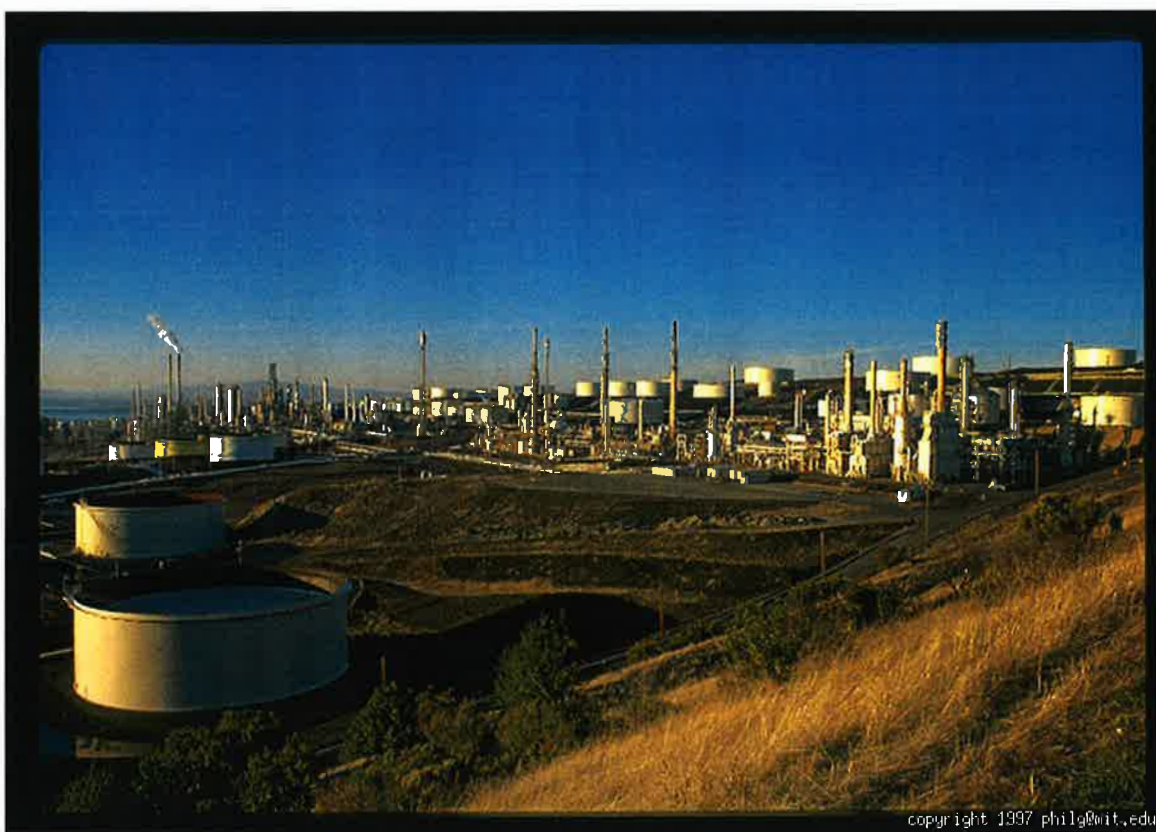




SITTING DUCKS



The Threat to the Chemical and Refinery Industry from 50 Caliber Sniper Rifles



Violence Policy Center

The Violence Policy Center is a national non-profit educational organization that conducts research and public education on firearms violence and provides information and analysis to policymakers, journalists, grassroots advocates, and the general public. The Center examines the role of firearms in America, analyzes trends and patterns in firearms violence, and works to develop policies to reduce gun-related death and injury.

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- *Cease Fire: A Comprehensive Strategy to Reduce Firearms Violence* (Revised, October 1997)

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Introduction: Sitting Ducks

Since the terrorist attacks of September 11, 2001, federal officials have warned the chemical and refinery industry that hazardous-materials plants could be turned into weapons of mass destruction.¹ The attacks—which made enormously destructive bombs out of passenger jets—woke the world to the fact that familiar objects we tend to think of as relatively benign can become terrifying weapons inflicting catastrophic damage:

- A study by the U.S. Army surgeon general concluded that 2.4 million people could be killed or injured—in the worst-case scenario—if terrorists attacked a toxic chemical plant in a densely populated area, and that about 900,000 such casualties could occur in a middle-range scenario.²
- A similar analysis by the Environmental Protection Agency (EPA) found that at least 123 plants in the United States keep amounts of toxic chemicals that could place more than one million people in danger if released, 700 plants maintain amounts that could endanger at least 100,000 people, and more than 3,000 plants maintain amounts that could affect 10,000 people.³
- A small-plane pilot, who one witness believes was Mohammad Atta, the suspected ringleader of the September 11 attacks, showed great interest in a chemical plant in Tennessee he had just flown over. The plant's storage tanks contained 250 tons of sulfur dioxide, enough to kill or seriously injure as many as 60,000 nearby residents.⁴

These warnings do not represent new knowledge. Counter-terrorism experts have for some time warned that terrorists may target the chemical industry and other hazardous facilities. For example, the possibility was addressed in a 1999 blue-ribbon panel report to the President and Congress on the threat from chemical and biological terrorist attack. After noting the obstacles to mounting an attack with actual chemical weapons, the panel discussed an alternate avenue:

Given these impediments, a terrorist interested in harming large numbers of persons might prefer to attempt to engineer a chemical disaster using conventional means to attack an industrial plant or storage facility, rather than develop and use an actual chemical weapon. In this way, significant technical and resource hurdles could be overcome, as well as reducing the profile of the terrorist organization to potential detection by intelligence or law enforcement agencies. Common industrial and agricultural chemicals can be as highly toxic as bona fide chemical

weapons and, as the 1984 Bhopal, India, catastrophe demonstrated, just as (if not even more) effective when unleashed on a nearby population.⁵

According to the U.S. Chemical Safety and Hazard Investigation Board, the Bhopal incident referred to above involved the release of methyl isocyanate into the air and resulted in an estimated 2,000 deaths and 100,000 injuries.⁶

Environmental groups have added their voice to the government's warnings. For example, the activist organization Greenpeace has in the past demonstrated the vulnerability of such plants by skirting security to get inside sensitive facilities, and pointed out the risk of attack mounted from outside typical security zones. "Unfortunately, it's true that...terrorists could render any of these facilities or transport of toxic chemicals a disaster without ever penetrating security," a Greenpeace spokesperson said recently.⁷ The Natural Resources Defense Council, an environmental advocacy organization, has sued the U.S. Department of Justice for failing to submit a report to Congress—required by the Clean Air Act—on chemical plant vulnerability.⁸ A coalition of environmental groups recently issued *The Safe Hometowns Guide*, a guidebook outlining steps that communities can take to reduce the risk from hazardous industrial locations.⁹

The chemical industry has responded to this new threat by what one observer called raising "the commitment to security to an unprecedented level."¹⁰ The American Chemistry Council (ACC) promises to have a new security plan by June 2002 to supplement guidelines it issued in October 2001.¹¹

According to the ACC's existing guidelines, "The first step in constructing a solid security program is to conduct a risk assessment—in other words, to take stock of the assets that need to be protected, the threats that may be posed against those assets, and the likelihood and consequences of attacks against those assets."¹²

This report provides detailed information about a serious threat to refinery and hazardous-chemical facilities: the 50 caliber sniper rifle and the armor-piercing, incendiary, and explosive ammunition it is capable of firing accurately over thousands of yards.^a The U.S. Army's manual on urban combat states that 50 caliber sniper rifles are intended for use as anti-materiel weapons, designed to attack bulk fuel tanks and other high-value targets from a distance, using "their ability to shoot through all but the heaviest shielding material."¹³

^a This report is drawn in substantial part from the broader October 2001 Violence Policy Center report on the 50 caliber sniper rifle, *Voting from the Rooftops: How the Gun Industry Armed Osama bin Laden, other Foreign and Domestic Terrorists, and Common Criminals with 50 Caliber Sniper Rifles*.

Few would disagree that rockets and mortars in the hands of terrorists would present alarming threats to refineries and hazardous-chemical facilities. But the general public, most policymakers, many in the media, and even some who are responsible for providing security to such facilities do not know that the 50 caliber sniper rifle is the equivalent in firepower of rockets and mortars. Barrett Firearms Manufacturing, Inc., the maker of the leading 50 caliber sniper rifle, states the matter starkly in its own advertising material:

With decisive force and without the need for the manpower and expense of mortar or rocket crews, forces can engage the opposition at distances far beyond the range of small arms fire....The advantages are obvious when you consider that many of the same targets for rocket and mortar fire can be neutralized...[by the 50 caliber sniper rifle].¹⁴

Although rockets, mortars, and other weapons of war are tightly controlled under existing federal law, 50 caliber sniper rifles are no more regulated than traditional hunting rifles and less regulated than handguns. As the VPC's earlier study *Voting from the Rooftops* documents in detail, 50 caliber sniper rifles are proliferating and have been purchased by terrorist groups, including Osama bin Laden's organization, the Irish Republican Army, and domestic terror gangs.

The threat to the refinery and chemical industry can be neither fully nor seriously addressed without taking into account the highly dangerous materiel destruction capabilities of the 50 caliber sniper rifle, a weapon of war easily available on the U.S. civilian gun market.

Section One: The Capability of the 50 Caliber Sniper Rifle

"The advantages are obvious when you consider that many of the same targets of rocket and mortar fire can be neutralized with M33 ball, API M8 or Multipurpose ammunition."

— "Heavy Firepower for Light Infantry," Barrett Firearms Manufacturing, Inc. brochure advertising its Model 82A1 50 caliber sniper rifle¹⁵

The .50 BMG round^b fired by 50 caliber sniper rifles can knock down hovering helicopters, penetrate armored limousines, and ignite bulk fuel tanks from a distance of 10 football fields.¹⁶ The round's merits were summarized in the authoritative journal *The Small Arms Review*:

The fifty caliber's ability to be deployed by one individual and give that person the capability of discretely engaging a target at ranges of over one mile away are definitely alluring from a tactical standpoint. While the .50 cal sometimes seems to be exaggerated, it is hard to imagine a round that at ranges of over a mile and a half away, has more kinetic energy than a .44 Magnum, and has unbeatable penetration as well.¹⁷

Extended Range and Accuracy

Advertising, military manuals, expert writing, and civilian-owner comments all demonstrate that 50 caliber sniper rifles are accurate at ranges of at least 1,000 yards, and in the hands of a trained marksman, nearly 2,000 yards. "With confirmed hits out to 1800 meters, the Barrett model 82A1 is battle proven," Barrett Firearms states in its promotional brochure.¹⁸ In fact, U.S. forces using Barrett M82A1s routinely engaged Iraqi forces out to a range of 1,600 meters (1,750 yards) during the 1991 Gulf War.¹⁹ Another manufacturer, Aurora Tactical, says that its Model 650 Special Light Anti-Materiel Rifle (SLAMR) "enables a skilled marksman to deliver exceptionally accurate fire on targets in excess of 1500 yards."²⁰

^b .50 BMG, the technical designation of the caliber, stands for Browning machine gun, one of the earliest weapons designed for this heavy round.

Destructive Power

The 50 caliber sniper rifle's threat is a blend of long range and massive power. Here is Barrett's description of the power of its Model M82A1, widely available on the civilian market:

This revolutionary .50 caliber semi-automatic rifle allows sophisticated targets to be destroyed or disabled by a single soldier. Armored personnel carriers, radar dishes, communications vehicles, aircraft and area denial submunitions are all vulnerable to the quick strike capability of the Barrett 82A1. With decisive force and without the need for the manpower and expense of mortar or rocket crews, forces can engage the opposition at distances far beyond the range of small arms fire....The 82A1's light weight makes transportation as easy as walking....With night vision equipment, the weapon is even more effective under cover of darkness. The muzzle brake reduces felt recoil to no more than that of a 12 gauge shotgun....The advantages are obvious when you consider that many of the same targets for rocket and mortar fire can be neutralized with M33 ball, API M8 or Multipurpose ammunition.²¹

An excerpt from the U.S. Army's manual on urban combat emphasizes the 50 caliber sniper rifle's ability to destroy materiel targets:

These heavy sniper rifles were originally intended as anti materiel weapons for stand-off attack against high-value targets, such as radar control vans, missiles, parked aircraft, and bulk fuel and ammunition storage sites....It is their ability to shoot through all but the heaviest shielding material, and their devastating effects, that make them valuable psychological weapons.²²

50 Caliber Ammunition Available on U.S. Civilian Market

Although originally designed for heavy military use, all types of 50 caliber ammunition are readily available to civilians in the United States—and thus easily available to foreign and domestic terrorists. This, of course, is wholly aside from the fact that military ammunition stocks also can be procured from underground sources.

Arms and ammunition—including such destructive items as M-16 assault rifles, machine guns, TNT, dynamite, plastic explosives, land mines, and hand grenades—are regularly stolen from U.S. military armories.²³ Fifty caliber sniper rifles have proliferated in military forces around the world, and 50 caliber ammunition is made in

more than 30 countries. Those foreign forces, including some that are less than friendly to the United States, have stocks of military ammunition that are available to any terrorist with the right connections. Arms and ammunition are also stolen from these foreign forces, friend and foe alike, sometimes on a staggering scale.²⁴

The 50 caliber sniper rifle's performance is substantially enhanced by the use of ammunition specially designed to destroy hard targets—ammunition that makes the rifles what expert Mark V. Lonsdale calls "a cost effective way to engage the enemy's high-tech equipment, light skinned vehicles and aircraft, especially when compared to the cost of hitting the same targets with rocket or mortar fire."²⁵ This ammunition includes armor-piercing, incendiary, and explosive rounds specifically designed to attack targets similar to the bulk tanks, pipes, and other materiel in and around the typical refinery or other chemical industrial site.

Armor-piercing and incendiary ammunition. The U.S. Army says that the basic 50 caliber armor-piercing round is designed for use "against armored aircraft and lightly armored vehicles, concrete shelters, and other bullet-resisting targets."²⁶ The armor-piercing effect is achieved by the bullet's design, which wraps a hardened core of a substance like manganese-molybdenum steel with a softer metal jacket.²⁷ Incendiary ammunition is self-descriptive, used for "incendiary effect, especially against aircraft."²⁸ In other words, it sets things like airplanes, fuel, and other combustible materials on fire.^c Tracer ammunition, familiar to the public from scenes of night combat, leaves a visible trail of incendiary light. Variant rounds combine armor-piercing, incendiary, and tracer effects.²⁹

Saboted Light Armor Penetrator (SLAP) Ammunition. Designers of anti-armor ammunition have long used the idea of replacing a given caliber gun's projectile with a projectile of smaller diameter but more dense material. In order to seat the smaller projectile in the larger ammunition case, and to gain the necessary spin from the gun's rifled barrel, the projectile is wrapped in a "sabot" or "shoe." The shoe rides the length of the gun's barrel, then drops away from the projectile when it exits the barrel. The much higher velocity of a "saboted" round enhances its armor-piercing performance.

The U.S. Marine Corps developed 50 caliber SLAP ammunition in the 1980s, and it was used in 1991 during the Gulf War's Operation Desert Storm. It uses a .30 inch heavy metal (tungsten) penetrator in a plastic shoe, which is .50 inch in diameter. "Since the mass of the saboted penetrator is much lighter in weight than normal ball .50 caliber ammunition, SLAP's velocity can be significantly and safely increased,"

^c Fifty caliber sniper rifles have been banned from some public shooting ranges because of fires set by enthusiasts firing various types of incendiary rounds.

according to the Marine Corps. "This produces a very fast round with a very flat trajectory which enhances hit probability...and extends the light armor capability...significantly."³⁰

According to Winchester, the civilian contractor that developed the 50 caliber SLAP round, it delivers "superior and proven performance against lightly armored vehicles and armoured attack helicopters at ranges up to 1500 meters."³¹

A round that has "proven performance" against an armored attack helicopter at 1,600 yards is a clear threat to American industrial sites in the hands of any terrorist group that, like al Qaeda, has acquired the means to deliver it in the form of the 50 caliber sniper rifle.

Raufoss Multipurpose (armor-piercing, explosive, incendiary) Ammunition. The crown jewel of 50 caliber sniper rifle ammunition is the Raufoss multi-purpose round, developed by a Norwegian company and manufactured under license by several companies, including Winchester. Said by experts to be the most popular round with U.S. military snipers,³² it was used to devastating effect by U.S. forces in the 1991 Gulf War.

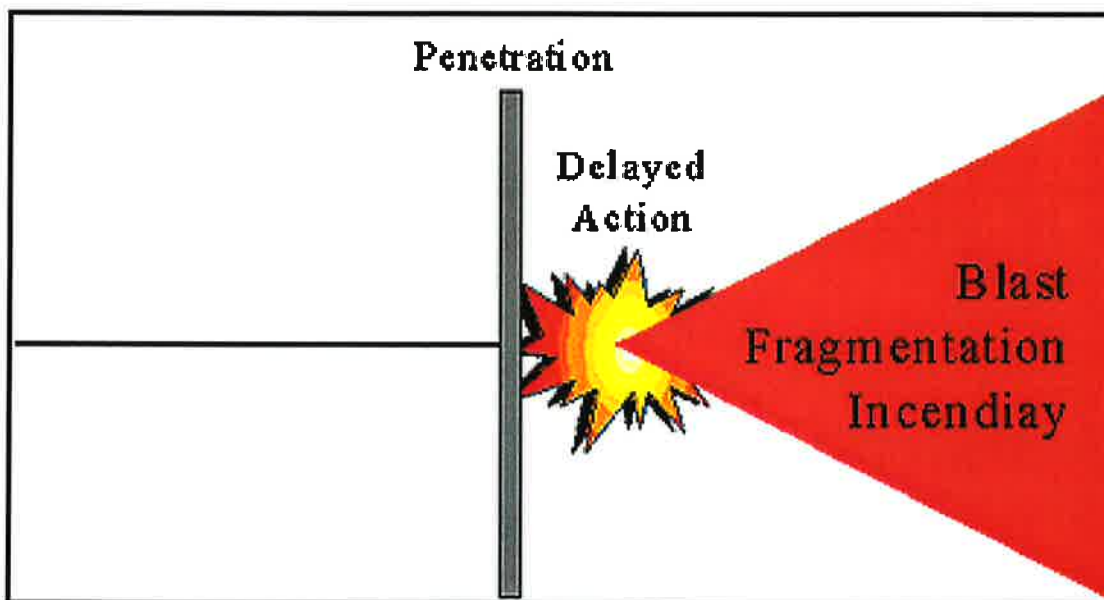
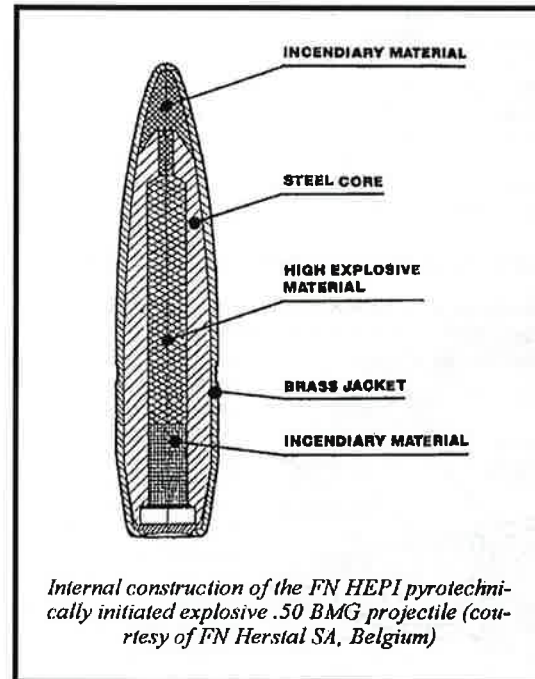
Designated the MK211 by the U.S. military, the round combines armor-piercing, explosive, and incendiary effects and uses a "highly effective pyrotechnically initiated fuze...[that] delays detonation of the main projectile charge until after initial target penetration—moving projectile fragmentation and damage effect inside the target for maximum anti-personnel and fire start effect."³³ According to its developer, Nordic Ammunition Company (NAMMO), the round can be used in "sniper rifles similar to [the] Barrett M82A1," has "the equivalent firing power of a 20 mm projectile to include such targets as helicopters, aircrafts [sic], light armour vehicles, ships and light fortifications," and can ignite JP4 and JP8 military jet fuel.³⁴

According to the Marine Corps, the Barrett "M82A1A...fires the .50-caliber RAUFOSS ammunition, which contains a tungsten penetrator and a more powerful explosive charge than the API ammunition...it has penetrated an inch of steel at 2000 yards."³⁵ *Jane's International Defense Review* estimates that the round is "probably capable of disabling a man wearing body armor who is standing behind the wall of a house at 2,000m.... (and) can perforate the foundation of a high-rise building (20cm reinforced concrete) at 400m."³⁶ Reasonable persons probably would agree that blasting through 20 centimeters (7.87 inches) of reinforced concrete from four football field's distance is an impressive performance.

Illustration One: 50 Caliber Armor-Piercing, Incendiary, and Explosive Ammunition Enhances the Threat

Fifty caliber sniper rifles are in essence ammunition-delivery systems. Armor-piercing, incendiary, and explosive ammunition is readily available on the U.S. domestic civilian market.

The illustration at right shows construction of one type of 50 caliber round. The figure below illustrates how another, the RAUFOSS round, first penetrates armor, then explodes inside its target. The VPC has documented apparent domestic civilian sales of RAUFOSS over the Internet.



Availability of Specialized 50 Caliber Ammunition on U.S. Civilian Market

The implications of the potential uses to which a terrorist might put 50 caliber armor-piercing, incendiary, SLAP, or Raufoss ammunition can only be described as frightening. Yet all of these types of ammunition are available on the U.S. civilian market. SLAP is less frequently offered than ball, armor-piercing, and incendiary variants, and Raufoss is rarely offered publicly. Yet the Violence Policy Center has documented public offerings and apparent sales in the civilian market of all the varieties discussed above.

Section Two: Industrial Targets and the 50 Caliber Sniper Rifle

In the wake of the attacks on the World Trade Center and the Pentagon, experts have said that anti-terror analysis must focus on simultaneous attacks mounted by relatively simple conventional means, but capable of inflicting catastrophic damage.³⁷

The materiel-destroying capability of the 50 caliber sniper rifle is precisely such a means: leveraging readily available low technology to achieve disastrous high-technology results. The 50 caliber rifle's anti-materiel capabilities include:

- Turning chemical or other industrial facilities into bombs, with the potential for mass casualties.
- Explosive attacks on bulk fuel carriers or storage depots, including the risk of fratricidal explosions spreading damage to catastrophic levels.

The more catastrophic scenarios could result in the deaths of the attackers themselves. However, given the suicide attacks we have already experienced, this is no bar to the feasibility of such operations. "Closed-circuit TV [monitoring] works with the IRA, because their method is they don't want to be caught," a British transit police official explained recently. "It wouldn't work with a suicide operator."³⁸

Turning Hazardous Chemical Facilities Into Weapons

A substantial amount of attention has been given to the interest of Osama bin Laden's al Qaeda, and other terrorist organizations, in obtaining and using chemical weapons, and analyzing the likelihood of it acquiring such weapons.³⁹ But experts have warned also of the threat of another type of attack, similar in concept to using commercial aircraft as bombs—turning hazardous industrial facilities themselves into chemical weapons.

As noted in the Introduction to this report, a 1999 blue-ribbon panel report to the President and Congress warned that "a terrorist interested in harming large numbers of persons might prefer to attempt to engineer a chemical disaster using conventional means to attack an industrial plant or storage facility, rather than develop and use an actual chemical weapon. In this way, significant technical and resource hurdles could be overcome, as well as reducing the profile of the terrorist organization to potential detection by intelligence or law enforcement agencies."⁴⁰

The U.S. Department of Justice issued a 2000 report in which it "concluded that the risk of terrorists attempting in the foreseeable future to cause an industrial chemical release is both real and credible. Increasingly, terrorists engineer their attacks to cause mass casualties to the populace and/or large-scale damage to property. Terrorists or other criminals are likely to view the potential of a chemical release from an industrial facility as a relatively attractive means of achieving these goals."⁴¹

In May 2001, the U.S. Environmental Protection Agency (EPA) issued an alert that appeared to respond to the 1999 blue-ribbon panel's report. EPA warned local chemical disaster advisory committees that "a terrorist may seek to transform a target into a weapon by focusing on facilities that handle explosive, toxic, or volatile chemicals."⁴² The advisory warned facilities "with chemicals or explosive storage" to take site security measures.⁴³

One might think that this is a rare threat affecting only a few people unfortunate enough to live in a heavily industrial area. That would be a mistake. The most hazardous chemical and industrial facilities in the United States are required to report on their plans for dealing with escape of substance off-site. Of some 15,000 that had reported as of last year, almost half reported that "over 1,000 people live in zones that could be affected by the release of toxic chemicals from those facilities."⁴⁴

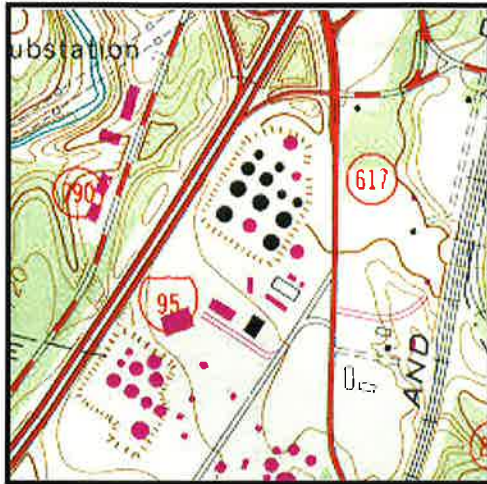
The threat of this type of engineered chemical attack is so serious that many federal agencies have within recent days removed data about hazardous locations from their Internet web sites.⁴⁵ What must also be asked is: what kind of *weapons* would be ideal for such attacks?

An engineered attack on such a facility could have disastrous ripple effects as well. Numerous facilities critical to the nation's infrastructure^d are located at or near hazardous sites. "Disruption of even one of these facilities could wreak havoc on an entire region or locality,"⁴⁶ the Justice Department warns. "A chemical release may be more effective than a bomb in causing such disruption, since a leak of toxic chemicals may necessitate large-scale evacuation."⁴⁷

Foreign and domestic terrorists alike have already considered such schemes. For example, members of the Ku Klux Klan plotted to bomb a hydrogen sulfide tank at a refinery near Dallas in 1997.⁴⁸ According to the chief of the FBI's domestic terrorist section, they discussed the potential of hundreds of deaths, including children, which they hoped to use as a diversion for a planned armored car robbery.⁴⁹ The plot

^d The critical infrastructure includes such things as water supply, military installations, utility companies, natural gas distribution, as well as electrical and communications networks.

Illustration Two: Tank Farms are Ideal 50 Caliber Targets



U.S. military manuals and manufacturer advertising identify bulk fuel storage as intended targets of 50 caliber anti-materiel sniper rifles. The tank farm at left illustrates a collateral hazard—it is within yards of a major interstate highway.

The fuel tank farm at right illustrates a similar collateral hazard—it is located next to a shopping mall and commercial strip in a residential suburb of a major East Coast city. Attacks with armor-piercing ammunition on similar sites storing toxic chemicals could endanger tens of thousands of nearby inhabitants.



was foiled because an informant tipped off authorities, but the potential is nonetheless instructive.

The threat of an engineered chemical disaster is clearly real. How capable the country is of responding to such a threat is another open question—in 2000, Congress instructed the Justice Department to study how well chemical plants are prepared to prevent terrorist attacks, but did not fund the study.⁵⁰ Chemical facilities were put on alert after the September 11 attacks.⁵¹ But, the question is, what likely means of attack are they on the alert for?

It takes little imagination to understand the threat from a 50 caliber sniper rifle firing a dramatically explosive and incendiary round like the Raufoss MP from a distance of several thousand yards (or even more, since the target is likely to be big enough to be hit at the farthest manageable range).

Attacks on Explosive Materials in Transit or Bulk Storage

Bulk storage of hazardous chemicals and fuels, and their transportation in bulk by truck and rail networks, presents many other targets for catastrophic attack by terrorists armed with 50 caliber sniper rifles and the armor-piercing, incendiary, and explosive ammunition widely available for them. In addition to the direct effects of explosions or contamination such attacks would cause, collateral effects could be shutdowns and massive dislocations throughout surface transportation and communications networks, and other vital parts of the critical infrastructure.

If the threat is not self-evident, one need only consider the vast number of bulk fuel storage facilities in the United States—such as gasoline and propane—and match that number with the incendiary power of the advanced 50 caliber rounds available to terrorists. Add to that problem the 50,000 trucks hauling millions of pounds of toxic, flammable, and explosive cargo over America's highways, and countless railcars loaded with hazardous material such as fuels and chlorine gas, the ability of a terrorist to inflict damage with the explosive firepower of the 50 caliber sniper rifle becomes almost unimaginable.⁵²

This is not conjecture. Terrorists in the United States have plotted assaults on such facilities. Disastrous accidents involving bulk storage and bulk transport of hazardous materials have shown the potential consequences of a terrorist attack. The potential effects of a carefully planned attack could go far beyond the random effects of an accident. It is worth noting that 50 caliber enthusiasts trade tips over the Internet about the best ways to shoot commercially available propane tanks to cause them to explode. What is missing is an official response tying these strands together.

Consider, for example, the ubiquity of propane gas storage facilities and the transportation of propane on public roads and rail networks all over the country, every working day. The propane industry goes to great lengths to make delivery and use safe, but the fact remains that it is a highly explosive fuel when improperly released. "A propane fire is a more powerful monster than the fires these heroes [firefighters] usually face," advised one materials-handling publication.⁵³ The second most deadly chemical accident in history — after Bhopal — was a catastrophic chain of explosions set off at a propane gas distribution center in Mexico City in 1984.⁵⁴ The death total was nearly 500, at least 4,000 were injured, 2,000 houses in a 20 block area were leveled, and thousands were left homeless.⁵⁵

The United States has not been immune to serious accidents involving propane facilities.⁵⁶ An accidental propane release and fire near Des Moines, Iowa, in 1998 caused the evacuation of 10,000 residents and the closing of an interstate highway.⁵⁷ An EPA official described a 1989 explosion involving ethylene and isobutane, "both of which have similar flammability characteristics as propane" as being "the equivalent of 10 tons of TNT."⁵⁸

The potential for unleashing disaster by igniting a propane tank has not escaped domestic terrorists. A plot by members of a militia group to blow up a giant propane storage facility in Elk Grove, California, was derailed when federal agents arrested them in December 1999 after an undercover investigation.⁵⁹ The facility holds about 24 million gallons of propane and is a few hundred yards from a busy state highway and other industrial buildings. A study by Lawrence Livermore National Laboratory concluded that, had the attack been successful, it would have caused a firestorm that would have reached about 10 miles from the facility and caused a fatality rate as high as 50 percent up to five miles away.⁶⁰

On a far smaller scale, an environmental terror group in Maine attempted to blow up a fish and game club with a propane tank, but a club member who was a fireman noticed the device and disabled it.⁶¹

There are about 33,000 propane facilities nationwide.⁶² Bulk storage tanks at these facilities range in size from 6,000 to 120,000 gallons, and several tanks of various sizes may be found at any one facility.⁶³

According to the U.S. Department of Transportation, "propane releases are a leading cause of death in hazardous material transportation."⁶⁴ Semi-trailer bulk cargo tank vehicles that distribute propane over long-haul distances have capacities ranging from 9,000 to 17,000 gallons.⁶⁵ Smaller "bobtail" trucks deliver propane locally to customers that have propane containers on site, and have tank capacities from 750

Illustration Three: Potential Attacks on Bulk Transport of Hazardous Materials



Attacks on liquid oxygen in bulk storage or being transported by tank trucks, as illustrated here, or on railcars could have explosive consequences. A well-planned attack on a location near key infrastructure would have devastating collateral effects.

Tens of thousands of fuel trucks travel on highways every day, vulnerable to attack by long-range 50 caliber incendiary ammunition. Unintentional fires have already had devastating effects on transportation networks. Deliberate attacks could be far worse.



to 6,500 gallons.⁶⁶ Railroad tank cars that deliver from refineries and gas plants to bulk tanks have capacities of between 11,000 and 34,500 gallons.⁶⁷

Terrorists have already targeted bulk transporters. In 2000, for example, two anarchists in Oregon tried to ignite a 12,000-gallon gasoline tanker, using a crude milk-jug bomb with a delayed igniter. The device failed, but police said it would have caused a catastrophic explosion had it succeeded.⁶⁸ The consequences of a successful attack with armor-piercing incendiary rounds on such a bulk tanker, or a bulk storage facility, could be disastrous—even if the attackers were themselves incinerated in the resulting explosion.

A successful attack with armor-piercing incendiary rounds on railcars or trucks carrying flammable or explosive cargo could create geometrically increasing ripple effects if the attack occurred at or near a crucial site, such as a key bridge or tunnel, a national security facility, or a hazardous industrial site. This issue is addressed in the next paragraphs.

Damaging Critical Infrastructure Networks Sufficiently to Cause Widespread Disruption

There are a variety of ways in which a successful attack by a terrorist exploiting the 50 caliber sniper rifle's capabilities could cause widespread disruption involving critical infrastructures.

One of the more obvious was alluded to in the preceding section—the collateral consequences of a successful attack with armor-piercing incendiary rounds on a bulk truck or rail carrier of fuel or other highly flammable material at a key location. "It strikes me that railroads are far more vulnerable in many ways than our airplanes," West Virginia Senator Jay Rockefeller said during a recent Senate hearing on the risk of terror to the nation's surface transportation systems.⁶⁹

Gasoline tanker fires have had serious collateral effects. A three-truck accident that set off a gasoline-tanker truck explosion on a bridge shut down a major artery between Pennsylvania and New York for days, forcing tens of thousands of vehicles to find alternate routes.⁷⁰

Instruction in the potential consequences abound in examples of accidents. Earlier this year, for example, a train fire in a tunnel under Baltimore caused an "enormous snarl" in rail traffic on the Eastern seaboard for nearly a week, drawing attention to a large number of potential bottlenecks in the railroad system.⁷¹ The fire in the tunnel also destroyed fiber-optic cables, slowing Internet traffic all over the country,⁷² and released toxic chemicals from ruptured tank cars.⁷³ Similar explosions

last year shut down a major bridge in Jacksonville, Florida, and a highway in Nevada.⁷⁴ A Florida collision between a gasoline-tanker truck and a tractor-trailer hauling 20 tons of ammonium nitrate threatened to cause an enormous explosion, had the gasoline mixed with the chemical, the major ingredient of many truck bombs such as the one Timothy McVeigh set off in Oklahoma City in 1995. Firefighters were forced to stand by and let the fire die down, rather than risk dispersing the gasoline and mixing it with the spilled ammonium nitrate.⁷⁵

These examples were accidents. It does not take a great deal of imagination to project the mentality of a terrorist, the range of the 50 caliber sniper rifle, and the incendiary effects of its ammunition to imagine carefully planned scenarios with even greater immediate and collateral effects.

Section Three: Lessening the Risk

A serious impediment to addressing the threat to America's refineries and chemical industrial facilities is that many who are knowledgeable about the environmental and safety issues concerning such plants know little or nothing about guns, much less the 50 caliber sniper rifle. Although some environmentalists are now becoming educated to the threat of the 50 caliber sniper rifle,⁷⁶ much broader education of policymakers, news media, and security specialists needs to be undertaken. This report aims at that goal.

Environmentalists active on this issue generally prefer a strategy of lessening the risk at the site through "inherent safety" measures, such as employing safer materials and minimizing storage volumes.⁷⁷ The Violence Policy Center recognizes the merit of this strategy, but believes that the threat of the 50 caliber as a tool of terror extends far beyond this issue. Accordingly, it urges the following strategy for dealing with the deadly consequences that are certain to follow in the wake of the gun industry's cynical campaign to market weapons of war like the 50 caliber sniper rifle to civilians.

Add 50 Caliber Sniper Rifles to the National Firearms Act of 1934

Congress should immediately amend federal law to bring 50 caliber sniper rifles under the National Firearms Act of 1934. This action would subject these weapons to the same regimen of registration, background checks, and taxation to which other weapons of war, such as machine guns and destructive devices, are currently subjected.

There should be no "grandfathering" of existing weapons to exempt them from the law, and any grace period for registration should be very short. America must know who besides Osama bin Laden possesses these deadly tools of assassination and terror.

Permanently Ban Export of 50 Caliber Sniper Rifles to Civilians

The President may not need to wait for Congress to take action on this point. He should immediately order the Department of State to review whether export of these weapons to civilians should be allowed under existing restrictions on export of weapons. If the Department finds that 50 caliber sniper rifles should not be allowed under existing restrictions, the President should call for a permanent export ban.

Clearly it is not in the interest of America's national security to allow any more 50 caliber sniper rifles to end up in the hands of international terrorists, drug lords, or common criminals.

Improve Reporting and Recordkeeping Requirements

Under current procedures, the federal Bureau of Alcohol, Tobacco and Firearms (ATF) cannot state with certainty how many 50 caliber rifles have been manufactured in the United States. Moreover, the minimum reporting requirements that apply to firearm manufacturers do not even include the reporting of model numbers.

Likewise, information regarding how many of these sniper rifles have been used in crime is extremely limited. ATF keeps track of how many times local police departments request that such weapons be traced. However, no information regarding the police department requesting the trace or the type of crime with which the weapon was associated is available.

This type of information is essential to be able to assess the level of threat posed by these weapons. ATF should immediately revamp its reporting standards to require that the manufacturers of sniper rifles report the exact number of such weapons produced each year, including the caliber and model designation, and the identity of any person to whom the weapon has been transferred by the manufacturer.

ATF should also enhance the collection, analysis, and dissemination of tracing data related to all sniper rifles. Specifically, ATF should collect and make available to the public information regarding the frequency of the use of such weapons in crime, including the nature of those crimes.

Use the Civil Justice System to Hold Manufacturers Accountable

The marketing of 50 caliber sniper rifles presents a classic case, using ordinary "black letter" tort concepts, of an industry's calculated decision to sell without restraint unnecessarily powerful weapons of war as "toys"—in reckless disregard of clearly foreseeable consequences stemming from the intended and advertised use of the product.

Given their acknowledged design purpose, 50 caliber sniper rifles are clearly *qualitatively* different from any other class of firearm. Other firearms sold in the civilian market are at least nominally designed and sold for sporting or supposed self-defense purposes. Fifty caliber sniper rifles, on the other hand, are designed and sold

for the express purpose of killing people and destroying property. Civil courts should be prepared to recognize this fact.

Therefore, a useful strategy for effective control may lie in civil litigation, a strategy that would be enhanced if states passed legislation clearly establishing strict liability for damages resulting from the use or misuse of such weapons. Such litigation could impose tort liability, including punitive damages, for manufacturers, wholesalers, distributors, importers, retailers, and any others who participate in bringing to the civilian market any 50 caliber sniper rifle or associated gear (such as ammunition or optics) that is used to kill or injure a human being or to damage property.

In short, the gun industry should be held to the strictest standards of legal accountability available for the design and marketing to civilians of 50 caliber sniper rifles, as detailed in this report.

Ban the Sale of Armor-Piercing Ammunition

Military surplus armor-piercing (AP) and armor-piercing incendiary (API) ammunition for 50 caliber sniper rifles is widely and readily available. Although Congress has banned the manufacture of some armor-piercing ammunition, those restrictions apply only to handgun ammunition. The existing ban on armor-piercing ammunition should be updated and expanded to cover all AP and API ammunition. This would most effectively be accomplished through the promulgation of a performance standard in which ammunition is tested for its ability to *penetrate* bullet-resistant vests, ballistic glass, and armor,^e as opposed to the existing standard based on the bullet's *content*.

Enact Comprehensive Regulation of the Gun Industry

Taken together, the foregoing recommendations would significantly reduce the severe and immediate threat that 50 caliber sniper rifles pose to public safety and national security. But on a broader level, the marketing of 50 caliber sniper rifles to civilians simply highlights the chronic problems that stem from the lack of comprehensive regulation of the firearms industry.

^e The current definition of armor-piercing ammunition is based on the materials employed in the construction of the projectile and the relative weight of the projectile jacket. See 18 U.S.C. § 921 (a)(17)(B) and (C).

As the gun industry markets each new deadly innovation, public policy typically responds on a reactive, piecemeal basis. This must change if we are to keep up with the industry's consistent and deadly ingenuity. *The gun industry must be subject to the same type of regulation that already applies to virtually every other industry in America.* The gun industry is currently exempt from even the most basic consumer health and safety laws.

Congress should act on legislation introduced by Senator Robert Torricelli (D-NJ) and Representative Patrick Kennedy (D-RI), the Firearms Safety and Consumer Protection Act. The bill would vest the Department of the Treasury with strong consumer protection authority to regulate the design, manufacture, and distribution of firearms and ammunition. The agency would be empowered to take the steps necessary to protect the public from *unreasonable* risk of injury resulting from the use of firearms or firearm products. The agency would be able to set minimum safety standards for firearms and ammunition, issue recalls, mandate safety warnings and, in extreme circumstances, ban certain models or classes of weapons.

This legislation would end the gun industry's deadly immunity from regulation and permit the Department of the Treasury to respond immediately to new threats to public safety such as 50 caliber sniper rifles.

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