Bio Terror Bible

EXPOSING THE COMING BIO-TERROR PANDEMIC

BIOTERRORBIBLE.COM: In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) chemtrails by government airplanes or drones, B) by the U.S. Postal Service via Tide detergent samples, C) by the government and medical establishment via tainted vaccines, or by D) the portable petri dish commonly known as the Trojan condom.

Bio-Terror Scapegoats: Africa, Agriculture (Food & Animals), Airports & Air Travel, Al Qaeda, Bio Labs, Bio-Terrorism Is Easy, Bio-Terrorists (Bio-Hackers), Black Market, Bugs & Insects, Censorship / Lack Thereof, Domestic Terrorists, Exotic Animals (Zoonosis), Government Ineptitude, Mail-Order DNA, Mexico, Missile Shield Failure, Mutation, Natural Disaster, No Clinical Trials (Vaccines), and The Monkeys.

Title: Russian Lab Storing Germs Faces Cut-Off Of Electricity
Date: April 7, 2002
Source: New York Times

Abstract: A large repository of anthrax, plague and other deadly bacteria stored in a high-security laboratory complex 100 miles south of here is facing a threat never imagined in the Soviet era -- the meter man.

An official from the Moscow region's Mosenergo electric utility arrived recently and threatened to turn off the electricity for lack of payment at the 90-building campus, which served as the secret biological weapons program of the Soviet era.

A headline in the newspaper Izvestia warned, "Deadly Viruses From a Moscow Regional Depository Threaten Moscow."

Actually, there are no viruses at the State Scientific Center of Applied Microbiology in Obolensk, just every kind of deadly bacteria that was studied for use in the secret biological weapons program of the Soviet Union. (A large virus repository is in Siberia.)

Russian and Western officials say that while it is unlikely that any public health threat would result from a power cutoff, there is enough uncertainty that none were willing to say that categorically.

"We have quite reliable systems of protection in case of emergency," Gen. Nikolai N. Urakov said by telephone. He is the longtime director of the center, which has been working with Western scientists to convert the complex into a biomedical manufacturing site.

"But we are scared by this threat of a sudden shutdown of electricity," he added, "because it is a kind of psychological pressure on us." In the event of a shutdown, he said, scientists must destroy all bacteriological experiments under way.

About 3,000 strains of bacteria are stored at the center, many of them in cryogenic casks cooled with liquid nitrogen and isolated from the environment by layered enclosures and oversize air-handling systems, and all dependent on electricity.

The greatest danger from a shutdown of electric power would be the defrosting of live germs now preserved in a frozen state.

"The main threat is to the organisms themselves rather than that they might escape," said Raymond Zilinskas, a biological warfare expert at the Monterey Institute of International Studies. "Under the worst case, these things would be defrosted from minus 70 degrees, and it would be a real mess to clean it up afterward because you wouldn't know for sure whether everything was dead" (New York Times, 2002).

Title: Report Finds Easy Lab Access To Deadly Pathogens
Date: May 7, 2002
Source: Reuters

Abstract: Unauthorized scientists, students and foreigners are routinely granted access to federal laboratories where potentially deadly biological agents, like anthrax and salmonella, are stored, according to a government report released on Tuesday.

The Sept. 11 attacks on the United States and the subsequent anthrax scare have prompted several government and private assessments, many of them critical, on the security of government laboratories that handle contagious viruses and bacteria.

An investigation by the US Department of Agriculture's inspector general found many of the USDA's 124 laboratories were vulnerable to theft and unable to keep track of biological agents.

Almost half of the labs need security improvements such as alarm systems, security fences and surveillance cameras, the USDA inspector general's report said.

Scientists and researchers, including non-US citizens, who were "not associated with USDA work" had regular access to the most sensitive areas in the laboratories, it said.

"Unauthorized personnel with knowledge of a laboratory's inventory could remove a biological agent and place it in a terrorist's hands long before the theft was discovered," the report said.

Some USDA labs could not accurately determine what viruses and bacteria were being stored.

At one major laboratory, which the USDA would not identify, a vial containing 3 billion doses of Vesicular stomatitis virus was listed as being on hand, but could not be found. The infectious disease affects both livestock and humans.

USDA officials, including Agriculture Secretary Ann Veneman, have noted the need to improve security at USDA laboratories.

In response, the USDA has devised a 10-year plan to modernize all its laboratories. So far, Congress has appropriated $113 million of the $450 million needed for the renovations. USDA officials said they expect the plan to be completed by 2006. The USDA needs to implement the modernization plan more quickly, the report said (Reuters, 2002).

Title: New Boss Tackling Germ Lab Problems
Date: May 21, 2002
Source: UCLA

Abstract: Maj. Gen. Lester Martinez-Lopez took over the Army's germ warfare defense laboratory as it was recovering from reports of lax security, misplaced pathogens and other unprofessional conduct.

Soon after his arrival, his job became even more complicated with the latest bad news -- anthrax spores had been discovered in the lab.

Martinez, tapped in March to head the U.S. Army Medical Research Institute of Infectious Diseases, faces the twin challenges of helping fight the war on bioterrorism and trying to clean up operations at the lab at the forefront of the battle.

Last month, an anthrax spill in the Fort Detrick laboratory, known as USAMRIID, led to the discovery of anthrax spores outside containment areas designed to prevent such releases.

Martinez said a new program aimed at clarifying Army rules for handling, shipping and storing biological agents should strengthen public trust in the institute, which plays a central role in the investigation of last fall's anthrax mailings.

"We have good systems, but we're going to make them even safer," the Puerto Rican-born physician said in an interview with The Associated Press. "The safety and surety of USAMRIID is of overarching concern."

Scientists at the 32-year-old laboratory develop vaccines and antidotes for diseases soldiers could encounter in the field, either naturally or as targets of biological weapons.

FBI agents tapped the lab's expertise after the anthrax mailings that killed five people and sickened 13 others last year. The FBI is a constant presence at Fort Detrick, guarding samples of anthrax sent there by other research labs for genetic analysis.

FBI agents have also questioned Detrick scientists, investigating the possibility that the tainted letters were sent by someone with expertise learned at USAMRIID or with access to the lab.

Locally, Fort Detrick is under pressure from Frederick Mayor Jennifer Dougherty to be more forthcoming about its operations, including the cleanup of an old dump that contains toxic chemicals and -- the Army recently learned -- infectious pathogens.

Martinez, 46, is used to high-pressure assignments. He was part of the multinational force sent to the Middle East after Israel invaded Lebanon in 1982. He was chief medical officer for the U.S. mission to Haiti in 1995, after U.S. troops intervened to restore Jean-Bertrand Aristide to power.

He was sent to Central America in 1998 to oversee medical relief for victims of Hurricane Mitch, which killed at least 8,500 people.

Martinez "is a soldier and physician uniquely qualified" for his new assignment, said Lt. Gen. James B. Peake, commander of the U.S. Army Medical Command.

Although his job is protecting and training soldiers, Martinez said the work being done at Fort Detrick can enhance public health. To that end, he said the Defense Department is reaching out to other public agencies and private institutions to collaborate on bioterrorism defenses.

"The issue is, how do we capitalize not only on our work but on the work that everybody is doing around the world and use it in such a way that we can focus that new technology on systems that can really make a difference -- to the soldier on point and, in the long run, for the good of everybody," he said (UCLA, 2002).

Title: After 9/11, Universities Are Destroying Biological Agents
Date: December 17, 2002
Source: New York Times

Abstract: As federal officials search for more powerful tools to investigate biological terrorism, universities across the country are destroying collections of laboratory agents crucial for understanding how biological weapons work and tracing their sources.

New federal laws require only that such biological materials be registered, but many universities are pressing researchers to clean out their freezers and destroy materials they are not currently working on.

While there is no official count of how many biological specimens have been destroyed, concern that laboratories have gone overboard prompted the White House to ask institutions, through the American Society of Microbiologists, to reconsider their haste in doing away with specimens that could prove "difficult or impossible to replace," said Rachel Levinson, of the White House Office on Science and Technology Policy.

"Obviously, these materials are valuable as research tools, and in terms of developing countermeasures should these agents be used as weapons, or if there's an unintentional natural outbreak," Dr. Levinson said. "They're valuable research tools, and we would not like to see them destroyed."

Under laws enacted since last year's anthrax mailings, which killed five people, research institutions, clinical and diagnostic laboratories must inventory and register the presence of 61 select agents that could be used to make biological weapons, including ebola, herpes B, smallpox and a variety of toxins. The materials must be kept under lock and key, with access to them restricted to people cleared by government background checks. Scientists must also demonstrate a "bona fide research purpose" for working with a given material.

The problem appears to lie in conflicting messages from Washington and in overly zealous compliance with the new laws on select agents, said Ronald Atlas, president of the American Society of Microbiologists. The prosecution of Tomas Foral, a University of Connecticut scientist arrested after he pocketed an anthrax specimen in cleaning out a laboratory freezer, caused many researchers to think twice, Dr. Atlas recalled.

"Many say Tomas Foral at Connecticut was a clear message from the Justice Department to the scientific community: If you can't justify having it, clear it out," Dr. Atlas said. "When you have these criminal penalties hanging over your head, you ask, `Why should I be the one to bear that legal risk?' "

The most spectacular example of the wholesale destruction of specimens came last year, when Iowa State University at Ames destroyed its entire collection of anthrax specimens. The university acted after an Ames strain was tied to the fatal anthrax letters, and with the criminal investigation in full swing.

John McCarroll, a spokesman for Iowa State, said copies of the anthrax strains that were destroyed existed elsewhere, but other scientists disagree. They maintain that recent advances in genetic engineering have shown that families of strains that appeared the same were, on closer inspection, quite different. Mr. McCarroll said that more recently, Iowa State had asked researchers to destroy select agents that they were not "currently working on."

Few universities have gone so far as to order the elimination of specimens outright. Rather, in conducting inventories of biological agents, most have urged researchers to consider seriously, and justify, their need for sensitive materials. Some describe the procedure as good "housekeeping," saying as a matter of principle, dangerous materials not immediately needed should be discarded.

At the University of Pennsylvania, the new laws on select agents has prompted not just housekeeping, but also soul searching, said Matthew Finucane, director of environmental health and radiation safety.

"If they don't have a mission for the material, people are disposing of it," Mr. Finucane said.

At Duke University, the discovery of a select agent was grounds for an "internal audit," said Wayne Thomann, the university's director of occupational and environmental health. If they were "historical stocks" and researchers could not come up with a current need for the agents, Mr. Thomann said, "we went through a process of controlled destruction."

"I can't give any exact numbers," he said, "but it was a fair number that decided there wasn't a real research benefit in maintaining this stuff."

Harvard University did not suggest researchers destroy agents, but R. John Collier, a biochemist who works on anthrax there, said he had taken it upon himself last year to destroy the only strain he had on hand "to avoid attracting terrorists and more of the press than I wanted."

But policies that make sense in other contexts, like discarding old samples, are madness when it comes to scientific research, said Steven Block, a physics and biology professor at Stanford University.

Dr. Block said past strains of anthrax were essential for understanding how quickly an organism altered itself in nature.

"So much you can learn by knowing the evolutionary biology of bacteria," he said, "but you can't research that evolutionary biology if you can't look at the past versions of it. It's the connectedness of all this that's so important."

Dr. W. Ian Lipkin, director of the Center for Immunopathogenesis and Infectious Diseases at Columbia University, said, "What you're discarding is access to materials and intellectual property you may need downstream."

Dr. Lipkin is investigating what causes diseases like autism and cancer, and relies on comparing genetic sequences in as many specimens as possible. "This will definitely interfere with our work," he said.

He noted that in the 1990's accusations arose that American scientists had introduced the AIDS virus, H.I.V., to Africa through earlier research infecting monkeys with polio. The scientific community was only able to disprove the theory conclusively by turning over the 40-year-old cells for independent scrutiny.

Dr. Levinson, at the White House, said that if institutions really felt intimidated by the new rules, they should transfer the materials to a laboratory willing to accept them.

Others have said the administration should have created such a repository to accept materials that laboratories felt compelled to discard. And many fear that it may take time to repair the harm that is being done.

"I would hope that we could recover from any deleterious effect in the long run," said Barbara Johnson, president of the American Society of Biological Safety. "But if you had a unique sample that no one had replicates of, that sample's gone" (New York Times, 2002).

Title: Power Fails For 3 Hours At Plum Island Infectious Disease Lab
Date: December 20, 2002
Source: New York Times

Abstract: A three-hour power failure at the Plum Island Animal Disease Center last weekend renewed concerns about the safety of the high-security government laboratory while it is being run partly by replacement workers during a five-months strike.

The loss of power and failure of all three backup generators raised fears for the first time that the containment of infectious pathogens could have been seriously compromised at the laboratory. The center, which is run by the United States Agriculture Department, studies highly infectious animal diseases like foot and mouth disease and African swine fever.

Senator Hillary Rodham Clinton called yesterday for the laboratory to cease all operations until an independent safety review could be conducted.

Scientists familiar with the center said that since the diseases studied on the island do not, for the most part, affect humans, the risk to workers at the center and to residents of the nearby North Fork of Long Island was minimal. Several experts in infectious diseases said, however, that a power failure at such a facility for so long was extraordinarily unusual.

Ken Alibek, a former top Soviet germ warfare official now at George Mason University, said that although he knew of power failures at similar facilities, he did not know of a case in which the power and all the backup generators failed for this long.

"If there was any risk of a pathogen in the air, they need to quarantine all healthy animals," he said. "If they are sure there was no pathogen in the air, they may not need to quarantine but they need to take steps to be sure there was no contagion."

Sandy Hayes, a spokeswoman for the Agriculture Department, said that the day after the power failed, safety inspectors recreated what had happened. "They said they were sure there was no bio-containment breach," she said. She said that all animals were being monitored and that none had shown any signs of problems.

Ms. Hayes said that Plum Island called the Long Island Power Authority on Sunday about 1:30 p.m. reporting that the voltage it was receiving was too low. Bert Cunningham, a spokesman for the authority, said the Plum Island workers told the authority that they would turn the power off and use backup generators until the problem was resolved.

Ms. Hayes said that when the generators failed to start automatically, managers at Plum Island tried to start them manually. "They would only stay on for a few minutes and then fail," she said, leaving the center without power for roughly three hours. She said the problem appeared to be mechanical and not the result of any tampering. Striking workers said the replacement workers were unfamiliar with the equipment. This week, two new backup generators were installed, Ms. Hayes said.

At the time of the power failure, three workers were in the biological containment areas and they were told they could not leave until the power was restored. Ms. Hayes said the workers were not at any risk to their own health.

The Plum Island center employs about 200 people, many of whom are federal government workers, including the scientists and researchers. The 76 union members who went on strike Aug. 13 are members of the International Union of Operating Engineers and are employed by L B & B Associates, a government subcontractor.

Ed Brandon, the chief operating officer of L B & B, said he had no comment on the incident. The strikers include operators of the power plant and the wastewater treatment plant. Since the strike began, union members, workers on the island and government officials have expressed concern about whether the center can operate safely.

The F.B.I. was called to the island in August to investigate reports of sabotage after water pressure fell too low. As a result of that investigation, Mark J. DePonte, a striking worker, pleaded guilty to tampering with government property. In October, a 600-gallon container of liquid nitrogen fell from the rear of a ferry at the center. In November, it was discovered that a replacement worker had an arrest record.

The latest incident was made public when a replacement worker notified members of Senator Clinton's staff of the power failure. In an interview, the worker, who insisted on anonymity, said, "The reason I am coming forward is because what I have seen at the center is really out of hand and something needs to be done about it." Requests by The New York Times to visit the island have been rejected.

The power failure is the first time the possibility of a leak of the pathogens studied on the island has been raised.

Workers currently on the island, who insisted on anonymity, strikers familiar with the operation, government officials and outside scientists said the power failure could have compromised the safety of the center in several ways.

People leaving the labs have to go through an elaborate cleaning process: stripping, passing back through the air lock, scrubbing their nails, spitting and blowing their noses to clear their respiratory systems, showering and shampooing their hair. All the rooms are separated by doors that are sealed with what look like bicycle inner tubes filled with air. The pressure in the seals is maintained by an air compressor, and if the power fails, those seals begin to deflate after 15 minutes. Government officials confirmed that this happened.

Ms. Hayes said workers at the center sealed the doors with duct tape.

In addition, the air pressure in the entire building is kept lower than the pressure outside; if there is a leak, air would enter, not escape. Under normal operation, air in the building is filtered before being vented. With the power out, the filtering would have stopped, but experts thought that the overall pressure of the facility would probably have stayed low enough to have limited the risk of a leak (New York Times, 2002).

Title: Labs Unprepared For Chemical Attacks
Date: February 7, 2003
Source: UCLA

Abstract: The nation's public health laboratories are woefully unprepared to handle chemical weapons agents such as sarin or mustard gas that could be used in a terrorist attack, according to a 50-state survey released yesterday.

On a scale of 1 to 10, 37 state labs rated their chemical response capability at or below a 4, while nine others gave themselves scores of 5 or 6, according to the Association of Public Health Laboratories, which conducted the survey last month. Only eight labs have chemical response plans. There are no national protocols for testing or shipping suspicious chemicals.

"We have almost nothing in place if an event occurred tomorrow," said Scott Becker, executive director of the association.

Since the anthrax attacks of 2001, public health labs have raced to upgrade their bioterrorism units, purchasing equipment, hiring specialists and tightening security. But few have the expertise or technology needed to identify some of the 150 most hazardous chemical agents.

"The big fear in the lab community is the unknown sample somebody cooked up that may contain multiple agents," said Jim Pearson, director of Virginia's division of consolidated laboratory services. "You could have a powder that somebody says is anthrax, and here it's some chemical agent that blisters. It affects your staff and puts you out of business."

Lab directors and terrorism experts across the country say they dread scenarios such as the release of a mysterious gas in a subway or basketball arena. Soon people would begin coughing, fainting or reporting other symptoms.

"In our state, within the first 30 minutes, the mayor of Salt Lake City or the governor of Utah would be asking: What is it?" said Charles Brokopp, the Utah state lab director.

But even after elaborate preparations for last year's Olympics, Brokopp said he still would have to send chemical samples to a federal lab and wait 18 to 24 hours for results. "Timing is very important, because that information can be vital to the physicians and emergency departments involved in treating these individuals," he said.

However, Randall Larsen, a retired Air Force colonel and director of the ANSER Institute for Homeland Security, said release of the deadliest chemical agents would not require lab confirmation because people would die rapidly.

He cautioned against spending precious homeland security dollars on preparing state labs for situations they may never encounter.

The government has focused on biological threats in large measure because deadly germs such as anthrax are obtainable by terrorists and small quantities are easily concealed.

Armed with millions in federal aid, state labs have rapidly improved their capability to detect biological agents, said Steve Hinrichs, director of the Nebraska Public Health Lab. But asking a microbiologist to conduct chemical analysis is akin to hiring a car mechanic to fix an airplane, he said.

"One of our concerns is a terrorist would be smart enough to do a dual attack," he said. "They'd use a chemical agent on top of a biological agent."

Five states, including Virginia, have received money from the Centers for Disease Control and Prevention to test clinical samples such as blood and urine for dangerous chemicals in the event of an attack. This year, CDC hopes to add 10 more labs to that effort, said Dayton Miller, associate director of the lab division at CDC's National Center for Environmental Health.

"We're all very much aware of the need to expand chemical lab capacity," he said. "We're working very hard to do our part to make that happen." But the CDC program focuses only on human specimens, while state labs encounter much more.

A portion of the Minneapolis-St. Paul airport was closed for several hours recently until the state lab officials could determine that a strange coating of grease on an abandoned suitcase was curry butter and not something hazardous, said lab director Norman Crouch.

"That gives you an idea of what state laboratories are expected to do," he said. "When something happens, we are called in" (UCLA, 2003).

Title: Loose Monkey Teaches Biodefense Lab A Lesson On The Hazards Of Secrecy
Date: February 26, 2003
Source: Sunshine Project

Abstract: Biodefense accidents can spread of some of the world's most infectious and lethal diseases. As part of the $6 billion-plus expansion of the US biodefense program, more than three dozen new and upgraded "hot zones" have been proposed across the country. Arms control experts and health and safety watchdog groups are deeply concerned that secrecy at these labs will undermine US compliance with the Biological Weapons Convention, result in accident cover-ups, and obscure risks to surrounding communities. Because of these concerns, in early February, a group of non-profit watchdogs began sending a series of open letters to proposed biodefense labs asking them to commit, in writing, to policies that prohibit all classified research and which ensure transparency of their operations.

A contender to receive federal biodefense funding is the University of California at Davis (UCD), which wishes to build a biosafety level 4 laboratory (BSL4), the most secure type of facility, capable of handling dangerous agents such as Ebola virus. In recent weeks, UCD's proposal has come under intense fire from community activists. UCD only consulted its neighbors in the final days before submitting its BSL4 proposal, when it sought a letter of support from the Davis City Council. Some BSL4 labs, including that proposed by UCD, deliberately infect animals with disease.

Davis citizens were understandably angered when the story broke on Monday that a monkey had escaped from UCD's primate breeding facility, which rears animals for biodefense experiments. University officials had been hiding the story for ten days. It took a whistleblower's leak to the local newspaper before UCD decided to advise the community of the security breach. UCD says the rhesus monkey - which remains at large - is disease-free; but citizens are asking the obvious questions: Why did UCD keep the escape secret? According to Joshua English, a community activist in Davis, "*When we found out that UCD officials suppressed information regarding the escaped monkey, the first thing that I think came to everyone's mind was 'how open will they be when that escaped monkey is infected with ebola?*"

Not Monkey Business: The rogue two kilogram primate has done far more than thwart her captors. The lost monkey would have been an embarrassment under any circumstances; but UCD's suppression of the news provoked anger that may have delivered a deathblow to UCD's BSL4 ambition, tipping the balance on the Davis City Council against the University. Davis Mayor Susie Boyd says she personally supports UCD; but because of community opposition, has joined opponents on the City Council and disinvited UCD's project from the city. Boyd wrote UCD that she and the City Council "*have concluded the facility will remain an unwelcome project by our residents.*" Adding to UCD's woes was a vote, last Friday, in which UCD workers allied in the Professional and Technical Employees Union decided against the BSL4 proposal. The Union represents laboratory workers and animal handlers.

Secrets Elsewhere: UCD's lack of transparency has put its application for federal biodefense dollars in deep jeopardy. While other laboratories have avoided UCD's catastrophic meltdown, some are committing the same errors that have led to UCD's woes. The New York State Department of Health's Wadsworth Center and Rensselaer Polytechnic Institute, for example, believe that even the fact that they are seeking a new biodefense lab should remain a secret.

At the University of Texas Medical Branch (UTMB) in Galveston, officials are quietly retreating from a pledge made in 2001 that their BSL4 facility will not conduct classified work and will be "*wide open and above board*". That standard, which UTMB used in public meetings and on its website, has been downgraded to apply only to its "*current plans*". Future work, outside researchers granted access to its labs, and new laboratory spaces are under no such transparency commitment.

There is also biosafety accident history that has not been presented to the public. One of UTMB's lead researchers formerly directed a Yale University lab where faulty equipment and inadequate safety measures resulted in a researcher being infected with Brazilian Hemorrhagic Fever (sabia virus). The

infected scientist did not report the accident, in which a liquid containing a high concentration of sabia was aerosolized. The severity of the accident and the infection were not detected by lab management for several days, during which the virus was released outside the containment zone. Sabia is usually spread by rodents and is not believed to be human-to-human transmissible, however, some closely-related arenaviruses (a UTMB specialty) can be spread from person to person. The infected scientist was successfully treated after showing symptoms. The lab director left Yale shortly after the incident.

"*UTMB is propping up a transparency façade through carefully crafted statements that don't mean what they sound like. A careful look at UTMB's words betrays a sad slide toward secrecy*," says Edward Hammond, Director of the Sunshine Project, a biological weapons watchdog in Austin, TX, "*Most of all, I am concerned about how the behavior of UCD and UTMB will impact biological weapons control. The international system to prevent these weapons relies on transparency, on the ability of an informed public to judge the nature and intent of biodefense experiments. This security seems to be an afterthought for these institutions. They are instead preoccupied with public image and scientific rivalries, threatening control of biological weapons with their petty arrogance.*"

The US Department of Energy's proposals to construct and operate biowarfare agent facilities inside its nuclear weapons labs poses an additional, very serious threat to US compliance with the Biological Weapons Convention (BWC). Inside the DOE bio-facilities classified research on bio-agents would be conducted inside classified nuclear weapons development centers - the antithesis of the openness on which the watchdogs insist.

The "No Secrets" Pledge Non-profit biodefense watchdogs are calling on biodefense labs to make a "no secrets" pledge that includes specific transparency elements. So far, they have contacted three proposed BSL4 biodefense laboratories - UCD, UTMB, and (today) Rocky Mountain Labs in Hamilton, MT. Elements of the pledge, to be made in writing, include a commitment to not conduct classified research (or permit it in their facilities) and to operate completely transparent biosafety committees, the groups that review proposed projects. So far, none have responded. In the coming weeks, the watchdogs will contact more of the three dozen institutions across the US who are seeking new or substantially upgraded hot zone facilities. These include Boston University and the University of Illinois at Chicago, which both are seeking BSL4 facilities. Copies of the letters sent to labs are available at: http://www.sunshine-project.org/biodefense/openletters.html (Sunshine Project, 2003).

Title: Terrorism And The Biology Lab
Date: July 2, 2003
Source: New York Times

Abstract: Were those two suspicious tractor-trailers found in Iraq really mobile weapons laboratories? The difficulty we are having answering that question shows just how tricky defending America against bioterrorism is going to be.

In truth, it is possible to imagine a malicious use for virtually any biological research or production site. The difference between a lab for producing lifesaving vaccines and one capable of making deadly toxins is largely one of intent.

As molecular biology continues to advance, this problem will become only more acute. Within a few years it may be possible for an inexperienced graduate student with a few thousand dollars worth of equipment to download the gene structure of smallpox, insert sequences known to increase infectiousness or lethality, and produce enough material to threaten millions of people. Yet, perversely, all of the information and equipment needed to create such a "supervirus" would have been developed in the struggle to cure disease.

The United States is poorly prepared to deal with this intersection of biology and security. One reason is that most of the scientists in positions to help make national security rules are physicists and engineers,

not biologists. Their instincts lead them to solutions that may make sense for nuclear physics but not necessarily for biology. For example, in trying to prevent terrorists and rogue states from developing atomic weapons, it is logical to focus on the details of weapon design and monitor shipments of a short list of specific materials like enriched uranium and plutonium. But putting this sort of emphasis on materials and labs will not suffice on the bioterrorism front, where everyday equipment could be used to create horrors.

In addition, there are few American biologists with experience in security policy, and most biologists remain willfully oblivious about the extent of the biological terrorism threat. Historically, biologists have had an instinctive antipathy toward national security policy, and their role in Washington has been largely limited to raising money for research and fending off restrictions on research involving issues like stem cells and cloning.

Physicists have had a vastly different experience. Since World War II and the Manhattan Project, they have worked in an environment where they often move among universities, national weapons laboratories and Washington policy offices during their careers. Most have grown accustomed to dealing with the burdens of security clearances, protecting sensitive information and even having research results kept secret.

Moreover, physicists have dominated science policy. Since the 1950's, physical scientists and engineers have had a nearly unbroken hold on the directorship of the White House office of science and technology. Physicists know how to exert influence on the Defense Department and the intelligence agencies, and have come to dominate bodies like the Defense Science Board.

Biologists, whether they like it or not, are now beyond the age of innocence. Unless they get involved at high levels of policy-making, there's a grave risk that another bioweapons scare like the anthrax mailings of 2001 will drive Washington to create that inevitable product of bureaucratic panic: a lose-lose solution. In this case, it would most likely be a set of regulations that would strangle biology research while doing little to thwart real security threats.

A comprehensive national bioterrorism strategy will of course take years to develop. But some essential first steps can be taken now. For starters, biologists and their professional organizations should make sure that all researchers spend time seriously considering security risks that could be created by their work. Biologists should work with federal agencies to provide more basic biology training for officials who manage security issues. Universities should set up programs to understand the dangers at the intersection of biology and security, and begin training a new generation of experts in the field. Universities and commercial labs must also work with federal agencies to agree on procedures for dealing with potentially dangerous research in the United States — work that could be a basis for an international effort.

Unless biologists start moving in the right direction on security, they will have only themselves to blame if Washington starts moving in the wrong one (New York Times, 2003).

Title: Bethesda Residents Fear New NIH Lab Would Be Terror Target
Date: July 2, 2003
Source: UCLA

Abstract: A plan by the National Institutes of Health to build a $186 million bio-defense laboratory near a busy Bethesda intersection is provoking concern among some neighbors who worry that terrorists could attack the facility and release deadly microorganisms in the area.

Scientists want to use the labs near the corner of Rockville Pike and West Cedar Lane to study pathogens that cause anthrax, severe acute respiratory syndrome (SARS), West Nile encephalitis, drug-resistant tuberculosis and other potentially lethal diseases that can be contracted through inhalation.

Local officials are powerless to block the project because NIH is an arm of the federal government and not subject to local zoning controls. Under an agreement with NIH, however, local planners are entitled to review the proposal and recommend changes before construction begins in November. Last night, the Maryland-National Capital Park and Planning Commission held an informal public forum, and some neighbors said they fear the project poses a needless risk because terrorists might be tempted to assault the building with a truck bomb, small arms fire or rocket-propelled grenades. They also wondered about the effect of infected animals getting loose.

"The site is just too inviting," said Tom Robertson, of the Parkwood Residents Association, adding that anthrax contamination could result from an attack. "Terrorists might try to put NIH out of business."

Commission planners are raising questions about whether the facility is necessary when similar labs exist around the region -- including high-security labs that NIH is building at Fort Detrick in Frederick County.

"We are looking at the wisdom of locating it in this highly populated area near a Metro station inside the [Capital] Beltway," Marilyn Clemens, a commission planner reviewing the project, said in an interview. "We question this location when the exact same kind of research is going on in Frederick."

Jack Costello, who represents the nearby Bethesda Parkview Citizens Association, said NIH leaders are overconfident about safety.

"They don't seem to understand that the world has changed," he said in an interview. "What might have been an acceptable condition before 9/11 becomes now rather tenuous when it's not the employees of NIH who represent the major threat -- but the people outside. Why would you even consider putting such a threat in a highly populated area right on a major artery when there are other options?"

NIH leaders say they have the funding in hand and that the facilities are essential to expanding the government's capacity to protect the public against bio-terrorism.

NIH plans to construct Building 33, a 160,000-square-foot structure, in the northeast corner of the sprawling campus, about 400 feet from Rockville Pike. The building would house 25 lead scientists and 240 workers in labs rated at bio-safety level 3 (BSL-3) -- a category requiring trained workers wearing personal protective gear to use special physical containment devices to handle pathogens.

BSL-3 labs are equipped with double-door access, negative pressure ventilation systems to keep organisms inside, and special seals on walls, windows and doors.

The project will include an adjacent, six-story parking garage for 1,250 cars to replace the surface parking lost to Building 33.

Some neighbors are concerned that NIH's open door to thousands of foreign scientists is an invitation to trouble. The campus receives thousands of international scientists and visitors every year.

Other BSL-3 and BSL-4 labs have existed on the NIH campus for years without problems, said Tom Kindt, director of the intramural research division at the National Institute of Allergy and Infectious Diseases. BSL-4 labs are those that handle pathogens for which there are no known treatments, such as Ebola, and they have the highest level of precautions.

Security has been tightened considerably since the Sept. 11, 2001, terrorist attacks and, if necessary, he said, Building 33 will use entry systems that rely on a retina scan or a thumbprint. The campus soon will be ringed with a wrought-iron fence, he said.

Kindt, who did not attend the meeting last night, suggested that neighbors are motivated in part by concern that property values will be affected by their proximity to a bio-defense facility.

"They worry that the perception will be that others will say they don't want to buy there," he said, adding that bio-terrorism concerns and emerging infections mean that the campus probably will always be studying the pathogens that are least understood and pose the greatest risks.

"I'd like to say this isn't a trend, but my instinct tells me that emerging diseases are a fact of life," Kindt said. "We're going to have to learn to deal with them. The best defense is good diagnostics, drugs and vaccines" (UCLA, 2003).

Title: High-Containment Biosafety Laboratory Safety Breaches A Growing Concern
Date: October 4, 2007
Source: Suburban Emergency Management Project

Abstract: U.S. Government Accountability Office (GAO) chief technologist Keith Rhodes (Center for Technology and Engineering, Applied Research and Methods, GAO), in his written testimony before the U.S. House of Representatives Subcommittee on Oversight and Investigations, Committee on Energy and Commerce (chair, Democrat John D. Dingell, Michigan, longest-serving member of the House, since 1955), noted that high-containment biosafety laboratories, specifically biosafety levels 3 and 4 (BSL-3 and BSL-4), have been "proliferating" since the September 11, 2001 terrorist attacks. (1)

BSL-3 and especially BSL-4 often contain the most hazardous biological agents, i.e., "any microorganism (including, but not limited to, bacteria, viruses, fungi, rickettsiae, or protozoa) or infectious substance or any naturally occurring, bioengineered, or synthesized component of any such microorganism or infection substance, capable of causing death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism; deterioration of food, water, equipment, supplies, or material of any kind; or deleterious alteration of the environment." (2) Examples of biological agents handled in BSL-4 laboratories are the small pox virus (*Variola major*) and the plague virus (*Yersinia pestis*). Most hospital laboratories are BSL-2 laboratories.

The rationale for the House Committee tasking the GAO with the biosafety laboratory investigation was its "increasing concerns…raised about the safety, as well as operations" of high-containment laboratories. House committee members requested answers to three questions (3):

1. To what extent, and in what areas, has there been an expansion in the number of high-containment labs in the U.S?
2. Which federal agency is responsible for tracking the expansion of high-containment labs and determining the associated aggregate risks?
3. What lessons can be learned from recent incidents at high-containment laboratories?

Rhodes identified two U.S. examples of biosafety laboratory safety/operations issues at the Texas A&M University (TAMU) and Centers for Disease Control and Prevention (CDC) biosafety laboratories.

Example One: TAMU, College Station, Texas, BSL-3 Laboratory Safety Issues

TAMU, Texas' first public institution of higher learning (opened Oct. 4, 1876) and one of a select few academic institutions in the nation to hold triple federal designation as a Land-Grant, Sea-Grant and Space-Grant university, initially received funding from the Department of Homeland Security in 2004 during the ramp up of *agro-security* programs beyond the Plum Island Animal Disease Center at Orient Point, New York. (4) TAMU's has several BSL-3 laboratories whose staff work extensively on animal diseases, including those caused by "select agents" *Brucella melitensis*, *Brucella abortus*, *Brucella suis*, and *Coxiella burnetii*. (5)

Select agents are a category of hazardous biological agents regulated by the Select Agent Program, whose origins date to the 1990s. (6) The CDC writes: “The CDC regulates the possession, use, and transfer of select agents and toxins that have the potential to pose a severe threat to public health and safety. The CDC Select Agent Program oversees these activities and registers all laboratories and other entities in the United States of America that possess, use, or transfer a select agent or toxin.” (7) A list of regulated select agents is available elsewhere (7)

Because TAMU worked with select agents, it needed to comply with guidelines published by the Select Agent Program. TAMU belatedly reported a case of human brucellosis that resulted from an accidental exposure when a BSL-3-authorized lab worker, accustomed only to *Mycobacterium tuberculosis* safety procedures, helped with the operating of the aerosolization chamber in a lab dealing with *Brucella* (i.e., she was not trained or authorized to be in that lab). (8) The afflicted laboratory worker was correctly diagnosed with brucellosis on April 16, 2006 via the Texas State Public Health Lab. (10) The incident was brought to light through public records requests by Edward Hammond of the Sunshine Project, a watchdog group in Austin Texas. (9) The CDC issued an order to TAMU on April 20, 2007 to “cease and desist all work with select agents and toxins,” as described elsewhere. (10) “In an August 2007 investigation, CDC inspectors found a dozen serious violations, including unapproved experiments, lost samples, improper safety training, and lab workers without select-agent authorization, as described elsewhere. (11)

Example Two: CDC Clifton Road, Atlanta, BSL-4 Safety Issues

On June 15, 2007, lightening struck in and around the CDC’s new $214 million infectious disease building on Clifton Road, Atlanta, including the suite of six BSL-4 laboratories, causing a power surge that knocked out power. Remote backup generators never came on. The outage shut down negative air pressure systems, which keep select agents from escaping the containment areas. (12,13) The BSL-4 labs were uninhabited at the time of the lightning strike/power outage even though construction of the building, which had begun in 2001, had been completed in September 2005. (13) Thus, the public and CDC workers were not placed at any risk as a result of the power outage.

Apparently, construction officials warned CDC since 2001 that its backup power system would not keep crucial lab systems from failing in an outage, according to internal documents obtained by *The Atlanta Journal-Constitution*.” (14) CDC determined that the cause of the failure of its power system servicing the BSL-4 laboratory suite was that “some time earlier, a critical grounding cable buried in the ground outside the building had been cut by construction workers digging at an adjacent site. The cutting of the grounding cable, which had gone unnoticed by CDC facility managers, compromised the electrical system of the facility that housed the BSL-4 lab.” (15) The irony of the situation is that it happened to CDC just as CDC was censuring TAMU for its BSL-3 safety violations.

U.S. Expansion of BSL-3 & BSL-4 Laboratories Since 2001

GAO Keith Rhodes and his colleagues determined that the number of known BSL-4 laboratories in the U.S. has grown from 2 (before 1990) to 3 (1990-2000) to 10 (2001-present), which sum up to **15** known BSL-4 laboratories in U.S., as of 2007. (16) Multiple sectors own and operate these BSL-4 laboratories, i.e., federal government (9 labs), academic (4), state (1), and private (1). The two BSL-4 laboratories that existed in the U.S. in 1990 were the federal labs at the U.S. Army’s Research Institute for Infectious Diseases (USAMRIID) in Fort Detrick, Maryland, and at the CDC in Atlanta, Georgia. Between 1990 and 2000, three new BSL-4 laboratories were constructed at Georgia State University in Atlanta (first university BSL-4 lab), the National Institutes of Health campus in Bethesda, Maryland, and a privately-funded lab in San Antonio, Texas.

Many more BSL-3 laboratories than BSL-4 laboratories are believed to exist, according to the research performed by Rhodes, et al. The only definitive data available on BSL-3 laboratories, such as the one at TAMU, exists in a federal database (more below) of laboratories handling select agents. This set of labs must register with the **CDC-USDA Select Agent Program**, as noted above. The number of BSL-3

laboratories currently registered with the Select Agent Program is 1356. Of the 1356, 1042 are registered with CDC and 314 are registered with USDA (United States Department of Agriculture). (17) Two thirds of the registered BSL-3 laboratories are outside of the federal sector.

According to a survey conducted by the Association of Public Health Laboratories (APHL) in August 2004, since 2001 state public health labs have used public health preparedness funding to build, expand, and enhance BSL-3 labs. In 1998, for example, APHL found that 12 of 38 responding states reported having a state public health laboratory at the BSL-3 level. Today, at least 46 states have at least one state public health BSL-3 lab. (17,18)

Federal Agency Responsibility for Tracking BSL-3/BSL-4 Expansion/Risks

"No single federal agency has the mission to track and determine the risk associated with the expansion of BSL-3 and BSL-4 laboratories in the United States, and no single federal agency knows how many such laboratories there are in the United States. Consequently, no one is responsible for determining the aggregate risks associated with the expansion of these high-containment labs," notes GAO's Rhodes. (19)

Lessons Learned about Study of Expansion of BSL-3/BSL-4 Laboratories in the U.S.

Rhodes' group from GAO learned six lessons from their investigation of the expansion of high-containment laboratories in the U.S., as described elsewhere. (20) Four of the lessons are that barriers to reporting errors exist, clearer definition of what constitutes an "exposure" to a biologic agent is needed, laboratory workers need more safety training, and physical infrastructure of high-containment labs needs maintenance after being built.

ConclusionThe U.S. Congress awarded funding to organizations in many sectors to build high-containment laboratories following the terrorist attack on September 11, 2001 and the anthrax bioterrorism in October 2001. The goal was laudable: to expand the nation's preparedness and response capabilities in the face of outbreaks of infectious disease. Insufficient thought, however, appears to have been invested in emplacing mechanisms for measuring and improving the ongoing quality and safety of the new high-containment laboratories (Suburban Emergency Management Project, 2007).

Title: Bio Lab In Galveston Raises Concerns
Date: October 28, 2008
Source: New York Times

Abstract: Much of the University of Texas medical school on this island suffered flood damage during Hurricane Ike, except for one gleaming new building, a national biological defense laboratory that will soon house some of the most deadly diseases in the world.

How a laboratory where scientists plan to study viruses like Ebola and Marburg ended up on a barrier island where hurricanes regularly wreak havoc puzzles some environmentalists and community leaders.

"It's crazy, in my mind," said Jim Blackburn, an environmental lawyer in Houston. "I just find an amazing willingness among the people on the Texas coast to accept risks that a lot of people in the country would not accept."

Officials at the laboratory and at the National Institutes of Health, which along with the university is helping to pay for the $174 million building, say it can withstand any storm the Atlantic hurls at it.

Built atop concrete pylons driven 120 feet into the ground, the seven-floor laboratory was designed to stand up to 140-mile-an-hour winds. Its backup generators and high-security laboratories are 30 feet above sea level.

“The entire island can wash away and this is still going to be here,” Dr. James W. LeDuc, the deputy director of the laboratory, said. “With Hurricane Ike, we had no damage. The only evidence the hurricane occurred was water that was blown under one of the doors and a puddle in the lobby.”

The project enjoyed the strong support of three influential Texas Republicans: President Bush, a former Texas governor; Senator Kay Bailey Hutchison; and the former House majority leader, Tom DeLay, whose district includes part of Galveston County. Officials at the National Institutes of Health, however, say the decision to put the lab here was based purely on the merits. It is to open Nov. 11.

Dr. LeDuc acknowledged that hurricanes would disrupt research. Each time a hurricane approaches the island, scientists will have to stop their experiments and exterminate many of the viruses and bacteria they are studying.

And Hurricane Ike did not provide the worst-case test the laboratory will someday face, some critics say. Ike’s 100-m.p.h. winds were on the low side for a hurricane, yet it still flooded most of the island’s buildings. The university’s teaching hospital, on the same campus as the lab, has been shut down for more than a month.

“The University of Texas should consider locating its biohazards lab away from Galveston Island and out of harm’s way,” Ken Kramer, director of the Lone Star Chapter of the Sierra Club, said. “As destructive as it was, Hurricane Ike was only a Category 2 storm. A more powerful storm would pose an even greater threat of a biohazards release.”

The laboratory is one of two the Bush administration pushed after the Sept. 11, 2001, terrorist attacks. The second is being built at Boston University Medical Center, where it met stiff community resistance.

Not so in Texas, where there was hardly a whimper of protest. For starters, the University of Texas Medical Branch is one of the largest employers on the island of 57,000 people.

In addition, the leaders of the medical school skillfully sold community leaders and politicians on the high-tech safety measures at the lab and on the economic boon to Galveston, an impoverished town in need of the 300 jobs the laboratory would bring.

University leaders met twice a month with community leaders for several years to dispel fears of pathogens escaping. Then they created a permanent advisory committee of residents that included some of their critics.

The campaign to win over residents was effective. In 2004, the university built a small laboratory and won federal approval to study extremely lethal pathogens there. The smaller laboratory — named for Dr. Robert E. Shope, a virus expert — helped persuade federal officials it was feasible to erect the national laboratory next to it.

Nonetheless, some community members remain skeptical about the safety measures.

“It is not a geographically good location, and the safety measures are only as good as the people who work there,” said Jackie Cole, a former City Council member who now serves on a citizen’s advisory board for the laboratory.

Other environmentalists who might have fought the project were bogged down in a battle against a liquid natural gas plant that was to be built in Texas City, a refinery town across a narrow channel from the island.

“It kind of went under the radar,” said Bob Stokes, who heads the Galveston Bay Foundation, a group dedicated to cleaning up water pollution.

Dr. LeDuc and other scientists at the laboratory say it is almost impossible for diseases to escape. The air pressure in the laboratories is kept lower than in surrounding hallways. Even if the double doors into the laboratories are opened accidentally, air rushes in, carrying pathogens up and away through vents to special filters, which are periodically sterilized with formaldehyde and then incinerated.

All the laboratory tables have hoods that suck contaminated air through the vents to the filters, as do the rooms themselves. Liquid waste, feces and urine go to tanks on the first floor, where it is heated to a temperature at which nothing can survive before being put into the sewage system.

Other waste — carcasses of laboratory animals and disposable lab equipment — is sterilized in autoclaves, giant steam-pressure cookers, before being incinerated off site, Dr. LeDuc said.

When hurricanes threaten the island, researchers will shut down their experiments at least 24 hours before landfall, decontaminate the labs and then move the stocks of deadly pathogens into freezers on upper floors, where they are kept at 70 below zero, Dr. Joan Nichols, an associate director of research, said.

Even if the emergency power system were to fail, the freezers can keep the samples of killer diseases dormant for about four days, she said.

The precautions are necessary. The laboratory will do research into some of the nastiest diseases on the planet, among them Ebola, anthrax, tularemia, West Nile virus, drug-resistant tuberculosis, bubonic plague, avian influenza and typhus.

In the top-level secure laboratories, where deadly filoviruses like Ebola are studied, the scientists work in pressurized spacesuits inside rooms with airtight steel doors. Before leaving the secured area, they take a chemical shower for eight minutes in their suits, then a conventional shower, Dr. LeDuc said.

The university’s bid for the laboratory benefited from friends in Washington. Mr. DeLay, who resigned from Congress in 2006, pushed hard to bring the project to his district, as did Mrs. Hutchison, who sits on the Appropriations Committee.

On a visit to Galveston with Mr. Delay in 2005, Mr. Bush said: “This hospital is going to be the Texas center for bioshield research, to help us make sure that our country is well prepared as we engage in the war on terror. No better place, by the way, to do substantial research than right here at the University of Texas.”

Galveston’s medical school has long had a top-notch faculty in infectious diseases; the school’s proposal beat out bids from the University of California, Davis, the University of Illinois at Chicago and the Wadsworth Center in Albany, among others.

Dr. Rona Hirschberg, a senior program officer at the National Institute of Allergies and Infectious Diseases, an agency of the National Institutes of Health, said politics played no role in the decision to build the lab here. The threat of hurricanes was outweighed, she said, by the presence of some of the best virologists in the country, she said.

“You could put it out in the middle of nowhere and it would be a safe, secure facility,” Dr. Hirschberg, a molecular biologist, said. “But the research wouldn’t get done” (New York Times, 2008).

Title: Army Suspends Germ Research At Maryland Lab
Date: February 9, 2009
Source: New York Times

Abstract: Army officials have suspended most research involving dangerous germs at the biodefense laboratory at Fort Detrick, Md., which the F.B.I. has linked to the anthrax attacks of 2001, after discovering that some pathogens stored there were not listed in a laboratory database.

The suspension, which began Friday and could last three months, is intended to allow a complete inventory of hazardous bacteria, viruses and toxins stored in refrigerators, freezers and cabinets in the facility, the Army Medical Research Institute of Infectious Diseases.

The inventory was ordered by the institute's commander, Col. John P. Skvorak, after officials found that the database of specimens was incomplete. In a memorandum to employees last week, Colonel Skvorak said there was a high probability that some germs and toxins in storage were not in the database.

Rules for keeping track of pathogens were tightened after the 2001 anthrax letters, which killed five people. But pressure to improve recordkeeping and security at the Army institute intensified six months ago after the suicide of Bruce E. Ivins, a veteran anthrax researcher, and the Federal Bureau of Investigation's announcement that prosecutors had been preparing to charge Dr. Ivins with making the deadly anthrax powder in his laboratory there.

A spokesman for the institute, Caree Vander Linden, said an earlier review had located all the germ samples listed in the database. But she said some "historical samples" in institute freezers were not in the database, and the new inventory was intended to identify them so they could be recorded and preserved, or destroyed if they no longer had scientific value.

One scientist, who spoke on the condition of anonymity because he was not authorized to comment, said samples from completed projects were not always destroyed, and departing scientists sometimes left behind vials whose contents were unknown to colleagues. He said the Army's recordkeeping and security were imperfect but better than procedures at most universities, where research on biological pathogens has expanded rapidly since 2001.

The suspension will interrupt dozens of research projects at the institute, whose task is to develop vaccines, drugs and other measures to protect American troops from germ attacks and disease outbreaks. Ms. Vander Linden said some critical experiments involving animals — often used to test vaccines and drugs — would not be halted.

News of the suspension, first reported Monday by the Science magazine blog ScienceInsider, comes as the Justice Department has been interviewing scientists at the Army institute to prepare the government's legal defense against a lawsuit filed by the family of Robert Stevens, the Florida tabloid photography editor who was the first to die in the 2001 letter attacks.

That lawsuit, filed in 2003 and delayed by the government's unsuccessful efforts to have it dismissed, accuses officials of failing to assure that anthrax bacteria at Fort Detrick and other government laboratories were securely stored. Dr. Ivins was not suspected in the attacks at that time, but the F.B.I.'s conclusion last year added new weight to the lawsuit's claims.

The F.B.I. has released evidence of Dr. Ivins's mental problems and of a genetic link between the mailed anthrax and a supply of the bacteria in his laboratory. But many of Dr. Ivins's former colleagues at the Army institute have said they are not convinced that he mailed the letters.

The F.B.I. has asked the National Academy of Sciences to convene a panel of experts to review its scientific work on the case, and the bureau and academy are completing a contract for the review, said an academy spokesman, William Kearney.

The anthrax case has underscored the threat of biological attack by biodefense insiders like Dr. Ivins, who have access to pathogens and the expertise to work with them.

The number of such researchers has grown rapidly since 2001, when the anthrax letters set off a spending boom on biodefense that led to a rapid addition of laboratories working on potential bioweapons, notably anthrax.

Before 2001, only a few dozen such facilities worked with anthrax. Today, the Centers for Disease Control and Prevention has registered 219 laboratories to do so, said an agency spokesman, Von Roebuck. He said 10,474 people had been cleared to work with dangerous pathogens and toxins nationwide after background checks by the Justice Department (New York Times, 2009).

Title: Bio Terror Threat From Germ Labs Worries U.S.
Date: November 8, 2010
Source: All Africa

Abstract: Concerned about the threat of biological terrorism, a powerful US senator will lead a team of high-level Pentagon officials on an inspection tour of Kenyan germ laboratories next week.

Richard Lugar, the top Republican on the Senate Foreign Relations Committee, will be accompanied by the director of the US Defence Department's Threat Reduction Agency as well as by the heads of units focused on biological defence and global strategy.

The labs to be inspected are designed for the study of infectious diseases. Work to develop treatments and to help prevent outbreaks also takes place at these facilities.But Pentagon officials warn that the Kenyan labs have not been sufficiently secured against terrorism threats.

"Deadly diseases like Ebola, Marburg and anthrax are prevalent in Africa," Senator Lugar said in a statement announcing a trip that will take him to Uganda and Burundi as well as to Kenya.

"Al-Qa'ida and other terrorist groups are active in Africa, and it is imperative that deadly pathogens stored in labs there are secure.

"These pathogens can be made into horrible weapons aimed at our troops, our friends and allies, and even the American public," the senator added. "This is a threat we cannot ignore."

Mr Lugar said he has been told by Pentagon chief Robert Gates that the inspection tour will help ensure that the governments of Kenya and Uganda work closely with the United States to secure the labs.The US delegation is scheduled to arrive in Kenya on November 16. A list of the sites the Americans will visit has not been released (All Africa, 2010).

Title: Can Biosecurity Go Global?
Date: April 27, 2011
Source: Miller-McCune

Abstract: Outside the U.S., biological labs follow few if any security regulations. A Sandia National Laboratory team works to help those labs prevent deadly microbe releases, accidental and deliberate.

A tall, modest academic with graying temples, Ren Salerno was happily toiling away in obscurity at a small biological threat research program at Sandia National Laboratory in Albuquerque, N.M., "studying issues nobody really cared about," he recalls. Then the attacks on Sept. 11 burst his academic bubble. As one of the few experts on the security of biological agents, Salerno was called to Washington, where, as soon as he arrived, he met with Deputy Secretary of Agriculture James Moseley, a man with a lot to worry about.

Some of the greatest bioterror threats are zoonotic pathogens — microbes that can be transmitted from other animals to humans and vice versa, including the plague, anthrax, Ebola and more. According to a 2001 study from researchers at the University of Edinburgh, 61 percent of the more than 1,400 pathogens that infect humans are zoonotic, and U.S. Department of Agriculture animal health laboratories are littered with them. The USDA, in fact, has more biocontainment labs in the U.S. than either the Centers for Disease Control or the National Institutes of Health.

For days, Washington officials peppered Salerno with questions about national biosecurity infrastructure and the possibility of bio-terrorist attacks, especially with microbes stolen from U.S. facilities. Within a month, Salerno and his team at Sandia had contracts with the USDA to assess and design security solutions for biocontainment labs around the country. Contracts with CDC and the Department of the Army soon followed.

But the stakes were about to rise again. Only weeks after 9/11, letters containing a suspicious white powder were mailed to media companies and two U.S. senators. People started dying. Bioterrorism was no longer a possibility. It was happening.

Before 2001, life scientists were familiar with biosafety — that is, working safely — but biosecurity, or keeping laboratory agents from being misused, was not really part of the scientific conversation outside of the military. "The prospect of somebody choosing to misuse biological agents was quite new and fairly controversial," Salerno says. "The idea of threats and bad guys doing bad things is anathema to most scientists."

Following 9/11 and the ensuing anthrax attacks, the Congress worked with what is lightning speed for the government, passing the Patriot Act at the end of 2001, restricting who was allowed to work with biological agents, and the Bioterrorism Act in 2002, improving the government's ability to prepare for and respond to bioterrorism events. The latter law included a registration program for facilities and people who handle toxins and biological agents — in the U.S.

But even now, anywhere around the world, someone can build a laboratory to work with the most dangerous pathogens and be subject to no construction standards, no operating standards and no safety or security standards, Salerno says. It's a situation that several international organizations are trying to address, and Salerno has helped put together trial biosecurity training programs around the world. But so far, the trials have not been expanded or institutionalized.

"It's just the beginning, I hope," Salerno says. "We're trying to change the paradigm."

After the 2001 anthrax maillings and implementation of the federal legislation they spawned, working with bacterial agents in the U.S. became a "major investment in training and infrastructure," says Paul Keim, a biologist at Northern Arizona University and senior scientist of the lab that identified the anthrax strains used in the 2001 attacks. "A response to the security fears was to raise the biosafety levels, because we didn't really know how to raise security, because we had no standards," Keim says.

Researchers studying anthrax, for example, at biosafety level 2 — which required basic safety precautions like goggles and specialized cabinets with air filters — were suddenly required to fulfill the restrictions of a biosafety level 3 lab. This meant that expensive respiratory equipment, waste decontamination procedures and closed airflow systems were required, suddenly, in hundreds of labs

scattered across the country. “It changed so fast; it’s been very difficult to keep up with the regulations,” he says.

In addition, labs rushed to get security systems. Laboratory managers hired security companies out of the Yellow Pages; they installed locks on doors and windows, put cameras and lights in parking lots and sat security guards at front desks. Many scientists considered the efforts ridiculous and a huge waste of money. If someone broke in, how would the would-be thief know how to identify and transport a pathogen?

“The likelihood of a terrorist commando team attacking a facility with helicopters and grappling guns is extremely low,” Salerno says, laughing. The probability of a scientist going rogue is significantly higher, but scientists were even less happy to discuss that idea. So when Salerno and his team arrived at lab doorsteps to talk about internal security, they met resistance.

“This just wasn’t a topic that life scientists thought about,” recalls Jennifer Gaudioso, a staff member at the International Biological Threat Reduction program at Sandia. “You wouldn’t necessarily think about opening a door for someone with an armful of books beforehand, and now you have to stop and think, ‘Should this person be allowed in here?’”

After an initial evaluation to assess the biological materials in the labs and their basic vulnerabilities, Salerno and the Sandia team — usually three to five members — got down to less glamorous work. With help from human resources personnel, they set up systems to monitor and limit access to the lab, implemented tracking systems to follow the movement of pathogens from room to room and trained lab staffers to look for behavioral changes in colleagues. Overall, Salerno’s team visited dozens of labs around the country. The effort lasted until 2003.

Then, with the largest national labs secure, Salerno and the U.S. government turned to look beyond the country’s borders.

Over the last 20 years, as laboratory tools and technologies have become cheaper, biocontainment labs, once rare, have become numerous. Scientists in countries around the world study pathogens of varying levels of danger — and with varying degrees of security.

For most intents and purposes, international standards or accreditations for bioscience facilities don’t exist. There is a World Health Organization manual on laboratory biosafety that includes tips like, “Children should not be authorized or allowed to enter laboratory working areas,” and, “Labels must not be licked.”

“Today,” Salerno says, “that 100-page document is just woefully inadequate.”

International biosecurity standards are important not only for the prevention of deliberate biological attacks but for the reduction of biological accidents. In 2004, nine cases of severe acute respiratory syndrome, or SARS, were linked to procedural lapses at China’s National Institute of Virology. One infected individual died. In 2006, a lab worker at Texas A&M University became sick with brucellosis, an infectious disease carried by cattle and dogs, after cleaning a chamber containing *Brucella* bacteria. All select-agent research at the school was suspended. In August 2007, some 60 cattle in Surrey, England, were infected with foot-and-mouth disease after the virus leaked from broken pipes running from a nearby infectious disease laboratory. The list goes on.

“An outbreak anywhere, deliberate or natural, is a threat everywhere,” says Andrew Weber, the assistant secretary of defense for nuclear, chemical and biological defense programs. “It’s not something we can just deal with within our own borders.”

Beginning in 2006, professionals in the biological community, especially biocontainment laboratory managers in North America and Europe, began discussing the need for international standards. In February 2008, the European Committee for Standardization published the first international biorisk management standards, developed by 76 participants from 24 countries. This standard, though still voluntary, includes both bio-security information — guidelines that restrict access to agents and toxins, for instance — and practical biosafety measures, such as details of the process of inventorying and disposing of hazardous materials.

“It represented an evolution in thought,” says Salerno, who participated in the formation of the guidelines. “The previously distinct fields of biosafety and biosecurity came together.”

Shortly after the International Biorisk Standards were published, Salerno was contacted by Nicoletta Previsani, head of biosafety and laboratory biosecurity at the World Health Organization in Geneva, about creating a hands-on risk management course to be taught to people involved in biological labs around the world. “Biosafety is not anymore an issue that only concerns the worker at the bench,” Previsani says. “Instead of just teaching biosafety, we thought we needed a different approach that addresses the management of big risks.”

Biologists are not typically mathematicians or modelers, nor are they taught to assess risk while getting a doctorate in microbiology or virology. “It becomes more of a management problem than simply a technical problem,” Salerno says.

Previsani corralled Salerno and Stefan Wagener, director for biosafety at the Canadian Science Centre for Human and Animal Health in Winnipeg, Canada, to serve as experts for the course and invited Pamela Lupton-Bowers, a professional adult educator, to integrate teaching techniques. The four professionals locked themselves in a room for five days, and in January 2010, the WHO premiered the first-ever international biosecurity training program. The two-week course trains laboratory leaders in assessing and mitigating the risk of deadly agents in the laboratory. Perhaps more important, the course trains those leaders to train others.

Workshops were held in Jordan, Ecuador, Sweden, the Maldives, Kenya and Thailand, and participants have already begun teaching biosecurity workshops in their own countries: After attending the WHO course, Rafiq Saleh, head of the public health laboratory at the Ministry of Health in Amman, Jordan, went on to teach two biosecurity courses of his own, training more than 30 lab technicians in Jordan. “We really feel that it’s been useful to our country,” he says.

Still, Salerno says, the program is limited by numbers. Overall, it has trained just 60 participants, not all of whom have gone on to train others. “If [the course] is a one-time extravaganza, it won’t mean very much because we’ve touched so very few people,” Salerno says. “On the other hand, if the powers that be can recognize it as a precedent-setting, paradigm-shifting event, and can leverage it and build from it explicitly, then I think hopefully five or 10 years from now, we’ll look back on it and say, ‘Wow, that was really formative.’

“But the jury’s still out on that” (Miller-McCune, 2011).

Title: How Secure Are Labs Handling World's Deadliest Pathogens?
Date: February 15, 2012
Source: Reuters

Abstract: To reach his office in Galveston National Laboratory, where scientists study deadly pathogens such as the Ebola and Marburg viruses, director James Le Duc swipes his key card at the building's single entrance, which is guarded 24/7 by Texas state police.

As he walks the hallways, more than 100 closed-circuit cameras watch him. Seven more locked doors stand between him and his destination. Entering a research lab requires another card swipe and, for labs housing especially dangerous microbes, a fingerprint scan.

To keep deadly viruses from escaping, each lab uses negative air flow and dedicated exhaust systems. Workers wear full-body air-supplied suits. To test its security, Galveston ran an exercise with the Federal Bureau of Investigation simulating a would-be intruder and another, with the University of Texas, war-gaming a campus shooter. The facility passed both tests.

Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flu epidemic - when as many as 40 million people died - seem like a summer cold. Many of the precautions it takes are not required by law.

"A lock on the door is the only specified requirement," said Rutgers University virologist Richard Ebright. "There is no explicit requirement for guards, bio-identity checks, or video monitoring like 7-Elevens have. The rules require very strict paperwork but no real physical security."

Labs whose experiments on dangerous pathogens are funded by the U.S. government must follow specific rules to keep the microbes from escaping, but those rules are not enforceable for researchers working with private funds. Outside the country, security and safety requirements vary widely, experts say.

"It's all subject to interpretation," said a scientist close to the U.S. National Science Advisory Board for Biosecurity, which monitors research that might pose a bioterrorism threat.

If a lab receiving U.S. government funding violates the guidelines, the Centers for Disease Control and Prevention can cut off the flow of money, "but it can't shut you down," the scientist said. "I don't have a lot of confidence in our biosafety right now."

Immediate Concern Over Bird Flu Research

Questions about biosafety - keeping dangerous microbes from escaping labs - and biosecurity - keeping out bad actors intent on releasing or stealing the pathogens - are front and center for global health officials due to a growing controversy over experiments with the bird flu virus.

Scientists and government officials will meet on Thursday and Friday at the World Health Organization in Geneva to hash out the safest way to deal with the studies and address fears that lab-engineered viruses could either escape or be used as a bioterror weapon.

Last year, labs at the University of Wisconsin, Madison, and Erasmus MC in Rotterdam independently created mutant forms of avian influenza, known as H5N1, that can be transmitted directly among mammals. The natural strain can be caught only through close contact with infected birds.

One immediate question is what level of safety should be required for that research. So far, it has been conducted at biosafety-level 3 labs. Under U.S. guidelines, BSL-3 applies to agents that cause "serious or lethal disease" but do not ordinarily spread between people and for which treatments or preventives exist. BSL-4 applies to agents with no preventives or treatment.

The Wisconsin and Erasmus scientists received approval to conduct their experiments under BSL-3 conditions because, they argued, antiviral drugs can treat avian flu. Erasmus was subject to U.S. guidelines because its experiments were funded by the National Institutes of Health.

"The viruses generated here are sensitive to influenza antivirals" so they fit the BSL-3 criteria, said Rebecca Moritz of the University of Wisconsin's Office of Biological Safety. There are "multiple physical barriers and the facilities are monitored at all times."

All lab workers there wear disposable jumpsuits and powered respirators in addition to scrubs, shoes, shoe covers, and double gloves, she said. Each time scientists leave the lab, they must remove their protective equipment and shower before putting on their street clothes. Erasmus does the same.

The labs said they have emergency and security plans for a wide variety of threats. Neither would provide specifics on those security measures on the grounds the details could aid any would-be attackers.

Such precautions are not foolproof, however. According to a 2009 report by the Government Accountability Office, there were 400 accidents at BSL-3 labs in the United States in the previous decade.

Some scientists therefore argue that the experiments creating contagious H5N1 mutants should be done only at BSL-4 facilities.

"An escape would still produce the worst pandemic in history," said Michael Osterholm of the University of Minnesota and a member of the NSABB, at a symposium at the New York Academy of Sciences this month.

"The risk of this agent, if in fact it can be readily transmitted between humans, is catastrophic," he told Reuters. "Until we know how this virus actually acts in humans, I think you have no choice but to move this (research) to BSL-4."

Space Suits

BSL-4 labs, like the one in Galveston, have all the BSL-3 precautions and are also in isolated facilities with dedicated exhaust, vacuum, and other systems to prevent escape. In addition, workers must wear what are essentially space suits.

But the BSL guidelines relate to biosafety, not security.

The debate over H5N1 experiments has also raised the question of how secure BSL-3 and BSL-4 labs are. It has assumed a greater urgency as the number of known U.S. BSL-3 labs has surged from 415 in 2004 to 1,495 in 2010.

Hundreds or thousands of BSL-3 laboratories may be unknown, however, because "no federal agency is required to track the number of biocontainment labs," found a 2011 report by the National Research Council, an arm of the U.S. National Academy of Sciences.

Globally, BSL-3 labs have recently been built or are under construction in Bangladesh, India, Indonesia, China, Brazil, and Mexico, among others, the NRC found. Yet "many countries have few or no regulations," the NRC concluded.

BSL-4 labs are also proliferating. A 2011 workshop in Istanbul organized by the NRC was told that there are 24 BSL-4 facilities, including in Germany, Gabon, Sweden, Russia, South Africa and Canada. The United States has six, including Le Duc's, which is part of the University of Texas Medical Branch.

"We are now in a proliferation race for BSL-3 and 4 labs," said Laurie Garrett, the senior fellow for global health at the Council on Foreign Relations in New York. "Having such a facility is a mark of national sophistication. But the spread of these labs allows the unfettered proliferation of the world's most dangerous microbes."

Indeed, deadly microbes have escaped high-security labs. Between 1978 and 1999, just over 1,200 people acquired infections from BSL-4 labs around the world; 22 were fatal. Since then, lab workers have been killed by Ebola and SARS, or severe acquired respiratory syndrome. Thieves tried to steal animal pathogens from an Indonesian lab in 2007, the NRC workshop was told.

Guidelines, Not Law

U.S. research on dangerous human pathogens must follow safety guidelines set by the CDC. They may or may not be followed at labs elsewhere in the world, concluded the NRC workshop.

In part, that is because BSL-3 and BSL-4 designations "have very wide interpretations," said Ren Salerno, senior manager for cooperative threat reduction programs at Sandia National Laboratories, part of the U.S. Department of Energy.

Although U.S. government-funded research must adhere to biosafety guidelines, they "do not have the force of law," said Ebright. "If you're a private lab, privately funded, there is no requirement that you comply." The CDC declined to make a spokesperson available to discuss biosafety and biosecurity.

Many labs in developing countries say they adhere to guidelines as tough as those applied to U.S. facilities. If they receive U.S. funding, lab personnel must pass an FBI security risk assessment, for instance.

In Thailand, police check the background of all staff members and require fingerprints to access freezers containing microbes.

A BSL-4 lab in Australia employs a security staff of 10. It is housed in a fenced, isolated building and has infrared cameras to detect intruders. Gabon's BSL-4 lab is surrounded by electric fences and has a guard on duty at all times. Only three people know the code to the freezer holding Ebola.

U.S. biosecurity requirements are laid out in the 2001 Patriot Act, which says that facilities storing "select agents" - microbes and toxins that could be used as bioweapons - must develop and implement a plan to keep them secure. Such labs must also provide the government the names of everyone with access to the pathogens; none can be on a terrorism watch list.

Experts dismiss Hollywood's nightmare scenarios such as bombing a BSL-4 lab or crashing a 737 jumbo jet into one.

"The one nice thing about pathogens is that they'll self-destruct under intense heat," said Salerno.

What Salerno does give credence to is either an accidental escape or a plot to steal a pathogen by lab employees acting on their own or under duress.

"As more of this kind of research occurs, and it will, especially internationally, the risks of both accidental release or potential theft and misuse will increase as well," Salerno said. "The science is way ahead of governments' ability to regulate the science" (Reuters, 2012).

Title: Lack Of Security At Labs Handling World's Deadliest Pathogens Could Lead To Epic Pandemic
Date: February 20, 2012
Source: Natural News

Abstract: The mainstream media appears to be priming the public consciousness once again for the inevitable release of a highly-deadly pathogen in the very near future. A recent *Reuters* report explains that many of the world's biosafety level-3 (BSL-3) and biosafety level-4 (BSL-4) laboratories, which house

some of the deadliest pathogens in existence, may not be as safe and secure as people think they are because federal regulations technically require nothing more than a single locked door at such facilities as a security measure.

According to the report, some labs voluntarily employ rigorous safety and security measures, including the Galveston National Laboratory in Texas, which is a highly-protected complex with at least eight levels of secured entry, closed-circuit video monitoring, and negative air flow and dedicated exhaust systems to prevent the accidental release of deadly pathogens. But many other such labs do not have this same tight level of a security, as federal law does not regulate the safety protocols used by private research labs.

"Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flue epidemic -- when as many as 40 million people died -- seem like a summer cold," says the report. "Many of the precautions it takes are not required by law."

Will the militarized H5N1 avian flu strain be 'accidentally' released from an unsecured BSL facility?

The report conveniently comes just a few months after it was first announced that scientists in Europe had deliberately created a weaponized H5N1 avian bird flu strain capable of spreading between humans (http://www.naturalnews.com/034228_bioterrorism_flu_strain.html). And since that announcement, there has been a lot of chatter about whether or not the results of this creation should be published in scientific journals, and what the likelihood is that this vicious strain will someday get released into the wild where it could kill off populations around the world at pandemic levels.

The stage is being set, in other words, for the "accidental" release of one of these pathogens at some point in the future, upon which there will be a host of scapegoats to blame. And since all this private research being conducted on deadly viral and bacterial strains at private BSL-3 and BSL-4 labs around the world is apparently not much of a security concern to the federal government, it appears that it is only a matter of time before something catastrophic occurs.

There are also few specifics on the types of research that must be conducted in BSL-4 labs versus BSL-3 labs, which means that the deadly new H5N1 mutant strain can technically be conducted at either, even though BSL-3 labs are intended for less-serious bacterial and viral strains. This is highly concerning because, according to a 2009 Government Accountability Office (GAO) report, there were 400 accidents at BSL-3 labs just in the U.S. alone that year (Natural News, 2012).

Title: More Than 200 Mishaps Reported At Fort Detrick In 2010, 2011
Date: March 14, 2012
Source: Bio Prep Watch

Abstract: The more than 200 mishaps reported at the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick in 2010 and 2011 will be used to determine safer practices at the labs in the future.

The number of incidents was up from 2009, when 64 mishaps were reported, and from 2008, when 42 cases were filed. The increased number of reports was partly the result of an institutional change to more effectively assess the effectiveness of the lab's personal protective equipment. More reports gives the facility more data with which to track trends, the Frederick News Post reports.

In one 2010 incident, an employee was infected with Western equine encephalitis, which can cause flu-like symptoms, brain swelling, coma and death. The employee was infected when opening vials under a hood using a special filter and ventilation system. The employee realized the error, applied a fixative, decontaminated the lab and notified the appropriate personnel.

“The division held a safety stand-down day to reinforce handling and processing of viruses between laboratories,” a safety officer said in the report, according to the Frederick News Post. “Individual who was involved has been removed from the laboratory pending review and assessment of abilities.”

The labs have been under major scrutiny since Bruce Ivins, an Army researcher who worked in USAMRIID labs, committed suicide in 2008 after he was accused of being responsible for sending the deadly 2001 anthrax letters.

The researchers report everything from being rear-ended on the way to work to tears in protective wear. Reports relating to the lab specifically lead to changes in procedure and equipment.

“The important thing is that people are making reports because that’s how we make sure that change occurs,” W. Emmett Barkley, the president of Proven Practices LLC, said, according to the Frederick News Post. “I think the culture is that if you do something wrong, if something happens, if a piece of equipment breaks, it’s important to report that. It’s part of the process for developing safe science” (Bio Prep Watch, 2012).