

Plutonium is missing, but the government says nothing

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Two security experts from the Department of Energy's Idaho National Laboratory drove to San Antonio, Texas, in March 2017 with a sensitive mission: to retrieve dangerous nuclear materials from a nonprofit research lab there.

Their task, according to documents and interviews, was to ensure that the radioactive materials did not fall into the wrong hands on the way back to Idaho, where the government maintains a stockpile of nuclear explosive materials for the military and others.

To ensure they got the right items, the specialists from Idaho brought radiation detectors and small samples of dangerous materials to calibrate them: specifically, a plastic-covered disk of plutonium, a material that can be used to fuel nuclear weapons, and another of cesium, a highly radioactive isotope that could potentially be used in

INL response to Center for Public Integrity article

On July 16, 2018, the Center for Public Integrity published a story about the theft of radiation detectors and a small sample of radioactive materials from a vehicle in San Antonio, Texas, on March 21, 2017.

Idaho National Laboratory wants to make sure everyone understands that at no time was public health or safety compromised, and to clarify the following INL-related points:

a so-called “dirty” radioactive bomb.

But when they stopped at a Marriott hotel just off Highway 410, in a high-crime neighborhood filled with temp agencies and ranch homes, they left those sensors on the back seat of their rented Ford Expedition. When they awoke the next morning, the window had been smashed and the special valises holding these sensors and nuclear materials had vanished.

More than a year later, state and federal officials don’t know where the plutonium – one of the most valuable and dangerous substances on earth – is. Nor has the cesium been recovered.

No public announcement of the March 21 incident has been made by either the San Antonio police or by the FBI, which the police consulted by telephone. When asked, officials at the lab and in San Antonio declined to say exactly how much plutonium and cesium were missing. But Idaho lab spokeswoman Sarah Neumann said the plutonium in particular wasn’t enough to be fashioned into a nuclear bomb.

It is nonetheless now part of a much larger amount of plutonium that over the years has gone quietly missing from stockpiles owned by the U.S. military, often without any public notice.

Unlike civilian stocks, which are closely monitored by the Nuclear Regulatory Commission and openly regulated – with reports of thefts or disappearances sent to an international agency in Vienna — the handling of military stocks tended by the Department of Energy is much less transparent.

The Energy Department, which declined comment for this story, doesn’t talk about instances of lost and stolen nuclear material produced for the military. It also has been less willing than the commission to punish its contractors when they lose track of such material, several incidents suggest.

That nontransparent approach doesn’t match the government’s rhetoric.

Protecting bomb-usable materials, like the plutonium that went missing in San Antonio, “is an overriding national priority,” President Obama’s press office said in a [fact sheet](#) distributed during the fourth and final Nuclear Security Summit that he hosted in late March 2016. a

- The “dangerous nuclear materials” stolen from the rental vehicle referenced in the story were “check sources,” part of a toolbox the INL team uses to calibrate and check the team’s radiation detection equipment;
- Check sources contain trace amounts of radiation and are considered safe for handling by the public;
- A typical home smoke detector has a slightly higher amount of radioactivity than the check sources stolen. Both of these pose no significant radiation exposure;
- There is no risk the check source material could effectively be used in a radiological dispersal device or in other ways to harm the public;
- INL reported the theft immediately to law enforcement and regulatory agencies at the state and federal level. The employees followed all appropriate INL procedures and protocol for reporting the theft.

INL is part of a team of experts in the areas of environmental and

Washington event attended by more than 50 heads of state.

The administration boasted in the declaration that America's security standards for military-grade materials "meet or exceed the recommendations for civilian nuclear materials" made by the Vienna-based International Atomic Energy Agency. It also touted the strength of its tracking of such materials, which it said would "ensure timely detection and investigation of anomalies, and deter insider theft/diversion."

The United States also boasted about its transparency, explaining that it "has published studies and reviews of nuclear security incidents, including lessons learned and corrective actions taken."

President Donald Trump, speaking to a military audience at Fort Myer in Arlington, Virginia, on Aug. 21, 2017, parroted the Obama administration's refrain that "we must prevent nuclear weapons and materials from coming into the hands of terrorists and being used against us, or anywhere in the world for that matter."

The Trump administration's Nuclear Posture Review, released in February, similarly emphasized the threat posed by nuclear terrorism, and asserted that "preventing the illicit acquisition of a nuclear weapon, nuclear materials, or related technology and expertise by a violent extremist organization is a significant U.S. national security priority."

But America's record of safeguarding such materials isn't sterling. Gaps between the amount of plutonium that nuclear weapons companies have produced and the amount that the government can actually locate occur frequently enough for officials to have created an acronym for it – MUF, meaning "material unaccounted for."

Just a cat or a brick

The gaps have shown up at multiple nodes in the production and deployment cycle for nuclear arms: at factories where plutonium and highly-enriched uranium have been made, at storage sites where the materials are held in reserve, at research centers where the materials are loaned for study, at waste sites where they are disposed, and during transit between many of these facilities.

Production of the bomb materials was so frantic during the Cold War that a total of roughly six tons of the material – enough to fuel hundreds of nuclear explosives – has been declared as MUF by the government, with most of it presumed to have been

radiological hazards, security, transportation, property and logistics that has, since 2006, removed thousands of radioactive sources from domestic sites and moved them to approved disposal facilities. These materials are used in the public realm every day. For instance, hospitals use radionuclides to treat illnesses and blood banks use blood irradiators to ensure the safety of the country's blood supply. This work is part of the U.S. Department of Energy's National Nuclear Security Administration's (NNSA) global campaign to prevent radioactive materials from falling into the wrong hands. More information about the Source Recovery Program can be found here: <http://osrp.lanl.gov/>. And while INL regrets the theft of the test equipment and check sources, it takes great pride in the important work that has been accomplished over the last 12 years.

trapped in factory pipes, filters, and machines, or improperly logged in paperwork. (That figure, which dates from 2012, has not been publicly updated.)

For nearly 40 years, “DOE officials and their predecessors ... did not have an effective capability within their accounting systems to know if significant quantities of” bomb-grade uranium were being diverted to illicit use, according to Charles Ferguson, a physicist who is now director of the Nuclear and Radiation Studies Board at the National Academies of Sciences.

The Government Accountability Office declared in Sept. 2015 that the department also [had never conducted an authoritative inventory](#) of the location and quantity of plutonium loaned by the United States to other nations, and that eleven foreign sites with U.S.-made bomb-grade uranium had not been visited by U.S. inspectors in the previous 20 years. Many sites inspected before 2010 lacked rigorous security systems, the GAO warned.

Asked for comment, National Nuclear Security Administration spokesman Greg Wolfe said in an email on June 29 that his agency is still working with DOE on that inventory, three years later. He did not say when it would be finished.

Regarding transfers to academic researchers, government agencies, or commercial firms within the United States, the Energy Department’s inspector general concluded in 2009 – the most recent public accounting – that at least a pound of plutonium and 45 pounds of highly-enriched uranium loaned from military stocks had been officially listed until 2004 as securely stored, when in fact [it was missing](#).

As little as nine pounds of highly-enriched uranium (the weight of an average cat) or 7 pounds of plutonium (the weight of a brick) can produce a functioning nuclear warhead, according to Hans Kristensen, director of the Nuclear Information Project at the Federation of American Scientists. So the missing amount in this category alone — the MUF stemming from loans to researchers from military stocks — is still enough to produce at least five nuclear bombs comparable to those that obliterated Hiroshima and Nagasaki, experts say. Plutonium in any quantity is also highly carcinogenic.

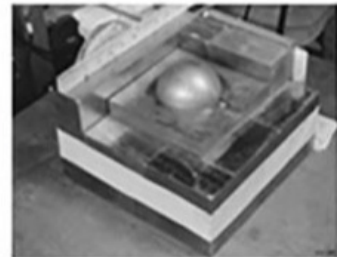


The amount of HEU needed to build a nuclear weapon could fit in a 5lb bag of sugar.



The amount of weapons-grade plutonium needed to build a bomb is roughly the size of a grapefruit.

US Department of Energy



The amount, respectively, of highly-enriched uranium and plutonium needed to make a nuclear weapons. Nuclear Threat Initiative

“Considering the potential health risks associated with these materials and the potential for misuse should they fall into the wrong hands, the quantities written off were significant,” the inspector general’s report stated. It also harshly criticized the Energy Department for failing to correct dozens of poor accounting and monitoring practices flagged in a probe of the problem eight years earlier.

The Energy Department, the inspector general said in its report, still “may be unable to detect lost or stolen material.” No independent probe of the department’s capabilities has been conducted since then. When asked whether the GAO conclusions were still valid, a spokesman for the department did not respond.

Russians know even less about their own missing bomb materials

The United States is not alone in its uncertainty about the location of bomb-usable materials. U.S. officials who have studied Russia’s production practices say its accounting system has many of the shortcomings that America’s had, if not more, partly because the Russian factory logbooks were routinely jiggered to match official state production quotas.

Russia hasn’t tried to look more deeply into these records to assess the actual quantities of material it produced and can locate now, and thus the size of its own MUF. More than a decade ago, according to U.S. experts, some of its top physicists turned aside efforts by specialists in the United States to collaborate on a study of it. The U.S. National Intelligence Council has repeatedly said that Russian accounting was so poor that undetected smuggling likely occurred.

The details of how or why U.S. nuclear materials go missing from military stocks – or the quantity of such materials involved in individual incidents — are not disclosed by the government. But the Nuclear Regulatory Commission annually publishes a tally of lost, missing or stolen radioactive material from civilian nuclear stocks (those typically used for oil and gas exploration, medical purposes, academic research and nuclear power).

In a Jan. 2018 report, for example, the NRC stated during the previous year, eight such items had gone missing and two had not been recovered. None were of the type or quantity useable in a nuclear weapon. Whenever additional material goes missing, the NRC discloses it publicly.

The Nuclear Threat Initiative, a nonprofit Washington group that wants to tighten the security of nuclear materials around the globe, noted in a 2015 report that the civilian stocks subject to the most transparent and uniform monitoring amount to [just 17 percent](#) of all those held by governments. “The absence of any international standards” for securing and monitoring the remaining 83 percent in military hands is dangerous, the group said.

Concern that nuclear materials are being sought around the world to deliberately cause harm is real, according to the International Atomic Energy Agency. In a 2017 report, the international agency identified [270 times between 1993 and 2016](#) when individuals acquired nuclear materials “for trafficking or malicious use.” Twelve involved highly-enriched uranium, and two targeted plutonium. Some of these cases were “more organized, better resourced and ... involved perpetrators with a track record in trafficking nuclear/radioactive material,” the report said.

Sloppiness in transit

Ensuring appropriate protections are in place for military-related nuclear materials has ironically proven a lot harder than implementing tight security for civilian nuclear materials, said Miles Pomper, a senior research associate at the James Martin Center for Nonproliferation Studies in Monterey, California, who participated in the NTI study. “Politically and diplomatically, it’s a lot more difficult,” Pomper said. “We’re not having significant conversations on this issue.”

In the San Antonio incident, the San Antonio police were dumbfounded that the experts from Idaho did not take more precautions. They “should have never left a sensitive instrument like this unattended in a vehicle,” said Carlos Ortiz, spokesman for the San Antonio Police Department.

The personnel from Idaho National Laboratory whose gear was stolen were part of the [Off-Site Radioactive Source Recovery Program](#) based at Los Alamos National Laboratory in New Mexico, with an annual budget of about \$17 million. Overseen by the National Nuclear Security Administration, the program has scooped up more than [38,000 bits of radioactive material](#) loaned to research centers, hospitals and academic institutions since 1999 – averaging 70 such missions a year. No state has returned more borrowed nuclear materials than Texas, where the recovery program has collected 8,566 items.

Details of the incident were pieced together by the Center for Public Integrity from a police report obtained under a Freedom of Information Act request after a brief description of the incident appeared in an internal Energy Department report.

While the Idaho National Laboratory depicted the site of the theft – a Marriott hotel parking lot — in a report to the Energy Department as a secure spot with high walls on two sides, a clear line of sight to the hotel’s front door, and patrolling guards, San Antonio police statistics show that theft was just one of 87 at the Marriott hotel or its parking lot in 2016 and 2017.

Ortiz said the department called an FBI liaison to a joint terrorism taskforce, who advised them to take as many fingerprints in the car as possible. But detectives found no useable prints, no worthwhile surveillance video of the crime, and no witnesses. A check of local pawn shops – to see if someone had tried to sell the sensors – turned up nothing.

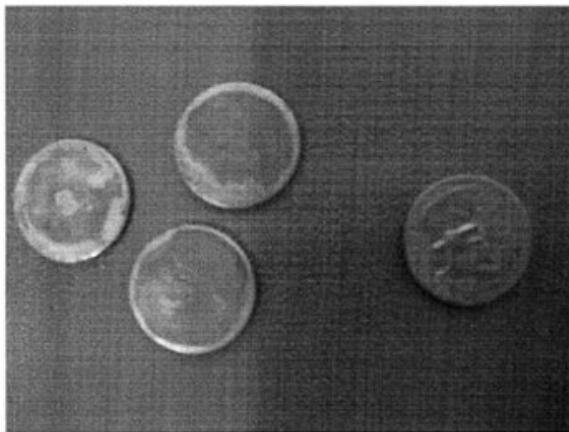
One of the Idaho National Laboratory specialists told them, Ortiz said, “that it wasn’t an important or dangerous amount” of plutonium. So they closed the investigation to avoid “chasing a ghost,” Ortiz said.

Idaho National Laboratory spokeswoman Sarah Neumann responded that “from INL’s perspective, the theft was taken seriously,” and properly reported to the police and the

perspective, the theft was taken seriously and properly reported to the police and the Energy Department. But she declined to say if those involved faced any internal consequences. "There is little or no danger from these sources being in the public domain," she said.

Lab documents state that a month after the incident, one of the specialists charged with safeguarding the equipment in San Antonio was given a "Vision Award" by her colleagues. "Their achievements, and those of their colleagues at the laboratory, are the reasons our fellow citizens look to INL to resolve the nation's big energy and security challenges," Mark Peters, the lab director, [said in an April 21, 2017, news release](#).

At the end of the fiscal year 2017, the Energy Department awarded the lab contractor that employed the guards assigned to pick up the nuclear material, Battelle Energy Alliance LLC, an "A" grade and described their overall performance as "excellent." It further awarded them 97 percent of their available bonuses, providing \$15.5 million in profit, and in December 2017 the Department of Energy announced a five-year extension of Battelle's contract to operate Idaho National Laboratory, giving the contractor the job until at least 2024.



The image on the left depicts plutonium samples, comparable in size to one that's been missing from Idaho State University for at least 14 years, beside a U.S. quarter. On the right, a Ludlum 3030 radiation meter like the one shown here was stolen from Idaho National Laboratory employees along with other detectors and samples of plutonium and cesium in March 2017.

Nuclear Regulatory Commission / Department of Energy

The NRC, in contrast, has imposed six financial penalties on civilian institutions that lost or mishandled nuclear materials in the past year and a half alone (it has imposed and then waived penalties on another 20 institutions during this period). The largest penalty

imposed was \$22,500 against Qal-Tek Associates, a radiation detector manufacturer in Idaho Falls, for failing to “contain” radioactive materials during their transport, according to a published notice of the fine.

The most recent NRC fine was imposed this May against Idaho State University for its inability to find a quarter-sized piece of plutonium in a radiation meter that it had borrowed from Idaho National Laboratory in 1991. An Idaho State University employee conducting an inventory of such materials last October expected to find 14 of the Plutonium-239 pieces, each weighing less than four-hundredths of an ounce, but found just 13. The inspector reported this discrepancy to the university’s radiation safety officer, who in turn reported it to the NRC.

The NRC imposed fines totaling \$8,500 for the college’s mishandling of the plutonium, and the years-long delay in reporting it missing. Idaho State University paid the fines June 6, according to Cornelis Van der Schyf, the university’s vice president for research and dean of the graduate school. The missing plutonium’s whereabouts remain unknown.

The [Center for Public Integrity](#) is a nonprofit, nonpartisan, investigative newsroom. More of its national security coverage can be found [here](#).

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