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Washington Times
May 28, 2002
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Scenario Of Nuke Strikes Weighed

By David R. Sands, The Washington Times

The unthinkable turns out to be relatively easy to calculate.

Computer simulations of a nuclear exchange between India and Pakistan, employing software models developed for the Pentagon, show that even in the simplest scenarios thousands of people would die instantly and that hundreds of thousands would be placed in the path of harmful and potentially lethal levels of radiation.

Tensions have been rising between the two South Asian rivals since an attack in December on the Indian Parliament that New Delhi blamed on Pakistani-backed Islamic militants.

More than a million troops have been mobilized along the 2,000-mile border, and Indian officials have openly talked of war because of an attack earlier this month that killed 33 in the disputed Indian province of Kashmir.

"There is certainly a risk" of nuclear war, British Foreign Minister Jack Straw said as talk of war escalated last week.

Defense Secretary Donald H. Rumsfeld, in an interview broadcast Friday on CNN, predicted that "millions of people could die in the event that there was a nuclear exchange between those two countries."

In assessing the harm a nuclear, chemical or biological attack could inflict, Mr. Rumsfeld's analysts at the Pentagon's Defense Threat Reduction Agency employ sophisticated computer models.

The agency's Consequences Assessment Tool Set (CATS) is designed to capture the scope of the danger facing the two sides.

Last week, a reporter and a graphic artist from The Washington Times used a computer terminal of a CATS system to attempt to gauge what would happen if nuclear war were to break out in South Asia.

The system, comparable to the one used by the Pentagon, was made available by the Heritage Foundation's Center for Media and Public Policy, but the scenarios and analyses for this article were done by The Times.

Factoring in weather conditions, the size and type of the nuclear missile used, the population at the target site, and the delivery method employed, the software produces detailed tallies of the likely casualties at ground zero, as well as the projected damage from nuclear fallout.

For the United States, the CATS analysis can give a virtual block-by-block assessment of a nuclear, chemical or biological warfare attack, including strategic sites and public infrastructure likely to be destroyed or disabled.

Even with the less detailed simulation available for sites along the border between India and Pakistan, the program graphically illustrated the dangers any nuclear exchange would bring.

The first simulation attempted by The Times involved Pakistan exploding a nuclear device on its own territory to stop an advance by troops from India, which has a 2-to-1 advantage in conventional military forces.

It involved Pakistan exploding a 10-kiloton atomic bomb to stop an Indian advance on Muzaffarabad, the capital of the section of Kashmir controlled by Pakistan. (The Hiroshima bomb produced an estimated yield of 18 kilotons.)

Muzaffarabad is not a major urban center, but, based on 1998 population data, the CATS program forecast that the explosion would instantly result in more than 3,400 civilian deaths from the local population. The city was selected because Indian intelligence reports have charged that Muzaffarabad was the site of a training and supply base for Islamic militants.

That casualty figure does not include any of the thousands of Indian troops presumably targeted by the bomb, which would have an initial blast area of 1.2 square miles. For those in the blast area and in a mile-wide, 5.6-mile-long zone directly affected by the radiation fallout (assuming a modest wind speed of about 6 mph), the death rate would be 90 percent.

To a distance of 18 miles — conceivably back into Indian-controlled Kashmir, given certain wind and weather patterns — the radiation fallout poses at least some danger to an additional 29,000 residents of the region.

Sam Gardiner, a retired U.S. Air Force colonel and a visiting professor at the Air War College and the National Defense University, said many of the simulated Indo-Pakistan war games exercised begin with a similar scenario.

Even though setting off a nuclear explosion on one's own territory is counterintuitive, such a strategy could be used to paint Islamabad as merely defending its land and seize the "moral high ground" as India ponders a response, Mr. Gardiner said.

India has talked of a limited "bloody nose" campaign, with surgical strikes intended to shut bases in Pakistan, where it believes many of the Kashmiri insurgents receive training and equipment.

The scenarios tested by The Times were limited to vastly simplified, single-strike options.

But military war-gamers believe that any major conventional move between the two South Asian nuclear powers would be almost impossible to contain, Mr. Gardiner said in a telephone interview.
"Almost every scenario you look at escalates and escalates very quickly," Mr. Gardiner said.
In its simulation, The Times found that a simple tit-for-tat exchange targeting a city in each country would dramatically increase the carnage.
A single 10-kiloton Pakistani strike on Amritsar, a leading city in the Indian border province of Punjab, would produce a 1.68-mile blast zone and result in a projected 112,280 immediate deaths, with tens of thousands more exposed to high levels of lethal radiation.
A 12-kiloton Indian retaliatory strike against Lahore, Pakistan's second-largest city, with more than 5 million people and a critical link between the northern and southern parts of the country, would be even more devastating.
In the 1.75-mile blast area, more than 122,000 people would be killed. The most dangerous area of radiation fallout would be a zone roughly a mile wide and 6.3 miles long, where the mortality-risk rate is around 90 percent. Depending on the wind and weather pattern, millions more could be affected.
The bleakest scenarios foresee a full-scale nuclear exchange with both sides targeting the other's capital and other urban centers.
Just considering an Indian strike, the CATS program simulated the detonation of a 43-kiloton thermonuclear hydrogen bomb — the largest in New Delhi's arsenal, according to public comments by Indian military officials — on the Pakistan capital of Islamabad, with a population of just more than 900,000, less than 60 miles from the Indian border.
Although the fallout from such a bomb would be less widespread than with a smaller atomic bomb, a nuclear explosion of that size would create a 2-mile-wide blast ring, resulting in at least 107,000 deaths from the initial impact. Nearly 40,000 more people would feel the affects of the resulting radiation.
Such calculations are based on the partial details offered by Indian and Pakistani military officials and information that U.S. sources have uncovered. The uncertainty about the size and power of the two countries' nuclear arsenals adds another element of danger to the confrontation over Kashmir.
For example, estimates by the authoritative London-based Jane's Strategic Weapon Systems on Pakistan's nuclear arsenal put the number of warheads at 25 to 50. Both sides have left confusing hints about the kinds of nuclear bombs they have developed, and civilian control of nuclear arsenals — particularly in Pakistan — is in serious question.
Samar Mobarik Mand, head of Pakistan's nuclear-test program, said the five tests his country conducted in late May 1998 produced 40 to 45 kilotons, but Indian sources say the yield was in the 10- to 15-kiloton range. The largest Pakistani nuclear explosion confirmed by U.S. intelligence data is about 6 kilotons.
Pakistan's conventional military inferiority, uncertainty on both sides about relative nuclear strength and the wealth of close, strategic targets available to generals on both sides only make the situation "that much more volatile," Mr. Gardiner said.

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New York Times on the Web
May 28, 2002

Pakistan Test-Fires Another Missile

ISLAMABAD, Pakistan (AP) -- Pakistan test fired a short-range missile Tuesday that is capable of carrying conventional and nuclear warheads into Indian territory, the third test in a series, an army spokesman said.
The two nuclear-armed neighbors have been teetering dangerously on the brink of war since last December when the Indian Parliament was attacked. India blamed Islamic militants based in Pakistan. India carried out a series of missile tests in January.
A second assault earlier this month on an Indian army camp in Indian-ruled Kashmir that killed 34 people, most of them women and children, further inflamed tensions. Each country has deployed a million troops to Kashmir's frontier.
Pakistan announced last Friday that it would conduct missile tests drawing international criticism for a move that was seen as provocative. Pakistan has test fired three ballistic missiles since Saturday.
The Abdali short-range missile, like the previous two tested by Pakistan, can carry both a nuclear and conventional warhead.

``As part of a series of missile tests currently underway Pakistan today carried out a successful test fire of its short range indigenously developed surface to surface HatfII (Abdali)," missile, an army statement said.
Tuesday's missile test comes as British Foreign Secretary Jack Straw is in Pakistan to meet President Gen. Pervez Musharraf in an attempt to try to defuse tensions and press the nuclear adversaries, India and Pakistan, to the negotiating table.
Musharraf in a televised speech to the nation on Monday said Pakistan would not initiate war, but it would defend itself if ``war was thrust upon it."

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Philadelphia Inquirer
May 27, 2002

Putin Offers Inspectors In Iran

Russia's help with a nuclear plant worries the U.S. The proposal was made without Iran's involvement.

By Ron Hutcheson, Inquirer Washington Bureau
PARIS - President Bush said yesterday that Russian President Vladimir V. Putin would push Iran to allow international inspections of a Russian-built nuclear reactor, a promise aimed at easing U.S. fears that Iran will divert spent nuclear fuel to develop nuclear weapons.
A senior Bush administration official said on condition of anonymity that Putin's proposal is "a work in progress" made without Iran's involvement. Bush revealed Putin's suggestion at a Paris news conference with French President Jacques Chirac hours after ending a two-day visit to Russia.
Russia's nuclear aid to Iran is a major source of friction between the United States and Russia. U.S. officials are concerned that Russian assistance will provide Iranians with skills and expertise that could be used to develop nuclear weapons.
Putin has rebuffed Bush's requests that Russia stop helping Iran build a nuclear power plant in the city of Bushehr. Russia insists the reactor will be used only for energy production.
Bush, who raised the issue again in meetings with Putin over the weekend, said the Russian leader was convinced Iran will not divert nuclear material for military use and was open to international inspections.
"We're thinking about what he told us," Bush said. He did not specify who would conduct the inspections.
Bush considers Iran's Islamic regime part of an "axis of evil," along with Iraq and North Korea, that is developing weapons of mass destruction.
The government of Iran yesterday confirmed it had conducted a successful test flight of its Shahab-3 missile this month. With a range of 800 miles, the missile could reach Israel or U.S. troops based in the region.
Iran has signed the Nuclear Nonproliferation Treaty and has said it cooperates with the International Atomic Energy Agency, the U.N. organization that monitors civilian nuclear facilities to make sure they are not being used for weapons production.
U.S. officials, nevertheless, are concerned that Iran could evade the safeguards. They point out that Iraq was able to conceal an extensive nuclear weapons program that international inspectors did not uncover until after Iraq's defeat in the 1991 Persian Gulf war.
Bush, who is nearing the end of a six-day trip to Europe and Russia, showed some of the fatigue of international travel during his news conference at Elysee Palace, the official residence of French presidents.
"I'm jet-lagged," he acknowledged after losing track of a three-part question.
Today Bush will visit the beaches of Normandy for a Memorial Day ceremony honoring soldiers killed in the June 6, 1944, D-Day invasion during World War II.
Earlier yesterday, Bush ended his visit to Russia by visiting both a Russian Orthodox church and a Jewish synagogue in St. Petersburg.

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Washington Post
May 27, 2002
Pg. 19

Iran Confirms Test Of Ballistic Missile

TEHRAN -- Iran confirmed recent U.S. reports that it had conducted a successful test flight of a ballistic missile capable of reaching Israel.

U.S. officials said Thursday that Iran had carried out a successful test of the Shahab-3, which has a range of about 800 miles -- adequate to reach Israel and U.S. troops stationed in Saudi Arabia, Afghanistan, Pakistan and eastern Turkey.

Associated Press

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Moscow Times
May 28, 2002
Pg. 3

Nunn And Lugar Look To Safeguard Weapons

By Vladimir Isachenkov, The Associated Press

Worried about the apocalyptic prospect of international terrorists obtaining nuclear, chemical and biological weapons, U.S. and Russian officials and analysts met Monday to help draft possible new safeguards.

Former U.S. Senator Sam Nunn and Richard Lugar, a U.S. senator from Indiana -- who together launched the decade-old U.S. effort to help contain the threat of weapons of mass destruction in the former Soviet Union -- described the threat of "catastrophic terrorism" as possibly the gravest challenge to global security.

"We are in a new arms race," Nunn said at a conference organized by the Nuclear Threat Initiative foundation he co-chairs with CNN founder Ted Turner. "Terrorists and certain states are racing to acquire weapons of mass destruction, and we ought to be racing together to stop them."

The Nunn-Lugar program has helped Ukraine, Kazakhstan and Belarus become nuclear-free nations and provided assistance to Russia in costly efforts to dismantle its nuclear weapons, secure nuclear and chemical stockpiles and find civilian jobs for former weapons scientists.

Lugar noted that much remained undone: Only 40 percent of nuclear storage sites in Russia have received U.S. assistance to upgrade security, and only 20 percent had received complete security systems.

Despite the program's success, Lugar said it faced some opposition in the U.S. Congress because of Russia's failure to provide full information about its activities in the chemical and biological weapons area -- including Moscow's refusal to allow monitors into four biological laboratories run by the Defense Ministry.

"Continued [Russian] transfers of weapon technology to Iran are also disturbing and weaken support for an expanded and improved relationship," Lugar said.

The joint threat reduction program was launched in December 1991 and has been promoted through more than two dozen projects. About $8.5 billion has been earmarked for the program through 2003.

Lugar proposed that the program be extended to further upgrade security at nuclear storage facilities, help reduce the threats from tactical nuclear weapons, dismantle more nuclear-powered submarines and address other issues.

Alexei Arbatov, a deputy chief of the State Duma's defense affairs committee, warned that the international community may face new tough dilemmas such as dealing with national liberation movements linked with terrorists.

"If such a movement is spotted to have links with international terrorists, it must be destroyed by combined global efforts," he said.

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Pacific Stars and Stripes
May 23, 2002

Nerve-Agent Drill Proves Value Of Safety Gear

By Mark Oliva, Stars and Stripes

UTAPHAO, Thailand — Marine Cpl. Aaron Potratz fumbled with the wallet-sized card. His fingers didn't seem to work the way he wanted.

He squeezed the glass vial attached to the card; a wisp of smoke poured out. He raised it to the sky and squinted. He had a hard time seeing what he was doing.

But training is supposed to be difficult, especially when you're looking through a thick, rubber gas mask and wearing oversized black gloves.

That was exactly how Potratz found himself on a humid Thailand morning. The motor transport mechanic swapped his tool box for a rare chance to team with a helicopter crew. They were practicing NBC monitoring techniques (nuclear, biological, chemical) during Cobra Gold 2002.

"We don't know what it's like to wear this stuff all the time," Potratz said. "You can't work like normal. It's hard to write things down. It's tough to see through the mask."

Instead of wrenches, Potratz had chemical testing kits. The kits determine the outer edges of a chemically contaminated battlefield.

Potratz practiced the training almost every three months. But Cobra Gold offered the Marines a rare chance to practice on an expanded scale, using the helicopters to zip from one site to another.

"To me, this is very valuable," said Sgt. Michael Bean, nuclear, chemical and biological chief for Brigade Service Support Group 3. "This is the type of training no one wants to participate in until it becomes important. It's cumbersome. The suits are hot."

Bean said the masks' large bug-eyed lenses limit peripheral vision and the protective gloves are hard to manipulate. The suits aren't just bulky, but sweltering — especially in the Thai heat.

"If it's a hundred degrees out, it feels like it's twenty degrees hotter when you're suited up," he said.

Because of the difficulty and limitations that come with NBC training, he said, it can be an afterthought — until the use of agents becomes a real threat.

"During the Gulf War, NBC was your best friend," he said. "I think we're there now. There's a real threat of the use of this stuff, and we've got to know how to figure out where it is, get around it and stay alive."

Bean sent the Marines running out the back of the helicopters with a chemical detection kit. It had several vials they crushed to watch for a reaction. If a positive test result was encountered, the area would be marked and they'd continue to another site farther out, to learn where it's safe to send troops — and where it's deadly.

Bean said working in the gear through the obstacles is the most important part of the training. Marines need to be familiar with how the protective equipment works, he said, and more importantly, that it will work when it's needed.

"It's pretty hard," said Marine Cpl. Peter Dinklage. "I thought it would be tough to use the kits in full gear and it was."

"I never realized how hot and cumbersome it can get, especially wearing the gear here in Thailand," Potratz said. "It was tough, but now I know I can do it."

That's the whole point of the training, Bean said.

"We wanted them to do the job in full gear," Bean said. "I believe in the gear. I've been through live nerve agent with it. But it's not going to work unless the rest of the Marines believe in it."

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New York Times Magazine
May 26, 2002

Nuclear Nightmares

By Bill Keller

Not If But When

Everybody who spends much time thinking about nuclear terrorism can give you a scenario, something diabolical and, theoretically, doable. Michael A. Levi, a researcher at the Federation of American Scientists, imagines a homemade nuclear explosive device detonated inside a truck passing through one of the tunnels into Manhattan. The

blast would crater portions of the New York skyline, barbecue thousands of people instantly, condemn thousands more to a horrible death from radiation sickness and -- by virtue of being underground -- would vaporize many tons of concrete and dirt and river water into an enduring cloud of lethal fallout. Vladimir Shikalov, a Russian nuclear physicist who helped clean up after the 1986 Chernobyl accident, envisioned for me an attack involving highly radioactive cesium-137 loaded into some kind of homemade spraying device, and a target that sounded particularly unsettling when proposed across a Moscow kitchen table -- Disneyland. In this case, the human toll would be much less ghastly, but the panic that would result from contaminating the Magic Kingdom with a modest amount of cesium -- Shikalov held up his teacup to illustrate how much -- would probably shut the place down for good and constitute a staggering strike at Americans' sense of innocence. Shikalov, a nuclear enthusiast who thinks most people are ridiculously squeamish about radiation, added that personally he would still be happy to visit Disneyland after the terrorists struck, although he would pack his own food and drink and destroy his clothing afterward.

Another Russian, Dmitry Borisov, a former official of his country's atomic energy ministry, conjured a suicidal pilot. (Suicidal pilots, for obvious reasons, figure frequently in these fantasies.) In Borisov's scenario, the hijacker dive-bombs an Aeroflot jetliner into the Kurchatov Institute, an atomic research center in a gentrifying neighborhood of Moscow, which I had just visited the day before our conversation. The facility contains 26 nuclear reactors of various sizes and a huge accumulation of radioactive material. The effect would probably be measured more in property values than in body bags, but some people say the same about Chernobyl.

Maybe it is a way to tame a fearsome subject by Hollywoodizing it, or maybe it is a way to drive home the dreadful stakes in the arid-sounding business of nonproliferation, but in several weeks of talking to specialists here and in Russia about the threats an amateur evildoer might pose to the homeland, I found an unnerving abundance of such morbid creativity. I heard a physicist wonder whether a suicide bomber with a pacemaker would constitute an effective radiation weapon. (I'm a little ashamed to say I checked that one, and the answer is no, since pacemakers powered by plutonium have not been implanted for the past 20 years.) I have had people theorize about whether hijackers who took over a nuclear research laboratory could improvise an actual nuclear explosion on the spot. (Expert opinions differ, but it's very unlikely.) I've been instructed how to disperse plutonium into the ventilation system of an office building.

The realistic threats settle into two broad categories. The less likely but far more devastating is an actual nuclear explosion, a great hole blown in the heart of New York or Washington, followed by a toxic fog of radiation. This could be produced by a black-market nuclear warhead procured from an existing arsenal. Russia is the favorite hypothetical source, although Pakistan, which has a program built on shady middlemen and covert operations, should not be overlooked. Or the explosive could be a homemade device, lower in yield than a factory nuke but still creating great carnage.

The second category is a radiological attack, contaminating a public place with radioactive material by packing it with conventional explosives in a "dirty bomb" by dispersing it into the air or water or by sabotaging a nuclear facility. By comparison with the task of creating nuclear fission, some of these schemes would be almost childishly simple, although the consequences would be less horrifying: a panicky evacuation, a gradual increase in cancer rates, a staggeringly expensive cleanup, possibly the need to demolish whole neighborhoods. Al Qaeda has claimed to have access to dirty bombs, which is unverified but entirely plausible, given that the makings are easily gettable.

Nothing is really new about these perils. The means to inflict nuclear harm on America have been available to rogues for a long time. Serious studies of the threat of nuclear terror date back to the 1970's. American programs to keep Russian nuclear ingredients from falling into murderous hands -- one of the subjects high on the agenda in President Bush's meetings in Moscow this weekend -- were hatched soon after the Soviet Union disintegrated a decade ago. When terrorists get around to trying their first nuclear assault, as you can be sure they will, there will be plenty of people entitled to say I told you so.

All Sept. 11 did was turn a theoretical possibility into a felt danger. All it did was supply a credible cast of characters who hate us so much they would thrill to the prospect of actually doing it -- and, most important in rethinking the probabilities, would be happy to die in the effort. All it did was give our nightmares legs.

And of the many nightmares animated by the attacks, this is the one with pride of place in our experience and literature -- and, we know from his own lips, in Osama bin Laden's aspirations. In February, Tom Ridge, the Bush administration's homeland security chief, visited The Times for a conversation, and at the end someone asked, given all the things he had to worry about -- hijacked airliners, anthrax in the mail, smallpox, germs in crop-dusters -- what did he worry about most? He cupped his hands prayerfully and pressed his fingertips to his lips. "Nuclear," he said simply.

My assignment here was to stare at that fear and inventory the possibilities. How afraid should we be, and what of, exactly? I'll tell you at the outset, this was not one of those exercises in which weighing the fears and assigning them probabilities laid them to rest. I'm not evacuating Manhattan, but neither am I sleeping quite as soundly. As I was

writing this early one Saturday in April, the floor began to rumble and my desk lamp wobbled precariously. Although I grew up on the San Andreas Fault, the fact that New York was experiencing an earthquake was only my second thought.

The best reason for thinking it won't happen is that it hasn't happened yet, and that is terrible logic. The problem is not so much that we are not doing enough to prevent a terrorist from turning our atomic knowledge against us (although we are not). The problem is that there may be no such thing as "enough."

25,000 Warheads, and It Only Takes One

My few actual encounters with the Russian nuclear arsenal are all associated with Thomas Cochran. Cochran, a physicist with a Tennessee lilt and a sense of showmanship, is the director of nuclear issues for the Natural Resources Defense Council, which promotes environmental protection and arms control. In 1989, when glasnost was in flower, Cochran persuaded the Soviet Union to open some of its most secret nuclear venues to a roadshow of American scientists and congressmen and invited along a couple of reporters. We visited a Soviet missile cruiser bobbing in the Black Sea and drank vodka with physicists and engineers in the secret city where the Soviets first produced plutonium for weapons.

Not long ago Cochran took me cruising through the Russian nuclear stockpile again, this time digitally. The days of glasnost theatrics are past, and this is now the only way an outsider can get close to the places where Russians store and deploy their nuclear weapons. On his office computer in Washington, Cochran has installed a detailed United States military map of Russia and superimposed upon it high-resolution satellite photographs. We spent part of a morning mouse-clicking from missile-launch site to submarine base, zooming in like voyeurs and contemplating the possibility that a terrorist could figure out how to steal a nuclear warhead from one of these places.

"Here are the bunkers," Cochran said, enlarging an area the size of a football stadium holding a half-dozen elongated igloos. We were hovering over a site called Zhukovka, in western Russia. We were pleased to see it did not look ripe for a hijacking.

"You see the bunkers are fenced, and then the whole thing is fenced again," Cochran said. "Just outside you can see barracks and a rifle range for the guards. These would be troops of the 12th Main Directorate. Somebody's not going to walk off the street and get a Russian weapon out of this particular storage area."

In the popular culture, nuclear terror begins with the theft of a nuclear weapon. Why build one when so many are lying around for the taking? And stealing tends to make better drama than engineering. Thus the stolen nuke has been a staple in the literature at least since 1961, when Ian Fleming published "Thunderball," in which the malevolent Spectre (the Special Executive for Counterintelligence, Terrorism, Revenge and Extortion, a strictly mercenary and more technologically sophisticated precursor to al Qaeda) pilfers a pair of atom bombs from a crashed NATO aircraft. In the movie version of Tom Clancy's thriller "The Sum of All Fears," due in theaters this week, neo-Nazis get their hands on a mislaid Israeli nuke, and viewers will get to see Baltimore blasted to oblivion.

Eight countries are known to have nuclear weapons -- the United States, Russia, China, Great Britain, France, India, Pakistan and Israel. David Albright, a nuclear-weapons expert and president of the Institute for Science and International Security, points out that Pakistan's program in particular was built almost entirely through black markets and industrial espionage, aimed at circumventing Western export controls. Defeating the discipline of nuclear nonproliferation is ingrained in the culture. Disaffected individuals in Pakistan (which, remember, was intimate with the Taliban) would have no trouble finding the illicit channels or the rationalization for diverting materials, expertise -- even, conceivably, a warhead.

But the mall of horrors is Russia, because it currently maintains something like 15,000 of the world's (very roughly) 25,000 nuclear warheads, ranging in destructive power from about 500 kilotons, which could kill a million people, down to the one-kiloton land mines that would be enough to make much of Manhattan uninhabitable. Russia is a country with sloppy accounting, a disgruntled military, an audacious black market and indigenous terrorists.

There is anecdotal reason to worry. Gen. Igor Valynkin, commander of the 12th Main Directorate of the Russian Ministry of Defense, the Russian military sector in charge of all nuclear weapons outside the Navy, said recently that twice in the past year terrorist groups were caught casing Russian weapons-storage facilities. But it's hard to know how seriously to take this. When I made the rounds of nuclear experts in Russia earlier this year, many were skeptical of these near-miss anecdotes, saying the security forces tend to exaggerate such incidents to dramatize their own prowess (the culprits are always caught) and enhance their budgets. On the whole, Russian and American military experts sound not very alarmed about the vulnerability of Russia's nuclear warheads. They say Russia takes these weapons quite seriously, accounts for them rigorously and guards them carefully. There is no confirmed case of a warhead being lost. Strategic warheads, including the 4,000 or so that President Bush and President Vladimir Putin have agreed to retire from service, tend to be stored in hard-to-reach places, fenced and heavily guarded, and their whereabouts are not advertised. The people who guard them are better paid and more closely vetted than most Russian soldiers.

Eugene E. Habiger, the four-star general who was in charge of American strategic weapons until 1998 and then ran nuclear antiterror programs for the Energy Department, visited several Russian weapons facilities in 1996 and 1997. He may be the only American who has actually entered a Russian bunker and inspected a warhead in situ. Habiger said he found the overall level of security comparable to American sites, although the Russians depend more on people than on technology to protect their nukes.

The image of armed terrorist commandos storming a nuclear bunker is cinematic, but it's far more plausible to think of an inside job. No observer of the unraveling Russian military has much trouble imagining that a group of military officers, disenchanted by the humiliation of serving a spent superpower, embittered by the wretched conditions in which they spend much of their military lives or merely greedy, might find a way to divert a warhead to a terrorist for the right price. (The Chechen warlord Shamil Basayev, infamous for such ruthless exploits as taking an entire hospital hostage, once hinted that he had an opportunity to buy a nuclear warhead from the stockpile.) The anecdotal evidence of desperation in the military is plentiful and disquieting. Every year the Russian press provides stories like that of the 19-year-old sailor who went on a rampage aboard an Akula-class nuclear submarine, killing eight people and threatening to blow up the boat and its nuclear reactor; or the five soldiers at Russia's nuclear-weapons test site who killed a guard, took a hostage and tried to hijack an aircraft, or the officers who reportedly stole five assault helicopters, with their weapons pods, and tried to sell them to North Korea.

The Clinton administration found the danger of disgruntled nuclear caretakers worrisome enough that it considered building better housing for some officers in the nuclear rocket corps. Congress, noting that the United States does not build housing for its own officers, rejected the idea out of hand.

If a terrorist did get his hands on a nuclear warhead, he would still face the problem of setting it off. American warheads are rigged with multiple PAL's ("permissive action links") -- codes and self-disabling devices designed to frustrate an unauthorized person from triggering the explosion. General Habiger says that when he examined Russian strategic weapons he found the level of protection comparable to our own. "You'd have to literally break the weapon apart to get into the gut," he told me. "I would submit that a more likely scenario is that there'd be an attempt to get hold of a warhead and not explode the warhead but extract the plutonium or highly enriched uranium." In other words, it's easier to take the fuel and build an entire weapon from scratch than it is to make one of these things go off.

Then again, Habiger is not an expert in physics or weapons design. Then again, the Russians would seem to have no obvious reason for misleading him about something that important. Then again, how many times have computer hackers hacked their way into encrypted computers we were assured were impregnable? Then again, how many computer hackers does al Qaeda have? This subject drives you in circles.

The most troublesome gap in the generally reassuring assessment of Russian weapons security is those tactical nuclear warheads -- smaller, short-range weapons like torpedoes, depth charges, artillery shells, mines. Although their smaller size and greater number makes them ideal candidates for theft, they have gotten far less attention simply because, unlike all of our long-range weapons, they happen not to be the subject of any formal treaty. The first President Bush reached an informal understanding with President Gorbachev and then with President Yeltsin that both sides would gather and destroy thousands of tactical nukes. But the agreement included no inventories of the stockpiles, no outside monitoring, no verification of any kind. It was one of those trust-me deals that, in the hindsight of Sept. 11, amount to an enormous black hole in our security.

Did I say earlier there are about 15,000 Russian warheads? That number includes, alongside the scrupulously counted strategic warheads in bombers, missiles and submarines, the commonly used estimate of 8,000 tactical warheads. But that figure is at best an educated guess. Other educated guesses of the tactical nukes in Russia go as low as 4,000 and as high as 30,000. We just don't know. We don't even know if the Russians know, since they are famous for doing things off the books. "They'll tell you they've never lost a weapon," said Kenneth Luongo, director of a private antiproliferation group called the Russian-American Nuclear Security Advisory Council. "The fact is, they don't know. And when you're talking about warhead counting, you don't want to miss even one."

And where are they? Some are stored in reinforced concrete bunkers like the one at Zhukovka. Others are deployed. (When the submarine Kursk sank with its 118 crewmen in August 2000, the Americans' immediate fear was for its nuclear armaments. The standard load out for a submarine of that class includes a couple of nuclear torpedoes and possibly some nuclear depth charges.) Still others are supposed to be in the process of being dismantled under terms of various formal and informal arms-control agreements. Some are in transit. In short, we don't really know.

The other worrying thing about tactical nukes is that their anti-use devices are believed to be less sophisticated, because the weapons were designed to be employed in the battlefield. Some of the older systems are thought to have no permissive action links at all, so that setting one off would be about as complicated as hot-wiring a car.

Efforts to learn more about the state of tactical stockpiles have been frustrated by reluctance on both sides to let visitors in. Viktor Mikhailov, who ran the Russian Ministry of Atomic Energy until 1998 with a famous scorn for

America's nonproliferation concerns, still insists that the United States programs to protect Russian nuclear weapons and material mask a secret agenda of intelligence-gathering. Americans, in turn, sometimes balk at reciprocal access, on the grounds that we are the ones paying the bills for all these safety upgrades, said the former Senator Sam Nunn, co-author of the main American program for securing Russian nukes, called Nunn-Lugar.

"We have to decide if we want the Russians to be transparent -- I'd call it cradle-to-grave transparency with nuclear material and inventories and so forth," Nunn told me. "Then we have to open up more ourselves. This is a big psychological breakthrough we're talking about here, both for them and for us."

The Garage Bomb

One of the more interesting facts about the atom bomb dropped on Hiroshima is that it had never been tested. All of those spectral images of nuclear coronas brightening the desert of New Mexico -- those were to perfect the more complicated plutonium device that was dropped on Nagasaki. "Little Boy," the Hiroshima bomb, was a rudimentary gunlike device that shot one projectile of highly enriched uranium into another, creating a critical mass that exploded. The mechanics were so simple that few doubted it would work, so the first experiment was in the sky over Japan.

The closest thing to a consensus I heard among those who study nuclear terror was this: building a nuclear bomb is easier than you think, probably easier than stealing one. In the rejuvenated effort to prevent a terrorist from striking a nuclear blow, this is where most of the attention and money are focused.

A nuclear explosion of any kind "is not a sort of high-probability thing," said a White House official who follows the subject closely. "But getting your hands on enough fissile material to build an improvised nuclear device, to my mind, is the least improbable of them all, and particularly if that material is highly enriched uranium in metallic form. Then I'm really worried. That's the one."

To build a nuclear explosive you need material capable of explosive nuclear fission, you need expertise, you need some equipment, and you need a way to deliver it.

Delivering it to the target is, by most reckoning, the simplest part. People in the field generally scoff at the mythologized suitcase bomb; instead they talk of a "conex bomb," using the name of those shack-size steel containers that bring most cargo into the United States. Two thousand containers enter America every hour, on trucks and trains and especially on ships sailing into more than 300 American ports. Fewer than 2 percent are cracked open for inspection, and the great majority never pass through an X-ray machine. Containers delivered to upriver ports like St. Louis or Chicago pass many miles of potential targets before they even reach customs.

"How do you protect against that?" mused Habiger, the former chief of our nuclear arsenal. "You can't. That's scary. That's very, very scary. You set one of those off in Philadelphia, in New York City, San Francisco, Los Angeles, and you're going to kill tens of thousands of people, if not more." Habiger's view is "It's not a matter of if; it's a matter of when" -- which may explain why he now lives in San Antonio.

The Homeland Security office has installed a plan to refocus inspections, making sure the 2 percent of containers that get inspected are those without a clear, verified itinerary. Detectors will be put into place at ports and other checkpoints. This is good, but it hardly represents an ironclad defense. The detection devices are a long way from being reliable. (Inconveniently, the most feared bomb component, uranium, is one of the hardest radioactive substances to detect because it does not emit a lot of radiation prior to fission.) The best way to stop nuclear terror, therefore, is to keep the weapons out of terrorist hands in the first place.

The basic know-how of atom-bomb-building is half a century old, and adequate recipes have cropped up in physics term papers and high school science projects. The simplest design entails taking a lump of highly enriched uranium, about the size of a cantaloupe, and firing it down a big gun barrel into a second lump. Theodore Taylor, the nuclear physicist who designed both the smallest and the largest American nuclear-fission warheads before becoming a remorseful opponent of all things nuclear, told me he recently looked up "atomic bomb" in the World Book Encyclopedia in the upstate New York nursing home where he now lives, and he found enough basic information to get a careful reader started. "It's accessible all over the place," he said. "I don't mean just the basic principles. The sizes, specifications, things that work."

Most of the people who talk about the ease of assembling a nuclear weapon, of course, have never actually built one. The most authoritative assessment I found was a paper, "Can Terrorists Build Nuclear Weapons?" written in 1986 by five experienced nuke-makers from the Los Alamos weapons laboratory. I was relieved to learn that fabricating a nuclear weapon is not something a lone madman -- even a lone genius -- is likely to pull off in his hobby room. The paper explained that it would require a team with knowledge of "the physical, chemical and metallurgical properties of the various materials to be used, as well as characteristics affecting their fabrication; neutronic properties; radiation effects, both nuclear and biological; technology concerning high explosives and/or chemical propellants; some hydrodynamics; electrical circuitry; and others." Many of these skills are more difficult to acquire than, say, the ability to aim a jumbo jet.

The schemers would also need specialized equipment to form the uranium, which is usually in powdered form, into metal, to cast it and machine it to fit the device. That effort would entail months of preparation, increasing the risk of detection, and it would require elaborate safeguards to prevent a mishap that, as the paper dryly put it, would "bring the operation to a close."

Still, the experts concluded, the answer to the question posed in the title, while qualified, was "Yes, they can."

David Albright, who worked as a United Nations weapons inspector in Iraq, says Saddam Hussein's unsuccessful crash program to build a nuclear weapon in 1990 illustrates how a single bad decision can mean a huge setback. Iraq had extracted highly enriched uranium from research-reactor fuel and had, maybe, barely enough for a bomb. But the manager in charge of casting the metal was so afraid the stuff would spill or get contaminated that he decided to melt it in tiny batches. As a result, so much of the uranium was wasted that he ended up with too little for a bomb.

"You need good managers and organizational people to put the elements together," Albright said. "If you do a straight-line extrapolation, terrorists will all get nuclear weapons. But they make mistakes."

On the other hand, many experts underestimate the prospect of a do-it-yourself bomb because they are thinking too professionally. All of our experience with these weapons is that the people who make them (states, in other words) want them to be safe, reliable, predictable and efficient. Weapons for the American arsenal are designed to survive a trip around the globe in a missile, to be accident-proof, to produce a precisely specified blast.

But there are many corners you can cut if you are content with a big, ugly, inefficient device that would make a spectacular impression. If your bomb doesn't need to fit in a suitcase (and why should it?) or to endure the stress of a missile launch; if you don't care whether the explosive power realizes its full potential; if you're willing to accept some risk that the thing might go off at the wrong time or might not go off at all, then the job of building it is immeasurably simplified.

"As you get smarter, you realize you can get by with less," Albright said. "You can do it in facilities that look like barns, garages, with simple machine tools. You can do it with 10 to 15 people, not all Ph.D.'s, but some engineers, technicians. Our judgment is that a gun-type device is well within the capability of a terrorist organization."

All the technological challenges are greatly simplified if terrorists are in league with a country -- a place with an infrastructure. A state is much better suited to hire expertise (like dispirited scientists from decommissioned nuclear installations in the old Soviet Union) or to send its own scientists for M.I.T. degrees.

Thus Tom Cochran said his greatest fear is what you might call a bespoke nuke -- terrorists stealing a quantity of weapons-grade uranium and taking it to Iraq or Iran or Libya, letting the scientists and engineers there fashion it into an elementary weapon and then taking it away for a delivery that would have no return address.

That leaves one big obstacle to the terrorist nuke-maker: the fissile material itself.

To be reasonably sure of a nuclear explosion, allowing for some material being lost in the manufacturing process, you need roughly 50 kilograms -- 110 pounds -- of highly enriched uranium. (For a weapon, more than 90 percent of the material should consist of the very unstable uranium-235 isotope.) Tom Cochran, the master of visual aids, has 15 pounds of depleted uranium that he keeps in a Coke can; an eight-pack would be plenty to build a bomb.

The world is awash in the stuff. Frank von Hippel, a Princeton physicist and arms-control advocate, has calculated that between 1,300 and 2,100 metric tons of weapons-grade uranium exists -- at the low end, enough for 26,000 rough-hewed bombs. The largest stockpile is in Russia, which Senator Joseph Biden calls "the candy store of candy stores."

Until a decade ago, Russian officials say, no one worried much about the safety of this material. Viktor Mikhailov, who ran the atomic energy ministry and now presides over an affiliated research institute, concedes there were glaring lapses.

"The safety of nuclear materials was always on our minds, but the focus was on intruders," he said. "The system had never taken account of the possibility that these carefully screened people in the nuclear sphere could themselves represent a danger. The system was not designed to prevent a danger from within."

Then came the collapse of the Soviet Union and, in the early 90's, a few frightening cases of nuclear materials popping up on the black market.

If you add up all the reported attempts to sell highly enriched uranium or plutonium, even including those that have the scent of security-agency hype and those where the material was of uncertain quality, the total amount of material still falls short of what a bomb-maker would need to construct a single explosive.

But Yuri G. Volodin, the chief of safeguards at Gosatomnadzor, the Russian nuclear regulatory agency, told me his inspectors still discover one or two instances of attempted theft a year, along with dozens of violations of the regulations for storing and securing nuclear material. And as he readily concedes: "These are the detected cases. We can't talk about the cases we don't know." Alexander Pikayev, a former aide to the Defense Committee of the Russian Duma, said: "The vast majority of installations now have fences. But you know Russians. If you walk along the perimeter, you can see a hole in the fence, because the employees want to come and go freely."

The bulk of American investment in nuclear safety goes to lock the stuff up at the source. That is clearly the right priority. Other programs are devoted to blending down the highly enriched uranium to a diluted product unsuitable for weapons but good as reactor fuel. The Nuclear Threat Initiative, financed by Ted Turner and led by Nunn, is studying ways to double the rate of this diluting process.

Still, after 10 years of American subsidies, only 41 percent of Russia's weapon-usable material has been secured, according to the United States Department of Energy. Russian officials said they can't even be sure how much exists, in part because the managers of nuclear facilities, like everyone else in the Soviet industrial complex, learned to cook their books. So the barn door is still pretty seriously ajar. We don't know whether any horses have gotten out.

And it is not the only barn. William C. Potter, director of the Center for Nonproliferation Studies at the Monterey Institute of International Studies and an expert in nuclear security in the former Soviet states, said the American focus on Russia has neglected other locations that could be tempting targets for a terrorist seeking bomb-making material. There is, for example, a bomb's worth of weapons-grade uranium at a site in Belarus, a country with an erratic president and an anti-American orientation. There is enough weapons-grade uranium for a bomb or two in Kharkiv, in Ukraine. Outside of Belgrade, in a research reactor at Vinca, sits sufficient material for a bomb -- and there it sat while NATO was bombarding the area.

"We need to avoid the notion that because the most material is in Russia, that's where we should direct all of our effort," Potter said. "It's like assuming the bank robber will target Fort Knox because that's where the most gold is. The bank robber goes where the gold is most accessible."

Weapons of Mass Disruption

The first and, so far, only consummated act of nuclear terrorism took place in Moscow in 1995, and it was scarcely memorable. Chechen rebels obtained a canister of cesium, possibly from a hospital they had commandeered a few months before. They hid it in a Moscow park famed for its weekend flea market and called the press. No one was hurt. Authorities treated the incident discreetly, and a surge of panic quickly passed.

The story came up in virtually every conversation I had in Russia about nuclear terror, usually to illustrate that even without splitting atoms and making mushroom clouds a terrorist could use radioactivity -- and the fear of it -- as a potent weapon.

The idea that you could make a fantastic weapon out of radioactive material without actually producing a nuclear bang has been around since the infancy of nuclear weaponry. During World War II, American scientists in the Manhattan Project worried that the Germans would rain radioactive material on our troops storming the beaches on D-Day. Robert S. Norris, the biographer of the Manhattan Project director, Gen. Leslie R. Groves, told me that the United States took this threat seriously enough to outfit some of the D-Day soldiers with Geiger counters.

No country today includes radiological weapons in its armories. But radiation's limitations as a military tool -- its tendency to drift afield with unplanned consequences, its long-term rather than short-term lethality -- would not necessarily count against it in the mind of a terrorist. If your aim is to instill fear, radiation is anthrax-plus. And unlike the fabrication of a nuclear explosive, this is terror within the means of a soloist.

That is why, if you polled the universe of people paid to worry about weapons of mass destruction (W.M.D., in the jargon), you would find a general agreement that this is probably the first thing we'll see. "If there is a W.M.D. attack in the next year, it's likely to be a radiological attack," said Rose Gottemoeller, who handled Russian nuclear safety in the Clinton administration and now follows the subject for the Carnegie Endowment. The radioactive heart of a dirty bomb could be spent fuel from a nuclear reactor or isotopes separated out in the process of refining nuclear fuel. These materials are many times more abundant and much, much less protected than the high-grade stuff suitable for bombs. Since Sept.11, Russian officials have begun lobbying hard to expand the program of American aid to include protection of these lower-grade materials, and the Bush administration has earmarked a few million dollars to study the problem. But the fact is that radioactive material suitable for terrorist attacks is so widely available that there is little hope of controlling it all.

The guts of a dirty bomb could be cobalt-60, which is readily available in hospitals for use in radiation therapy and in food processing to kill the bacteria in fruits and vegetables. It could be cesium-137, commonly used in medical gauges and radiotherapy machines. It could be americium, an isotope that behaves a lot like plutonium and is used in smoke detectors and in oil prospecting. It could be plutonium, which exists in many research laboratories in America. If you trust the security of those American labs, pause and reflect that the investigation into the great anthrax scare seems to be focused on disaffected American scientists.

Back in 1974, Theodore Taylor and Mason Willrich, in a book on the dangers of nuclear theft, examined things a terrorist might do if he got his hands on 100 grams of plutonium -- a thimble-size amount. They calculated that a killer who dissolved it, made an aerosol and introduced it into the ventilation system of an office building could

deliver a lethal dose to the entire floor area of a large skyscraper. But plutonium dispersed outdoors in the open air, they estimated, would be far less effective. It would blow away in a gentle wind.

The Federation of American Scientists recently mapped out for a Congressional hearing the consequences of various homemade dirty bombs detonated in New York or Washington. For example, a bomb made with a single footlong pencil of cobalt from a food irradiation plant and just 10 pounds of TNT and detonated at Union Square in a light wind would send a plume of radiation drifting across three states. Much of Manhattan would be as contaminated as the permanently closed area around the Chernobyl nuclear plant. Anyone living in Manhattan would have at least a 1-in-100 chance of dying from cancer caused by the radiation. An area reaching deep into the Hudson Valley would, under current Environmental Protection Agency standards, have to be decontaminated or destroyed.

Frank von Hippel, the Princeton physicist, has reviewed the data, and he pointed out that this is a bit less alarming than it sounds. "Your probability of dying of cancer in your lifetime is already about 20 percent," he said. "This would increase it to 20.1 percent. Would you abandon a city for that? I doubt it."

Indeed, some large portion of our fear of radiation is irrational. And yet the fact that it's all in your mind is little consolation if it's also in the minds of a large, panicky population. If the actual effect of a radiation bomb is that people clog the bridges out of town, swarm the hospitals and refuse to return to live and work in a contaminated place, then the impact is a good deal more than psychological. To this day, there is bitter debate about the actual health toll from the Chernobyl nuclear accident. There are researchers who claim that the people who evacuated are actually in worse health over all from the trauma of relocation, than those who stayed put and marinated in the residual radiation. But the fact is, large swaths of developed land around the Chernobyl site still lie abandoned, much of it bulldozed down to the subsoil. The Hart Senate Office Building was closed for three months by what was, in hindsight, our society's inclination to err on the side of alarm.

There are measures the government can take to diminish the dangers of a radiological weapon, and many of them are getting more serious consideration. The Bush administration has taken a lively new interest in radiation-detection devices that might catch dirty-bomb materials in transit. A White House official told me the administration's judgment is that protecting the raw materials of radiological terror is worth doing, but not at the expense of more catastrophic threats.

"It's all over," he said. "It's not a winning proposition to say you can just lock all that up. And then, a bomb is pretty darn easy to make. You don't have to be a rocket scientist to figure about fertilizer and diesel fuel." A big fertilizer bomb of the type Timothy McVeigh used to kill 168 people in Oklahoma City, spiced with a dose of cobalt or cesium, would not tax the skills of a determined terrorist.

"It's likely to happen, I think, in our lifetime," the official said. "And it'll be like Oklahoma City plus the Hart Office Building. Which is real bad, but it ain't the World Trade Center."

The Peril of Power Plants

Every eight years or so the security guards at each of the country's 103 nuclear power stations and at national weapons labs can expect to be attacked by federal agents armed with laser-tag rifles. These mock terror exercises are played according to elaborate rules, called the "design basis threat," that in the view of skeptics favor the defense. The attack teams can include no more than three commandos. The largest vehicle they are permitted is an S.U.V. They are allowed to have an accomplice inside the plant, but only one. They are not allowed to improvise. (The mock assailants at one Department of Energy lab were ruled out of order because they commandeered a wheelbarrow to cart off a load of dummy plutonium.) The mock attacks are actually announced in advance. Even playing by these rules, the attackers manage with some regularity to penetrate to the heart of a nuclear plant and damage the core. Representative Edward J. Markey, a Massachusetts Democrat and something of a scourge of the nuclear power industry, has recently identified a number of shortcomings in the safeguards, including, apparently, lax standards for clearing workers hired at power plants.

One of the most glaring lapses, which nuclear regulators concede and have promised to fix, is that the design basis threat does not contemplate the possibility of a hijacker commandeering an airplane and diving it into a reactor. In fact, the protections currently in place don't consider the possibility that the terrorist might be willing, even eager, to die in the act. The government assumes the culprits would be caught while trying to get away.

A nuclear power plant is essentially a great inferno of decaying radioactive material, kept under control by coolant. Turning this device into a terrorist weapon would require cutting off the coolant so the atomic furnace rages out of control and, equally important, getting the radioactive matter to disperse by an explosion or fire. (At Three Mile Island, the coolant was cut off and the reactor core melted down, generating vast quantities of radiation. But the thick walls of the containment building kept the contaminant from being released, so no one died.)

One way to accomplish both goals might be to fly a large jetliner into the fortified building that holds the reactor. Some experts say a jet engine would stand a good chance of bursting the containment vessel, and the sheer force of the crash might disable the cooling system -- rupturing the pipes and cutting off electricity that pumps the water

through the core. Before nearby residents had begun to evacuate, you could have a meltdown that would spew a volcano of radioactive isotopes into the air, causing fatal radiation sickness for those exposed to high doses and raising lifetime cancer rates for miles around.

This sort of attack is not as easy, by a long shot, as hitting the World Trade Center. The reactor is a small, low-lying target, often nestled near the conspicuous cooling towers, which could be destroyed without great harm. The reactor is encased in reinforced concrete several feet thick, probably enough, the industry contends, to withstand a crash. The pilot would have to be quite a marksman, and somewhat lucky. A high wind would disperse the fumes before they did great damage.

Invading a plant to produce a meltdown, even given the record of those mock attacks, would be more complicated, because law enforcement from many miles around would be on the place quickly, and because breaching the containment vessel is harder from within. Either invaders or a kamikaze attacker could instead target the more poorly protected cooling ponds, where used plutonium sits, encased in great rods of zirconium alloy. This kind of sabotage would take longer to generate radiation and would be far less lethal.

Discussion of this kind of potential radiological terrorism is colored by passionate disagreements over nuclear power itself. Thus the nuclear industry and its rather tame regulators sometimes sound dismissive about the vulnerability of the plants (although less so since Sept.11), while those who regard nuclear power as inherently evil tend to overstate the risks. It is hard to sort fact from fear-mongering.

Nuclear regulators and the industry grumpily concede that Sept. 11 requires a new estimate of their defenses, and under prodding from Congress they are redrafting the so-called design basis threat, the one plants are required to defend against. A few members of Congress have proposed installing ground-to-air missiles at nuclear plants, which most experts think is a recipe for a disastrous mishap.

"Probably the only way to protect against someone flying an aircraft into a nuclear power plant," said Steve Fetter of the University of Maryland, "is to keep hijackers out of cockpits."

Being Afraid

For those who were absorbed by the subject of nuclear terror before it became fashionable, the months since the terror attacks have been, paradoxically, a time of vindication. President Bush, whose first budget cut $100 million from the programs to protect Russian weapons and material (never a popular program among conservative Republicans), has become a convert. The administration has made nuclear terror a priority, and it is getting plenty of goading to keep it one. You can argue with their priorities and their budgets, but it's hard to accuse anyone of indifference. And resistance -- from scientists who don't want security measures to impede their access to nuclear research materials, from generals and counterintelligence officials uneasy about having their bunkers inspected, from nuclear regulators who worry about the cost of nuclear power, from conservatives who don't want to subsidize the Russians to do much of anything -- has become harder to sustain. Intelligence gathering on nuclear material has been abysmal, but it is now being upgraded; it is a hot topic at meetings between American and foreign intelligence services, and we can expect more numerous and more sophisticated sting operations aimed at disrupting the black market for nuclear materials. Putin, too, has taken notice. Just before leaving to meet Bush in Crawford, Tex., in November, he summoned the head of the atomic energy ministry to the Kremlin on a Saturday to discuss nuclear security. The subject is now on the regular agenda when Bush and Putin talk.

These efforts can reduce the danger but they cannot neutralize the fear, particularly after we have been so vividly reminded of the hostility some of the world feels for us, and of our vulnerability.

Fear is personal. My own -- in part, because it's the one I grew up with, the one that made me shiver through the Cuban missile crisis and "On the Beach" -- is the horrible magic of nuclear fission. A dirty bomb or an assault on a nuclear power station, ghastly as that would be, feels to me within the range of what we have survived. As the White House official I spoke with said, it's basically Oklahoma City plus the Hart Office Building. A nuclear explosion is in a different realm of fears and would test the country in ways we can scarcely imagine.

As I neared the end of this assignment, I asked Matthew McKinzie, a staff scientist at the Natural Resources Defense Council, to run a computer model of a one-kiloton nuclear explosion in Times Square, half a block from my office, on a nice spring workday. By the standards of serious nuclear weaponry, one kiloton is a junk bomb, hardly worthy of respect, a fifteenth the power of the bomb over Hiroshima.

A couple of days later he e-mailed me the results, which I combined with estimates of office workers and tourist traffic in the area. The blast and searing heat would gut buildings for a block in every direction, incinerating pedestrians and crushing people at their desks. Let's say 20,000 dead in a matter of seconds. Beyond this, to a distance of more than a quarter mile, anyone directly exposed to the fireball would die a gruesome death from radiation sickness within a day -- anyone, that is, who survived the third-degree burns. This larger circle would be populated by about a quarter million people on a workday. Half a mile from the explosion, up at Rockefeller Center and down at Macy's, unshielded onlookers would expect a slower death from radiation. A mushroom cloud of

irradiated debris would blossom more than two miles into the air, and then, 40 minutes later, highly lethal fallout would begin drifting back to earth, showering injured survivors and dooming rescue workers. The poison would ride for 5 or 10 miles on the prevailing winds, deep into the Bronx or Queens or New Jersey.

A terrorist who pulls off even such a small-bore nuclear explosion will take us to a whole different territory of dread from Sept. 11. It is the event that preoccupies those who think about this for a living, a category I seem to have joined.

"I think they're going to try," said the physicist David Albright. "I'm an optimist at heart. I think we can catch them in time. If one goes off, I think we will survive. But we won't be the same. It will affect us in a fundamental way. And not for the better."

Bill Keller is a Times columnist and a senior writer for the magazine.

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Bush And Putin Sign Pact For Steep Nuclear Arms Cuts

By David E. Sanger and Michael Wines

MOSCOW, May 24 — In a day devoted to celebrating what President Bush called "an entirely new relationship" with Russia, he and President Vladimir V. Putin signed a treaty today to commit their nations to the most dramatic nuclear arms cuts in decades. But both men tried to smooth over a disagreement about continued Russian exports of nuclear technology to Iran.

The three-page Treaty of Moscow was signed early this afternoon inside the Kremlin, in a 300-year-old throne room built by the Russian czars and used today to end what Mr. Bush called "a long chapter of confrontation." While that confrontation has steadily eased since the Soviet empire began to unravel in 1989, the accord today cleared the way for what Mr. Bush and Mr. Putin hailed as a new era of cooperation focused on counterterrorism, trade, Russia's new relationship with NATO and halting the spread of nuclear arms,

The treaty commits both countries to reducing their arsenals, now about 6,000 warheads each, to no more than 2,200 at the end of 2012. But then the treaty expires, meaning that either nation would be free to rearm starting the next year unless the agreement was extended or amended.

Critics of the accord contend that it will leave Russia with a large supply of deactivated warheads that could fall into the hands of terrorists if they are not sufficiently guarded, and that it frees the United States to stockpile warheads that can easily be reattached to missiles.

Mr. Bush's aides counter that none of the past arms control deals have regulated the complicated process of actually dismantling warheads.

The treaty was signed almost exactly 30 years after President Nixon and the Soviet leader Leonid Brezhnev signed the Antiballistic Missile Treaty and the first of the strategic arms limitations treaties here. Mr. Bush said he had come to end that era, and his national security adviser, Condoleezza Rice, said the accord should not be considered the first Russian-American treaty of the 21st century but "the last treaty of the last century."

Nonetheless, either country can withdraw from the treaty with only three months' notice, and when asked today why it was necessary to keep 2,000 nuclear weapons loaded atop missiles, Mr. Bush made it clear that the future was as unpredictable as the Soviet Union's end a decade ago.

"Friends really don't need weapons pointed at each other, we both understand that," Mr. Bush said. "But it's a realistic assessment of where we've been. Who knows what will happen 10 years from now? Who knows what future presidents will say and how they'll react?"

It was just for that reason that Mr. Putin insisted on a formal treaty, rather than what Mr. Bush first proposed, an informal agreement between two presidents. But as Secretary of State Colin L. Powell noted recently, the Senate also demanded a treaty, so that it would be able to review the nuclear arms cuts. Both the Senate and Russia's Parliament are expected to ratify the treaty, but Mr. Bush made no predictions today how long that would take.

He also defended the administration's decision to store many of its warheads as a "quality control" measure. "If you have a nuclear arsenal, you want to make sure that they work," he said.

Mr. Putin added: "Out there, there are other states who possess nuclear arms. There are countries that want to acquire weapons of mass destruction." Neither president mentioned China, but by most estimates it has about two dozen intercontinental ballistic missiles.

While the signing of the treaty was the centerpiece of the day, Mr. Putin's mind was clearly on his country's economic state, only four years after the collapse of the ruble, which sent many foreign investors fleeing. Economic growth is back — and he talked during a news conference about Russia's need to gain membership in the World Trade Organization, and for the Congress to revoke cold war-era restrictions on economic relations.

The two leaders' efforts to cement the unpredicted partnership they have developed over the last year hit one sour note: a clear difference of opinion about Russia's continued sale of its nuclear expertise to Iran, one of the countries Mr. Bush has identified as a member of the "axis of evil."

Mr. Bush told reporters, "We spoke very frankly and honestly" about the need to make sure "a nontransparent government run by radical clerics doesn't get their hands on weapons of mass destruction."

But Mr. Putin immediately shot back that cooperation between Iran and Russia was not "of a character that would undermine the process on nonproliferation." He said Russia's aid was entirely focused on nuclear energy projects — projects that the Bush administration says are unnecessary in an oil-rich nation.

Mr. Putin then threw the issue back at Mr. Bush, noting that "we have some questions concerning development of missile programs in Taiwan," which receives American technological aid, and said that "the U.S. has taken a commitment upon themselves to build similar nuclear power plants in North Korea." This was a reference to a 1994 accord with North Korea, in which the United States committed itself to helping the country build two "proliferation-resistant" nuclear power plants, but only after the North allows further international inspection of its suspected nuclear sites, something Iran has resisted.

This evening a senior administration official said that Mr. Putin had privately assured Mr. Bush that "they are not now, nor would they, do anything to contribute to the Iranian military nuclear program or ballistic missile program." But in that meeting, he also defended Russia's dealings with Iran.

In a flurry of side agreements, Mr. Bush and Mr. Putin inaugurated a "joint experts group" to develop a plan within six months to destroy or convert for commercial use Russia's large stockpile of highly enriched uranium and plutonium. Russia is estimated to have 1,000 tons of such material, and there is considerable debate over how well protected it is.

The United States intelligence agencies have warned for years of the danger that the material could fall into the hands of terrorists, or that underpaid Russian nuclear scientists could divert some of the material to a rogue state or a terrorist group. In news conferences and interviews, Mr. Bush and his aides have not seemed extremely concerned by the prospect, insisting that they have received assurances about the country's nuclear security.

But in a recent op-ed article in The Washington Post, former Defense Secretary William J. Perry, former Senator Sam Nunn and the former commander of the American strategic nuclear forces, Gen. Eugene Habinger, charged that the administration had no "coherent strategy" to secure the Russian nuclear supplies and had failed to insist on an accurate accounting of existing weapons.

Other experts, like Graham Allison of Harvard, have contended that today's treaty addresses the lesser threat: nuclear warheads controlled by the two governments, rather than nuclear material that may be on the loose.

The dispute over Iran aside, the summit meeting seemed as warm, if more formal, than the one last November at the Bush ranch in Texas.

Throughout his day, Mr. Bush struck a relaxed, even casual demeanor amid the blindingly gilded splendor of the Kremlin. Early in the day, as cameras began taping the two presidents' remarks after two hours of talks, Mr. Bush was captured slyly removing a candy or gum from his mouth.

Later, as he finished signing the nuclear arms treaty and a strategic relationship agreement in St. Catherine's Hall, the president directed an impish wink at Ms. Rice, who is an expert on the Russian military.

It was Ms. Rice who, three years ago, wrote an article in Foreign Affairs expressing deep suspicion of Mr. Putin and his motives. Tonight she helped celebrate the treaty at a dinner at his house.

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Miami Herald
May 24, 2002

Doubt Cast On Cuban Bioterror

U.S. commander of Latin forces questions weapons accusation

By Carol Rosenberg

The commander of U.S. military forces for Latin America and the Caribbean said Thursday that he has seen no evidence that Cuba is producing biological weapons from its biomedical research program.

"The Cubans do have a very active R&D [research-and-development] program," said Army Maj. Gen. Gary Speer. ``They pride themselves on their biomedical advances and it kind of fits into the purpose for which that is used."

But he said he first learned from news reports about an allegation by a senior U.S. diplomat responsible for arms proliferation and terror issues that linked the research-and-development project to biological weapons. So he rang up the Intelligence Directorate at the Doral-based Southern Command to check.

'I called my J-2, the intelligence officer, and said, `What's the deal?' "

Speer also said he didn't know why John R. Bolton, Under Secretary of State for Arms Control and International Security, chose to raise the issue in a speech at the Heritage Foundation on May 6 -- days before former President Jimmy Carter's five-day trip to Havana. The general said he was ``surprised he raised the subject."

What Bolton said was this: ``The United States believes that Cuba has at least a limited offensive biological warfare research and development effort."

Cuban Denial

Fidel Castro and government spokesmen in Cuba flatly deny the allegation.

Speer said, based on his understanding of the issue, "it's kind of all the same science," which would be used in both medical research and weapons processing.

``I think what Mr. Bolton said in his statement, it kind of got reported as an accusation that the Cubans were . . . that we had evidence that they were actually producing bio-weapons. And I'm not sure that's the case."

The question of Cuba's current bioterror capacity touched off a firestorm in Washington and Cuba-watching circles. Carter said during his trip to Cuba that U.S. officials had told him before his visit there was no evidence linking Cuba to the export of biological weaponry.

And Secretary of State Colin Powell likewise sought to clarify Bolton's comments, saying Cuba "has the capacity and capability to conduct such research," rather than actually possessing offensive bioterror weapons.

Piracy

Speer made his remarks in a wide-ranging question-and-answer session with Herald reporters and editors that covered several strategic issues across the region. He also said:

• U.S. intelligence believes that profits from illegal CD sales and long-distance telephone piracy in South America are supporting Middle East groups linked to international terror, notably the Hamas, Hezbollah and Gamaa Islamiya, or Islamic Group, whose followers have been tied to Osama bin Laden's al Qaeda network. Such fraud is big business in the tri-border area of Argentina, Brazil and Paraguay where smuggling and corruption are endemic, he said.

No one can quantify how much money is diverted to the Middle Eastern groups but the U.S. is aware of a pattern that goes to so-called charitable organizations which, Speer said, have a terror component.

Colombia

• Colombia's FARC insurgent movement has increased some activities and received a measure of support across the border in neighboring Venezuela since the election of President Hugo Chávez. However, he said, there has been no evidence that the Chávez government actively supports the insurgents.

• He expects the Southern Command to continue to be responsible for military operations at the U.S. Naval base at Guantánamo Bay even after the Pentagon creates a Northern Command, whose territory includes Cuba. The line, he said, is more of a technical area of responsibility for a Pentagon component being created to protect the U.S. borders and territory from terror attack. But, he said, if there were future military-to-military contacts with the government of Cuba, he predicted that Southcom would have oversight.

Southern Command is principally responsible for U.S. military activities -- training courses, drug interdiction missions and other support -- under President Andrés Pastrana's Plan Colombia.

And Speer said the line is increasingly blurred between the FARC's insurgent activity and the drug smuggling operations that the U.S. military is trying to disrupt.

Under tough guidelines for what the U.S. military may do in Colombia, Congress has declared that funds and operations can only be aimed at cocaine and other drug operations and that U.S. forces must not meddle in the civil war.

But, Speer said, ``I'm to the point where I can't tell the difference between the FARC as a drug trafficker, the FARC as a terrorist and the FARC as an insurgent."
Yet the fine line means that U.S. military trainers can only work with a specific anti-drug unit of the Colombian military while leaving all other units on their own to grapple with the larger issue of providing security in the cities and countryside.
Speer, a two-star general, has for 10 months been in charge of all U.S. military operations in the region. President Bush has chosen Army Lt. Gen. James T. Hill, now commander of an Ft. Lewis in Washington state, to receive a fourth star and become the new Southcom chief, replacing Marine Gen. Peter Pace who is now vice chairman of the Joint Chiefs of Staff.

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Army Times
June 3, 2002
Pg. 8

Anthrax Vaccine Returns

Pentagon making final plans to resurrect controversial program

By Deborah Funk, Times staff writer
The Pentagon is finalizing plans for resuming its anthrax vaccination program, which could resemble the original start-up phase of the program now on hold.
No final decision has been reached, but indications are that the revamped plan likely will not be announced as a total force immunization — although that possibility could be revisited later. Since the Pentagon has not finished work on the new plan, no date is scheduled for its announcement, much less for when shots might resume.
Under the evolving proposal, the vaccine would be given to special-mission units, researchers and any troops going to areas considered at the highest risk of anthrax attack.
In late May, it was unclear whether the new proposal would include the same 10 high-threat areas under the program that launched in 1998 or whether other areas would be added, said a defense official who spoke on condition of anonymity.
In 1998, then-Defense Secretary William Cohen launched an ambitious plan to vaccinate all 2.4 million active and reserve service members, phasing in the program over several years.
But defense officials were forced to curtail the vaccinations after the vaccine's sole manufacturer, BioPort Corp. of Lansing, Mich., had trouble getting Food and Drug Administration approval for its renovated plant. In January, BioPort finally won FDA approval to make and distribute the anthrax vaccine.

Hurdles to clear

Defense officials have a number of issues to address, including how to deal with troops who started receiving the series of shots but were forced to stop as vaccine supplies dwindled.
Anthrax vaccine is given in six shots over 18 months, followed by annual boosters. Officials repeatedly have said they deviated from the six-shot course required under the license only because of a lack of supply and planned to resume the shots for service members who had started the series, when sufficient supplies were available.
Government officials want to ensure BioPort can sustain production to meet the nation's needs for the military and homeland security. They may consider in about a year whether to extend the program to the total military force, the defense official said.

Vaccine opponents speak out

Risking dismissal or courts-martial, several hundred service members refused the order to take the shots and an unknown number of others quietly separated. The opponents questioned whether it was causing chronic illnesses among veterans and whether the Pentagon was using the vaccine in a way that was illegal under its license.
Defense health officials, FDA officials and, most recently, the Institute of Medicine have said the vaccine is safe and effective. And the Pentagon and two FDA officials say the vaccine is not being used experimentally.
Nevertheless, the anthrax vaccine is the subject of lawsuits. In one case, 18 service members and some of their family members are suing BioPort, claiming the vaccine caused either long-term illness or death.
In a separate case, an Air Force doctor and a former Air Force pilot are suing the federal government, claiming the way the military is using the vaccine is illegal.

In a May 20 letter to Defense Secretary Donald Rumsfeld, three groups opposed to involuntary vaccinations urged him not to reinstate the mandatory vaccination program.
If the vaccine is to be used, the groups said, it should be given on a voluntary basis under certain conditions, including making service members aware of all the adverse events reported after taking the vaccine and ensuring that they know the vaccine does not contain an illegal ingredient to boost immune response.
The letter is signed by representatives of the Anthrax Vaccine Network, the National Gulf War Resource Center and the National Organization of Americans Battling Unnecessary Servicemember Endangerment.
Concern during the Gulf War that Iraq would use anthrax as a biological weapon prompted U.S. officials to vaccinate about 150,000 troops. But those shots weren't recorded accurately, often because the military feared the enemy would glean some intelligence from the knowledge that troops were being vaccinated.
Some veterans and researchers suspect the vaccine may be responsible for some of the unexplained ailments reported by many Gulf War veterans.

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Wall Street Journal
May 30, 2002
Pg. 1

New Alarms Heat Up Debate On Publicizing Chemical Risks

By Ann Davis, Staff Reporter of The Wall Street Journal

SOUTH KEARNY, N.J. -- In the next two months, Greenpeace plans to post on the Internet a color map showing how a terrorist attack on the Kuehne Chemical Co. bleach plant here could unleash a lethal cloud of chlorine vapor over New York City.
Not long ago the environmental group's move would have marked just another round in almost two decades of dispute over how much the public should know about companies using hazardous materials. Then Sept. 11 transformed the debate.
The chemical industry in recent months has successfully lobbied the government to limit access to previously public data about chemical accidents, arguing that it would give terrorists a blueprint to launch an attack. Federal agencies have also stripped government Web sites and reading rooms of materials that showed the location of drinking-water sources, hazardous-materials pipelines and chemical plants that store the most volatile substances.
But environmentalists are determined to keep exposing the information, arguing that chemical companies are engaged in far riskier behavior by not adopting safer manufacturing methods after Sept. 11. Greenpeace's posting of the Kuehne (pronounced kee-nee) map will coincide with a "Run for Your Life" road race the environmental group is sponsoring at a nearby park to demonstrate that most people can't outrun a spreading chlorine cloud. A serious incident could kill tens of thousands -- even hundreds of thousands by some estimates -- and damage the lungs of millions more.
Kuehne Chemical's chief operating officer, Peter Kuehne Jr., says environmentalists might as well paint a giant bull's-eye on his facility and pass out sniper rifles to terrorists. "I don't think someone who wants to do us harm has a right to know this," he protests. "In fact, we have a responsibility to make as little as possible available to them."
But the question of which side might be taking greater chances with American lives remains unanswered. The $450 billion U.S. chemical industry has so far fended off efforts to require companies to cut their reliance on volatile, potentially lethal materials. A few facilities have switched to alternative chemicals or new technologies since Sept. 11, and the industry has lowered its resistance to alternative manufacturing methods. Yet the industry also has won growing support in law-enforcement circles to fight the terrorist threat with voluntary security improvements -- and secrecy.
C.T. "Kip" Howlett Jr., executive director of the Chlorine Chemistry Council, an affiliate of the American Chemistry Council trade group, says environmentalists' efforts to publish restricted data aren't "the way an adult would deal with a national security challenge."
Environmentalists concede that what they're doing could make it easier for terrorists to pick their targets. But they contend that an industrial accident could be as devastating as a planned assault. Between 25,000 and 50,000 accidental releases of hazardous materials occur every year, injuring thousands and killing a hundred or more at refineries, chemical plants and other industrial sites, according to the Washington-based U.S. Public Interest Research Group. A chemical-industry spokesman says the numbers are based on federal accident reports that aren't

subsequently verified, but he says accidental releases have declined in recent years, and chemical makers have "continuously made our facilities and processes safer" for workers and surrounding communities.

"You could hide the information, but the threat is still there," says Gary Bass, head of the Right-to-Know Network, part of an open-government advocacy group called OMB Watch based in Washington. "What's shocking is how few people know about dangers in their own neighborhoods," he says.

The debate is set to heat up further this summer. Republican Sen. Christopher "Kit" Bond of Missouri has secured Justice Department support for a bill -- which he expects to announce Thursday in his home state -- that would revoke the public's right to view chemical-accident scenarios, except in a stripped-down form omitting a plant's name and location. The bill would also make it a crime for anyone with access to the uncensored version to disclose details.

In the opposing camp, Democratic Sen. Jon Corzine of New Jersey will soon submit a revised version of a bill that met resistance last fall. It would require chemical plants deemed most vulnerable to terrorist attacks to study alternative technologies. If they don't adopt them, they will have to justify why the alternatives aren't practical or risk penalties or even closure.

Despite industry and government efforts, it's almost impossible to eradicate sensitive information once it's been publicized. The government's censorship since Sept. 11 doesn't affect private groups that came by the information legally before that date. The Right-to-Know Network still operates a Web site allowing anyone to search the Internet to determine where an attack on a chemical plant could inflict the most casualties. Environmental activists have collected information from many of the Environmental Protection Agency records describing potential catastrophic chemical releases at 15,000 industrial sites. The complete records remain available for inspection in the government reading rooms, although the industry wants to close those indefinitely.

Bhopal Catastrophe

The push to require American companies to disclose hazardous-materials risks began after the early hours of Dec. 3, 1984, when more than 27 tons of methyl isocyanate leaked from a Union Carbide Corp. pesticide plant in Bhopal, India. The toxic cloud blanketed a region of 520,000 people, killing 4,000 or more and leaving thousands more with chronic disabilities.

The disaster spurred passage in the U.S. of the Emergency Planning and Community Right-to-Know Act in 1986, which established a checklist of hazardous chemicals and required industries to reveal how much of each one they were releasing into the environment. A 1990 amendment to the Clean Air Act further required a broad range of sites -- from oil refineries and water-treatment facilities to electric utilities and food-storage warehouses -- to outline the worst accidents they could foresee and steps to prevent them.

The EPA announced in the late 1990s that it planned to post the highly detailed filings on the Internet, arguing that the more widely available such data are, the greater the incentive for companies to act responsibly. By then, the World Trade Center had been bombed for the first time and Internet use had taken off. Chemical giants such as DuPont Co. moved quickly to limit what went online. The Chemical Manufacturers Association -- now the American Chemistry Council -- issued a report in 1998 warning of "the dark side of the Internet." It accused the EPA of allying with "professional environmentalists" to provide "one-stop shopping" for terrorists.

Law-enforcement agencies sided with the chemical companies, convincing Congress in 1999 to pass a law that effectively kept the most sensitive part of the plans, including toxic-gas dispersion models and casualty figures, off the Internet.

But the EPA soon began posting company-written summaries of the scenarios online -- many of them nearly as detailed as the complete filing. The unabridged plans became available when the reading rooms opened in December 2000.

Even before those rooms opened, the Right-to-Know Network, adept at using freedom-of-information laws, obtained and posted its own copy of the detailed summaries. In March 2001, Greenpeace posted a report titled "Bhopal in the Bayou" about Louisiana vinyl and petrochemical factories. Included was a chart with 50 plants' worst-case scenarios and maps with circles showing danger zones.

Rick Hind, legislative director of the Greenpeace Toxics Campaign, played down terrorism concerns at the time as "a smoke screen" to discredit right-to-know groups. He pointed to towns such as Norco, La., where the mostly African-American residents have experienced so many accidents that many sleep with clothes on and suitcases packed.

Sept. 11 left many people unclear about which should worry them more: recalcitrant chemical companies or loose-lipped environmentalists. The EPA quietly stopped producing its worst-case scenario summaries on Sept. 20, citing concerns that terrorists could use them to stage an attack. Soon after that, a backlash against the greens' tactics started building.

A pro-industry opinion article in the Baltimore Sun called the environmental groups' Web sites "terrorism for dummies." Readers who noticed their hometown papers had started using Greenpeace and Right-to-Know Network data to document local terrorism hazards began sending hate mail to the groups. "What is your problem?" one said in an e-mail to Mr. Bass, head of the Right-to-Know Network, on Oct. 4. "This proves that you are Anti-American when you are more concerned with your 'agenda' than the welfare of millions of American citizens."

The Sept. 11 attacks prompted some soul-searching at the Right-to-Know Network. Mr. Bass, a fixture in the nonprofit world since he established OMB Watch to track the federal budget in 1983, says the crisis "created an enormous challenge to the principles we believe in." He saw hits to his Web site rocket to 10,000 a week in October, from the usual 100. At a meeting on Oct. 22, Right-to-Know Network staffers brainstormed about how to keep the site from being exploited for evil purposes. In the end, they concluded that the database had probably been copied and stored elsewhere by automated Web search engines and other Internet users.

The board of OMB Watch met later that afternoon. "If any law-enforcement agency asks us to take this [Internet site] down, we should do it immediately and debate it afterwards," board chairman Mark Rosenman recalls saying. No one seriously objected, according to board members. Mr. Bass noted that the Right-to-Know Network took the unusual step of arranging focus groups to gauge reaction to its position.

But the government made no moves against the environmental groups, and they grew emboldened as the following months brought a slew of censorship actions in the name of fighting terrorism. Mr. Bass began publishing an inventory on his OMB Watch Web site of all the records made secret after Sept. 11, from the Federal Aviation Administration's enforcement database to the Transportation Department's Web site maps of oil and gas pipelines. He included links to private groups that still had a copy of records, such as a government report citing weak security at chemical plants -- which the industry disputes.

In December, Greenpeace published on the Internet and circulated to local reporters in Michigan new worst-case maps and the number of people at risk for three Dow Chemical Co. facilities: one in Michigan -- a joint venture with Dow Corning Corp. -- with 330,000 at risk; one in Texas with 105,000; and one in West Virginia with 155,000. It says its next goal is to publicize worst-case scenarios for the Kuehne plant, along with two other DuPont chemical plants near Philadelphia and Wilmington, Del. and a plant that produces detergent ingredients in Baltimore. Then it says it will publish a directory of the 123 plants that could each jeopardize one million people or more. Both DuPont and Dow say they disagree with the group's approach.

Earlier this year, a coalition of right-to-know activists put together a manual called "The Safe Hometowns Guide." Posted online and sent to at least 40 community groups, the guide supplies directions on how to use the Right-to-Know Network and other sources to compile information on terrorism risks. It also urged readers to use the information to pressure companies to change their manufacturing, switch to just-in-time delivery of materials to reduce storage of toxic materials and create buffer zones around their plants.

Mr. Howlett of the Chlorine Chemistry Council calls "The Safe Hometowns Guide" an "advocacy propaganda tool" with a misleading name. "By publishing this kind of information, they actually increase the threat," he says. "It's as though the world didn't change on 9/11."

Chlorine in particular has become a focus of the debate -- for its grave threats and many uses. The highly reactive chemical is both a cost-effective way to disinfect most of the world's water and a key component in a range of products including PVC piping, medical supplies and car parts. Stored as a pressurized liquid, chlorine vaporizes into a sharp-smelling green gas when released, and then an invisible gas heavy enough to hang in city streets between buildings -- as it did in World War I trenches, when Germans used it to kill thousands of British troops. The rupture of a 90-ton railcar of chlorine could kill anyone exposed to open air within the first two to three miles of the gas plume. For those as far as 10 miles away, it could cause fluid to collect in the lungs, permanently reducing breathing capacity, according to data from the Chlorine Institute, the industry's safety council, and U.S. Army engineers.

The chemical was high on the list of concerns in a classified report to be released next month within the government. A health and emergency-planning arm of the U.S. Army warns that tens of thousands of people could die in a single attack on a chemical plant in an urban area, and as many as two million could flood hospitals for treatment.

In January, the chemical companies responded with their own promotional campaign for chlorine. Calling it "America's Essential Element," Chlorine Chemistry Council ads and brochures display a rippling pool of blue water with the American Flag floating underneath. The industry notes that chlorine is used in everything from fire-resistant protective gear to drugs, including the anthrax antibiotic, Cipro. Improvements in valves and steel tanks have greatly reduced risks of accidents, the industry says. Army chemical engineer David A. Reed, who helped draft the classified report, says that until alternative technologies are more widely accepted, the country "can't do without chlorine." He adds that in a natural disaster, "if we lost our ability to disinfect the water, the number of cholera cases would dwarf the numbers we're coming up with" in terrorism scenarios.

Industry Opposition

The chemical industry has opposed efforts to force companies to find substitutes for or reduce the chlorine or other chemicals they use. Robert Smerko, the Chlorine Institute's president, says, "We're not doing research on different processes. ... Whether companies can or should change is a business decision on their part." Janet Flynn, spokeswoman for the Chlorine Chemistry Council, adds that worst-case scenarios aren't predictive of what would actually happen.

But the industry has also made some concessions. The American Chemistry Council has agreed to require companies to conduct assessments of their plants' vulnerabilities to terrorism as a condition of membership. The ACC has pledged to use an assessment model that the Department of Energy's Sandia National Laboratories is developing for the Department of Justice. It has indicated it would let a third party -- such as an insurance company or a state or federal agency -- audit assessments to verify that members are making improvements.

The EPA is circulating guidelines with the Office of Homeland Security and other agencies that would, for the first time, include guidelines encouraging companies to consider safer technologies and a requirement that they assess their vulnerability to "criminal" attack. Though the EPA is still reluctant to make such changes mandatory, an agency official involved in the new proposal says, "the world changed on 9/11 and everybody is looking at things in ways they may not have looked at them before."

The push for safer technologies got a boost in December, when Washington's Blue Plains waste-water treatment plant completed its conversion from chlorine-gas disinfection to much safer liquid chlorine bleach a year ahead of schedule. Jerry Johnson, the general manager of the D.C. Water and Sewer Authority, said the plant's stockpile of chlorine and sulfur dioxide put the capital in a "particularly critical situation" and "we decided the best course of action would be elimination of the threat." Jeremiah Baumann, an environmental health advocate with the Public Interest Research Group, points out that dozens of other water utilities have switched to ultraviolet light and ozone. "It's not just activists who think the better solution is to use an alternative chemical," he says.

But a few conversions -- especially those that still require industrial strength bleach -- don't eliminate the problem of the chlorine stockpiles at bleach suppliers like Kuehne Chemical, which provides bleach to cities across the Eastern seaboard. The South Kearny plant sits about three miles from Newark International Airport and less than five miles from Lower Manhattan.

Mr. Kuehne says he has taken a number of precautions since Sept. 11 to lower risks, including storing much less chlorine on the South Kearny site than New Jersey has licensed him to keep. But he is in no hurry to redesign his plant. Technology exists to make chlorine on site from a pile of salt and immediately consume it in the bleach-making process, reducing his chlorine inventory to just 100 pounds. In fact, his company just built such a plant in Delaware City, Del. But Mr. Kuehne estimates that it would cost $30 million, more than half the company's $50 million in annual revenues, to build the same facility in New Jersey.

He says the Federal Bureau of Investigation and the Coast Guard both made urgent visits in recent months to advise him on security, but he says he can't disclose the steps he is taking.

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Atlanta Journal and Constitution
May 29, 2002

Nunn: Worst Peril Is Deadly Materials

Cleanup urged in old Soviet Union

By Margaret Coker, Cox Washington Bureau

Moscow --- Sam Nunn might be forgiven for not sharing White House exhilaration over last week's signing of a new arms reduction treaty with Russia.

The former U.S. senator from Georgia believes that the real threat to America comes not from the nuclear weapons the former Cold War foes possess, but from terrorists getting access to some of the thousands of tons of unprotected nuclear, biological and chemical materials in Russia.

"We are in a new arms race," Nunn said. "Terrorists and certain states are racing to acquire weapons of mass destruction, and we ought to be racing together to stop them.

"Our presidents missed a great opportunity to discuss such issues," he said, referring to the just-completed meetings between President Bush and Russian President Vladimir Putin.

Nunn came to Moscow this week to focus international attention on the peril both the United States and Russia would face from a catastrophic nuclear, biological or chemical terrorist incident. He considers this threat "the gravest danger in the world today."
Under 1991 legislation drafted by Nunn and Sen. Richard Lugar (R-Ind.), the U.S. government has funded two dozen projects aimed at dismantling nuclear weapons around the former Soviet Union, finding jobs for unemployed nuclear scientists and securing stockpiles of nuclear, biological and chemical materials. Russia says it doesn't have the money to complete these projects itself.
Spending about $5 billion in U.S. taxpayer money over the past decade, the so-called Cooperative Threat Reduction program has succeeded in destroying or securing only 40 percent of the nuclear materials in the former Soviet Union. Many sites where biological and chemical agents were stored in Soviet times don't even have fences around them, let alone electronic surveillance systems to keep intruders out, Nunn said.
Yet before Sept. 11, the Bush administration was poised to slash funding for these projects. The White House changed its mind after the terrorist attacks and in light of intelligence that al-Qaida had been trying to acquire radioactive material to create a "dirty bomb."
Still, next year's funding request by the Bush administration of roughly $950 million for Cooperative Threat Reduction programs remains about the same as this year's budget. At the same time, the White House has asked for more than $30 billion for a new homeland defense program. It's a disparity that Nunn thinks is shortsighted. "I think homeland defense begins with Russia," Nunn said. "It has the biggest exposed weapons stockpiles."
During a conference Mondnay sponsored by the Nuclear Threat Initiative, an organization founded by Nunn and Ted Turner, U.S. and Russian lawmakers and analysts discussed how to convince their governments of the dangers of proliferation. They also talked about ways to overcome obstacles to arms reduction.
"Acquiring weapons and materials is the hardest step for the terrorists to take, and the easiest step for us to stop," Nunn said. "Our presidents must tell their militaries to stop being hostile and start better cooperation."

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New York Times
May 30, 2002

Mexico: Missing Cyanide Found

The army said most of a 10-ton shipment of sodium cyanide stolen 18 days ago had been recovered on a rural road 80 miles north of Mexico City. Six drums of the poison, weighing about 1,200 pounds, are still missing. The hijacking of the truck carrying the cyanide spurred fears of terrorism but federal authorities said they believed the theft was a common crime.
Tim Weiner (NYT)

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Christian Science Monitor
May 30, 2002

Strengthen Nuclear Deterrence

The US should form a defensive coalition with other nuclear states

By Hans Binnendijk and James Goodby
WASHINGTON - Despite the Bush-Putin nuclear-weapons reduction agreement, nuclear weapons may be making a comeback. Not long ago they were seen as unusable. Ronald Reagan sought to eliminate them or at least make them "impotent and obsolete." Now the Nuclear Posture Review may give them a new life.
Some analysts believe the administration is considering support for the preemptive use of nuclear weapons against rogue states. Congress is debating whether to provide funds for developing new low-yield nuclear weapons. The idea is to develop a new weapon that could penetrate deep into the earth and destroy underground bunkers that protect rogue-state leadership or weapons of mass destruction.
The White House has emphasized that deterrence remains the objective of US nuclear forces. This makes sense. A doctrine of preemptive first use would open a door that for very good reasons has been closed since 1945. During the cold war, there was a consensus in the West that nuclear weapons might have to be used first if NATO were

under attack by a massive Warsaw Pact invasion. But even in that case, nuclear weapons came to be seen as weapons of last resort. To think of them as weapons of first resort raises fundamental questions.
First, it is not a credible option. President Eisenhower could have destroyed the nascent Soviet nuclear capability, but he favored containment. History proved him right.
Would a US president be willing to use a nuclear weapon, even a very low-yield one, for the first time since World War II? Probably, if weapons of mass destruction already had been used. Perhaps, if they were about to be used beyond the shadow of a doubt. But solid evidence would be hard to come by. Even then, smart conventional bombs might be a smarter choice.
Second, lowering the nuclear threshold would encourage nuclear proliferation by legitimizing their use. The taboo against using nuclear weapons has underlined the fact that these are civilization-destroying machines. The United States, of all countries, should not want to make their use more likely.
US superiority in high-accuracy weapons and target-acquisition technology means that America is less in need of nuclear weapons than any potential adversary the nation faces. The US should prefer to fight a 21st-century "conventional" war rather than a 20th-century nuclear war. Secretary of Defense Donald Rumsfeld has stressed that the goal should be to reduce dependence on nuclear weapons.
Third, a unilateral nuclear policy, symbolized by a preemptive doctrine, would be the straw that broke the camel's back among America's key alliances. US international partners already are worried about unilateral behavior. The US would find it harder to line up support for the fight against terror. US nuclear weapons, instead of being a shelter for friendly countries, would impel them toward independent solutions.
Deterrence against erratic regimes remains a serious, even existential question. But deterrence cannot be considered totally within the bounds of military constructs. Political and psychological dimensions must be added to US military might.
All governments now have a practical reason for opposing weapons of mass destruction: transnational terrorism. The time may be ripe for America to join other nuclear weapons states in a joint policy: to refrain from use of any weapon of mass destruction unless another state or terrorist network used such a weapon first or is unambiguously about to do so. The form of retaliation against use of chemical or biological weapons would not necessarily be in kind. Nuclear weapons might be unleashed against a state that used biological weapons first.
This bold step would make the permanent members of the UN Security Council – each a nuclear power – de facto partners in acting together against any entity that thought the use of chemical, biological, or nuclear weapons would give it some advantage. It would be a powerful coalition that strengthens deterrence. If a low-yield weapon were to be built, it would be placed in the proper context of enhancing deterrence, not threatening preemption.
This would be a departure from traditional thinking. But with the US starting to treat nuclear weapons like conventional ones, it would recognize the reality that fears of a US strategy of nuclear preemption would erode the support the US needs to fight terror – and would encourage an increasingly nuclear-armed world.
Hans Binnendijk is Roosevelt Professor of National Security Policy at the National Defense University and was senior director at the National Security Council for Defense and Arms Control. James Goodby was special representative of the president for Nuclear Security and Dismantlement during the Clinton administration. The views expressed do not necessarily reflect those of the National Defense University or the US government.

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Philadelphia Inquirer
May 31, 2002

Pentagon Alters Anthrax-Vaccine Plan

By Robert Burns, Associated Press
WASHINGTON - Much of the Pentagon's supply of anthrax vaccine, originally intended exclusively for military personnel, is likely to be reserved for civilian use, a senior Pentagon official said yesterday.
David Chu, the undersecretary of defense for personnel and readiness, said that although details remained to be worked out, the Pentagon did not expect to return anytime soon to its original goal of vaccinating all 2.4 million members of the armed forces against the deadly anthrax disease.
Initially the vaccine will be given only to those troops deemed most at risk, he said. He cited as examples those who work in laboratories where anthrax spores are handled, and special forces troops.

Some military personnel believe the vaccine causes health problems, and hundreds have been forced out of the armed forces after refusing orders to take it. The government insists the vaccine is safe.
The Pentagon had been forced to scale back the vaccination program, which started in 1998, after factory violations by the nation's sole manufacturer of anthrax vaccine, BioPort of Lansing, Mich. Those problems have been corrected, and in January the Food and Drug Administration cleared BioPort's manufacturing plant to resume production and to release 500,000 doses it already had made.
The Sept. 11 attacks changed the government's whole approach to the vaccination issue, Chu said.
"The events of last fall were really a wake-up call for the country about the possibility of biological agents being used as a weapon of mass destruction," Chu said, "and therefore this is no longer just a military personnel problem. This is also a national problem."
Thus the vaccine supply will be widely shared.
"While we are still debating the details, what I think you will see in the end is, we will set aside a major part of what vaccine is available to be sure that we can protect the civil population of the United States," Chu said. "I don't want to start any rumors here. We're not going to vaccinate the whole population."
Health officials have said there is no need for civilians to take the vaccine unless there is an attack.
President Bush's Homeland Security Office is trying to figure out how much vaccine might be needed for police, firefighters, rescue squads, and others who would be first responders to any attack in the United States.

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Army Scores Hit In PAC-3 Intercept Test

The Army announced today that a Patriot Advanced Capability-3 missile successfully intercepted a mock ballistic missile during an operational test held on Kwajalein Atoll in the Republic of the Marshall Islands.
Preliminary information indicated a second PAC-3 missile failed to launch during the test. Army doctrine calls for two interceptor missiles to be fired at an incoming theater ballistic missile target. "Analysis of why the second missile failed to launch is ongoing," the Army said in a statement released today.
The test was designed to demonstrate the Army's "ripple firing" doctrine, which involves launching two PAC-3 missiles against a single, two-stage ballistic missile target. The target was comprised of modified Minuteman motors with a separating reentry vehicle.
"This test was planned to demonstrate the system's ability to properly classify the high-velocity, low-radar-signature target as a tactical ballistic missile (TBM), discriminate between the reentry vehicle and debris, and to destroy the target," the Army's statement reads.
This was the fourth, and last, test in the PAC-3 initial operational test and evaluation phase that began on Feb. 16. The last test was carried out April 25. Two PAC-3 missiles were to be fired against a Storm II ballistic missile target and an older Patriot serving as a target. One of the two PAC-3s failed to launch, while the other intercepted the Patriot target but did not destroy the warhead. The Army did not consider the April 25 test to be a successful intercept and is examining what went wrong.
After IOT&E, the Army and the Pentagon will weigh the PAC-3 program's readiness for full-rate production.
-- Thomas Duffy

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Iran Diplomatic Talks

MOSCOW (AP) -- Top Iranian and Russian diplomats met Thursday for talks expected to focus on nuclear nonproliferation and other security issues.
The meeting between Iranian Deputy Foreign Minister Mohammed Jawad Zarif and Deputy Foreign Minister Georgy Mamedov came a week after U.S. President George W. Bush pressed President Vladimir Putin over

Moscow's nuclear assistance to Iran. Washington says the assistance in building a nuclear power plant could help Tehran in its missile program, a charge the government has denied.
The U.S. concerns were a key topic during last week's summit between Putin and Bush. Itar-Tass and Interfax said nonproliferation would top the agenda at Thursday's meeting.

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