

Toxic Contamination at Spring Valley, Washington, D.C.

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In December 2000, environmental scientists found arsenic in the soil of American University's daycare center at higher levels than the EPA considers safe.

Two months later, at a community meeting sponsored by the Army Corps of Engineers, angry residents of a neighboring community, Spring Valley, demanded that every one of their properties—approximately 1,200 in all—be tested for arsenic in the soil. Apparently, their fears had not been allayed by an EPA risk assessment released one year earlier, which found arsenic contamination only at a handful of Spring Valley properties.

Why did the homeowners demand that every property be tested? Was their demand reasonable or paranoid? If it was irrational, why did the Army agree to conduct the tests? Could governmental agencies have addressed residents' concerns before they escalated to such an extent? How might this situation have been better resolved?

The following paper addresses these questions. But first, some background . . .

Spring Valley's Legacy

In 1917, as the Great War raged in Europe, America's political and military leaders knew what awaited U.S. troops when they reached the battlefields on the far side of the Atlantic—a new and terrible weapon—*poison gas*. Two years earlier, the Germans had begun gassing soldiers of the Allied Powers with mustard, an agent that blisters, blinds, and kills. Now, as the nation's leaders prepared to enter the fray, they decided that America must develop a chemical-weapons facility of its own to prepare the departing troops for this hideous eventuality. Thus, the Army established Camp Leach, a site analogous to the next war's Los Alamos, on land leased from American University. In a span of two years, the Army cycled-through 100,000 soldiers for training with chemical weapons.¹

Camp Leach, with a staff of 1,200 engineers and chemists, became the second-largest producer of poison gas in the world during the closing years of the war.² Each day, the camp's chemists concocted hundreds of pounds of poisons and passed them along to soldiers for field-tests. On the hillsides and in trenches in a valley nearby, soldiers gassed dogs, goats, and other animals with a variety of chemical agents, including the newly developed, arsenic-derived, lewisite.

By today's standards, the Army was extremely negligent in its handling of the toxins. Soldiers conducted tests on one side of Massachusetts Avenue, for instance, as traffic proceeded down the thoroughfare. According to a contemporaneous Army memo, "from time to time clouds of gas are liberated which have produced sickness among the neighboring residents."⁴ In fact, one August day in 1918, a cloud of mustard gas forced former Senator Nathan B. Scott, his wife and sister to flee the front porch of their house.⁵ Despite the Scotts' efforts to avoid the miasma, vapors drifted inside, rendering them seriously ill.

Meanwhile, across the Atlantic, chemical weapons were inflicting hundreds of thousands of casualties on the Allied Forces. Fortunately, however, even dreadful things eventually come to an end. When the Great War ended, the Army abandoned Camp Leach, and shipped some of the waste to the Edgewood Arsenal near Baltimore. The rest (as the Executive Director of the

Chemical and Biological Arms Control Institute explained in 1993) “was just disposed of by what was then the common practice: Dig a hole, throw it in there and walk away.”⁶

Once buried, the munitions and jugs of toxic chemicals virtually ceased to exist in the minds of the Army, American University, and the public at large. True, a 1921 A.U. publication mentioned that munitions were buried on campus;⁷ and a 1937 book, *Washington: City and Capital*, referred to pits for chemicals and munitions that could be seen on A.U. grounds.⁸ Still, most people remained ignorant of the subterranean hazard. In 1926, when the W.C. & A.N. Miller Company bought farmland in the valley below American University, they found no mention of a dump in the land records, according to a grandson of one of the developers.⁹ Thirty years later, when an American University paper reported the halting of construction of the campus television station due to the discovery of a bomb at the site, the subject of the story was the halting of construction—not the discovery of the bomb.¹⁰ And once the bomb was gone, the incident faded from the collective consciousness.

But not everyone forgot. In 1986, A.U. officials asked the Army to conduct an investigation of the school’s property saying they were concerned “that chemical munitions, bulk containers of chemical agent, and other chemical material were buried at the university or in adjacent Spring Valley following World War I.”¹¹ In the requested report, the Army Toxics and Materiel Agency gave the area a clean bill of health. According to an Army spokesman, the investigators assumed the area was safe because extensive disruption of the ground due to farming and development in the area over many decades had unearthed no weapons or containers of chemical agents of any kind.¹²

Nonetheless, six years later, workers suffering with irritated eyes and burning skin raced from a Spring Valley construction site to a hospital emergency room. A buried bottle, broken by the workers, had quickly enveloped them in toxic fumes, triggering their abrupt departure.¹³ Although that 1992 incident escaped media scrutiny, the next encounter between construction workers and toxic refuse would not pass unnoticed.

The *Washington Post* began reporting the saga of Spring Valley on January 5, 1993, when a backhoe operator exhumed a cache of weapons while digging a sewer. Within the hour, sedate, upscale Spring Valley shook with a cacophony of blaring sirens and whirring rotor blades. Police and fire officials, receiving word of the discovery, sped to the scene. Helicopters carrying military explosives’ experts from Aberdeen Proving Ground hovered in the winter sky before descending to unload their human cargo at the site.

The backhoe had unearthed three rounds for a 75mm artillery-piece and four unexploded mortar rounds that day, but Aberdeen officials suspected that more munitions remained buried. Jim Allingham, spokesman for the explosives unit told a reporter: “If they did stumble on an old burial site that nobody charted, [there is] no telling how big that site might be.”¹⁴ Noting that the discovered mortar rounds had fuses, he acknowledged a potential risk to area residents. “Any time you’ve got a fuse in it,” he warned, “you’re dealing with a hot potato.”

That first day, officials evacuated three houses. On the following morning, Army and police personnel went door to door asking the 102 residents, who lived less than 1,000 feet downwind of the excavation site, to leave within the hour and stay away until 9 p.m. that evening. “We’ve got bombs!” one woman shouted as she ran from her house.¹⁵ As Army ordnance specialists—gas masks on their hips—inspected excavated munitions and related items, D.C. Mayor Sharon Pratt Kelly told a reporter: “There is nothing really hazardous that is of immediate harm to citizens.”¹⁶

Residents were less sanguine. “You live in a property of considerable value, and it could be worthless if it is found to be like the Love Canal,” one homeowner told a reporter. “Will we ever be sure this place is totally clear of munitions?” he wondered.¹⁷ Other residents spoke of having seen a rotting, old sign, which read: “Dangerous Gas. Keep Out.” Why hadn’t some responsible party investigated the reason for the sign, they asked. Their homes, they said, were worth between \$650,000 and \$1 million.¹⁸

If they had read the *Washington Post* the next day, their fears would not have been allayed. Fire Department Battalion Chief Theodore O. Holmes told a reporter that the 25 to 30 canisters found so far might represent only a “minute portion” of what was actually buried. Perhaps more frightening, three or four of the discovered canisters made “a sloshing sound.”¹⁹ According to munitions experts, chemical weapons, mortars, and artillery rounds retain their potency with the passage of years. As an industrial toxicologist told the *Post*, “This kind of thing . . . tends to become more sensitive over time.”²⁰

By January 8, 1993, the Army had exhumed 47 munitions and projectiles. Army officials said that X-rays showed some sort of liquid in 18 of the devices and acknowledged that some or all could be chemical warfare agents.²¹ Two weeks later, the Corps had uncovered 131 munitions: 26 contained liquids, 71 were solid-filled, and 34 had not been assessed.²²

Some area residents were more annoyed by the daily evacuations imposed by the Army than they were frightened by the risk the buried ordnance posed. Some, in fact, refused to leave their homes when told to go. As a result, Army officials asked D.C. Mayor Sharon Pratt Kelly to declare a limited state of emergency to force recalcitrant residents to vacate their homes from 8 a.m. to 6 p.m. while crews worked.²³ Kelly issued the order on January 26, and within four days, the Army, having found ten more shells, announced the end of evacuations.

Believing that the worst was behind them, residents expressed relief. “We are the most environmentally safe neighborhood in the city,” said Sally Danforth, wife of then-Senator John Danforth. “They cleaned the dirt. They tested the air. They kept everything under plastic. I’m confident we are okay.”²⁴

The second phase of the cleanup began immediately. Munitions specialists brought metal detectors and ground-penetrating radar to sweep the area, and collected soil samples for laboratory tests. On February 2, Ground Hog’s Day, an Army spokesman told reporters that investigators had discovered ground disturbances while examining aerial photographs taken in 1918 that seemed to indicate the location of a second potential munitions dumpsite. The spokesman was quick to point out, however, that the Army had no immediate plans to evacuate the surrounding residents.²⁵

Spring Valley dropped out of the headlines for several months. In mid-August, 1993, the *Post* reported that despite months of searching with ground-penetrating radar, ultrasonic equipment, and metal detectors, the Army had discovered no additional weapons or hazardous materials. By then, police barricades, no-entry zones, evacuations, and the din of helicopters were all fading memories. “In the neighborhood, we don’t even talk about it anymore,” said one homeowner. “Now, it all seems like a dream,” said another.²⁶

After several months of relative peace in Spring Valley, on October 12, Columbus Day, a passerby spotted a 75mm artillery projectile of World-War-I vintage lying on the ground in an area of heavy pedestrian traffic near American University. It was the first intact projectile found since January that munitions experts suspected of containing a toxic agent. A spokesman for the Army Corps of Engineers speculated that someone had found the projectile elsewhere and

moved it to the spot where it was discovered. “There is no risk to the public at this point whatsoever,” he said.²⁷

Things remained quiet for five months following the Columbus Day blip. Then, on March 13, 1994, Army officials announced the necessity of evacuating selected homes once again. Sweeps with metal detectors and ground-penetrating radar had revealed metal objects buried throughout the community. Suspicious that the metal objects might contain phosgene, the Corps announced plans for 15 excavations. Without digging up the metal objects, officials said, they couldn’t tell whether they were harmless bales of wire or deadly chemical weapons.²⁸ The first dig would require the evacuation of 130 homes.

Two days later, chemical-munitions specialists were at the site of the first dig. Painstakingly, they spooned-up soil as 50 assorted emergency personnel hovered nearby. Earlier scans with metal detectors indicated that a metal object was buried beneath them. Now, the workers held their breath as they neared the mysterious object. At last it was visible. With a collective sigh of relief, they announced it was a bale of wire.²⁹

On April 19, 1994, a day in which the Army evacuated 240 Spring Valley residents, the Corps announced that its latest search for chemical weapons and toxic paraphernalia had produced, an iron pipe, a bundle of wire, and a piece of steel used to reinforce concrete. As of that date, the Army had spent \$12 million on the cleanup operation.³⁰

The Corps kept working through the spring of 1994 but found little. The evacuations ended, and the lives of Spring Valley’s residents returned to the *status quo ante*.

With the arrival of the new year, the saga seemed to be coming to an end. In fact, the Army announced the completion of the operation in a 1995 report. Spring Valley, the Army concluded, requires “no further action.”³²

Notwithstanding the Army’s report, chemicals in broken bottles burned the eyes of the landscapers who unearthed them in 1996 in a Spring Valley yard. According to the specialists that American University hired to investigate, soil around the site of the incident contained arsenic levels of over 1,200 parts per million—28 times the amount EPA considers acceptable.³³ Arsenic, a major component of the toxic agent lewisite, is a naturally occurring element that can be fatal at high doses. At lower chronic exposures, it can cause a variety of cancers and other life-threatening diseases.

The incident confirmed the suspicions of some environmental specialists at the D.C. Health Department who believed that the Army had given Spring Valley a clean bill of health prematurely. By 1997, they recommended that the Army conduct a thorough survey of Spring Valley, including an epidemiological study of area residents and soil and groundwater tests. In making their case, the specialists noted that although Army detection equipment identified 2,000 buried metallic objects, the Corps had unearthed only eighty-seven.

At first, Army officials insisted that all the buried munitions had been accounted for and removed; thus, reopening the investigation was unnecessary. Eventually, however, some World-War-I era photographs, which D.C.’s environmental specialists brought to the Army, changed the officers’ minds.

Most persuasive was a photo that showed a Camp-Leach soldier, dressed in a World War I uniform and a gas mask, bending over approximately 20 ceramic and glass jugs. On the back of the photo, the soldier had written: “The Pit, the most feared and respected place on the grounds. The bottles are full of mustard to be destroyed here. In Death Valley. The hole called Hades.”³⁴

In addition, the environmental specialists gave the Corps a series of aerial photographs taken of the Spring Valley area in 1918, 1927, and 1937. These pictures showed ground scars—places

where the earth appeared to be disturbed in the early photographs and where nothing grew or where vegetation appeared distressed in photos from later years. The Health Department's specialists suspected that the ground scars might indicate locations where toxic chemicals had, somehow, badly contaminated the soil.

At the insistence of the city authorities, Army investigators scrutinized the aerial photographs, hoping to find the location of the "hole called Hades." Their first choice for the site, near the Kreeger Building on the A.U. campus, proved to be wrong. Still under pressure from the health department, the Army tried again. This time, using more advanced analysis techniques, the Corps selected a spot, 150 feet away, in the South Korean ambassador's back yard.

Several months passed as the Army Corps of Engineers worked out an excavation plan in cooperation with the EPA and the District of Columbia. In January 1999, the Corps informed area residents, including the ambassador, what the agencies had decided to do. In response, the spokesperson for the Korean embassy was diplomatic, expressing confidence in the Army's ability to handle the problem. Other Spring Valley residents, however, were skeptical. "The same claims were made [before], and now we're back at the Korean ambassador's residence, and I'm wondering how many more times we're going to hear about it," one resident complained to a reporter.³⁵

On February 16, 1999, as the Corps prepared to excavate the ambassador's back yard, their investigators unearthed a 75mm artillery-round buried three inches beneath the surface. Quickly, they covered the shell with soil and cordoned-off the surrounding area. A few hours later, the Army's Tech Escort Unit (chemical munitions specialists from Aberdeen Proving Ground) and the fire department's bomb squad arrived. Testing performed the next day with X-ray and neutron-emitting equipment confirmed their on-site assessment that the shell contained no chemical agent.³⁶

One month later, the Corps was still preparing the ambassador's yard for the big dig. In order to grade a steep slope that had prevented heavy equipment from entering the yard, the Army trucked-in 200 tons of gravel. They removed trees. For the security of the workers and neighbors, they erected a 20-foot by 30-foot Quonset hut-like structure to contain any vapors that might be released in the excavation process.

Meanwhile, the Army was doing its best to assuage the fears of area residents. In January 1999, the Corps began mailing newsletters to Spring Valley residents explaining what the soldiers were doing and why. Most of the newsletters arrived monthly and included photographs of the activity and personnel at the site. Often, the first page displayed a picture of Colonel Bruce A. Berwick, on-site commander, grinning, handsome, and reassuring. Inner pages typically displayed photos of ordnance experts in astronaut-like protective suits, the items they exhumed, or the Quonset hut-like building they called the Vapor Containment Structure.

Despite the Army's public-relations efforts, many Spring Valley homeowners were not mollified. "I'm so cynical," the ambassador's next-door neighbor told a reporter. "What about kids playing in that area and making mud pies and eating dirt? What would happen to them?" she asked. "This is not what we expected when we bought the house," her husband added. Another woman, who grew up on the property where the South Korean embassy now stands, told the reporter about her parents' dying of cancer at relatively young ages. "I don't think they can assure me that I wasn't exposed to something in the soil in 1954, for example, when we ate vegetables grown in that garden," she said. Another neighbor said he also worried about

possible soil contamination. “From Day 1, I don’t think that threat has been fully realized or investigated by EPA,” he said.³⁷

The Corps began what it called its “intrusive work” on March 29, 1999. After digging with hand shovels for a while, workers were able to confirm that the site was, in fact, a burial pit. Among the items they found that day were several mortars, artillery rounds, ceramic jugs, intact glass jars, broken shards of glass, and intact cylinders. Tests of the surrounding soil indicated that one sample contained a small amount of dithiane, a mustard breakdown product, and a drum held a bit of the mustard agent itself. According to the Corps’ Spring 1999 newsletter, tests of all other samples failed to find any chemical warfare materials or byproducts. In subsequent tests, reported in the June newsletter, however, three more soil samples tested positive for the mustard breakdown product.

Soon it appeared that the more soil the workers dug, the more they realized they still had to dig. By early June, the excavation at the Korean ambassador’s residence had grown so large that part of it lay outside the vapor containment structure, slowing work and forcing evacuations of nearby homes. Throughout the summer, in fact, unexpected events and minor calamities pushed the Army’s schedule for completion further and further into the future. One afternoon, near the end of June, as workers inside the structure were attempting to remove a ruptured drum, the soil began to emit vapors. As a result, officials shut down operations at the excavation site until the Army, EPA, and D.C. Health Department could complete a review of a new monitoring plan. Another set back occurred in late July, after workers inside the containment structure dug up a large chunk of an unknown crystalline substance. Within moments of the discovery, smoke began to billow from the soil around the white crystals, and the workers fled. Meanwhile, Army munitions experts and officials of the D.C. fire department sat at a remote location, watching images captured by video cameras inside the containment structure. Soon, the crystalline substance burst into flames. The fire burned for several hours.

Another incident delayed work for a week in August. It began when two workers inspecting a 75mm round complained of lightheadedness. Following evaluation by onsite medics, the men underwent tests at George Washington University Hospital. Although doctors said the men had irregular heartbeats, the Army denied there was any connection between the men’s condition and the artillery round. Air-sampling tests later revealed that mustard had seeped from a crack in the round to its outer casing.³⁸

On October 25, 1999, the Corps began digging a second pit on the Korean ambassador’s property. Eventually, workers unearthed dozens of 75mm shells, a cylinder containing mustard agent, approximately 100 solid- or liquid-filled containers, shards of glass, broken ceramics, and an assortment of metal scraps. Added together, the first and second pits contained more than 600 artifacts of World War I and tons of soil highly contaminated by arsenic.

Subsequent testing by the Army and EPA revealed arsenic contamination in soil throughout the ambassador’s yard, in two neighboring yards, and on wooded property belonging to American University. Officials of the Corps and the environmental agency said they would test additional properties to be prudent, even though they believed there was no danger to any other Spring Valley residents. The officials based their belief on a recently completed analysis of soil samples collected by the EPA in Spring Valley between 1993 and 1995. Except for the small area that included the Korean ambassador’s residence, EPA’s risk assessment showed that none of the sampled properties had unacceptable concentrations of carcinogenic or non-carcinogenic substances.³⁹

As fall turned to winter, the project began to take on gargantuan proportions. Estimates of the cost to remediate the ambassador's property jumped from \$4 million at the start to \$16 million by January of 2000. There were several reasons for the ballooning costs. For one, the Corps realized it would have to remove the top two feet of the ambassador's two-acre yard and replace the polluted soil. Then workers would have to re-landscape the grounds. Another reason for the rising price had to do with the expanding size of the dig. The excavation for the burial pits was already ten times larger than planned. As a result, the project required more hours of work and more personnel than the Army had originally anticipated. In addition, safety precautions were costly. An ambulance, for example, was parked at the site during working hours. An armed guard and police officers on overtime watched the site around the clock. According to the Army officer in command of the site, by January 2000, the Corps owed Washington D.C. more than \$1 million for services the city had provided.⁴⁰

Throughout the year 2000, work continued on the ambassador's property. Evacuations, blockades, noise, and innumerable annoyances to residents continued, as well.

The December 2000 *Washingtonian* magazine carried a scathing critique of the Army's handling of the Spring Valley case. In a subsequent letter to the editor, Colonel Charles Fiala argued that the article had created a false impression by implying that the Corps of Engineers was "a reluctant partner in the ongoing effort to address environmental issues in Spring Valley related to past military activities at this site."⁴¹

The Corps refuted the *Washingtonian* article again in its December 2000 newsletter—this time charge-by-charge. In particular, the Army denied the author's implication that high levels of arsenic were widespread throughout Spring Valley. Rather, tests by the Corps had shown that unacceptable levels existed only in a few, isolated locations. Furthermore, the newsletter noted, neither the EPA nor the D.C. Health Department had indicated that all of Spring Valley should be tested for soil contamination as the article had implied.⁴²

That was true. The EPA had not recommended that all properties be tested. In late December, Harry Harbold, project overseer for the agency told the *Washington Post*: "We've found elevated levels, but not enough to be an immediate concern."⁴³ Of the 42 properties surveyed at that time, six had arsenic concentrations of 30 to 100 parts per million in the soil. According to EPA guidelines, concentrations of 43 parts per million or more warrant soil removal. Samples taken in December 2000 of playground soil at American University's child care center contained arsenic at 31 parts per million. Still, the director of the D.C. Health Department asked the Corps to remove soil from the playground on an emergency basis. "We don't want kids playing on soil that's contaminated with arsenic," he said.⁴⁴

Additional testing at the child-care center revealed that the concentrations of arsenic in the soil were far higher than the preliminary tests had indicated. Although the average of the 67 samples tested was 60 parts per million, some individual samples were as high as 498. One mother, hearing the news about the soil tests from a reporter as she entered the center to pick up her child, said: "It's terrible. I find dirt every day on my son's clothes."⁴⁵

Asked if the arsenic-contaminated soil posed any danger to the children, A.U. president Benjamin Ladner said: "Right now, the information we've been given is that a child or adult would have to consume a tremendous amount for several years."⁴⁶ Nevertheless, university officials decided to move the child-care center to a new location immediately, and the EPA asked the federal Agency for Toxic Substances and Disease Registry to conduct voluntary tests on the children. The tests would determine whether hair and fingernail clippings taken from the

children stored arsenic. A positive result would indicate both the concentrations of arsenic consumed and the period of the exposure.

Meanwhile, down in Spring Valley, the natives were getting restless—and suspicious. Illnesses that they once shrugged off as unfortunate random or genetic events took on a new significance. Neighbors suddenly realized, for instance, that the two men who had died from multiple myeloma (a bone-marrow disease that affects only about five people in 100,000) had lived in houses constructed on top of a trench where chemical weapons were tested back in 1918. Were those men delayed victims of the weapons' tests, the neighbors wondered. And what about the two cases of aplastic anemia on the very same street? That disease strikes only one in 400,000 people. "When you have two cases next door to each other, that's like having two Powerball winners next to each other," a government official (who spoke on condition of anonymity) told the *Post*.⁴⁷ Senior officials with the D.C. Health Department and the EPA maintained, however, that no link had been established between the soil contamination and any illness in Spring Valley. The wife of one of the multiple myeloma victims, in fact, was skeptical that an association existed between her husband's fatal illness and the arsenic-contaminated soil. She thought it was more likely that his career as a chemist caused his disease. The other myeloma victim's wife could not be reached for comment. She succumbed to lymphoma when she was 49.

Stories about health problems among former American University students and their children began appearing in the *Post* and on televised news programs. According to some reports, athletes would often break out with rashes after playing on the A.U. rugby field. One of those players later fathered a child who was born with clubfoot. Could the deformity and the rashes be related to arsenic exposure, the child's mother wondered.⁴⁸

Up on Capitol Hill, some congressmen were beginning to notice and react. Two staff members of the House Commerce and Energy Committee met in January 2001 with EPA officials to express their belief that the agency should push the Corps more aggressively to locate munitions and soil contamination.⁴⁹ On January 25, 2001, Representative John Dingell (D-Mich.) sent a letter to the district commander of the Army Corps of Engineers. In regard to the soil contamination, Dingell questioned "whether the Army Corps yet understands the full scope of this problem or whether it has determined what resources it will ultimately need to address all areas of contamination and potential danger to the residents of Spring Valley and the American University community."⁵⁰ A number of other congressmen paid onsite visits. At the Corps' operation center, where she was being briefed, the District's congressional delegate Eleanor Holmes Norton expressed the community's growing impatience. "There needs to be some finality here," she said.⁵¹

Meanwhile, the media reported that D.C. Health Department officials had come to the conclusion, after two years of digging by the Corps, that the hole called Hades was not under the ambassador's yard after all; rather, the actual burial site was *probably* next door. After all the inconvenience of the first big dig—the noise, the barricaded streets, the evacuations—Spring Valley residents were, understandably, vexed.

It would be hard to say precisely what pushed them over the edge: perhaps it was the latest (excuse the expression) bombshell about the confusion over the location of the hole called Hades, or perhaps it was the scare at the child-care center. It may even have been the fear that with every revelation reported by the media, their property values plummeted. But, whatever caused it, by the beginning of February, many of the citizens of Spring Valley had plainly run out of patience. At a community meeting on February 13 (or what Corps' officials might call the

Valentine's Eve Massacre), area homeowners expressed their frustration with the Army for not blowing away the dark cloud that hung over their properties and, indeed, their lives. Several asked why the Army hadn't tested *every* property. "That's not been our protocol," Major Plaisted responded. "We don't care about your protocol," one man shouted from the floor. "It seems to me, at this late a date, you should be in every single property," yelled another. Plaisted replied in return: "I've gotten the message."⁵²

At the next Spring Valley community meeting one month later, the Corps, EPA, and the D.C. Department of Health unveiled their plan for testing *every* property in Spring Valley. "Make no mistake, the U.S. is standing by its responsibility to clean up what it finds," Thomas C. Voltaggio, head of EPA's Region III told a crowd of more than 300.⁵³

Recall that in 1986, American University asked the Army to investigate whether "chemical munitions, bulk containers of chemical agent, and other chemical material were buried at the university or in adjacent Spring Valley following World War I."⁵⁴ The Army subsequently reported that the area was clear. Now, fifteen years later, the government had promised to test everyone of the 1,200 properties in Spring Valley for soil contamination. Perhaps, at last, the Army had set in motion a process that would eventually restore the peace of mind—and property values—of the area's long-suffering residents. But at what cost? In monetary terms, by the end of the year 2000, the Army had spent \$50 million on the investigation and remediation of Spring Valley.⁵⁵ The Corps predicted the 2001 outlay would be \$3 million, but that was before it agreed to sample all 1,200 properties. The additional testing, officials predicted, would exceed the \$1.8 million sampling budget.⁵⁶ (Tests by private firms have cost Spring Valley homeowners between \$2,000 and \$5,000 each.⁵⁷) If the samples should reveal high levels of arsenic on any of those 1,200 properties, and if the government fulfills Voltaggio's promise "to clean up what it finds," costs could increase exponentially. As noted earlier, the estimated cost of remediating the Korean ambassador's property alone was \$16 million. Depending on the number of properties requiring remediation, total costs could be astronomical.

Who will pay for all of this? Ultimately, it will be the American people, of course. More immediately, however, the money comes from the Defense Department's budget. In 1984, Congress created a separate fund for the cleanup of defense sites, the Defense Environmental Restoration Account (DERA). Since then, DOD has been using the fund to evaluate thousands of defense installations suspected of being contaminated by toxic, hazardous, or radioactive substances. According to a report by the Federal Facilities Policy Group (FFPG), as of 1995 there were 21,425 such sites on 1,769 military installations and another 8,316 on land that was once under the operational control of the Department of Defense.⁵⁸ This second group of sites is known by the acronym FUDS (formerly used defense sites) and has the distinction of including Spring Valley. (According to the FFPG report, the total estimated cost to complete cleanup at all DOD sites is \$26 billion. That's less than \$1 million per site on average. According to the EPA, Spring Valley has already cost 50 times that amount.)

Many FUDS fall under the purview of one or more environmental laws. The Spring Valley project, for instance, is subject to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).⁵⁹ Although the Army Corps of Engineers administers FUDS, CERCLA requires the Corps to coordinate projects with the EPA and the States (or in the case of Spring Valley, the District).⁶⁰

Through CERCLA's 1986 amendments and the Federal Facilities Compliance Act (FFCA), Congress has provided the District of Columbia and EPA with powerful tools to compel cleanup and environmental restoration in Spring Valley. The FFCA, for example, waives sovereign

immunity for Federal agencies, such as the Army Corps of Engineers, in environmental enforcement actions. Significantly, the act permits the District (or State regulators) and EPA “to seek injunctive relief, civil penalties and other sanctions against Federal agencies, as well as to criminally prosecute Federal officials.”⁶¹

Thus, Congress has given the Corps strong reasons to want to satisfy the D.C. Department of Health and the EPA. Even with sufficient funding, this task would be daunting. Unfortunately, however, Congress reduced appropriations for the Defense Environmental Restoration Account throughout the mid-1990s, just at the time that the Corps was evaluating the Spring Valley site. In fact, Congress capped all discretionary spending by the Federal government through 1998 in the Omnibus Budget Reconciliation Act of 1993, setting up intense competition among all discretionary programs for funding. As a result, departments such as DOD have offset increases in favored programs, some of which have legal or regulatory requirements of their own, by taking significant funds from cleanup operations.⁶²

In sum, the Corps finds itself in a position in which: (1) Congress has reduced the appropriations for DERA (the special pot of cleanup funds); (2) the Department of Defense is taking money away from cleanup and giving it to other projects; and (3) plaintiffs have the ability to sue the Corps and win judgments, reducing resources even further.

Actually, losing lawsuits is more than just a theoretical possibility for the Corps. In 1996, Spring Valley developer Ted Miller sued the Army for \$15 million, accusing the Corps, among other things, of a “negligent investigation” in 1986. After two years of litigation, the Army agreed to pay Miller \$2.1 million.⁶³

Now, the Army may be facing yet more legal trouble. According to the *Washingtonian*, the EPA is leading five Federal agencies in an investigation into whether “criminal false statements” led to the Corps’ determination in 1995 that the Spring Valley project required no further action.⁶⁴

If Spring Valley were put on Superfund’s National Priority List, the site would receive more funding. “As a matter of Federal agency practices,” the FFPG report explains, “Federal facilities listed on the National Priorities List (NPL) take precedence over other non-NPL facilities.”⁶⁵

However, “EPA does not plan to evaluate the site for NPL listing based on the levels of contamination that have been measured at the site,” according to Harry Harbold, EPA’s Spring Valley overseer.⁶⁶ In other words, it is the considered judgment of the EPA that the site presents too little danger to be given priority listing—or EPA funds. Thus, it falls on DOD to decide where to place Spring Valley in its ranking of priorities.

With tens of thousands of non-NPL sites to address, the Department of Defense developed a plan in 1994 to sort the contaminated facilities into high, medium, and low categories of relative risk. By implementing this relative risk framework, DOD would direct its limited cleanup funds to the sites threatening the greatest harm to human and environmental health. That was the plan, at least. According to the 1995 FFPG report, however, DOD’s actual policies have generally been designed to maximize funding by focusing on schedules and milestones. “This funding strategy resulted in more sites being covered under agreements, since it was the only mechanism to obtain funding. However, the Department’s approach did not always ensure funding was allocated to the most urgent sites.”⁶⁷ In other words, DOD has had a habit of taking on a large number of projects that it can dispose of quickly. Unfortunately, those projects tend not to coincide with the most critical ones. The FFPG report goes on to note that a number of “other factors may significantly influence the allocation of cleanup dollars.”⁶⁸ Near, if not at the top of

the list, are two: media exposure and fear of lawsuits. These were the most important factors driving the Army's decision to test every property in Spring Valley.

Let's return now to the questions with which we began.

Why did the homeowners demand that every property be tested for soil contamination?

While the owners' individual answers would vary, generally, they made their demand because they had lost faith in the government agencies with which they were dealing. Over the course of eight years, they had received repeated assurances from the Corps that everything was all right, that all munitions had been found and all areas of contaminated soil had been identified. Again and again they had relaxed only to be jolted back into anxiety by an article in the morning paper or a story on radio or television. They stopped believing that the assumptions the Corps and EPA were making had any validity. They wanted something that would allay their fears once and for all—a higher authority than a Colonel or a Regional Director. They wanted scientists to prove to them that their soil was safe.

Was their demand reasonable or paranoid?

Who knows? Neither the EPA nor the Corps believes that the soil on the vast majority of the 1,200 properties in Spring Valley has unacceptable levels of arsenic or any other contaminant. An outside observer would tend to defer to their expertise. On the other hand, the Corps has repeatedly underestimated the extent of the residual danger following each phase of the cleanup.

If their demand was irrational, why did the Army agree to conduct the tests?

Someone at the May 1, 2001 community meeting asked essentially that question. He said: "My question to you is what is the basis—I cannot find it in any of your documents—for sampling every piece of property in Spring Valley?"⁶⁹

In response, the Corps' Major Peloquin said: "The logical rationale is something that . . . is difficult to articulate. . . . The bottom line is simply this—that there is concern in this community because of what was done here in the past through the War Department activities here, that there is contamination."⁷⁰ The Major went on to explain that the Corps had expected to find contaminated soil only within the boundaries of the property leased by the War Department in 1917. It was possible, however, that subsequent development activities could have moved some of the contaminated soil beyond the boundary of the FUD site. "So," he concluded, "the short answer is, we don't necessarily expect to find anything—particularly outside the central testing area—but because of the movement of soil, after the deposition of potential contamination, we think it wise to do that."⁷¹

His answer seems to beg the question. It might explain the rationale for testing a few additional sites adjacent to the central testing area, but not all-1,200 sites. (The central testing area comprises no more than 20% of Spring Valley.) A more likely explanation for the decision to test every property would involve the socio-economic status of the area's residents. Included in the roster of current or former residents are senators, generals, ambassadors, and media personalities. At least two presidents, Richard Nixon and Lyndon Johnson, once lived in Spring Valley. It is fair to say that the people of the community are wealthy, well educated, and well connected. They know how to attract media attention, and they can afford to hire attorneys.

Could governmental agencies have addressed residents' concerns before they escalated to such an extent?

Without a crystal ball (or even with one), the answer to this question can't be known with certainty. Still, it seems likely that the Corps could have prevented the community's anxiety

from escalating to such an extent if it had been more thorough in its attempts to find munitions and soil contamination earlier in the saga. Back in 1986, for example, when the Army investigated the area at the request of American University, it came to the erroneous conclusion that no munitions were buried there because no one had found anything in all the years since World War I. The Army's rationalization merits criticism. Besides failing to explain why the Corps had conducted such a desultory investigation, the Army also ignored the fact that a bomb *was* found in the mid-1950s on American University property. What is worse, however, is that the Army knew on January 5, 1993—the day the backhoe operator unearthed the first cache of weapons—that the problem was potentially widespread. The Army must have known, because on that day, the spokesman for its explosives unit told the *Post*: “If they did stumble on an old burial site that nobody charted, no telling how big that site might be.”⁷² Had the Corps conducted a thorough investigation at that time, it probably would have retained the trust of the community, and the community's demand that every property be tested would have been avoided. Instead, the Army closed its investigation in 1995, knowing that hundreds of metal objects remained underground and unidentified. When the citizens of Spring Valley subsequently learned that munitions and chemicals remained buried in their community three years later, their faith in the Corps was shaken. Each frightening revelation in the media from that time forward caused their faith to disintegrate a bit more.

How might this situation have been better resolved?

If the Army had given Spring Valley the attention it warranted based on its potential to do harm, the outcome would have been better for everyone. In the beginning, however, the Army erred by glossing over the problem. Now, at the opposite extreme, it appears to be investing more than is necessary. It is important to note that, given the inadequacy of its budget for cleanup, every dollar that the Corps spends in Spring Valley on unnecessary testing is one dollar less that it has for cleaning up some other, potentially more dangerous, site.

A new system should be established for prioritizing federal sites requiring remediation. Rather than selecting sites based on ease of cleanup, fear of lawsuits, or media exposure, the sites that pose the greatest threat to human and environmental health should be given primacy. Unfortunately, when DOD selects sites, it often bases its selection on other criteria. Perhaps a better system would incorporate EPA's environmental expertise in setting priorities.

According to Harry Harbold of the EPA, however, there are too many sites for the agency to take on the responsibility of prioritizing FUDS or initiating cleanup actions. Most cleanup activities that are not selected by the Defense Department are initiated by the States.⁷³ But just as the District was taken by surprise, the States are often unaware of the dangerous sites that exist within their borders. Thus, many sites are unknown until someone stumbles upon something. Perhaps that person is injured, perhaps not. In any case, State officials learn then of the existence of the danger and, in turn, contact DOD. This ad hoc approach is certainly less than optimal. A better approach would involve DOD's providing the States with information about their sites.

All Americans depend on the military for protection from attacks by hostile nations. While cleaning up military sites lacks the glamour of many other military projects, it is necessary in order to protect us from dangers within our own borders. Thus, we must provide adequate funds to do this important work. Planning for the cleanup of hazards associated with the production, testing, and use of new weapons should begin while they are still on the drawing board. In addition, a reasonable cost estimate for eventual cleanup activities should be included in the budget for every new weapon. If the cost of remediating all 30,000 DOD sites to pristine

standards is too high to be undertaken in the immediate future, local residents should be informed about the steps they can take to reduce their exposure and protect themselves from harm until better technologies or more funds allow the Corps to do a better job. Finally, for the protection of future generations, we should never assume that so long as something is left underground, undisturbed, it is safe. Rather, we should recognize that if something dangerous is buried somewhere, someone will eventually dig it up or stumble upon it and be injured. If there is one lesson we should take from the events in Spring Valley it is an appreciation for the ways in which the past shapes the present—and the future.⁷⁴

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