

Statement of Morgan Smith, President and CEO

Consolidated Nuclear Security, LLC

on

“Deferred Maintenance in the Nuclear Security Enterprise: Safety and Mission Risks”

Before the

Subcommittee on Strategic Forces

House Committee on Armed Services

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Chairman Rogers, Ranking Member Cooper, Members of the Subcommittee, thank you for the opportunity to submit this statement on the deferred maintenance challenges facing the National Nuclear Security Administration (NNSA), the nuclear security enterprise, and in particular, the specific challenges facing the Pantex Plant in Amarillo, Texas, and the Y-12 National Security Complex in Oak Ridge, Tennessee. Consolidated Nuclear Security, LLC (CNS) is very appreciative of the support the House Armed Services Committee has given the sites over the years as well as your support of several new projects that will improve conditions at both Pantex and Y-12.

CNS is the management and operating contractor for the NNSA’s two primary nuclear production sites: the Pantex Plant and the Y-12 National Security Complex. CNS assumed the management and operating responsibility for the sites on July 1, 2014. Pantex is our nation’s only nuclear weapons assembly/disassembly facility. Y-12 is our nation’s only nuclear weapons secondary facility. Without the essential work performed at Pantex and Y-12, our Nation’s ability to maintain the nuclear deterrent will not happen. The quiet, but important work done in these two facilities is essential to our nation and our allies and it is a privilege to work alongside the patriots that comprise the federal and contractor workforces in support of our important mission. It is also a privilege to engage with our host communities as we work together to improve both the sites and the surrounding areas.

Both sites have long and storied histories of contributing to the nation’s nuclear deterrent. The Pantex Plant produced conventional bombs and artillery shells when it was established during World War II, but was recast in the 1950s as a main hub for the assembly of thousands of nuclear warheads. Since 1975 Pantex has been the nation’s primary assembly, disassembly, retrofit, surveillance, and modification center for nuclear weapons. It also produces the chemical high explosives used in nuclear weapons, assembles and maintains nuclear weapons, dismantles weapons that are retired from the stockpile, and serves as the interim storage location for plutonium components that have been removed from dismantled nuclear weapons.

Y-12 was established as one of three Manhattan Project sites and produced the enriched uranium that fueled the Little Boy atomic bomb that contributed to the rapid conclusion of World War II. As the Cold War grew, Y-12 served as a key cog in the nation’s nuclear deterrent, and today it remains an essential component in the nuclear security enterprise. Its missions include manufacturing, dismantlement and surveillance of highly enriched uranium components, and serving as the country’s primary safe and secure storehouse of highly enriched uranium. Y-12 also supplies the enriched uranium feedstock that is

fabricated into fuel for Nuclear Navy propulsion use. With our vast uranium expertise we play a major role in efforts to secure vulnerable nuclear material around the world and curb nuclear trafficking and smuggling.

Both sites have performed their essential missions and evolved their roles in support of our nation since their inception, however, they have not been immune from the effects of time, similar to other infrastructure across the country. Many key facilities at both sites were constructed in the 1940s and were intended to operate for as little as one decade. Many facilities and their supporting infrastructure have exceeded or far exceeded their expected life, and major systems within the facilities are beginning to fail. Sustaining these facilities while continuing to produce mission deliverables in a work environment that enables attracting and retaining the needed world class workforce is a considerable challenge, as is adequately capturing and allocating deferred maintenance and replacement funding. Our dedicated employees diligently plan and work to maintain a safe and secure working environment and production capabilities, but the effort necessary to sustain our capabilities continues to grow. A better overall long term approach is required.

Between Pantex and Y-12, CNS has approximately \$800 million in deferred maintenance currently on its books. Approximately \$175 million of that deferred maintenance is for mission critical facilities. Under the direction of Energy Secretary Ernest Moniz and NNSA Administrator Frank Klotz, there has been a push to arrest the growth of deferred maintenance across the nuclear security enterprise, but significant investment is required to appreciably reduce that backlog and sustain safe operations for the extended life of these vital mission facilities. Furthermore, while we will always work to maintain safe and secure conditions, the considerable effort to do so naturally impacts our ability to maximize our delivery of the mission.

Throughout my career, I have made decisions based on two fundamentals: what is right for the nation, and what is right for the people? By answering these questions I have found that priorities are more clearly identified, and that the right decisions are made for the right reasons. Deferred maintenance, however, provides a profound challenge in achieving the proper balance, especially in light of the need for enduring capability at the sites to produce that which is needed for the country while providing proper conditions for employees.

The primary concern with knowingly deferring maintenance is that a major, unforeseen failure could occur. Our top non-negotiables—we call them our imperatives—are safety and security. We will protect our people, our communities, the materials we are entrusted with, and the environment in which we and our friends, neighbors, and communities live. We cannot, and will not, compromise safety and security. Our nation, however, also relies on us to deliver our mission with the highest quality products and services. Keeping our facilities and working conditions safe, secure, and operating properly requires ever-increasing operations and maintenance funding because the potential disruption to operations and mission deliverables is a real concern, as is the likelihood for a substantial increase in costly repairs.

This degradation hasn't gone unnoticed. Our workers experience it every day and are vigilant in their efforts to perform to the highest standards while often working in facilities that are less than ideal and are the subject of frequent repairs and outages. Furthermore, many of our workers have had life-long careers at the sites and for them, keeping the sites going is truly a service to the nation with a knowledge of the past difference these sites have made. Attracting and retaining the next generation of

great workers becomes more challenging in facilities that are in a deteriorated state. Congress and the NNSA are well aware of the challenges, and so is the media.

A 2012 Washington Post article described Building 9212, the main hub of our production activities at Y-12, as the “most pressing example of neglect and deterioration” across the nuclear security enterprise, describing a building made of “clay tile and cinder blocks” that “looks its age” with “large patches of rust and corrosion on interior walls” and a roof that leaks when it rains. The new Uranium Processing Facility scheduled for completion in 2025 will replace 9212, but until then 9212 must remain operational.

“For two decades, U.S. administrations have confronted the decrepit, neglected state of the aging nuclear weapons complex. Yet officials have repeatedly put off sinking huge sums into projects that receive little public recognition, driving up the costs even further,” the Post wrote.

After a tour of Pantex last year, Rep. Mac Thornberry, the chairman of the House Armed Services Committee and our Congressman at Pantex, wrote in a letter to Energy Secretary Ernest Moniz that he continued to be “struck by the deplorable state of its infrastructure and facilities.” A more recent tour by another group involved an encounter with a snake, which can be a periodic occurrence in some of the site’s older buildings.

Earlier this summer, the Amarillo Globe-News noted that many Pantex buildings have outdated electrical systems and leaky roofs, with employees resorting to putting tarps over high explosives testing equipment to protect it during storms.

And recent press coverage described continued concrete deterioration in the ceiling of Y-12’s 9204-2 facility that has posed a safety risk while significantly increasing the cost for necessary replacement of dehumidifying equipment mounted on the floor above the ceiling. As a result of severe concrete spalling and reinforcing bar degradation, load limits have been established by our engineers that only allow two people in the area above the spalled structure at one time. Other similarly-aged facilities are being evaluated for similar conditions.

Unfortunately, failing infrastructure and problems that arise from deferred maintenance occur on their own timetables and can adversely affect production and safety, even with preventative measures. In recent years, utilities failures, steam and plant air outages, potable water interruptions, and high-pressure fire loop lead-in failures have all caused production stoppages, which has created additional significant pressure on mission delivery efforts.

For instance, unplanned outages to humidity control equipment earlier this year immediately shut down production in Building 9204-2. Process failures (such as fan or pump motor failures) happen on an average of about once a year, which can result in outages up to one week. This is compounded by the fact that there is no excess capacity for humidity control equipment.

The electrical distribution systems at both sites are also experiencing age-related failures. For example, underground electrical connectors have exceeded their design lives and are beginning to fail. When these do fail, power interruptions to mission-critical and mission-dependent facilities impact production activities.

The failed condition of approximately 600 utility poles at Y-12 create a significant risk to site electrical and communications distribution systems. Current funding levels do not allow full replacements, and a major wind or storm event presents the risk of power and communication interruptions.

The High-Pressure Fire Loop lead-ins at Pantex also suffer from age-related corrosion and exhibit multiple failures each year. There is an effort to replace all affected portions over the next decade; however, the failures are occurring at random locations which directly impact bays and cells, and mission work cannot be supported until the leak is fixed, which can take several months to accomplish.

While the conditions are difficult and we are unable to turn back time, it is important to note that we are not sitting idly by and allowing our systems to age into obsolescence. At Pantex and Y-12 we have charted a clear path to address infrastructure and deferred maintenance concerns and position both sites to continue to serve as essential cogs in the nation's nuclear deterrent for decades to come.

From 2002 to 2012, the Facilities and Infrastructure Recapitalization Program, known as FIRP, eliminated \$141 million in deferred maintenance at Pantex and \$198 million in deferred maintenance at Y-12.

Since 2003, the demolition of excess facilities has eliminated \$16 million in deferred maintenance at Pantex and \$76 million at Y-12. At Y-12, we're continuing to partner with the DOE's Office of Environmental Management on plans to prepare additional buildings for their eventual demolition.

Of note are the Alpha 5 and Beta 4, which are shut down, and 9206, which is still a Category 2 Nuclear Facility with only a deinventory mission left to fulfill. These facilities are no longer used in production, sit adjacent to active production areas and would present a significant risk to mission activities if the buildings were to further deteriorate. Eventually the facilities will be turned over to the Office of Environmental Management for demolition, but until that time we must keep them in a safe and stable configuration.

Through additional funding provided for this fiscal year, the Alpha 5, Beta 4 and 9206 facilities are being fitted with new spray-foam roofs that will protect the facilities and the environment by mitigating leaks, sealing penetrations, and slowing the roofs' deterioration. To appreciate the scale of this effort, the area of the three roofs combined is 280,000 square feet (more than 5 football fields).

In addition, tanks and dikes outside of Alpha 5 and Beta 4 are being disconnected, drained, and filled with concrete. Beta 4 will also have its Manhattan Project-era electrical system replaced by a temporary "construction power" setup that will provide as-needed electricity to the building in a manner that is safer, more reliable, and will allow for simpler demolition activities in the future. Water that has flooded the basement of Alpha 5 is being evaluated for eventual removal and treatment.

Along with eliminating excess and deteriorating facilities, we are also embarking on the largest set of capital construction projects for both sites in decades. At Y-12, the Uranium Processing Facility is moving forward. When completed, it will provide modern, safe, and secure facilities for processing uranium—activities that are currently conducted in facilities that are over 70 years old—and will help eliminate \$28 million in deferred maintenance in helping us move operations out of the 9212 facility, but sustainment activities will be necessary over the next 10 to 15 years in order to accommodate the transition to UPF.

We are also working through readiness activities of the High Explosives Pressing Facility at Pantex, and we are in the planning stages for a new High Explosives Science and Engineering facility at Pantex and a new lithium production facility at Y-12.

Also at Pantex, we recently received the go-ahead for a new privately financed and constructed Administrative Support Complex. Construction began recently and will take approximately two years. The 343,000-square foot facility will include general office space for 1,100 employees, a conference center, cafeteria, visitor's center, and medical and wellness facilities. It will also eliminate \$20 million in deferred maintenance while greatly improving the quality of work life for federal and contractor employees.

Similar administrative facilities were built at Y-12 over the last decade. The Jack Case Center was built in 2007 and at 400,000 square feet, it houses approximately 1,500 employees and replaced numerous aged facilities that were not designed nor intended for office space. The New Hope Center was completed in 2007 and has five laboratories as well as 16 conference rooms, an auditorium and Y-12's history center. Additionally, the Highly Enriched Uranium Materials Facility began operations in 2010 and serves as the nation's premier storehouse for highly enriched uranium.

Smaller projects also make a big difference. At Y-12, Energy Savings Performance contracts have helped buy down deferred maintenance by \$14 million. Currently, there are five main projects at different stages of progress, including the chiller plant upgrade, steam system decentralization, lighting upgrades, a new compressed air facility, and steam system repairs. The upfront capital for these projects is funded by a subcontractor, which is paid through the savings; however, Y-12 is responsible for support costs, including activities such as lock out/tag out, utility surveys and engineering drawing review. At Pantex, the third-party financed wind farm produces about 60 percent of the plant's electricity in the form of clean energy.

Other ongoing initiatives that will help reduce deferred maintenance include efforts to replace the high pressure fire loop lead-ins at Pantex (\$18 million), production facility modernizations at Pantex (\$7 million), the Nuclear Facilities Electrical Modernization project (\$10 million), and HVAC replacements for both sites (\$12 million).

While recapitalization is a priority, preserving our currently operating facilities is not taking a backseat. Strategic plant outages, a best practice at Pantex designed to help address maintenance issues, have also recently been adopted at Y-12. A recent three-day full plant outage at Y-12 allowed workers to address deferred maintenance on power, steam and air systems, giving a small army of Y-12 infrastructure, facilities, and utilities workers time to make repairs and perform preventative maintenance that will help avert unexpected outages and costly damage to equipment in the future.

The outage approach isolates entire systems at a time and addresses all possible corrective and preventive maintenance issues before returning the system to operation, allowing us to make sure our systems are healthy and safe and gives us less down time due to failures. This approach has been successful thus far and it will be necessary to continue this effort to address the backlog of deferred maintenance.

Y-12 is also developing an Extended Life Program, or ELP, for Buildings 9215 and 9204-2E, two key processing facilities. These two facilities along with the plant laboratory, 9995, will house all enriched

uranium material processing activities not incorporated into the Uranium Processing Facility design, and they will be expected to work in tandem with the new Uranium Processing Facility to meet the future needs of the country. The Extended Life Program will reduce material at risk in the facilities to lessen the consequences of any potential accidents, replace or refurbish key facility infrastructure and process equipment, and address and update regulatory requirements for extending the lives of the facilities. We have engineers monitoring these facilities closely, and support of the Extended Life Program will require additional funding over a number of years to ensure safe mission capabilities are sustained in these vital extended life nuclear facilities.

The Y-12 infrastructure and support facilities that sustain not only 9215 and 9204-2E, but the entire plant, are generally beyond design life, with a significant portion of electrical equipment that is no longer manufactured and process equipment also beyond design life and in need of upgrade/refurbishment. Fire water distribution systems, humidity control equipment, steam and condensate return distribution systems, cooling towers, and facility structural conditions are also significant risks to the health of the plant.

Planning is also underway for a Material Staging Facility at Pantex that would relocate existing high security nuclear weapons and nuclear weapons component storage and staging areas in Zone 4. The current facilities in Zone 4 are between 45 and 65 years old, and a Material Staging Facility located in Pantex's production area would help replace those facilities as well as reduce the size of Pantex's aging Perimeter Intrusion Detection and Assessment System, or PIDAS, and eliminate the need to transport weapons and weapons components between two areas at the plant.

Along with Lawrence Livermore National Laboratory, Pantex and Y-12 have piloted a software program for the NNSA designed to better track and manage building infrastructure maintenance. The sites were designated as BUILDER Centers of Excellence in 2013 by NNSA and are in the process of implementing the U.S. Army Corps of Engineers' BUILDER Sustainment Management System. The program is designed to let managers proactively respond to infrastructure maintenance needs, and when complete, Pantex's 620 facilities and Y-12's 345 buildings will be integrated in the program.

CNS remains committed to helping maintain the nation's nuclear deterrent and providing a safe and secure workplace for the thousands of dedicated men and women who come to work every day at Pantex and Y-12. With many new projects at both sites on the horizon and significant efforts to modernize and maintain the sites underway, the future is bright. The federal and contractor teams at our sites are up to the challenge that is laid before us, but significant reductions in deferred maintenance will not be realized without continued investment strategies. Similar to a FIRP Program, a significant additional annual investment above current funding levels would be required to reduce deferred maintenance at both sites. Until this is done, there will be periodic disruptions to mission accomplishment while unplanned emergent items are dealt with and impacts on production are subsequently addressed through recovery schedules and worker overtime whenever possible. Current funding levels presently allow us in many areas only to treat the symptoms of age rather than address the fundamental degradation.

A robust recapitalization program that includes funding for new construction projects and the disposition of excess facilities will complement continued enhanced efforts to address existing deferred maintenance issues, and each are essential actions that need to be taken to preserve the mission work

that occurs at both sites, ensure the continued safety of our workforce, and help keep Pantex and Y-12 on track to provide a safe, secure and effective nuclear deterrent into the future.

Thank you for the opportunity to speak to you today.