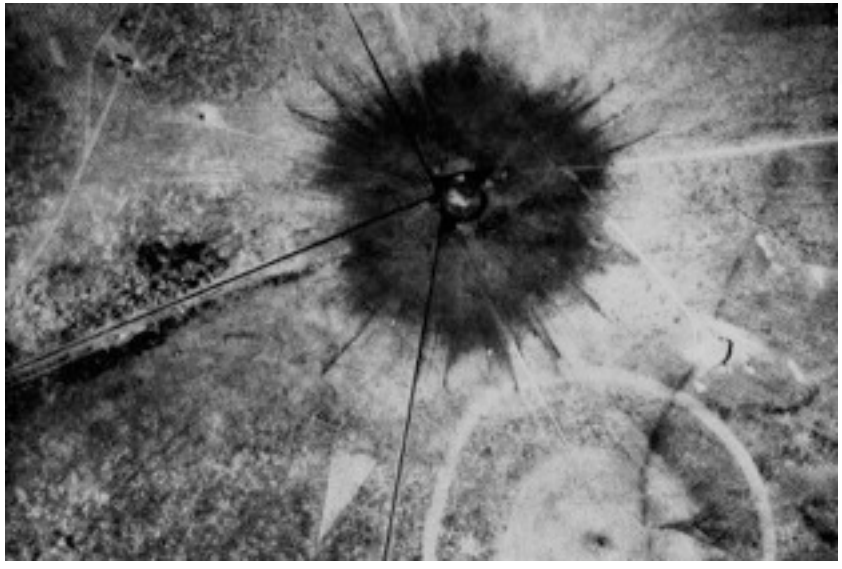
Do They Have SPF 15,000,000?

THE EFFECTS OF A NUCLEAR BLAST

THE TRINITY BLAST



FIVE DEADLY EFFECTS

There are five essential ways in which a nuclear explosion releases its energy:

1. The initial (direct) radiation
2. The electromagnetic pulse
3. Thermal radiation
4. The blast wave
5. Radioactive fallout

INITIAL RADIATION

Even before the first noticeable effect, a blinding flash of intense white light, the exploding bomb starts to give off a huge burst of radiation that while only lasting a second or two, gives humans and most animals in the immediate vicinity a fatal radiation dose.

This, of course depends on the altitude at which the bomb is detonated.

ELECTROMAGNETIC PULSE

At the same time the radiation is released, a high-intensity electromagnetic field is created around the explosion that radiates electromagnetic waves powerful enough to damage ordinary electrical and electronic equipment.

A HIGH ALTITUDE DETONATION COULD DO EXTENSIVE DAMAGE:

A single, small nuclear weapon exploded 125 miles over Omaha, NE, could generate an EMP strong enough to knock out electrical circuits throughout the continental United States and in parts of Mexico and Canada

THERMAL RADIATION

The core of a nuclear weapon reaches about ten million degrees centigrade, sending out a thermal pulse – a blinding wave of heat and light – traveling at the speed of light in all directions.

Depending on the size of the weapon, the pulse can cause flash blindness and retinal damage at great distances from ground zero for anyone who looks directly at the flash.

A U.S. test of a 15-megaton weapon in the South Pacific in 1954 caused some animals to experience retinal burn as far away as 345 miles

THERMAL RADIATION (con't)

Depending on the distance from ground zero, the blast would cause 3rd, 2nd, and 1st degree burns.

3rd degree burns over more than 25% of the body usually cause death

2nd degree burns over more than 30% of the body require immediate medical care or death from shock may result.

The entire U.S. has facilities to treat 1,000 – 2,000 severe burn cases.

A *single* nuclear weapon could produce *TENS OF THOUSANDS*.

BLAST WAVE

Much of the damage inflicted by a nuclear explosion is the result of its shock wave.

There are two components to a blast's shock wave:

BLAST WAVE

First, there's the wall of pressure that expands outward from the explosion. It is this pressure, measured in psi (pounds per square inch), that blows away the walls from buildings.

A typical two-story house subjected to 5 psi would feel the force of 180 tons on the side facing the blast.

Additionally, the blast creates a 160 mile-an-hour wind. And that's only at 5 psi. The wind speed following a 20 psi blast would be 500 mph!

BLAST WAVE

Those who survive the effects of heat and radiation, at two miles from ground zero, would be blown apart by blast forces with winds of 400 mph.

Blast damage to humans from moderate over-pressures include eardrum rupture and hemorrhage of the lungs. High over-pressures cause air to be forced into the veins through the lungs causing death within minutes.

Generally it takes more overpressure to kill a person than demolish a building. However, it is the indirect blast effects that would cause large numbers of fatalities, especially collapsing buildings and flying pieces of glass and other debris that become deadly missiles.

RADIOACTIVE FALLOUT

In a 15 mph wind the early fallout plume in the first 24 hours after a one-megaton ground-burst detonation would expose many people to radiation many times the lethal dose.

Doses are usually measured in RADS (radiation absorbed dose)

Radiation cannot be seen, smelled, tasted, or felt, and the only way to detect it is with special instruments. It can be absorbed through the body by being eaten or drunk, through skin contact, and by being inhaled.

GROUND vs. AIR BURST

There are two ways to detonate a nuclear weapon:

1. AIR BURST – causes much more destruction near ground zero from the blast and has a larger EMP range
2. GROUND BURST – relatively less devastation near ground zero, but produces much more radioactive fallout over a wider area, from the mushroom cloud.

MUSHROOM CLOUD

MUSHROOM CLOUD

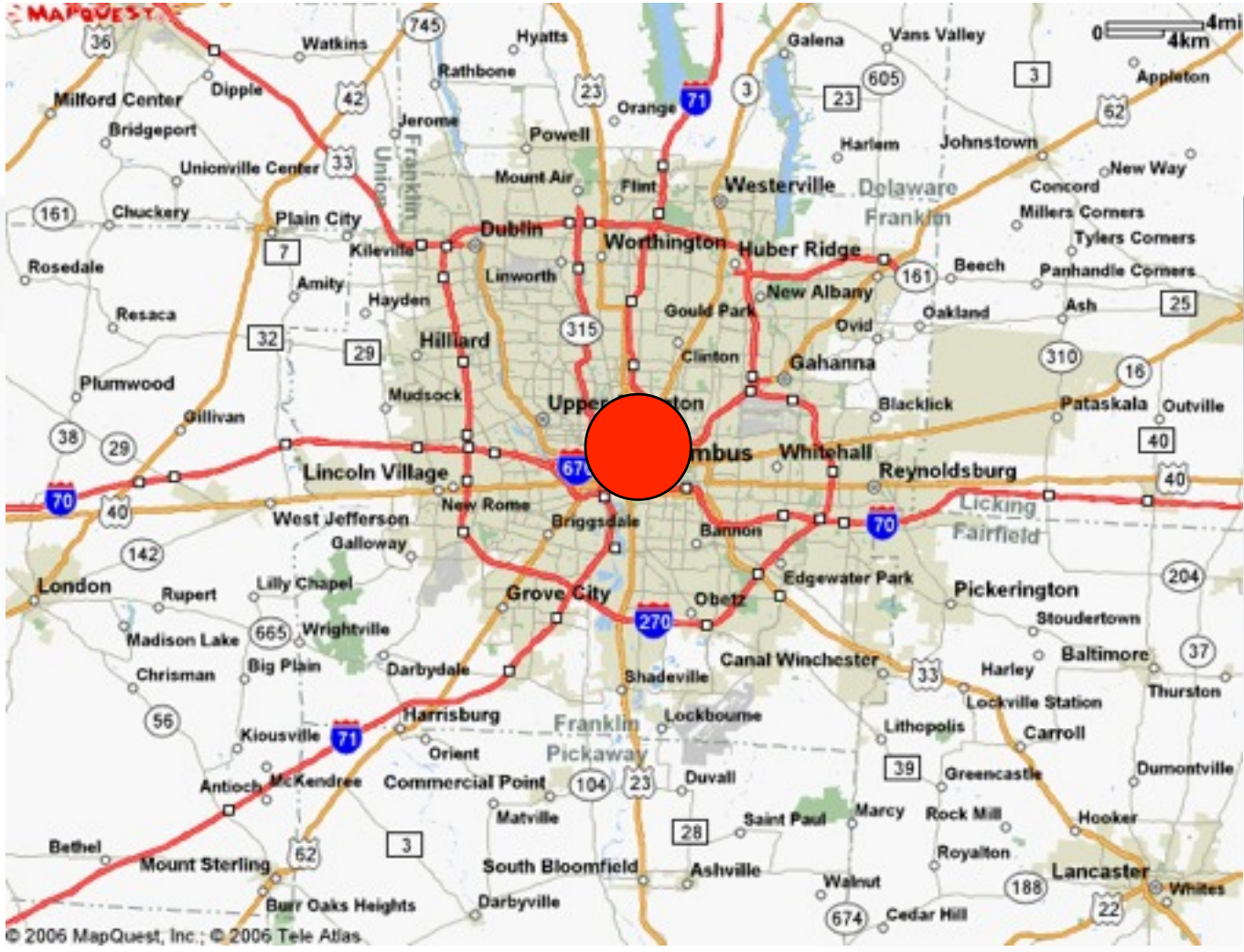
The mushroom cloud is created by a combination of very hot gases rising, and the vacuum effect created by the blast wave sucking up everything in its path and depositing it into the cloud.

All of the debris is made radioactive by the blast and is carried high into the atmosphere.

The material drifts downwind and gradually falls back to earth, contaminating thousands of square miles.

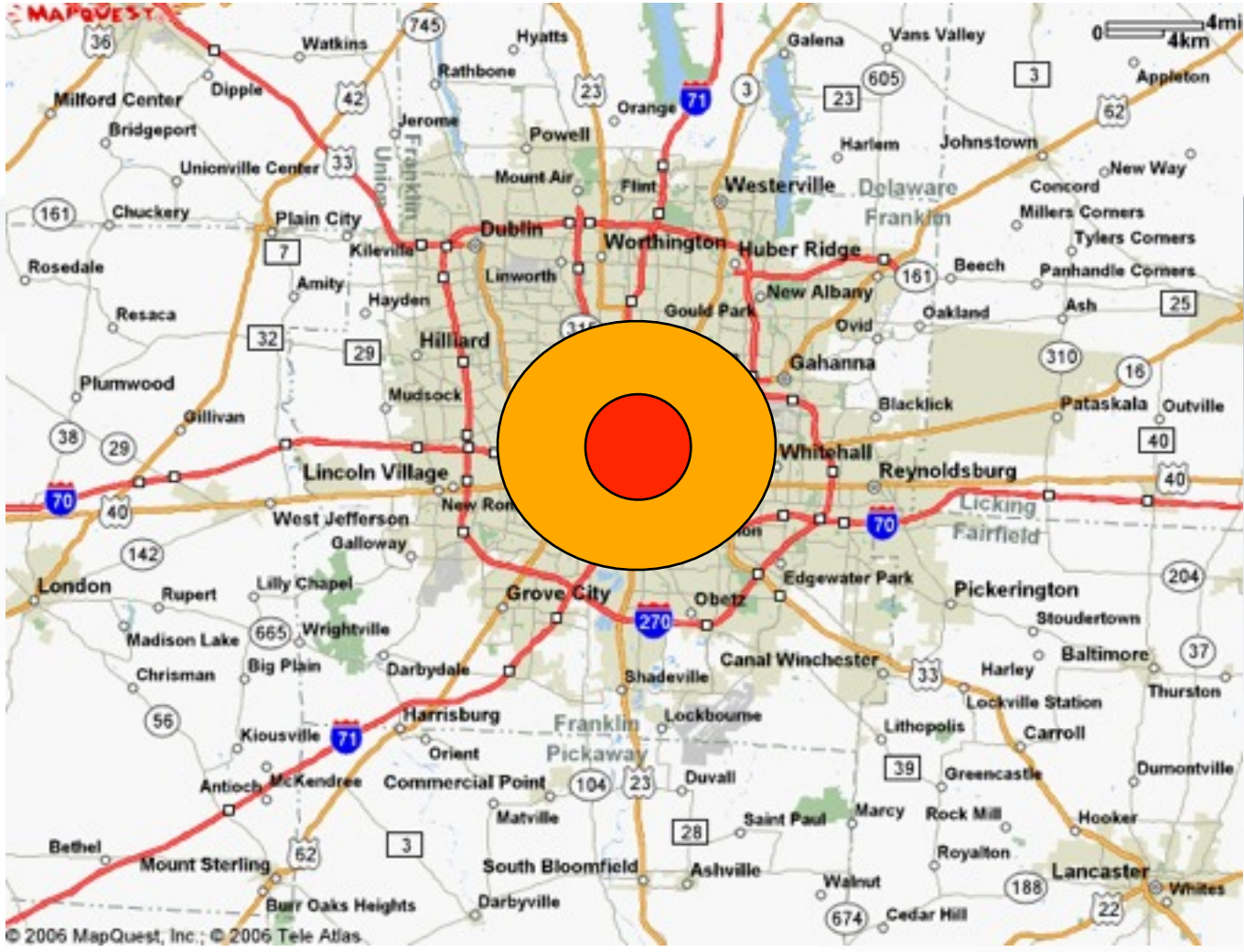
A ONE MEGATON BOMB

The fission bomb detonated over Hiroshima had an explosive blast equivalent to 12,500 tons of TNT. A 1 megaton hydrogen bomb, hypothetically detonated on the earth's surface, has about 80 times the blast power of that 1945 explosion.



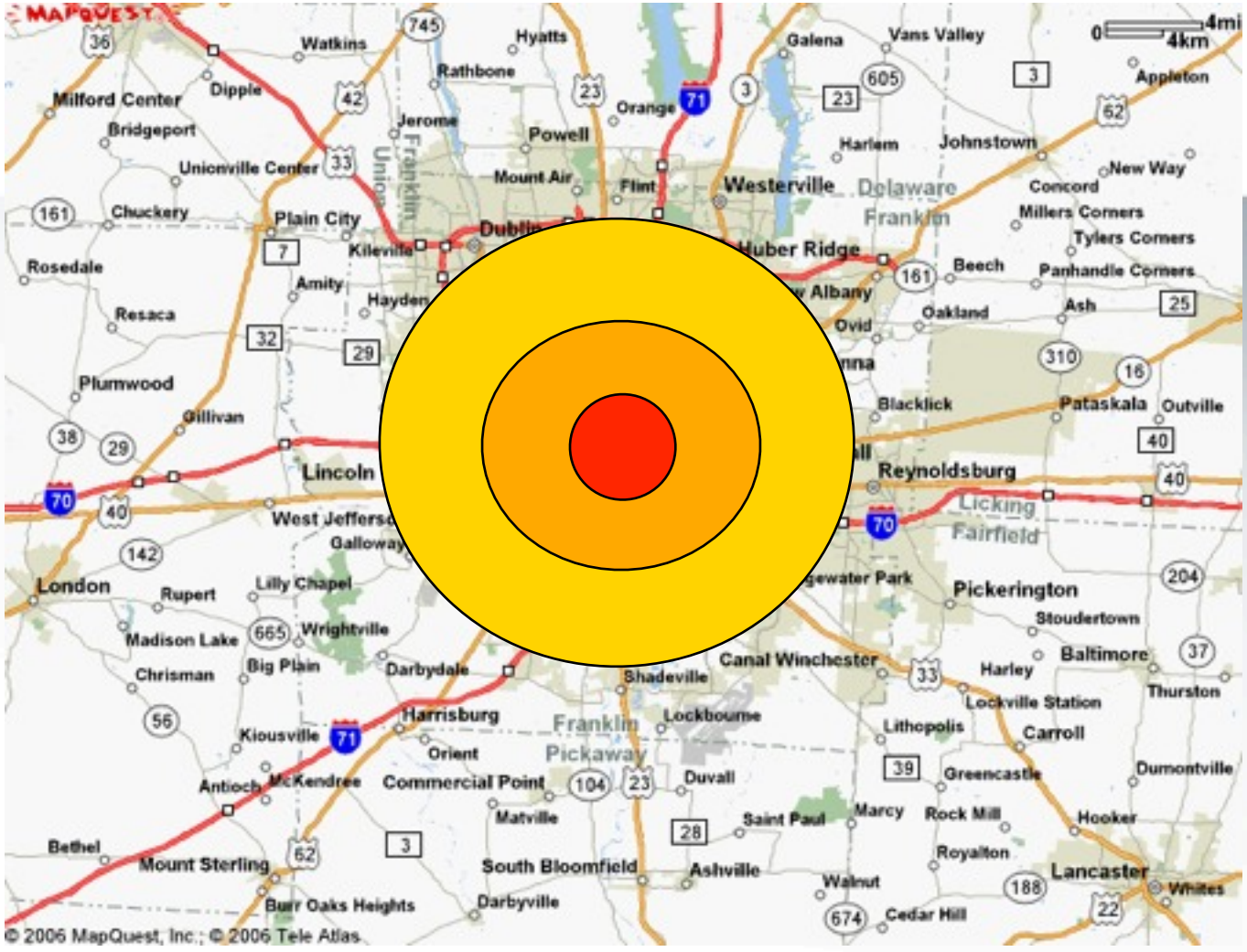
Ground Zero to Two Miles

Within 1/1000th of a second, a fireball would form enveloping downtown and reaching out for two miles in every direction from ground zero, the point where the bomb went off. Temperatures would rise to 20 million degrees Fahrenheit, and everything--buildings, trees, cars, and people--would be vaporized.



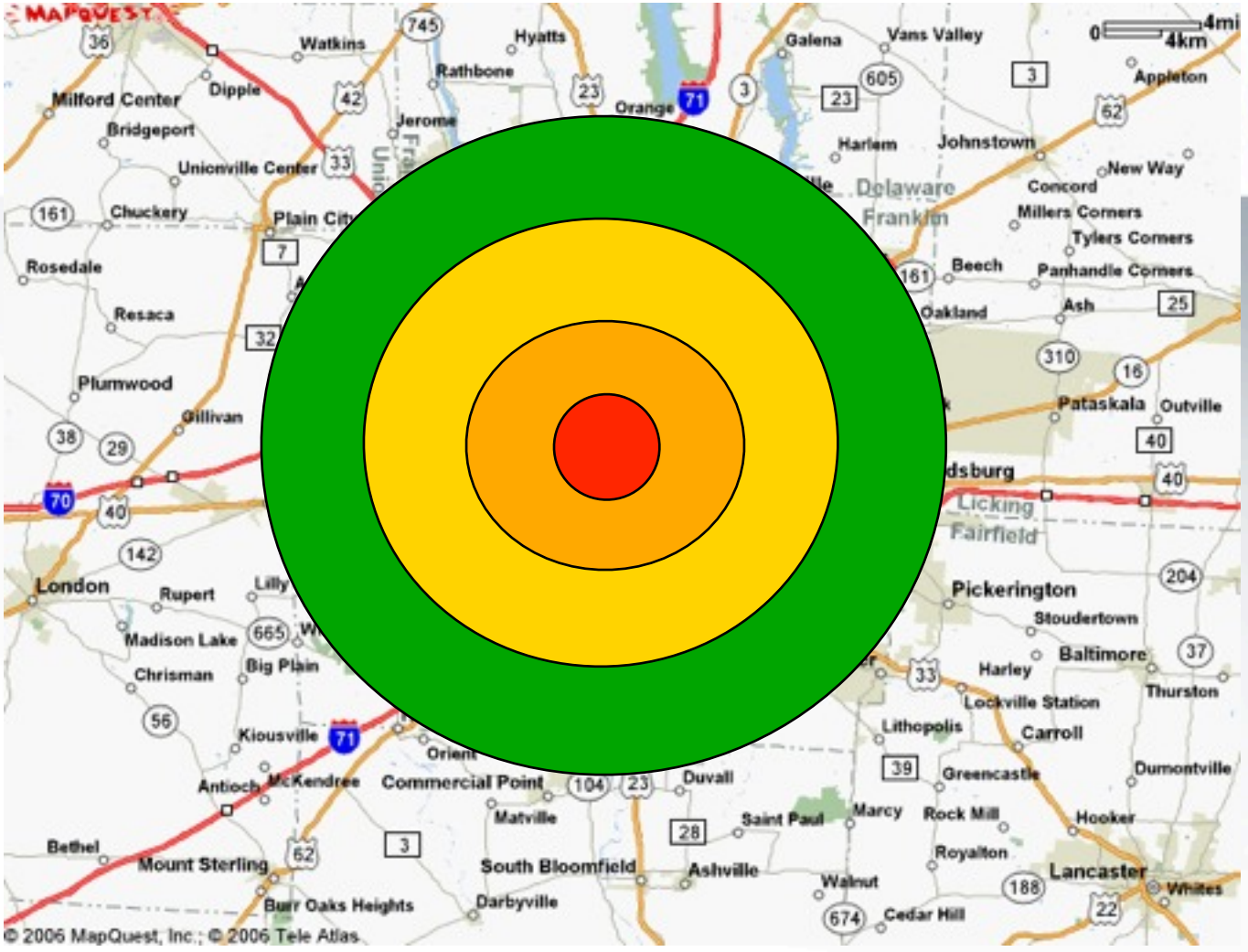
Two Miles to Four Miles from Ground Zero

Out to a distance of 4 miles, the blast would produce pressures of 25 pounds per square inch and winds in excess of 650 miles per hour. These titanic forces would rip buildings apart and level everything, including reinforced concrete and steel structures. Even deep underground bomb shelters would be crushed.



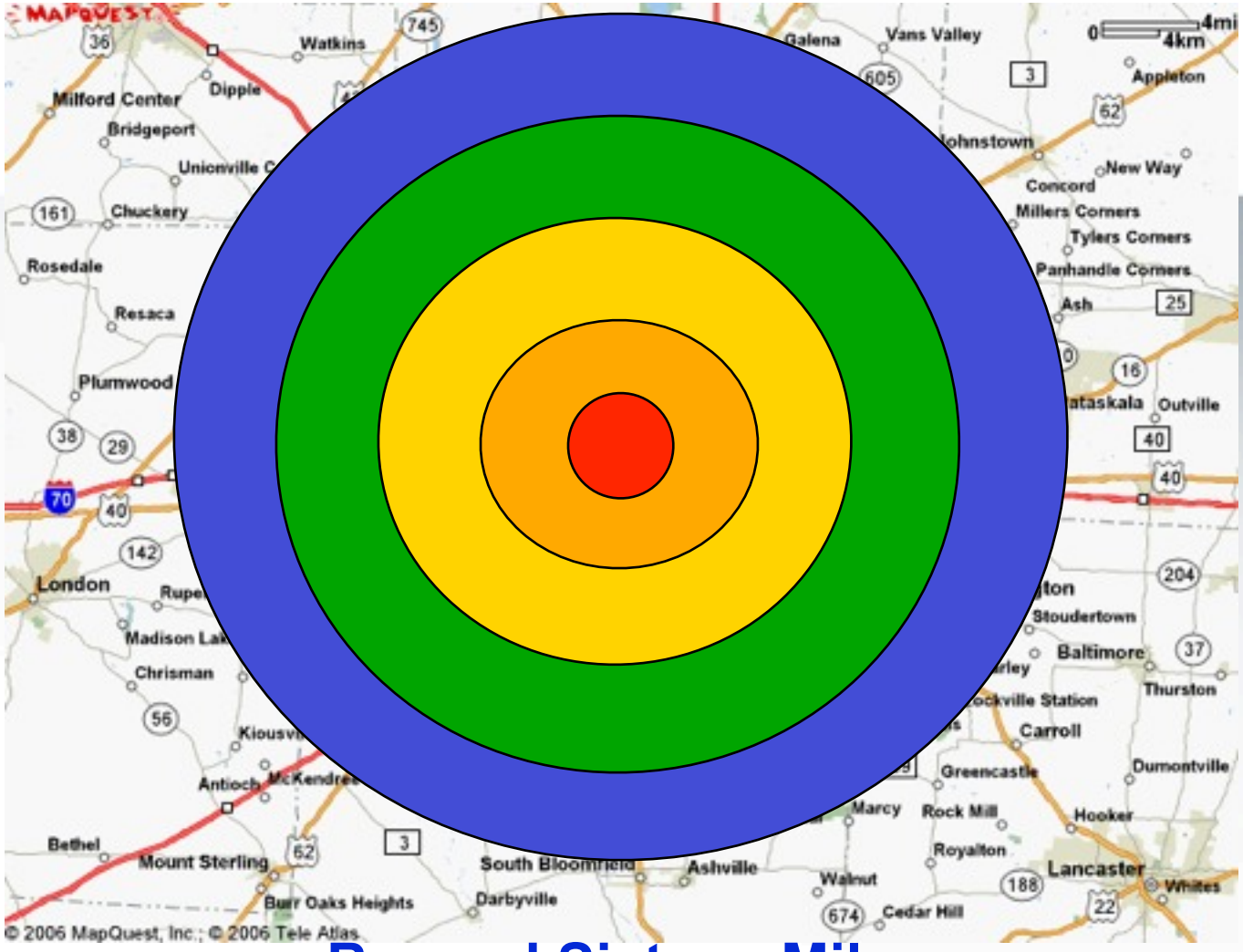
Four Miles to Ten Miles from Ground Zero

As far as six miles from the center of the explosion, the heat would vaporize automobile sheet metal. Glass would melt. Out to a distance of ten miles in all directions, the heat would still be intense enough to melt sheet metal. At this distance, the blast wave would create pressures of 7 to 10 pounds per square inch and winds of 200 miles per hour. Reinforced concrete buildings would be heavily damaged and all other buildings--masonry and wood frame--would be leveled.



Sixteen Miles from Ground Zero

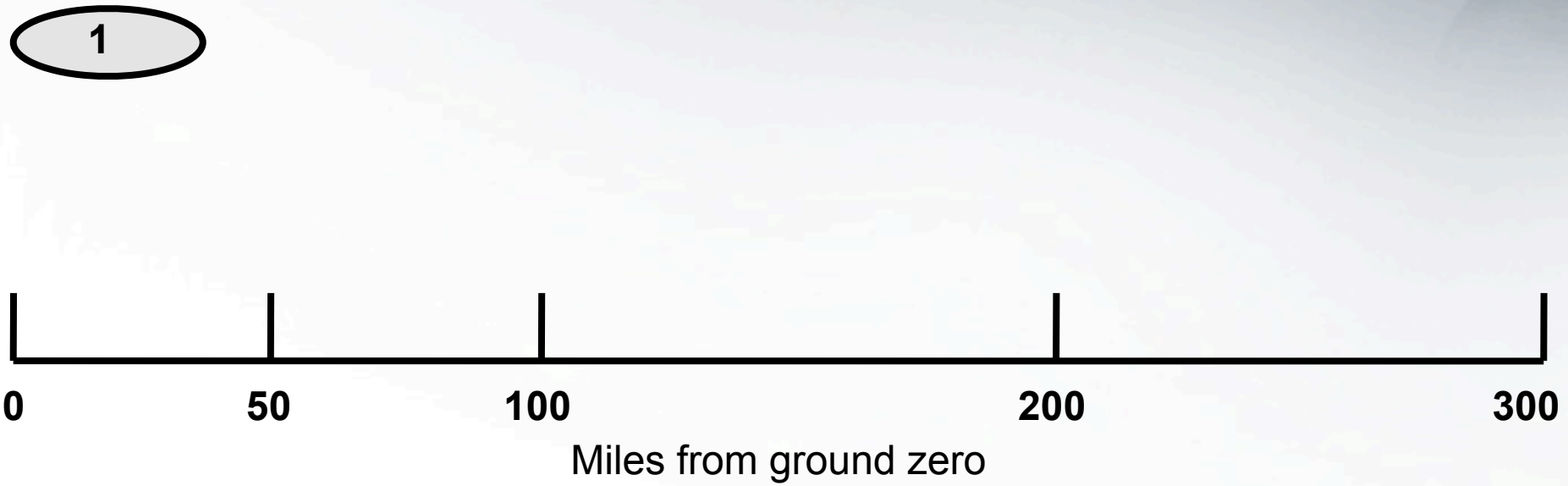
At a distance of 16 miles from the center, the heat would ignite all easily flammable materials--houses, paper, cloth, leaves, gasoline, heating fuel--starting hundreds of thousands of fires. Fanned by blast winds still in excess of 100 miles per hour, these fires would merge into a giant firestorm more than 30 miles across and covering 800 square miles. Everything within this entire area would be consumed by flames. Temperatures would rise to 1400 degrees Fahrenheit. The death rate would approach 100%.



Beyond Sixteen Miles

At 21 miles from ground zero, the blast would still produce pressures of two pounds per square inch, enough to shatter glass windows and turn each of them into hundreds of lethal missiles flying outward from the center at 100 miles per hour. At 29 miles away from the center the heat would be so intense that all exposed skin, not protected by clothing, would suffer third degree burns. To a distance of 32 miles second degree burns. Even as far as 40 miles from ground zero anyone who turned to gaze at the sudden flash of light would be blinded by burns on the retina at the back of their eyes.

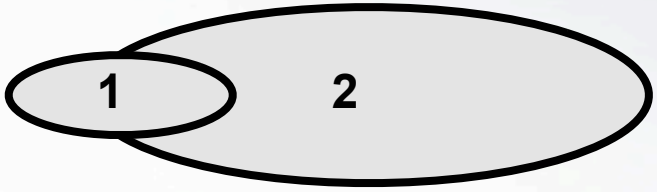
Area 1 - 3,000 rads

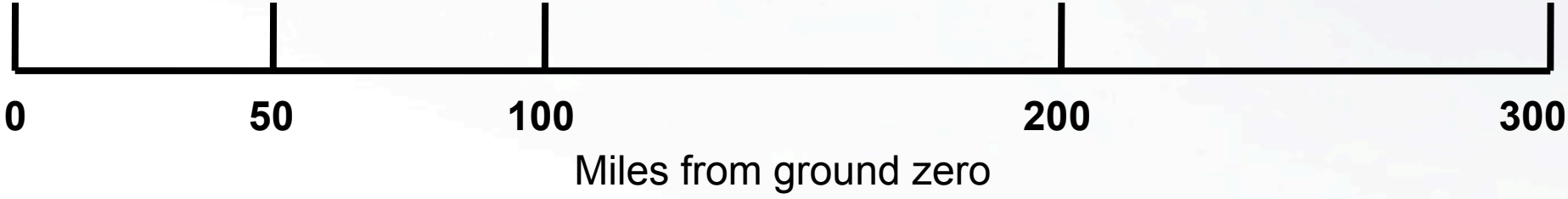


3,000 rads
Distance: 30 miles
Much more than a lethal dose of radiation. Death can occur within hours of exposure. About 10 years will need to pass before levels of radioactivity in this area drop low enough to be considered safe, by U.S. peacetime standards.

Area 1 - 3,000 rads

2 - 900





900 rads

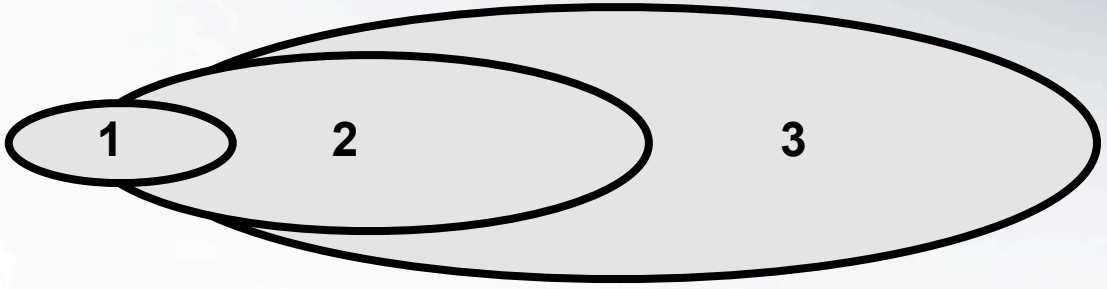
Distance: 90 miles

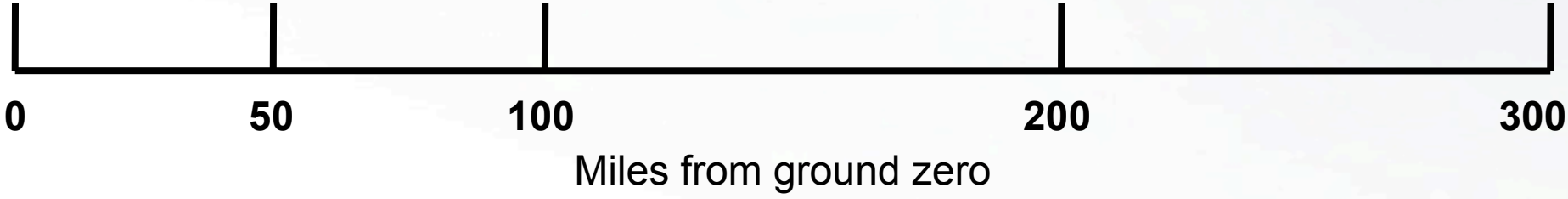
A lethal dose of radiation. (450 is lethal) Death occurs from two to fourteen days.

Area 1 - 3,000 rads

2 - 900

3 - 300

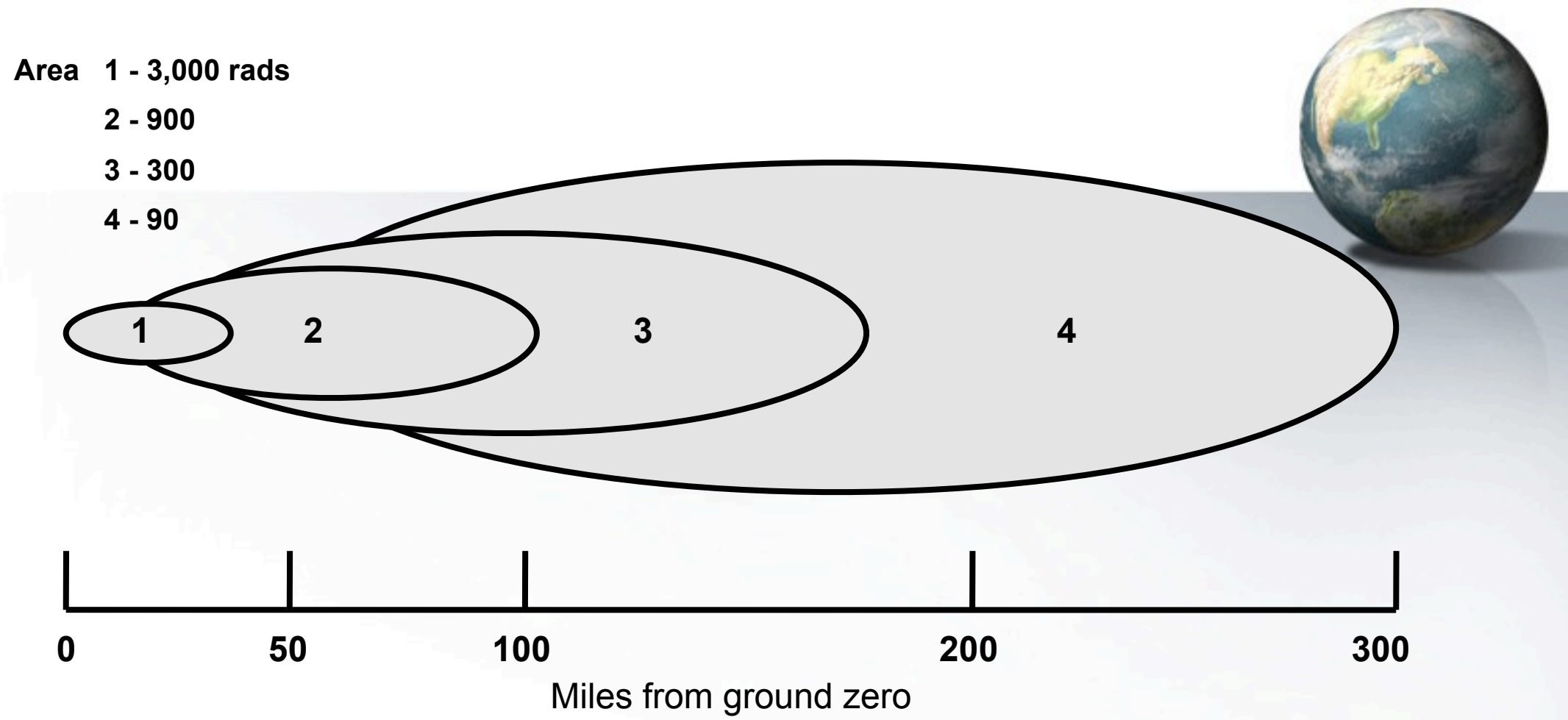




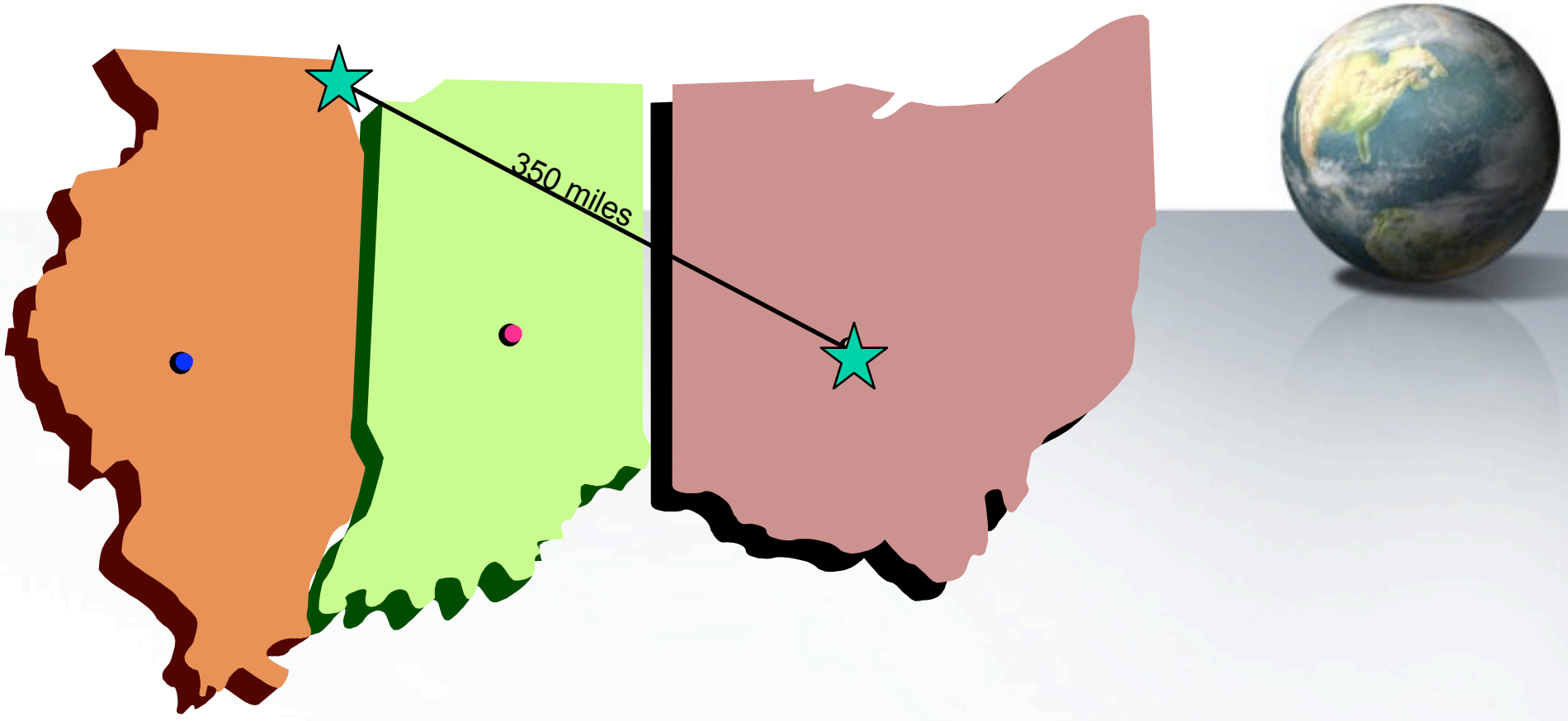
300 rads

Distance: 160 miles

Causes extensive internal damage, including harm to nerve cells and the cells that line the digestive tract, and results in a loss of white blood cells, causing a lowered resistance to disease, making recovery from other injuries more difficult.



90 rads
Distance: 250 miles
Causes a temporary decrease in white blood cells, although there are no immediate harmful effects. Two to three years will need to pass before radioactivity levels in this area drop low enough to be considered safe, by U.S. peacetime standards.



It is about 350 miles from Westerville to downtown Chicago. Therefore, in order to be safe from a nuclear explosion above your home, you would have to be taking in a Cubs game.

However, don't you think that whoever believes Central Ohio is important enough to hit will also drop a nuke on Chicago? ***Yikes!***