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Broadening the National Security Mission

Sandia National Laboratories

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Introduction

Spanning forty-three years and encompassing a plethora of roles and responsibilities, there is perhaps no more significant commentary on Tom Hunter's years at Sandia than that articulated in his own State of the Labs presentation of February 6, 2008 in discussing the Labs' strategic plan: "It basically says we will move the nuclear weapons complex into a new posture and that the national laboratories will be moving into the broader arena of national security," Hunter said. Hunter's message was clear. It would be his responsibility to formally shepherd Sandia into a new era, already in-progress, during which exceptional service in the national interest would come to include a much broader set of national security activities, far beyond Sandia's more traditional role as a weapons laboratory. From nuclear security to energy and infrastructure security, through cyber security and other homeland security functions such as water quality assurance and biopathogen protection, Hunter's presidency will be remembered as the era during which Sandia irreversibly charted a course into a veritable ocean of hugely expanded national security responsibilities.

Part One

Feeling the Pulse of Sandia

"It was a fascinating time. . . Everything was done very quickly. Although, you know, it didn't seem hurried; it was just fast-paced. A lot of things got done." Tom Hunter's commentary on his opening years at Sandia and the Nevada Test Site (NTS) are important not so much for what they reveal about the engineering challenges, but rather for what they taught him about the essence of Sandia's mission and what motivated and excited its staff.

It was a time at Sandia when you were limited only by your imagination. It was a time in which you were able to dream big, and think of things thought to be impossible, and how one might do them." Earning his PhD from the University of Wisconsin, Hunter goes on to describe the enormity of the equipment built to enable the nuclear weapons tests that returned the desired data within tunnels at NTS, including a huge vacuum pipe and two-ton shutter system for excluding debris, a device for which his analytical engineering skills are partly responsible, and for which he holds a patent. But beyond the tight schedules and the immense equipment-engineering challenges, he recalls the teamwork among groups from the entire laboratory as the key element that set the stage for his understanding of what has become a hallmark of the Sandia enterprise—multidisciplinarity engaged in pursuit of a common goal.

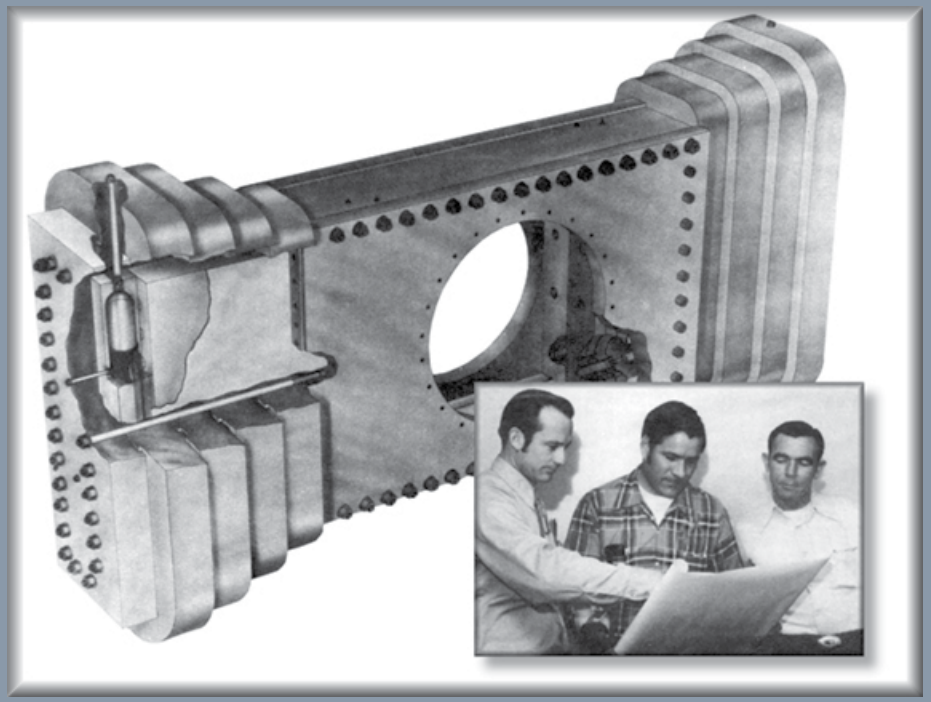
It is, in a sense, ironic that a classic nuclear weapons engineer, should ultimately serve as director of a laboratory moving away from a strictly nuclear weapons mission and diversifying into one subsuming multiple aspects of national security. Yet that rooting of his career in multidisciplinary cross-teaming would serve as an essential lesson in the nature of how work gets done at Sandia. In addition, these early years, revealed what would later become Hunter's strengths as Director— a keen analytical problem-solving ability combined with a strategic sense for the necessities that the future would impose on the Laboratories.

Tom Hunter in the late-1960s, shortly after he joined Sandia.

Hunter (second from right at the high-fluence recovery station) within a tunnel at NTS. Hunter's first job at Sandia was to design ways to recover samples very, very close to nuclear devices where the fluences (quantities of radiation) were very high.

Hunter (second from Left) poses with team members in front of the huge shutter device that was designed to very rapidly close to exclude blast debris from underground tests.

Developers of the fast-acting closure system, from left, Bob Stinebaugh, Leroy Honeyfield, an unidentified official from American Cyanamide, and Tom Hunter.



Cutaway drawing of the shutter design

"We had to really rush and regroup and do a lot of calculations, scale model testing, and pulling things together, and completely redesign everything so our exposure station would have a chance to survive. We had on the order of seven months to completely regroup and do everything over again . . . The nice thing was that everyone pulled together, and we did it successfully. As a formative thing for a staff member, a project like this allows you to face the depths of apparent failure and the heights of apparent success, all in a period of a matter of months. We taxed the entire laboratory, including the procurement organization — they had to do things in unprecedented timeframes. The experience, more than any other, probably formed my impression of what it means to work at Sandia."

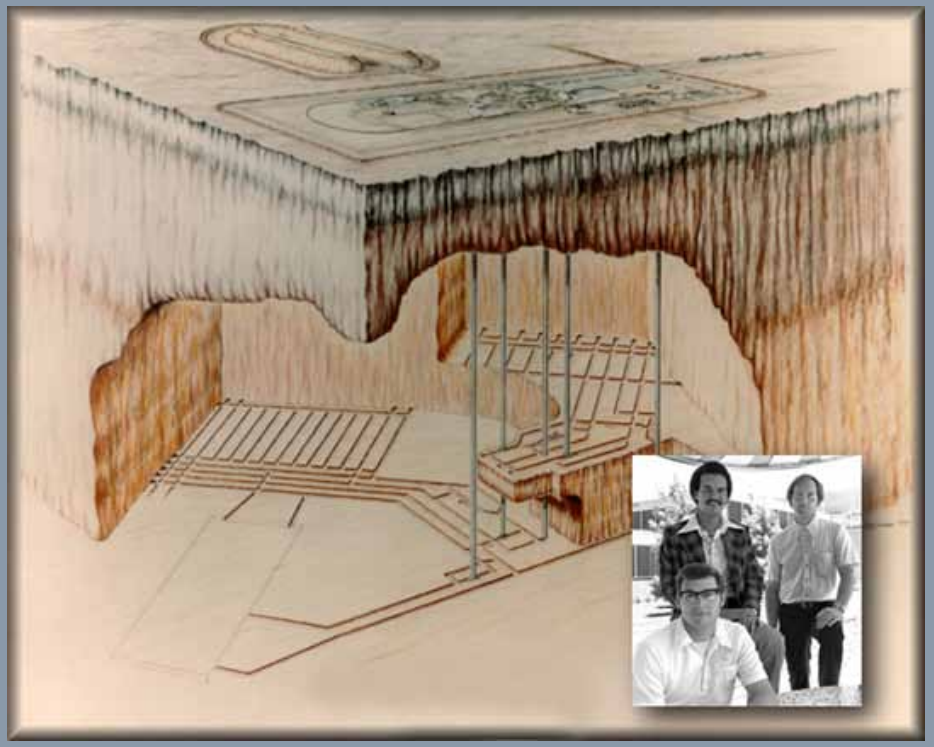
Part Two

Moving the Mission Forward from Multiple Viewpoints

Hunter would serve as Leader of the California Lab from 1996 through 1999. When he arrived, "the Lab" articulated by Bay Area residents always connoted Lawrence Livermore National Laboratory (LLNL), Sandia-California a relatively unknown, and therefore, unheralded quantity in the minds of its neighbors. One of Hunter's key accomplishments was to bring forward the accomplishments of Division 8000, informing the knowledge base of local politicians, such as the mayor of Livermore. He was incredibly active within the community, a partner in local education initiatives, and he made it his priority to change the thinking of that community. Metaphorically represented by a sign on the freeway that identified the appropriate exit as leading not only to LLNL, but to SNL/CA, as well, by the time Hunter departed this position, respect for Sandia and its accomplishments had risen exponentially in the Bay Area.

From 1999-2004, Hunter was Senior VP for Nuclear Weapons and Defense Programs and he set about to transform the business structure of his organization. He displayed a characteristic that would later become a signature of his tenure as Director, that is, an ability to work with federal organizations in Washington, particularly DOE. " He has a gift for working with people to get things done," says a former colleague Moreover, that colleague characterizes Hunter as completely open to input without danger of retribution, a man who analytically interrogated the ideas of others only because of his strong desire to get it right. This same colleague comments, "I always knew, even if I disagreed, that he truly believed that he was doing the best thing for the Labs . . . one of the better strategic thinkers I've ever known . . . nothing is impossible." This same attitudinal vein had served Hunter well in his roles as Director of Nuclear Waste Management and Transportation, Manager of the Yucca Mountain Project, and leader of the R&D Program for the Waste Isolation Pilot Plant (WIPP).

"He has a gift for working with people to get things done . . . . He truly believed that he was doing the best thing for the Labs . . . one of the better strategic thinkers I've ever known . . . nothing is impossible."



Engineering plans for the Waste Isolation Pilot Plant (WIPP).

Hunter and colleagues pose with copies of the site characterization report for the Yucca Mountain repository, circa 1988.

The lighter side of Tom Hunter on display, in 1998, during his tenure as head of the California Laboratory.

A visit to the Chinese Atomic Energy Program, 1998

At the dedication of the National Ignition Facilty (NIF) at LLNL, 1999.

Dedication of Distributed Information Systems Laboratory, 2004.

Visiting Russia, in Red Square, during Hunter's tenure as Senior VP for Defense Programs

Part Three

Responding to the Imperative of a Changing Landscape

Hunter knew, in addition to filling a large pair of shoes, those of Paul Robinson, that an upcoming shift in lab management would be essential, were Sandia to maintain its position. With a clearly unsustainable budget and the immense task of $700 M in work for others (WFO) contracts, spread out over approximately 2000 projects, Sandia was, in many ways, a victim of its own success. With its incredible diversity came a great interdisciplinary environment for its scientists and engineers, but also a potential management nightmare. "He had a vision that things had to change, and he was capable of looking systemically at the national security environment and the political environment," comments a colleague. With the nuclear weapons program clearly facing diminishing funding, Hunter knew that Sandia would have to become a multifaceted national security laboratory, and that only through tight governance would this be feasible.

The ultimate question became, how could a government-owned, contractor-operated lab preserve its independence and set a higher bar for managing its work. Hunter took criticism for his Integrated Laboratory Management System (ILMS), locally, and he strove mightily to forge partnerships, more globally, with DHS, DoD, and the Office of the Director of National Intelligence (ODNI). He was trying to build the framework for this transition, convince the Sandia Site Office (SSO) to trust this vision of independence within a web of collaboration. He proffered the view that NNSA should be a common science and technology (S&T) resource, serving multiple agencies; moreover, he led both the agency and the other two NNSA labs in pursuing that transition. Sadly, the sled track accident occurred to cast a shadow on this vision, yet Hunter persisted, dealing with the blowback in the same fashion that he would with any problem—ethically, with a vision toward the future, and above all, bravely. "He had a willingness to take on hard, messy challenges, always with an eye toward structuring new paths for the national labs," a colleague praises.

The Voice of the Laboratories

Tom Hunter's decision to increase Sandia's level of engagement in Washington was rewarded in several ways. He became the voice of the three NNSA laboratories in meeting with Vice-President Biden, in congressional testimony, and ultimately in working with NNSA to shift the NNSA laboratories' mission from nuclear security to national security. He developed a very close working relationship with Energy Secretary Chu, who named him head of DOE's national laboratory response to the Deepwater Horizon oil spill in the Gulf of Mexico.

DOE laboratory directors meet with Vice-President Biden and Energy Secretary Chu (left of Biden). (Tom Hunter is second from far left.)

Hunter offers testimony before the House Armed Services Committee.

"Tom saw cyber security way before anyone else and purposefully took on ownership of it among the 17 National Laboratory directors . . . pushed it to the forefront at DOE."

During a 2009 visit to Sandia, Energy Secretary Steven Chu discusses policy with Tom Hunter (left-hand photo) and is briefed on science outcomes by Hunter and Sandia Vice-president Rick Stulen (left of Chu in right-hand photo).

Campus Transformation

During Hunter's tenure as Laboratory Director, the vision of Sandia campus transformation began to be fully realized, as facilities such as MESA (Microsystems and Engineering Sciences Applications), CINT (the Center for Integrated Nanotechnologies), and NISAC (National Infrastructure Simulation and Analysis Center) came online.

The newly completed Tech Corridor at the southeast edge of Tech Area 1.

Opening of the MESA Facility, with Senators Domenici and Bingaman, and representative Heather Wilson doing the honors. At center, Bingaman discusses capabilities with, from left, Steve Rottler, NNSA Administrator, Tom D'Agostino, SSO Manager Patty Wagner, and Hunter.

Florida Senator Bill Nelson (blue sweater, center) visits CINT with, left to right, Al Romig, Senator Domenici, Tom Hunter, Nelson, Vice-President Joan Woodard, SSO Manager Patty Wagner, and NNSA Administrator Tom D'Agostino.

Dedication Ceremony for the NISAC Building, left to right, N.M. Representatives Steve Pearce and Heather Wilson, Senator Pete Domenici, U.S. Department of Homeland Security Secretary, Michael Chertoff, Sandia Deputy Director for Integrated Technology Systems and COO Al Romig.

NNSA Administrator Linton Brooks at the rollout of Sandia's Red Storm Supercomputer.

Tom Hunter pitches-in at a Habitat House building project.

Distinguished Visitors

Sandia's stature and reputation during Hunter's presidency drew many distinguished dignitary visits to the laboratory, most notably that of President George W. Bush.

President Bush tours the solar tower facility with Tom Hunter, Senator Domenici. Secretary of Energy Samuel Bodman, and Senator Bingaman.

Hunter briefs President Bush and Secretary Bodman about Sandia's energy-related work. During his visit, the President signed the Energy Policy Act of 2005.

Senatorial visits to Sandia included those of Minnesota Senator Amy Klobuchar (bottom left and with Hunter and Vice-President Les Shephard, top right), Alaska Senator, Lisa Murkowsky (top left and bottom left), and North Dakota Senator, Byron Dorgan (bottom right).

Hunter and United Kingdom (UK) Minister of defense, Chief Scientific Advisor, Roy Anderson discuss US/UK defense programs.

General James Cartwright, Vice-chairman of the Joint Chiefs of Staff (right of Tom Hunter in photo) visits Sandia in 2010. Hunter's successor as Labs Director, Paul Hommert is immediately left of Hunter.

A delegation from the University of Texas, a strong Sandia partner, visits the Labs.

Promoting Partnership

With his superb one-on-one interpersonal skills, Hunter actively promoted Sandia partnerships with both corporations (such as Goodyear and Dell) and universities, at one point serving as Campus Executive to the University of Florida, his undergraduate alma mater. Sandia's collaboration with Cray, Inc. was highly influential in the company's return to a stronger position within the supercomputer market.

Sandia had a significant presence at the Great Plains Energy Expo, November 10, 2008, in Bismarck, ND (in part, sponsored by the office of North Dakota Senator Byron Dorgan). Left to right, Peter Davies, Jennifer Nelson, Terry Michalske, Tom Hunter.

Hunter signs a Memorandum of Understanding (MOU) with Albuquerque Mayor Martin Chavez, left, and University of New Mexico President, David Schmidley (center), strengthening ties with both the City and the University.

Japan's New Energy and Industrial Technology Development Organization (NEDO) signed agreements with Sandia to assist in the creation of two smart grid demonstration projects. Encouraged by DOE, Sandia provides expertise in planning, modeling and simulation, data analysis, and cyber security, all areas of Laboratory focus and strengthening during Hunter's presidency.

Chairman of Dell, Inc. BOD Michael Dell (white shirt, at center, surrounded by Thunderbird team members) visits Sandia to sign an MOU for a Thunderbird computer update.

A delegation from Singapore visits the Laboratories, accompanied by Tom Hunter and Deputy Director for Integrated Technology Systems and COO, Al Romig (far right).

Technical Expertise

Hunter's leadership within the 17-member National Laboratory Directors Council (NLDC) was evidenced in numerous ways, such as his willingness to take ownership of DOE's cyber security initiative, for which he framed the debate and brought it to the forefront of the NLDC's and NNSA's consideration. Ultimately, he developed a trusting relationship with DOE Secretary Steven Chu, one, in part, based on his ability to speak knowledgeably and with authority on scientific and technical matters.

Members of the NLDC Executive Committee with Secretary Chu (left of Tom Hunter).

International Workshop on the Role of Nuclear Weapons in the 21st Century —Chelyabinsk Region, Snezhinsk, Russia, June 1-5, 2005; held in Russia in celebration of the VNIITF's (Russian Federal Nuclear Centre All-Russian Institute of Technical Physics) 50th Anniversary. Hunter is second from left.

NM First Tribute to Pete Domenici, June 28, 2008; National Hispanic Cultural Center, Albuquerque. Pictured with Hunter is LANL Director, Michael Anastasio.

An Opportunity for Operational Excellence

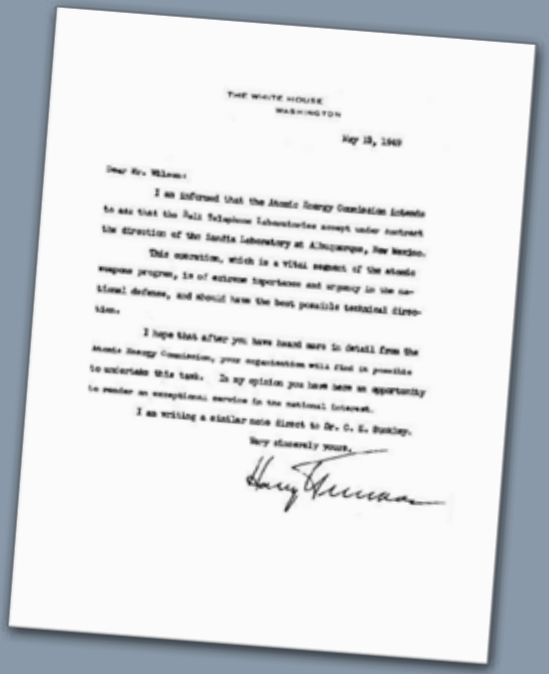
Hunter approached Sandia's unfortunate sled-track accident as a challenge in operational excellence, challenging staff to work safely because it is the operationally excellent course. Staff members have the right to leave work is as good a condition as that in which they arrived—if not better—was Hunter's ultimate message.

All-Hands safety meeting held subsequent to the sled-track accident. From left, Deputy Director, Al Romig, Vice-president, Rick Stulen, Vice-president, Joan Woodard, and Hunter.

Celebration of Sandia's 60th Anniversary, with speaker/celebrants including (from left) Senators Tom Udall and Byron Dorgan, President Tom Hunter, and Senator Jeff Bingaman.

Epilogue
The Legacy

"He envisions what we need to do before anyone else even sees that there's an issue." So comments a close colleague regarding Tom Hunter's vision for specific arenas such as cyber security as well as for the overall vision of laboratory transformation. Hunter's rapid analytical ability appears to derive from three remarkable personality traits: first, he is excellent at forging productive one-on-one relationships and promoting partnerships with other CEOs; among his peers, he is viewed as "first among equals." Second, he sets the bar high on any Sandia endeavor; for example, Sandia's partnership with Goodyear Inc., one of the areas in which Hunter saw the immense value of modeling and simulation, and which essentially catapulted the company from economic woes into leadership in the industry. Finally, Hunter has the capability of quickly becoming a subject matter expert on just about any area of science and technology. His successor, Paul Hommert calls Hunter "the person with the most knowledge in a room." These characteristics allowed Hunter to pull together the common voice—"we are committed to a broad role for NNSA in national security"— that transformed the way NNSA viewed its three laboratories, a transformation from nuclear security labs to national security labs, In the end, this is likely to be seen as Tom Hunter's greatest legacy.



THE WHITE HOUSE
WASHINGTON

May 18, 1949

Dear Mr. Wilson:

I am informed that the Atomic Energy Commission intends to see that the Bell Telephone Laboratories accept under contract the direction of the Sandia Laboratory at Albuquerque, New Mexico.

This connection, which is a vital segment of the atomic weapons program, is of extreme importance and urgency in the national defense, and should have the best possible technical direction.

I hope that after you have heard more in detail from the Atomic Energy Commission, your organization will find it possible to undertake this task. In my opinion you have here an opportunity to render an exceptional service in the national interest.

I am writing a similar note direct to Dr. C. E. Buckley.

Very sincerely yours,

Harry Truman

Nineteen forty-nine letter from President Harry Truman establishing the Sandia ethic of "exceptional service in the national interest."

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