Statement of
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United States Senate

Oversight Hearing on
Cleanup Efforts at Federal Facilities

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Chairman Boxer, Ranking Member Inhofe, Members of the Committee,

Thank you for your invitation to appear before you today on this important issue.

I am President of the Committee to Bridge the Gap, a 38-year-old nonprofit organization focused on nuclear policy matters. For twenty-nine of those years, we have been involved in trying to redress serious safety and environmental problems associated with the Santa Susana Field Laboratory (SSFL), a heavily contaminated federal nuclear reactor and rocket testing facility in the Los Angeles area.[2] I also serve as co-chair of the SSFL Advisory Panel, which oversaw health studies of the workers and of potential impacts to the neighboring offsite population, funded initially by the Department of Energy and then through the California Legislature. I serve as a community representative on the SSFL Inter-Agency Work Group, established to help coordinate cleanup activities regarding the site. And I am a Lecturer teaching nuclear policy at the University of California at Santa Cruz, where I founded and was the first Director of the Stevenson Program on Nuclear Policy. The views presented here today are solely those of the Committee to Bridge the Gap.

In the late 1940s, the Atomic Energy Commission commenced a search for a remote site in Southern California for nuclear work too dangerous to perform near populated areas.[3] In the decades since SSFL was established, the Southern California population mushroomed, so that now more than half a million people live within ten miles of the site. Over the years, SSFL was home to ten nuclear reactors, a plutonium fuel fabrication facility, and a "hot lab" for cutting up irradiated nuclear fuel shipped in from around the country, plus over 20,000 rocket tests, as well as munitions development and "Star Wars" laser work.[4] Sloppy controls, an indifference to environmental rules, and a history of spills and accidents have created a legacy of radioactive and chemical contamination. A history of broken cleanup promises has left the vast majority of that contamination still in place. The SSFL tragedy is a microcosm of the problems across the extraordinarily contaminated Department of Energy (DOE) nuclear complex nationally and a powerful warning of the risks of proceeding with a nuclear revival that threatens to repeat over and over again the atomic fiascos of the past.

The Partial Meltdown of the Sodium Reactor Experiment

The SSFL saga began, as seems the case with many things nuclear, with a lot of hype. In November of 1957, the AEC's Sodium Reactor Experiment, or SRE, at Santa Susana was connected to the electric grid and briefly provided power to the 3000 people of Moorpark, largely as a publicity stunt.[5] The Atomic Energy Commission prevailed upon the dean of American television journalism, Edward R. Murrow, to devote an hour special of his show "See It Now" to the event. In the broadcast Murrow intoned:

> The Susana reactor started producing power early in November, and our cameras were focused on the town at 7:30 p.m. on November 12, 1957, when, for the first time in the United States, an entire community was illuminated with electricity generated by an atomic reactor. Enrico Fermi once looked at a reactor and said, "Wouldn't it be wonderful if it could cure the common cold?" Here at Moorpark, a chain reaction that started with him washed the dishes and lit a book for a small boy to read.[6]

Less than two years later, the reactor suffered one of the worst accidents in nuclear history. A third of the fuel experienced melting, and radioactivity from the damaged reactor was intentionally vented into the atmosphere for weeks. The AEC does not appear to have reapproached Mr. Murrow with the news that the reactor whose connection to the electrical grid he had helped trumpet had just a short time later experienced a partial meltdown; certainly there was no Murrow follow-up story, "Meltdown in Los Angeles."

Nor was the AEC candid with the news media at large. The AEC kept quiet about the accident for five weeks, then issued–embargoed for Saturday morning papers—an extraordinarily misleading news release.[7] Whereas a third of the fuel had been damaged, and that damage involved melting, the lead sentence in the release stated merely that during inspection of fuel on July 26, "a parted fuel element had been observed."

The news release went on to say, "The fuel element damage is not an indication of unsafe reactor conditions" and that the occurence was important merely "from a technical standpoint." That was the public stance taken. Here, however, is what the AEC concluded about the SRE event in its comprehensive review of nuclear accidents for the nuclear community[8]:

> The circumstances which eventually led to this accident began as early as spring, 1958, when the first Tetralin leak occurred. A second leak occurred in Run 8 on November 29, 1958, and problems continued until July 24, 1959. During that time so many difficulties were encountered that, at least in retrospect, it is quite clear that the reactor should have been shut down and the problems solved properly. *Continuing to run in the face of a known Tetralin leak, repeated scrams, equipment failures, rising radioactivity releases, and unexplained transient effects is difficult to justify. Such emphasis on continued operation can and often does have serious effects on safety and can create an atmosphere*

leading to serious accidents. It is dangerous, as well as being false economy, to run a reactor that clearly is not functioning as it was designed to function.

(emphasis added)

The news release also asserted, "No release of radioactive materials to the plant or its environs occurred and operating personnel were not exposed to harmful conditions." In fact, the reactor operators had been deliberately venting radioactive gases from the damaged reactor to the atmosphere for weeks, radiation levels had gone off-scale (were too high to read), and workers were getting significant exposures.

In short, the AEC covered up the seriousness of the accident. No reporter would ever have known from that news release that one of the most serious nuclear accidents in history had just occurred in the Los Angeles area. The public at large did not learn of it until twenty years later when students at UCLA, where I was then teaching, uncovered AEC records and we released them to the news media.[9]

So what actually happened? The reactor was cooled by sodium, which explodes in the presence of water and burns in the presence of air, so an organic material known as Tetralin was used to cool the pump seals. Tetralin leaked into the coolant, decomposed into a tarry substance that clogged the coolant channels, causing the fuel to overheat. At those elevated temperatures the cladding and uranium fuel formed a "eutectic"—an alloy of uranium and steel that melts at a lower temperature than either does individually. About a third of the fuel elements ended up with melting.

In previous runs, it was clear Tetralin had been leaking into the sodium coolant. The AEC kept on restarting the reactor without resolving the problem.

Within hours of beginning Run 14, "reactor room air monitors showed a sharp increase in [radioactivity]," as did air filter and stack activities.[10] The reactor operators kept on running it nonetheless.

Then the coolant disruption and fuel damage caused a "power excursion," in which reactor power goes up exponentially in an uncontrolled and fast fashion. If the exponential period is very short, the reactor can blow up in a power excursion, as happened at the SL-1 reactor in Idaho and the Chernobyl reactor in the Ukraine. At the SRE, the operators tried desperately to quickly shut the reactor down, but the power was still rising as they jammed the control rods into the core. The automatic safety features failed, but eventually, the operators were able to succeed in manually "scramming" the reactor.

And then the inexplicable happened. Unable to determine the cause of the power excursion, and faced with rising radiation readings and evidence of Tetralin leaks, just a couple of hours later they started the reactor up again – and kept it running for nearly another two weeks. Radiation monitors went off-scale. The radioactive core cover gas was repeatedly purged from the reactor vessel, pumped into tanks outside the reactor, and released into the atmosphere. No one knows precisely how much radioactivity was released, because the first

sample of the core cover gas was itself so intensely radioactive it was unsafe for any worker to approach it to measure it, and the radioactivity in the tank to which it was pumped prior to release to the environment was so intensely radioactive that its concentration was so high that the radiation monitor couldn't read it. The radiation graph from the time of the accident shows the level just shooting off the top of the page, to a level above the highest level that could be measured. One nuclear physicist who has examined the matter, Dr. Arjun Makhijani of the Institute for Energy and Environmental Research, has estimated that the releases from the SRE accident were potentially hundreds of times more serious than the Three Mile Island accident, in that he estimates that up to 260 times more radioactive iodine (I-131) may have been released from the SRE than the official estimates for the TMI release.[11]

Other Reactor Accidents

The SRE partial meltdown was, unfortunately, not the only reactor accident at SSFL:

- **The AE-6 Reactor:** Earlier the same year, the AE-6 suffered a release of fission gas, contaminating the reactor room and several members of the operating staff.

- **The SNAP8ER Reactor:** At the SNAP8ER, indications of unsafe operating conditions were ignored or misinterpreted, original design limits were overridden, and according to former workers, a worker who expressed concerns about the reactor's safety was transferred. The reactor operated with a damaged core throughout 1964-5 despite various indications of trouble. When finally shut down, it was determined that 80% of the reactor's fuel was damaged.

- **The SNAP8DR Reactor:** A few years later, the SNAP8DR reactor suffered an almost identical accident. Despite evidence of core damage, the reactor was permitted to keep operating for a significant period of time. When the run was finally terminated in late 1969, it was found that about 30% of the fuel was damaged.

Nuclear Fires, Spills, Releases, Irresponsible and Illegal Waste Disposal, FBI Raid, Felony Convictions

Over the years, a number of radioactive fires occurred at the SSFL Hot Lab, said to be the largest such facility in the country. Irradiated reactor fuel from various parts of the AEC/DOE nuclear complex was shipped to Santa Susana, where it was declad and cut apart in the Hot Lab, in part as preparation for reprocessing. Some radioactive materials caught fire, resulting in release of contamination.

For some years, SSFL radioactive wastes were trucked to Long Beach, loaded on a Navy sea-going tug and transported north and dumped in the Santa Cruz Basin, about halfway between Los Angeles and Santa Barbara, near what is now the Channel Islands National Park.[12] Wastes included mixed fission products and plutonium. When weather was inclement, a process known as "short-dumping" was employed, whereby the wastes were dumped overboard long before reaching the specified ocean dumpsite. Subsequent studies found that initial assumptions of the safety of the procedure were unfounded: despite initial claims the site was devoid of sea life,

investigations found abundant biological activity on the sea floor where the waste was dumped, and the waste barrels were breached and radioactivity apparently leaking out and being taken up in the food chain. Chemical wastes from SSFL were similarly dumped in the ocean.

In the late 1950s, even this irresponsible form of waste disposal became too much trouble for the operators of the SSFL and they decided to dig a pit and just burn the wastes in the open air onsite. Noting that offsite disposal of hazardous wastes was expensive and required time-consuming paperwork, an internal memorandum[13] stated:

> Several months ago...the writer had a large earthen pit constructed... This was,, and has since been, used to dispose of dangerous chemicals, fuels, oxidizers, explosives, etc. These are burned with quantities of ordinary contaminated fuels. This procedure eliminated the costly method in use at that time, of trucking them from the facility an dumping in the ocean; or by other complicated ways of disposal requiring permits from various official agencies, etc.

Every month, large numbers of barrels and other containers of hazardous wastes were brought to the SSFL Area I burnpit. Workers with rifles then shot at the barrels to ignite them. They would catch fire or explode; one explosion reportedly sent the barrel high in the air, crushing a pickup truck when it landed. Huge plumes of contaminated smoke arose from the burning wastes, falling out on wide areas both on and offsite. The soil of the burnpit became heavily contaminated as well.

In the nuclear area (Area IV), a similar burnpit was constructed to dispose of sodium-contaminated reactor components. No items with radioactive or hazardous chemical contamination were supposed to be burned in this burnpit, but the rules were consistently ignored for decades, resulting in extensive chemical and radioactive contamination. The Area IV sodium burnpit consisted of shallow water-filled pools in which the sodium-coated reactor components were placed, reacting violently with the water, burning and boiling for days in the open air, overlooking Simi Valley below. Immediately below the sodium burnpit was the Brandeis Bardin Camp Institute, a camp for children and college students.

Some years ago, an SSFL worker who had been assigned to work at the sodium burnpit asked, with his wife, to meet with me. He was dying of cancer, had only weeks left to live, and wanted to unburden himself of a great regret. His assignment at SSFL – without radiation badge or respirator – was to pump the vile, polluted water out of the burnpit pools and dump it in the ravine leading from the burnpit to the children's camp below. He was dying of a cancer he presumed he had gotten from his exposures to the contaminants, but all he could think of was his feelings of guilt having potentially exposed children to the same carcinogens. He hadn't known about the danger at the time, hadn't been informed by his employers what he was really doing, and was racked with guilt. In the mid-1990s, an extensive radiation survey supervised by Gregg Dempsey of EPA found radioactive and chemical contamination had indeed migrated onto the camp property. A lawsuit resulted, which was eventually settled, reportedly with the camp receiving money and the SSFL operators buying some of the contaminated land, so that the contamination could be said, by having moved the boundary line, to be no longer offsite.

In the mid-1990s, long after the open-air burning of hazardous materials was supposed to have stopped at the site, an explosion killed two workers. The SSFL operators denied to government investigators that they had been involved in illegal burning of such wastes, claiming instead they were involved in legitimate research. The FBI raided the site, carting off many boxes of documents. The U.S. Attorney issued felony charges; the SSFL operators eventually conceded they had not been involved in legitimate research but rather illegal burning of hazardous wastes for unpermitted disposal purposes and pled guilty to three environmental felonies, paying what was said to be the largest environmental fines in California history to that date.

Radioactively contaminated reactor building debris was shipped to three municipal landfills in the Los Angeles area, dumps neither licensed nor designed to dispose of radioactive wastes. Concrete blocks from the reactors were transferred to a nearby farm. Radioactively contaminated reactor metals were sold to a metal recycler in San Pedro, where they were melted down into the consumer metal supply. Contaminated modular buildings were sold to a children's zoo and a school until Senator Boxer intervened and got them retrieved and disposed of at a hazardous waste facility.

More than 20,000 rocket and missile tests were conducted at the site, for NASA, the Navy and the Air Force. Trichloroethylene (TCE) was used to wash down the rocket test stands after these firings, the way one might wash down one's driveway with water, and the TCE allowed to just run off and percolate into the nearby soil. Half a million gallons of TCE are estimated to have migrated into the groundwater and deep soil; the permissible concentration in water is 5 parts per billion. A pump-and-treat program was instituted in the 1980s, which was removing 10 gallons of TCE per year. At that rate, it would take 50,000 years of pumping to remove the TCE--except that the pumping has been shut down since approximately 2000.

Vast quantities of other toxic materials – perchlorate, PCBs, dioxins, hydrazines, heavy metals, various Volatile and Semi-Volatile Organic Compounds – were used at the site and spilled, released, buried, or otherwise mishandled. Groundwater was badly contaminated, and only belatedly stopped being used for drinking water onsite. Contaminated process water was used for irrigation and similar purposes throughout the site, spreading the contamination, and to quench the rocket test stands, sending massive plumes of contaminated steam into the air and the neighboring communities.

Chernobyl Cracks Open Decades of AEC/DOE Secrecy and Operations Above the Environmental Laws of the Nation; SSFL Contamination Finally Disclosed

At the time of the Chernobyl accident in 1986, I was by chance in the Washington area, having been brought out by the Nuclear Regulatory Commission for a Workshop on Containment Performance Design Objectives. The question quickly arose in many quarters whether such an accident could happen here. I was asked by staff of the House Interior Committee to sit in on a briefing by DOE officials who asserted no such event could happen here because we had no uncontained, unlicensed, graphite reactors.[14] I pointed out that that was not the case—that DOE itself operated graphite reactors with no containment, and that no DOE

reactors were licensed. The reactor most similar to Chernobyl was the "N" reactor at DOE's Hanford Reservation.[15] DOE, until Chernobyl, had operated for decades without independent examination and claimed to be exempted from many of the environmental laws and rules required of all others. Troubled by the lack of independent scrutiny of DOE nuclear facilities, and the similarities between the N-reactor and Chernobyl, the Chairman of the Interior Subcommittee on General Oversight, Northwest Power, and Forest Management asked me to assemble an independent team of experts to review the safety of the N-reactor and accompany him on an inspection of the facility, after which we presented our findings at a hearing.[16]

During our tour, I asked the Hanford officials to see the fire response plan for the N-reactor. They replied they had none. When I asked them how could that be, they asserted that nothing in the reactor could burn. When we pointed to the graphite, they claimed graphite could not burn – while at that very moment, the graphite at Chernobyl was burning!

We found a large number of very serious safety problems at the N-reactor. The National Academy of Sciences was then asked to review it, and confirmed many of our concerns. The N-reactor was shut down, and DOE began a process of allowing some review of its other facilities. Revelation after revelation followed. Eventually, it became SSFL's turn to be subject to such a review. In 1989, the press obtained a report by a DOE contractor on the environmental conditions at SSFL, finding widespread chemical and radioactive contamination. The report was scathing.[17]

Admiral James Watkins was sworn in as DOE Secretary in 1989, promising to change the culture of secrecy and indifference to safety at DOE, and pledging full compliance with state and federal environmental laws and regulations. And thus began a brief period, extending into the next Administration, of some sunlight being shown on the safety problems throughout the DOE nuclear complex.

EPA Finds Highly Questionable Radiation Monitoring at SSFL

Congressman Elton Gallegly (R-Simi Valley) responded to the revelations about SSFL contamination by asking EPA to provide independent oversight. EPA sent Gregg Dempsey from its Las Vegas National Radiation Lab to inspect the radiation monitoring program at the site. What he found was scandalous.[18] SSFL was washing radioactivity off vegetation before monitoring; it was burning the vegetation to an ash, driving off the volatile radioactivity in the vegetation before monitoring; it was similarly heating soil samples to high temperatures to drive off the volatile radioactivity before monitoring. Dempsey asked to see monitoring results for tritium; they had none, as they had done no such monitoring; he asked if he could take a sample for tritium, and when he did, found tritium contamination (which has now been confirmed as a tritium plume in groundwater many times Safe Drinking Water levels). Dempsey concluded that the validity of some if not all the SSFL radiation measurements and the reliability of the site's radiation monitoring program were questionable. He wrote, "If the environmental program stays uncorrected, SSFL cannot guarantee that unforeseen or undetected problems onsite will not impact the offsite environment in the future. It is also clear to me that Rocketdyne does not have a good 'handle' on where radiation has been inadvertently or intentionally dumped onsite."

Dempsey subsequently called into question the site's practice of filtering its groundwater samples and throwing away the radioactivity caught on the filter rather than measuring it, which was undertaken to drive down reported water contamination levels, which before filtering were far above maximum permitted concentration limits. In essence, for two decades SSFL has been filtering radioactivity out of water samples before measuring them, artificially reducing reported values.

Studies Find Elevated Cancer Rates

Local legislators pushed for establishment of an independent advisory panel to oversee health studies, first of the workers at the site and then, if problems were found there, offsite populations. The initial co-chairs were Dr. David Michaels (until his appointment as Assistant Secretary of Energy for Environment, Safety and Health) and myself. A team of epidemiologists from the UCLA School of Public Health – Drs. Hal Morgenstern, Beate Ritz, and John Froines -- was chosen to conduct the worker study. They found that workers with higher radiation exposures at the site had increased death rates from cancers of the lung, blood and lymph systems compared to lower exposed workers, and that death rates increased monotonically with radiation dose. A second study reached similar conclusions about increased cancer death rates associated with chemicals from the rocket test stands.[19]

The federal Agency for Toxic Disease Registry (ATSDR) subsequently contracted with Dr. Morgenstern, by then Chair of Epidemiology at the University of Michigan, and Dr. Yoram Cohen of UCLA, to conduct studies of potential offsite impacts. Dr. Morgenstern found that rates of certain cancers in the nearby population increased with proximity to SSFL. Dr. Cohen's group found that contaminants from SSFL likely exposed people living near the facility to unacceptable concentrations of these pollutants.[20]

The Cleanup Failure

The site is heavily contaminated with radioactivity and toxic chemicals. That contamination includes soil, groundwater, and surface water. The Los Angeles Regional Water Quality Control Board has cited SSFL for scores of violations of NPDES water pollution limits in recent years; i.e., contamination has been migrating offsite in surface runoff whenever it rains. Contaminants have been found at the nearby Brandeis Bardin Camp Institute and the Sage Ranch Park, part of the Santa Monica Mountains Conservancy, as well as two proposed housing developments. A quarter of the water wells in Simi Valley have been found to be contaminated with perchlorate. The TCE plume, which covers a significant portion of the 2850 acres of the site, has migrated offsite as well.

Twenty years after the cleanup was supposed to have commenced, little has been done. The chemical cleanup has not begun, aside from a few "interim measures," and corrective measures are still years away. As to the radioactive contamination, a few years ago DOE announced its decision to leave 99% of the radioactively contaminated soil in place and walk away—without so much as even an Environmental Impact Statement. My organization (the Committee to Bridge the Gap), the City of Los Angeles, and the Natural Resources Defense

Council sued DOE in federal court, resulting in a decision by U.S. District Judge Samuel Conti finding DOE had violated the National Environmental Policy Act and enjoining it from transferring the site until it completes a full EIS.

In 1995, DOE and EPA entered into a Joint Policy in which they committed that all DOE nuclear sites, irrespective of whether they were on the National Priority List (Superfund), would be cleaned up consistent with EPA's CERCLA guidance. DOE promptly broke that promise and violated its own policy, deciding instead to employ cleanup standards that were for many radionuclides orders of magnitude more lax than EPA's primary CERCLA goals. Let me say that again. After committing otherwise, DOE attempted to employ cleanup standards that would permit radioactive concentrations hundreds or thousands of times as high as the EPA guidance would normally mandate.[21]

Throughout the latter part of the 1990s, DOE and EPA promised the local community and the legislators representing it that, given the problems with DOE's radiation monitoring and its lack of credibility, EPA's Gregg Dempsey would conduct an independent radiological characterization of the site. This promise too was repeatedly broken. No such survey has yet taken place.

In the Energy and Water Appropriation for this fiscal year, DOE and EPA were directed to conduct a joint survey of the site. DOE refused to comply, insisting that it do the survey itself; and it went ahead and spent almost all of the appropriation on things other than the survey, making the survey impossible, no matter who would do it. DOE simply thumbed its nose at the Congress.

A few months ago, DOE issued a draft "Gap Analysis," purporting to identify gaps in measurements performed in the past that the new survey was supposed to address. While claiming to base the analysis on the EPA Preliminary Remediation Goals for the rural residential scenario, using EPA default inputs, DOE actually altered nearly every value in the key table, relaxing them by as much as several orders of magnitude. When we caught and exposed this fabrication, a tremendous outcry ensued.[22] EPA reversed course and insisted it be permitted to perform the radiation survey, saying to DOE, "These events demonstrate a significant lack of transparency in DOE's interactions with EPA and the public. These events have damaged DOE's credibility...."[23]

In January, DOE issued a news release announcing it had chosen a company named CDM to prepare the SSFL EIS. It has now been revealed that DOE hid the fact that the central portion of the EIS, that dealing with radioactivity, is not in fact being prepared by CDM but rather by Science Applications International Corporation, which has recently been found guilty by a federal jury of defrauding the federal government and violating conflict of interest requirements in a lawsuit brought against it by the Nuclear Regulatory Commission.[24]

Last year, the California Legislature passed and Governor Schwarzenegger signed into law SB 990, which requires SSFL be cleaned up to the strictest EPA standards, specified in the legislation. DOE and NASA have both given signals that they are contemplating ignoring the state law and moving forward with far less protective cleanup actions. Such an attempt to avoid

compliance would trigger a major conflict between the state and federal governments, and even further reduce public confidence.

And in recent days, EPA has indicated a desire to not perform the comprehensive radiological site characterization long promised, but instead restrict it, at least at this stage, to surface soil, and only for Area IV of the site. Subsurface soil, groundwater, and surface water all need to be taken into account, and it makes no sense to restrict the survey to Area IV, because it is clear that contaminants from Area IV have migrated elsewhere. Radioactive particles do not "see" and obey arbitrary lines on a map. That is the core of the problem here: the contamination has been migrating.

And the role of Mr. Dempsey, long promised to direct the survey and in whom the community has a significant degree of confidence, remains uncertain. EPA seems desirous of outsourcing this work to a contractor, with Dempsey relegated to a consulting stance. The chance for a survey that the community trusts may be on the verge of being lost again.

What Needs to Be Done

This long-suffering community, battered by years of broken promises by the federal government, implores the Congress to enforce the commitments repeatedly made by the various agencies, and repeatedly abrogated. This has gone on way too long.

We ask that the Congress legislatively direct DOE, EPA, and NASA as follows:

1. They shall strictly comply with California law (SB990).
2. EPA shall perform, and DOE pay for, a comprehensive radiological site characterization of all of SSFL (all four Areas plus buffer zones).
3. That site characterization shall include all applicable environmental media, including surface and subsurface soil, groundwater and surface water.
4. EPA's National Radiation and Indoor Environments Laboratory will perform and direct the survey.
5. Funds to carry out the site characterization are spelled out with specificity in the appropriation, so DOE cannot once again divert the money elsewhere as it did this year; and the funds can be carried forward into future years as needed.

SSFL as Microcosm for Problems Throughout the DOE Nuclear Complex

SSFL is a good case study of problems at federal nuclear facilities throughout the country. The AEC/DOE for decades operated these extraordinarily dangerous enterprises with little consideration for environmental regulation or protection of the public. They felt they were above the law, and the affected people nearby simply did not matter. Corners were cut, rules bent, safety restrictions ignored. When accidents resulted, they were covered up. Leaking high level waste tanks at Hanford, contamination from reactor accidents and improper waste disposal at INEEL, reprocessing failures at Savannah River, releases from Paducah and Oak Ridge and so many other nuclear sites—the story is always the same. Sloppy practices, inadequate attention to

safety, lack of concern about the neighboring public, failure to be candid about problems—the result has been contamination that is amongst the biggest environmental insults this country has ever faced.

That was the first round of damage by the federal government to the people living near its nuclear facilities. The second round occurred when, in the wake of Chernobyl, the DOE complex faced independent scrutiny and the immense environmental damage created over the previous decades was finally in part disclosed. Then DOE announced it had seen the light, would be a responsible neighbor, would spend what was necessary to fulfill its responsibility to the affected citizenry, and would now clean up the carcinogenic mess it had created.

But those promises were repeatedly broken. The program to compensate workers from the complex or their survivors for cancers produced has bogged down, with only a small fraction of claims processed. The cleanup commitments have been repeatedly ignored, deadlines missed, and replaced with efforts, in the guise of "accelerated cleanups," to just leave the contamination in place and walk away. Who would have thought, in the midst of the Cold War, that the only American victims of radiation would be caused by our own government? And who would have thought, after all those disclosures of these past sins against our people, that the government would ad insult to injury and fail to meet its commitments to clean up the radioactive witches' brew it created in all these communities?

Nuclear Déjà Vu All Over Again

Lastly, let me end with a brief comment on the lessons of this tragic experience from the last time we as a nation were encouraged to jump headlong onto the nuclear bandwagon. There are some who now argue for a revival of all things nuclear. They want scores more reactors. They want irradiated nuclear fuel to be reprocessed. They want breeder reactors to make even more plutonium.

But to do that, they need the country to experience a kind of nuclear amnesia. They need us to forget the meltdown of the SRE, the explosion of the SL-1, the near-disaster of the N reactor. They need us to forget the immense contamination from the last time we tried reprocessing, the tens of billions of dollars it is costing to try to redress the damage from reprocessing at Hanford, Savannah River, and West Valley. They need us to forget the meltdown of the EBR-1 breeder in Idaho and Fermi I breeder, when we almost lost Detroit.

For those in the impacted communities from the last nuclear era, it all seems like nuclear déjà vu again. We hear echoes of all the old discredited claims again: that nuclear will be "too cheap to meter," even as the industry asks for a hundred billion dollars in taxpayer subsidies and guarantees; that we will somehow find a solution to the radioactive waste problem, even though sixty-six years after the first reactor wastes were created no solution is in sight; that the risk of accident is non-existent, even as industry asks for immunity from liability from such accidents; that proliferation and terrorism risks can be ignored, even as we face a world in which countries are getting nuclear weapons from civil nuclear technology.

We hear the same old claims that nuclear is safe and clean; yet our communities are still trying to get the government to clean up the radioactive contamination from all the past nuclear accidents, spills, and other releases from the last time we tried this.

It is said that those who forget the lessons of the past are condemned to repeat them, and repeat them, and repeat them. A sensible energy policy cannot depend upon collective amnesia. The last time we went down this road, it resulted in an unmitigated disaster for which we are still paying, in billions and billions of dollars of cleanup expenses, but more importantly, in poisoned land and water, and cancers in brothers and sisters, mothers and fathers, cousins and nephews. Let us learn from our mistakes rather than going blindly into repeating them. Otherwise, this deeply troubled nuclear past will indeed be prologue.

Thank you for the opportunity to testify before you today.

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[2] SSFL is located on 2850 acres in the Simi Hills at the boundary between Los Angeles and Ventura Counties, overlooking Simi Valley to the north, the western San Fernando Valley to the east, Woodland Hills to the south and Thousand Oaks to the west.

[3] AEC Report NAA-SR-30, "General Reactor Site Survey of the Los Angeles Area," by R. G. Chalker, 1 June 1949, North American Aviation, Los Angeles. Declassified 6 December 1955. What became the Santa Susana Field Lab was ranked fifth out of six candidate sites for meteorologic characteristics important to public safety, because of uncertain daytime conditions and winds that could transport "radioactive pollutant particles" to the San Fernando Valley at night. Nonetheless it was chosen, in part apparently for convenience of staff, as the driving time to major universities in the area was shorter than for more highly ranked possible sites. Because of the proximity of populated areas nearby, reactor power was supposed to be restricted so as to reduce radiation doses in case of an accident. A few years later, however, the AEC ignored this restriction and approved construction of a reactor at SSFL (the ill-fated SRE) much larger than that limit.

[4] SSFL is divided into four Areas. Area IV conducted nuclear work and is the site of a DOE nuclear facility now known as the Energy Technology and Engineering Center (ETEC). NASA owns all of Area II and a portion of Area I. Aside from the NASA-owned parcels, the rest of the land is owned by Boeing, but the bulk of the work done was as a contractor for the Department of Energy and its predecessor the Atomic Energy Commission, and for NASA and for DOD entities such as the Air Force and Navy (e.g., testing and development work for the MX missile).

[5] The SRE was a 20 megawatt-thermal reactor, constructed without a containment structure.

[6] The Murrow excerpt is quoted from a week-long investigative news piece on the SRE accident by Warren Olney, KNBC television (Los Angeles), November 1979.

[7] The AEC news release includes a note to editors and correspondents stating that a parallel announcement was issued by "Atomics International, a Division of North American Aviation,

Inc." Atomics International was the name of the contractor running the SSFL nuclear site for the AEC.

[8] Theos J. Thompson, "Accidents and Destructive Tests: 'The Past is Prologue," in The Technology of Nuclear Reactor Safety," ed. by T. J. Thompson and J. G. Beckerley, prepared under the auspices of the Division of Technical Information, U.S. Atomic Energy Commission, 1964. Thompson was chair of the AEC's Advisory Committee on Reactor Safeguards and later an AEC Commissioner.

[9] The fuel damage episode was first referenced in a report on various nuclear activities in Los Angeles by Dorothy Boberg, "The Nuclear Presence in Los Angeles County," issued by Another Mother for Peace in 1976, but received little attention until the Three Mile Island accident in 1979 sparked interest by the UCLA students and resulted in acquisition of extensive documentation, including film footage of the inside of the melted core, which was then provided to the news media, triggering extensive coverage. While not informing the public of the seriousness of the accident, the AEC made a training film of the long recovery process thereafter, because such meltdowns were likely to occur again and workers would need to be trained how to deal with the radioactive mess that results.

[10] Thompson and Beckerley.

[11] See declaration of Dr. Arjun Makhijani, in re: O'Connor v. Boeing, U.S. District Court, Central District of California, Western Division, filed February 12, 2004. The case was settled, reportedly with a large payment by Boeing to the plaintiffs, residents nearby SSFL who had allegedly cancer and other injuries from SSFL activities including the SRE partial meltdown. See "Boeing Agrees to Pay $30 Mil," *Los Angeles Daily News*, 11 January 2006.

[12] See Statement by Daniel Hirsch, in *Ocean Dumping of Radioactive Waste Off the Pacific Coast*, Hearing Before a Subcommittee of the Committee on Government Operations, House of Reprsentatives, 7 October 1980; and W. Jackson Davis, John Van Dyke, Daniel Hirsch, Mary Anne Magnier, and Sherry P. Broeder, Evaluation of Oceanic Radioactive Dumping Programs, LDC 7/INF.2, International Maritime Organization, London Dumping Convention, London.

[13] Memorandum from Captain Miller to Chief Ledbetter, "Subject: LOX Spill; Bravo Area and Subsequent Events," 8 September 1958.

[14] At the time, there were initial claims that the Chernobyl reactor had no containment structure. Then-NRC Commissioner James Asselstine shortly disclosed that it did have partial containment, and the Chernobyl containment performance design objectives were similar to ours. As we were discussing at the CPDO Workshop when the accident occurred, U.S. reactor containments are only required to deal with the pressure from the steam from the break of a coolant pipe, not the pressures that could be generated in a meltdown. Virtually no U.S. containment could have withstood the pressures experienced in the Chernobyl accident.

[15] The DOE officials quickly tried to draw a distinction between the N-reactor and Chernobyl, in that the former used uranium metal fuel and the latter used uranium oxide, until I pointed out that this difference was not an advantage all, because metallic fuel melts at a lower temperature than oxide and can burn in the presence of air if hot enough.

[16] "N-Reactor at Hanford Reservation, Washington: Safety and Environmental Concerns," Oversight Hearing, Subcommittee on General Oversight, Northwest Power, and Forest Management of the Committee on Interior and Insular Affairs, U.S> House of Representatives, 19 May 1986, Portland OR

[17] DOE Environment, Safety and Health Office of Environmental Audit, "Environmental Survey Preliminary Report: DOE Activities at Santa Susana Field Laboratories," February 1989
[18] EPA Memorandum, from Gregg Dempsey to Daniel Shane, "Site Visit to Santa Susana Field Laboratory Operated by Rockwell/Rocketdyne," 28 July 1989
[19] Thse studies, and reports by the SSFL Advisory Panel about them, can be found at www.ssflpanel.org. The UCLA team subsequently published their findings in a number of peer-reviewed scientific journals as well.
[20] The ATSDR-funded studies can be found at http://www.ph.ucla.edu/erg/current.html
[21] See "Nuclear Cleanup: The Standards Conflict," by Daniel Hirsch, Emily Churg and Tony Zepeda, November 2004, http://www.committeetobridgethegap.org/pdf/nuclear_cleanup.pdf
[22] See "Statement Regarding DOE Draft 'Gap Analysis' by Daniel Hirsch, 10 June 2008, and "Comments on DOE Draft 'Ggap Analysis'" by Daniel Hirsch, 8 September 2008.
[23] Letter re "Santa Susana Field Laboratory, Ventura County, California, Implementation of H.R. 2764," from Michael M. Montgomery, Chief, Federal Facilities and Site Cleanup Branch, USEPA, to Desi Crouther, Chief, Office of Small Sites Projects, Office of Environmental Management, Department of Energy, 2 July 2008.
[24] See U.S. Nuclear Regulatory Commission news release, "Government Prevails in Conflict-of-Interest Case Against Science Applications International Corporation," 5 August 2008; "Potential for Conflict Grows With Government's Use of Contractors," *Washington Post,* 18 August 2008.