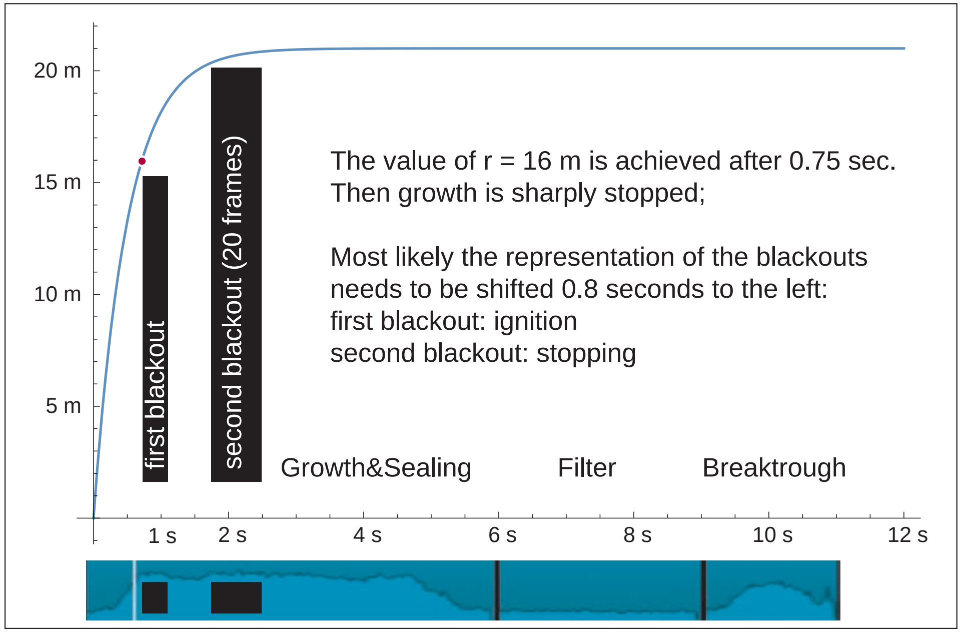
30 Curves and rough 3-D representation

Main sphere growth

The shown curve for the growth of the main sphere [maximum radius r = 21 m] is the result of a simple PLOT command in Mathematica (with no real physics behind it):

- Plot[21 (1 - Exp[-t/0.5]), {t, 0, 12}, PlotRange -> Full]

Please note that without scaling factor this graph has a large margin for errors. The scaled Chopper signal is additionally shown for better orientation of the event. The blackout signals seem to be delayed of 0.8 seconds (cause unknown).



Growth of the main sphere (as well as growth of the eruptive egg) stops as soon as the system has cooled down sufficiently; that is when atomic nuclei stop shooting around freely in solids/in the melt but re-combine with the electrons, forming an atom.

As soon as the atom is formed (with an outer shell) the material will behave "normal" again. The high-speed propagation of energy has stopped.

Nozzle and channel growth

We must suppose that at the moment of breakthrough the material behaves just as a normal flow (even though extremely hot), but all-day physics does apply.

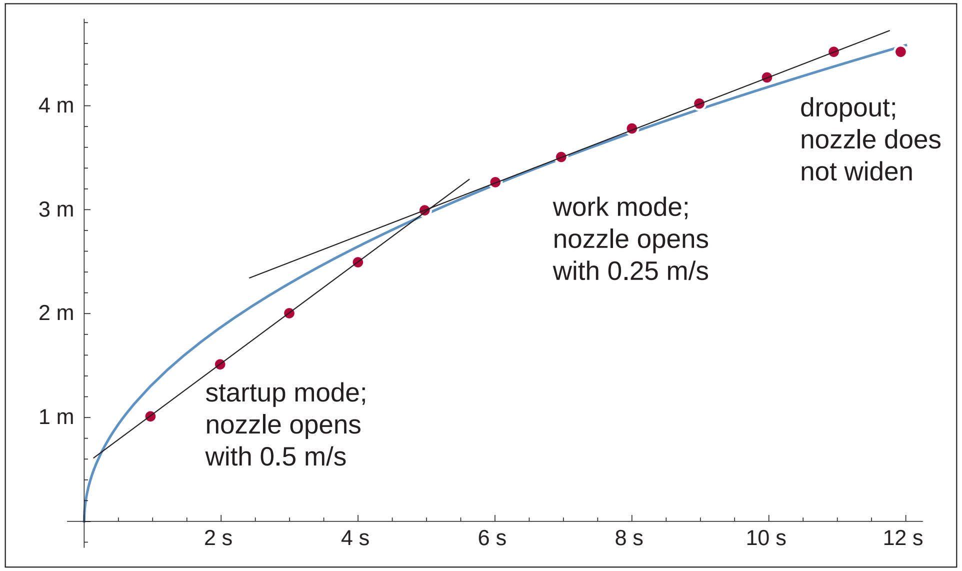
Only abrasive forces and melting lead to the enlargement of the nozzle opening.

Consequently, the opening behavior – or destruction – of the nozzle is directly related to the pressure of the volume flow rate, exercised on the **surface** of the channel.

As the widening occurs in relation to a pressure acting on a surface in a given time t, we can expect to describe our problem roughly by a square root.

The shown curve for the opening of the nozzle is the result of a simple PLOT command in Mathematica (with no real physics behind it):

- Plot[Sqrt[1.75 t], {t, 0, 12}, PlotRange -> Full]

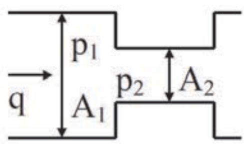


The red dots indicate the estimated values of the linearized solution, based on simply geometry, again: without real physics behind it, just sketches.

Pyroclastic volume flow Q

At startup full volume flow is not yet achieved. The speed of the precursor drops quickly.

In work mode volume flow Q is expected to be stable, while the now combined channel and the nozzle open slowly. Volume flow is massive until pressure p_1 drops.

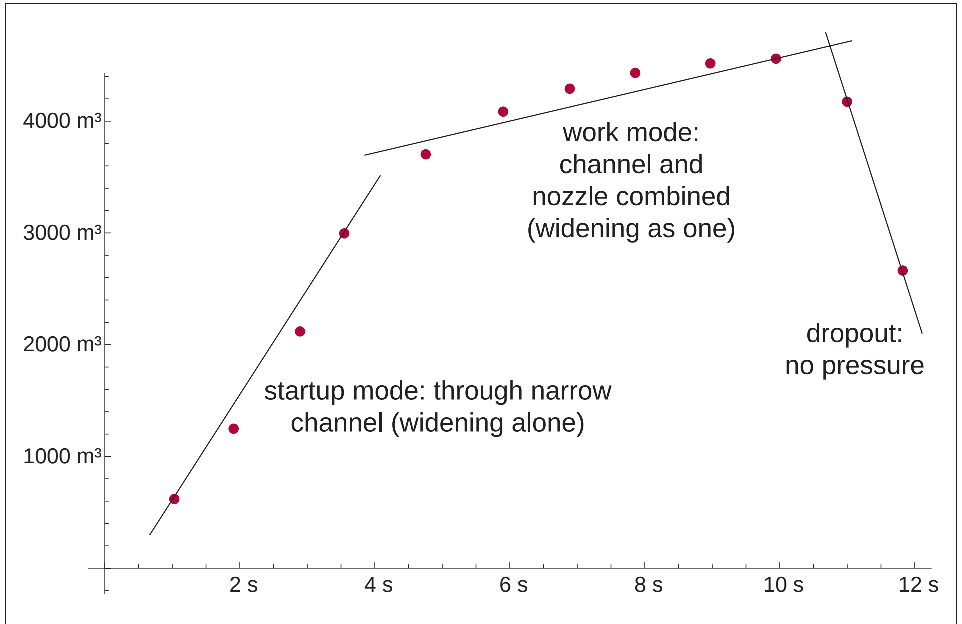


Just think of water flowing through a narrow channel!

q = quantity (flow rate in m^3/s) remains stable even when the liquid flows through a smaller Area A2; simultanously pressure p2 (or speed increases).

https://instrumentationtools.com/valve-characteristics/

We suppose nearly stable pressure p_1 in the chamber. The under normal conditions would-be-gaseous-granite is nonetheless liquid due to high pressure. However, after cooling down (say: through volume expansion of 40%) it will remain liquid even when depressurized as soon as it has passed its critical point. Thus total blowout is prevented.



From Top to bottom

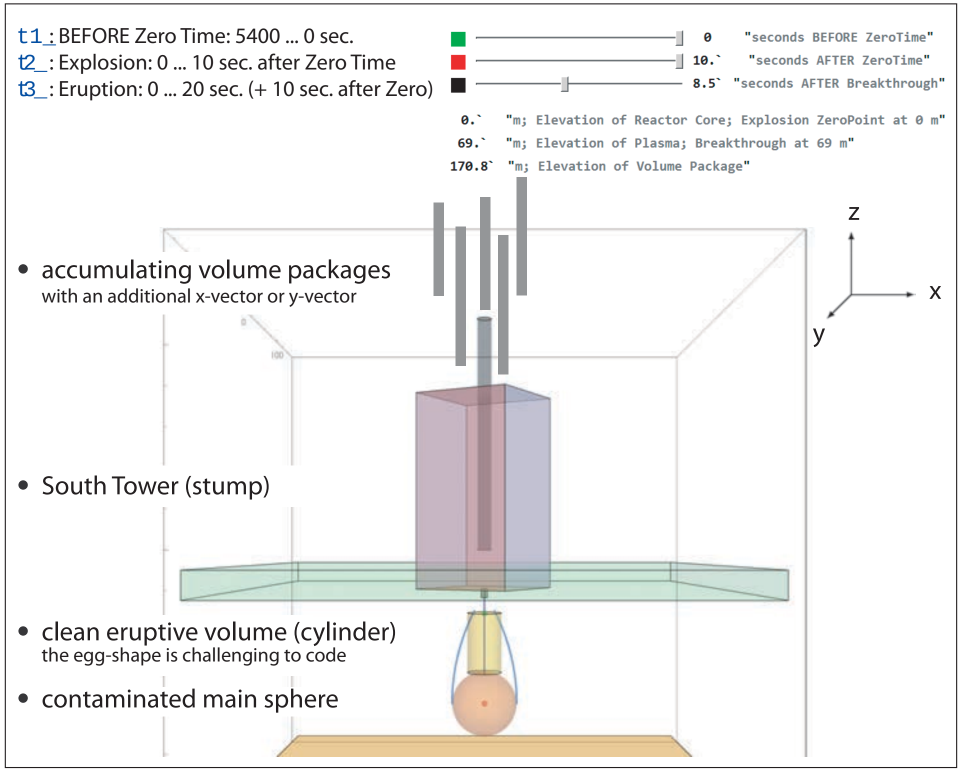
NIST couldn't have lied so terribly without being very close to the truth. Gravitation it was.

About 50 million kg of pulverized granite were pumped into the Tower's top within seconds, creating a devastating hot and heavy avalanche nothing could withstand.

The simplicity of the destruction mechanism is staggering. It is defined by a volume flow in free fall (like a wrecking ball) – where the equation for free fall applies: $s = gt^2/2$.

The screenshot below shows the position of cylindrical volume packages with an additional vector in x-direction (sidewards). The model's visual realization is very poor, it might be helpful nonetheless for getting the **order of magnitude** right.

Three time zones are defined: 1. Meltdown, 2. Explosion and 3. Eruption. The upper part of the eruptive egg is shown as a simple cylinder, holding the "clean" working gases.



DOWNLOAD (draft and experimental version): www.911history.de/911_mathematica_3D_Egg.cdf

31 A furious reader

To be honest, I am astonished that we – that is, you – are once more talking about any form of Nuclear Weapon/Device, speculating its use in the Twin Towers and, presumably, WTC 7? From what I have read (and it's a lot) the only radioactive traces that were found, by anybody, anywhere in the Ground Zero area, were traces of Tritium in a drain. If any kind of nuclear device had been used, then the dust Stephen E Jones and Nils Harrit analysed would have been very radioactive, if only for a short time.

But that's not the main problem. There are broadly two 'suggestions' for how nuclear devices might be used; a single device buried deep under each tower and multiple "mini nukes, placed throughout the height of each tower. One problem with either of these is; neither suggestion takes account of the observed effects of WTC 7.

In the buried scenario, it is difficult to imagine anything, but the entirety of WTC 1 & 2 being launched straight up for a few feet – even yards – and then the whole thing conveniently collapsing to provide the observed effects. No sir. Not even close. Just the idea that the tower, separated from its deep, deep rock foundations, would stay more or less upright while disintegrating from the bottom and the impact point, is preposterous.

The multiple mini nukes have even bigger problems of credibility. First and probably foremost; flashes. I don't know if you are aware, but nuclear device initiation involves a unique characteristic that makes detection by satellite surveillance an almost certainty - enough to write and agree treaties on. The double flash. Nuclear weapon initiation is characterised by an intense double flash. Furthermore, four, five, maybe six such devices in the 1350 foot tower would produce four or five separate bursts and thus could not produce the observed effects.

Why are we talking about nuclear devices when the Nanothermite hypothesis ticks ALL the boxes as far as observed effects are concerned and I don't think it would have been necessary or practical to paint even 5mm of the stuff on beams. What was wrong with wheeling it, inside cardboard boxes, and stacking them appropriately? That is why Jones and Harrit suggest about 50 tons of whatever the product was, got wheeled into each building on a pallet truck, a quarter ton at a time, pulled by blokes in hi-viz jackets, hard hats and safety boots.

Each box or group of boxes were set off via coded radio message from a transmitter controlled by a laptop. The technology was available, just not used much by industry on grounds of cost. Once the explosions got going, there would have been a boiling cauldron of reacting nanothermate 'soup' at or just behind the destruction front, which produced the iconic 'cauliflower floret' pyroclastic clouds that are unique to the WTC destruction. Watch Vince Dementri on YouTube.
https://www.youtube.com/watch?v=4Fk_bmFe8Zg

The pyroclastic clouds, driven by the enormous nanothermate heat, was what seared all those cars, set fires all over the site and kept the rubble pile superheated and smoking until Christmas! An observed effect. Make your nuke do that.

Please stop trying to re-invent the wheel. Nothing I have seen or read about has any possibility of reproducing the observed effects, except nanothermate. Directed energy weapons are laughable – they would require several times the entire output of the planet in electrical energy and it is my suspicion (not that of Jones or Harrit or Chandler or Cole or Ryan) that 'theories' like this – or nuclear devices – have been injected into the truth movement (by the perpetrators?) to denigrate and distract from the real science.

Please take me off the circulation.

Posted: 2020-09-22; by a reader of a UK-newsletter, which was promoting the GZM book