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ORGANIZATIONAL AND CULTURAL EROSION OF THE ICBM NUCLEAR ENTERPRISE

by

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Biography

In 1988, Colonel Angela Stout earned a commission from the AF Academy and attended Undergraduate Missile Training at Vandenberg AF Base (AFB), California. She became mission ready in the Peacekeeper Intercontinental Ballistic Missile (ICBM) weapon system and a proud member of the 400th Strategic Missile Squadron in January 1989.

Col Stout served in various crew capacities at F.E. Warren AFB before returning to the Vandenberg schoolhouse to teach future missileers. With the merger of space and missiles, she took the opportunity to broaden into space operations. Upon completion of her space operations tour, she worked as a space control program element monitor at Headquarters AF Space Command and then went on to the Aerospace Command and Control Intelligence Surveillance and Reconnaissance Center at Langley AFB seeking to more effectively bring space to the warfighter. After attending Air Command and Staff College (ACSC), Col Stout was the ICBM, UH-1, Advanced Cruise Missile and Air Launch Cruise Missile program element monitor at Headquarters AF Nuclear Operations.

Col Stout was honored to return to F. E. Warren AFB to serve as the Operations Officer for the 400th Missile Squadron and then commanded the 90th Operations Support Squadron. At the completion of command, she stayed on at F.E. Warren to serve as the 20th AF Deputy Director for Operations. Col Stout was selected for Senior Developmental Education to serve as an instructor at ACSC and then on to Air War College.

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Introduction

Two recent events were catalysts in reenergizing and refocusing the Air Force (AF) on a new "number one priority." In 2006, classified nuclear components were mislabeled and shipped to Taiwan and in 2007 six nuclear weapons were mistakenly flown from Minot AF Base (AFB), North Dakota to Barksdale AFB, Louisiana. In conjunction with many investigations and task forces, the "reinvigoration" of the nuclear enterprise has started down a path of course corrections. While the nuclear enterprise is considered the sum total of United States AF nuclear operations, logistics, support, and sustainment, this paper focuses on the course corrections needed to address Intercontinental Ballistic Missile (ICBM) organizational and cultural degradations since the demise of the Strategic Air Command (SAC).[1] By reviewing the environments and issues during SAC and AF Space Command (AFSPC) periods, recommendations are offered to reinvigorate the ICBM nuclear enterprise.

Cultural degradations have over time eroded the nuclear enterprise. Significant resources, time, and sustained leadership will be required for an extended period to rebuild lost strengths. In the 2009 United States (US) AF Posture Statement, the Secretary of the AF (SECAF) and the Chief of Staff of the AF (CSAF) placed nuclear deterrence operations as the AF's first priority.[2] With the top AF leaders' support, effort must now be taken to correct the current course of the ICBM organization and associated culture. While a daunting task, other accidents offer lessons that organization and culture cannot be ignored.

Lessons from Other Accidents

On February 1, 2003, the Space Shuttle Columbia was destroyed in a disaster that claimed the lives of all seven onboard. The Columbia Accident Investigation Board (CAIB) scrutinized the entire shuttle program and provided their findings to National Aeronautics and

Space Administration (NASA) for action. The report concluded that while the physical cause of the failure was a breach in the shuttle's Thermal Protection System, the organizational cause of the accident was rooted in NASA's history and culture.[3] NASA's cultural problem, as evidenced by the Columbia tragedy, offers comparisons to the AF's nuclear enterprise culture.

NASA, much like the nuclear enterprise, dealt ineffectively with resource constraints, changes in priorities, lack of an agreed upon national vision, and a void in direction.[4] Because of this, the CAIB reported "NASA's organizational culture had as much to do with the accident as the foam that struck the Orbiter on ascent."[5] Since Columbia, NASA has taken critical steps to prevent another such tragedy; the AF's nuclear enterprise must be equally aggressive in its corrective actions. NASA's conclusions are not startling when considering additional examples with similar messages.

Consider the accident at Three Mile Island nuclear plant on March 28, 1979 and its causal findings. The Kemeny Commission, tasked to investigate the accident, was unsuccessful in determining who was directly responsible for leaving the accident-causing "culprit" valves open. However, testimony revealed it was not unusual for workers to find valves incorrectly configured; in essence, a culture of complacency had developed and directly contributed to the accident.[6] While the simplest solution is to correct the technical problems that cause this type of accident, it is important to address a root cause deficiency, which calls for creating and sustaining accountability and compliance-focused culture that does not accept complacency. The commonality between the accident at Three Mile Island and the AF's two recent nuclear failings is significant.

Recent Studies

Extensive studies and reviews are available regarding the nuclear enterprise. These include the Defense Science Board (DSB) Permanent Task Force "Report on the Unauthorized Movement of Nuclear Weapons" which found that over a decade of systemic problems certainly contributed to a declining focus and an eroding nuclear enterprise.[7] Additionally, in March 2008, "The Department of Defense (DoD) and the Nuclear Mission in the 21st Century" was released and discussed the importance of a credible nuclear deterrent and offered some views on organizational decisions that detracted from the credible nuclear force and the culture of increasing apathy towards anything nuclear.[8] In September 2008, the Secretary of Defense Task Force on DoD Nuclear Weapons Management Phase I was released under James Schlesinger's signature. This Task Force provided a broad look at the nuclear mission and the erosion of "focus, expertise, mission readiness, resources, and discipline in the nuclear weapons enterprise within the AF."[9] Their report also pointed to the decline in the nuclear culture and offered some recommended courses of action.

Subsequently, the AF Nuclear Task Force released "Reinvigorating the AF Nuclear Enterprise." This report captured numerous causal factors and organized them into six recurring themes. Two themes had to do with culture, specifically that "a critical self-assessment culture is lacking" and that the "AF Nuclear culture has atrophied resulting in a diminished sense of mission importance, discipline, and excellence."[10] The report detailed how to address these casual factors with five major focus areas. Each area contained an underlying requirement to repair the organizational nuclear culture. The nuclear culture in the SAC period offers possible ideas to repair the current culture.

The Strategic Air Command Period

General Curtis Lemay is a prominent leader in SAC's heritage. LeMay imprinted himself on SAC and indeed, the SAC culture is a reflection of the man. LeMay focused on accomplishing the mission with high standards of professionalism and proficiency.[11] He drove the SAC airmen hard and made them constantly practice for perfection. LeMay's style was to "have his best crews set the highest standards, then provide more than adequate training and flying time for other crews to reach those standards of proficiency."[12] General LeMay was a strategic leader who built the backbone of SAC and was reflected in the ICBM organization and culture.

ICBM Organizational Description

In the early days of the Cold War, SAC saw an opportunity with the ICBM mission and fought hard to earn the task. The first ICBM went on alert on October 31, 1959 and the unit was organized similar to a bomb wing.[13] ICBM units embraced the crew force organization structure, along with the training and evaluation portions.[14] Many ICBM crewmembers volunteered to cross train from other career fields, attracted by the opportunity to earn a college degree, while others were simply "volunteered" to fill the rapidly increasing number of crew duty slots.[15]

While there was a large pull for more ICBM crewmembers as the ICBM fleet was built out, retention was a problem. The lack of upward mobility for missileer command and staff positions contributed significantly to the lack of retention.[16] This problem was identified and in 1970, General Holloway, then Commander-in-Chief of SAC, stated, "Our goal is to have the commander positions at wing and squadron levels held by men who have served in missiles from 'the ground up' and that day is fast approaching."[17] Over time, ICBM organizations eventually

grew their own leadership and commanded their weapon system.

SAC ICBM Culture

SAC ICBM crew life was in many ways the same as crew life today. From the mission to personnel issues, the ICBM culture continues to struggle with the same challenges it has long faced. "Constant pressure, little recognition or opportunity to exercise initiative, and overall boredom make up the major job dissatisfaction issues"[18] which influenced the SAC ICBM culture negatively. However, the crewmember fully understood the *importance* of the mission, a clearly defined enemy, and the need for perfect execution at a moment's notice.

With the necessity of perfection, quality personnel recruitment was vital. President Carter addressed this in a 1978 speech saying, "Our first and most fundamental concern is to prevent nuclear war…[T]he position of the missile combat crewmember is still one of the most responsible positions in today's AF. The crewmember's responsibility is to react to any Emergency War Order (EWO) directed by the President of the United States. This requirement is accomplished by the missile crews' keeping their respective missiles in a constant state of readiness through monitoring the safety, security, and reaction capability of their weapon system on a 24-hour basis. Consequently, a missile crew must be completely proficient in use of documents, checklists, and procedures required in implement[ing] the EWO."[19] In SAC's culture, these requirements were met through intense training and evaluation.[20] ICBM crewmembers were under near-constant state of assessment.[21] However, there was little reward for outstanding performance but significant consequences for failure. A SAC crewmember study stated, "The extremely high standards created a pressure environment for all crewmembers. Failure of a test or exercise resulted in a severe verbal admonishment. Such an environment cannot help but foster unwanted pressure."[22]

Because of the importance of nuclear surety and safety, checklists are a way of life for ICBM crews. Follow the checklist and never deviate from it are guidelines crews live by, even as the technical orders themselves offered (in paraphrase) 'while the manual must be followed step-by-step, there is no substitute for the crew commander's sound professional judgment.' In reality however, if a crewmember deviated from the checklist, it was at one's own peril. Technical innovation and creativity were not held in high esteem. Technical knowledge and compliance were.

Due to the negative elements of crewmembers' jobs, the ICBM SAC leadership continued to deal with retention problems. In 1973, problems with the ICBM career field were exemplified by this fact: "…no other career field has the rate of early out acceptances been as high as on the Minuteman missile crew force."[23] It simply was not a rewarding job as the crewmember did not sense the direct impact of accomplishing the mission.[24] The negative aspects of the ICBM career identified in SAC were countered with initiatives focused on ICBM personnel and mission pride. These types of initiatives may be useful in restoring the nuclear enterprise.

The AFSPC Period

Similar to SAC, AFSPC early history contributed to ICBM organization and culture.[25] In 1959, DoD began development of the Ballistic Missile Early Warning System to warn the U.S. of Soviet inbound missile attack. Over an extended period of time, this continued space development led to the creation of AFSPC on 1 September 1982.[26] Though AFSPC and SAC have a common Cold War heritage, the cultures have significantly different origins.[27]

End of the Cold War

The end of the Cold War brought much uncertainty for the nuclear community. While

the ICBM "cold warriors" could take pride in contributing to the victory, a question on many minds became "What is our mission now?" There was not an easy answer, nor is there today. While senior leaders contemplated this question, the ICBM crew force was unsure of their mission. While messages like "You and the mission you do are still important" were constantly provided by unit-level leaders, the messages were inconsistent with those sent by the nation's senior leaders, mainly in the form of silence, deactivations, and mission realignments. With the thawing of the Cold War era, the ICBM cultural identity also seemed to melt away.

ICBM Organizational Description

Post-Cold War, the US was forced to address other security threats in a fiscally constrained environment. CSAF General McPeak restructured the AF to rid itself of major commands like SAC. When Air Combat Command (ACC) was activated on 1 June 1992, ICBMs were put into ACC's portfolio with a longer-term plan to move them under AFSPC, which occurred on 1 July 1993.

The major commands were not the only ones restructured. The combatant commands also went through restructuring. With the deactivation of SAC, U.S. Strategic Command (USSTRATCOM) stood up and eventually U.S. Space Command (USSPACECOM) merged into USSTRATCOM. In the post 9/11 period, USSTRATCOM mission areas expanded exponentially to include space, cyber, missile defense, as well as continuing its nuclear responsibilities. With this mission growth, the nuclear enterprise was put on the backburner and the organization reflected this shift.[28] A 2008 DSB report stated, "At STRATCOM, nuclear competence development and maintenance were not emphasized when broadening the command's mission and scope."[29] The DSB pointed out that STRATCOM did not pay attention to inspection results and had not witnessed or participated in a Nuclear Surety Inspection or

Nuclear Operational Readiness Inspection assessment in the past five years[30] and that nuclear expertise at STRATCOM had become thin.[31]

The Washington D.C. area also saw less nuclear emphasis and staffs struggled to hire nuclear experienced personnel. With fewer missile wings requiring nuclear advocacy, staffing cuts were made and consolidations occurred. At the Headquarters AF (HAF) level, CSAF General Fogleman had purposefully created the Directorate for Nuclear Operations (XON) as the lead for AF nuclear operations.[32] This position was dissolved in 2006 as the HAF reorganized into the "A-staff" structure and incorporated XON under A3's space operations. Under this new structure, responsibility for the nuclear enterprise was spread across several organizations with several colonels each owning a piece of the nuclear enterprise. Without a general officer serving as the headquarters-level lead, advocacy for policy and resources weakened.

Organizational changes also were visible in the wing structure. With the presidential decision to decrease the number of operationally deployed strategic nuclear warheads to 1,700-2,200,[33] a corresponding decrease in the number of ICBM wings, groups and squadrons occurred. [34] A smaller crew force drove organizational decisions.

The reduced military budgets in the 1990s were tough on all, but especially for ICBMs. The first challenge was to secure funding for modernization and sustainment programs which tended to compete poorly within AFSPC.[35] Intra-AF funding battles were always fierce and often the nuclear portfolio became a bill payer. However, while there were some success stories in the areas of sustainment programs, these were in large part initiated well before ICBMs became a part of AFSPC. If the budget survived AF-level scrutiny, it still faced a DoD and an Office of Management and Budget review before it was delivered to Congress. Once delivered to Congress, professional staffers and individual legislators also examined program funding. The

bloom was clearly off the nuclear enterprise's rose and Congress cut nuclear programs to pay for other bills.

AFSPC ICBM Culture

When SAC went away, two culturally different organizations merged. AFSPC was born out of a culture of science, technology, and engineering where education and experience served as the core of operations and a "checklist mentality" was disfavored, often because no checklists existed or were developed. The space culture conflicted with the checklist discipline culture that served as the foundation of ICBM operations. A benefit of the merger was the space operators tentatively embraced some of the checklist mentality of missile operations and missile operators were encouraged to consider other ways of doing the ICBM business. In time however, new ICBM leaders, including some who did not come from the nuclear community, inadvertently allowed the erosion of the disciplined culture of ICBM operations in favor of a new culture that asked "Can we do our mission more smartly?" This resulted in new concepts such as crew EWO testing,[36] Training and Evaluation Flight (TEF),[37] three versus four year crew tours,[38] and most recently the three-day alert[39] which were all tested but failed at a cost of eroding the ICBM culture. The bedrock of successful ICBM operations had inadvertently been damaged in an honest effort to transform ICBM operations.

The ICBM inspection culture changed when the mission migrated to AFSPC. AFSPC, generally lacking an operations mindset did not have the inspection culture that SAC had created. Over time, AFSPC accomplished fewer inspections and changed the way inspections were done.[40] The inspection process was also impacted by the funding cuts that limited the number of inspections. Additionally, inspection agencies had to seek nuclear experience from outside organizations as it became harder to fully man inspections with in-house experts. While

inspections were still being accomplished, and still dreaded, these examinations looked and felt different than the "no-notice" days of the SAC inspections.

Career opportunities changed in the new culture. With AFSPC, ICBM crewmembers were exuberant about space opportunities. Their excitement was fed by the senior leader message that "you need to have both missiles and space operations experience." Selection boards handpicked which crewmembers would crossover to space. Likewise, space officers were selected to crossover to missiles. While there were those who may have wanted to stay in missiles, this was highly discouraged and the message was clear that you needed both to succeed in the merged 13SX career field. Further proof was seen when the initial wave of space and missile crossovers gained enough seniority to be considered for squadron command. The squadron commanders selected had both space and missile operations experience.[41]

The staff leadership opportunities were also generally filled with dual qualified personnel.[42] Sometimes ICBM command positions were filled with "pure space" officers that had no nuclear experience. These were no doubt officers with excellent records, but they had no ICBM experience to draw upon. Anecdotally, at one point, one particular missile squadron commander looked up his chain of command and observed his group, wing, and numbered AF commander had never sat a nuclear alert, an unnerving prospect. Eventually, the career path message softened to allow for either space or missile experience. However, institutionally there was still an emphasis on having both--a diversity of experiences was almost always favored over a depth of experience. Since missiles have entered AFSPC, a general career path message has been you cannot succeed by having only nuclear experience.[43]

When AF began to deploy and support the war effort, ICBM crewmembers were eager to get into the real fight. Many of them had peers who were deployed to support the war effort and

nuclear operations did not seem a priority. It didn't help that deployments were going on officers' records for promotion boards and ICBM crewmembers were not eligible to deploy. While boards were briefed that not all career fields deploy, many young crewmembers thought a true overseas deployment was a necessary element for a successful AF career. Another unspoken message crewmembers observed regarded resource cuts from the ICBM mission.

The ICBM culture was affected by funding cuts which chipped away at the nuclear pride. A prime example was the annual missile competition Olympic Arena. At one time, Olympic Arena brought all the SAC warriors to Vandenberg AFB to compete for the honor of being the best missileers in the Air Force.[44] When ICBMs merged with AFSPC, Olympic Arena expanded to include the space operators into the competition and was renamed Guardian Challenge. Eventually, funding limitations had ICBM crews take their competition simulator ride at their own base and then travel to Peterson AFB for an awards ceremony. Competitions were further diminished when Guardian Challenge became an every other year event.

Funding cuts affected more than pride; reduced spending sent the message that the ICBM mission wasn't important. Two examples of this were in cuts to unit Missile Procedures Trainer (MPT) support and intelligence officer billets. A solid training program is required for a credible crew force and cutting training is a dangerous path to take. The MPTs are used for simulator training and evaluations for the ICBM crew force. There are a limited number of MPTs and there are only 24 hours in a day to run the MPTs. A contractor maintains the MPTs to full operational capability and AFSPC funds those contractors. For an extremely small dollar savings, AFSPC decided to decrease funding for vital contract support and the wings were forced to carefully allocate and sometimes restrict MPT hours.[45]

Besides reduced MPT hours, the intelligence billets were cut at each ICBM wing. During

the SAC era, each wing had an intelligence officer assigned to the EWO shop that would regularly brief at pre-departure and would offer insights to the ICBM crew and staff addressing the adversary's nuclear capabilities. The intelligence officer provided an additional depth of knowledge for crewmembers to understand who they were targeting and why. The message of cutting the intelligence officer billets was "ICBMs don't need mission or real-world intelligence." This again had ICBM crewmembers questioning the importance of their mission.

The cuts in nuclear operations have cut into the bone and affect the way we organize to accomplish the mission. In SAC, a squadron had five flights with a flight commander and assistant flight commander for each. The squadron was also fully manned with staff to handle the day-to-day operations in the squadron—an adjutant, secretary, two assistant operation officers and other experts on the group staff to handle security and Personnel Reliability Program (PRP) issues. With the decrease in manning, squadrons had no staff and operations officers and squadron commanders were stretched paper thin. The operations groups were also cut and this forced fully employed crewmembers to take on even more non-crew duties. ICBM wings were cut too thin and important details slipped through the cracks. It was even more distasteful when ICBM crewmembers realized space squadrons' manning was not similarly cut.

Summary

The ICBM organization and culture eroded during the transition from SAC through AFSPC, and immediate efforts are needed to address issues in the areas of mission, pride, expertise, and personnel management. First, SAC had a clear focus on the importance and critical nature of the nuclear mission; AFSPC lost focus on the nuclear mission due to other priorities. This can be corrected with improved AF understanding, communication and advocacy regarding the nuclear mission. Second, all indications suggest that SAC had a sense of pride and

professionalism in its nuclear mission and AFSPC allowed that to erode. Actions must be taken to reinstall increased pride and professionalism into the nuclear community. Third, expertise is developed with proper training, education, evaluations, and by carefully nurturing this knowledge. SAC used constant training, evaluations, and competitions to validate that its personnel were prepared to execute the nuclear mission. During the AFSPC period, the expertise was allowed to wither and the AF must now redevelop this expertise. Finally, SAC maintained complete control on personnel management with its focus always being the nuclear mission. Personnel management for the nuclear career path was not well developed or encouraged under AFSPC. The following recommendations are focused on the organizational and cultural changes that are needed in the areas of mission, pride, expertise, and personnel management. Some of the recommendations support more than one category but are listed under the most impacted category.

Recommendations

Mission

Recommendation #1: More senior leaders need to take notice and openly talk about the ICBM mission. These leaders should open their calendars to visiting all three missile wings and meet with the crew force to explain the importance of the mission. Rationale: Bringing in congressional teams, members of OSD, and military leaders will demonstrate to the ICBM force the importance of the mission. Additionally, it could develop senior leaders' knowledge of the national security requirement for the nuclear deterrent mission as well as posturing the ICBM force for improved funding.

Recommendation #2: A recent AF Times article stated, "The goal is to restore high-quality, Cold War-style stewardship to USAF's daily execution of its nuclear mission and, in the process,

remove any lingering doubts about the service's dedication on this score. Indeed, *the standard by which airmen are judged will be nothing less than perfection* (emphasis added)."[46] The message of the standard being perfection needs to be revised to "excellence" and "strict adherence to established standards." Rationale: Since crewmembers are humans, perfection at all times is honestly impossible to achieve. Perfection is not really the standard. If perfection is the standard, then why do evaluations rate crewmembers on a scale instead of a pass/fail rating? Why is the testing standard for EWO, codes, and weapons system tests ninety percent? We expect strict adherence to our ICBM standards and our standards are high, but the inappropriate emphasis on perfection is misplaced.

Recommendation #3: Conduct more cross talks between ICBM wings. Rationale: Cross talks offer a forum to decrease duplication of effort and increase lessons learned between the wings.

Recommendation #4: Modify the Peacekeeper MPT at F.E. Warren for use by 20th AF personnel. Rationale: Currently, 20th AF takes time from the 90 SW MPTs because they are co-located at F.E. Warren. Having their own MPT would allow more flexibility for 20th to develop inspection scripts, accomplish senior crew evaluations, and better train their own personnel.

Recommendation #5: When the Nuclear Posture Review (NPR) is signed, have a NPR briefing team go to each missile wing to inform the nuclear force on the presidential decisions and direction. Rationale: There is angst over the future of ICBMs. One way to mitigate the angst is to open communication and education. Directorate of Personnel uses the "spread the word" method to get their message out; recommend using a similar process.

Pride

Recommendation #6: Bring back crewmember competition between tactical squadrons with

Operational Support Squadron (OSS) and Operations Standardization and Evaluation (OGV) support. Rationale: With increased MPT hours, missile operations groups could run simulator rides as part of the competition. Conclude the competition by posting the scores at an event at the club. Once again, competition and opportunities for social gatherings can instill a sense of pride.

Recommendation #7: Bring back Missileer Off-Station Training (MOST) trips. Rationale: These trips were rewards for crewmembers to visit USSTRATCOM, Global Strike Command (GSC), or even the Pentagon to get mission briefs and see how the nuclear targeting process works. These trips pay off in the long run with enhanced nuclear enterprise understanding and mission pride.

Recommendation #8: Rename the missile wings to "Strategic Missile Wing" instead of "Space Wing" and modify the patch accordingly. Rationale: Correct naming, much like the missile badge, is important to identity.

Recommendation #9: Bring back Olympic Arena to Vandenberg AFB on an annual basis. Rationale: Olympic Arena is part of the ICBM culture and heritage which boosts pride.

Expertise

Recommendation #10: Fund MPTs for 24 hour operations. Rationale: If MPTs are fully funded, missile operations groups can explore training initiatives that would increase nuclear expertise in the wing. For example, missile wings could run maintenance personnel or security forces personnel through the trainer to help them appreciate what a crewmember is doing when processing personnel onto or off of the launch facility. Also, missile operations groups could run more single crewmember diagnostic rides to help better understand knowledge deficiencies that are sometimes masked with two-person MPT rides. Increased MPT hours allows for

crewmembers to develop an in-depth knowledge of their weapon system.

Recommendation #11: Create a nuclear enterprise reading list similar to the CSAF reading list. Rationale: Reading improves the knowledge and appreciation of the nuclear business.

Recommendation #12: Seek opportunities to broaden the knowledge of ICBM personnel by exposing them to other critical parts of the nuclear enterprise. Rationale: Crewmembers need to understand the contributions of the Department of Energy and nuclear laboratories to the nuclear enterprise. Request a Department of Energy or laboratory team to visit and brief their missions on a regular basis. ICBM personnel will better appreciate this community and could spark a next assignment interest at the Nuclear Weapons Center.

Recommendation #13: There is not enough evidence to support the premise that more inspections equal better mission performance. Recommend a more sustainable inspection schedule and more exercises such as the STRATCOM Global Guardians. Rationale: Exercises are useful tools to prove the entire Command and Control of nuclear operations and allow units to potentially identify issues before they become problems.

Recommendation #14: Research how to provide ICBM crew members an education program similar to the Minuteman Education Program (MMEP).[47] Rationale: This could be an incentive for ICBM personnel to increase their education level.

Personnel Management

Recommendation #15: Currently, ICBM personnel are managed by AFSPC under the 13SX AF Specialty Code (AFSC). ICBM personnel need to be managed by GSC with a separate AFSC. Rationale: Unity of command is important for GSC. How can you organize, train, and equip but not manage the people?

Recommendation #16: Conduct an ICBM climate assessment survey. Rationale: Unfiltered

feedback is useful especially in measuring the cultural climate. The CSAF uses a similar survey to provide him an assessment; ICBM wings should do the same.

Recommendation #17: In line with A10's Human Capital Investment[48] and the work done with identifying key nuclear billets, bring back a version of the SAC "Missile Career Opportunities Track" (previously known as the MCOT). Rationale: This provided SAC personnel a guide for career development and planning for the necessary skills required for each position. From day one in ICBMs, personnel should fully understand their career opportunities and how to work towards them.

Recommendation #18: Increase ICBM manpower. Rationale: Providing proper resourcing is critical to mission success. ICBM personnel are stretched dangerously thin.

Recommendation #19: Allow missile operations personnel to career broaden into missile maintenance, munitions, or security forces and vice versa. Rationale: The nuclear community can benefit from cross flow. This was done quite effectively at one point in the ICBM career path.

Recommendation #20: Give deployment credit on ICBM crewmembers' records based on the number of alerts they have pulled. Rationale: If the ICBM mission is truly a CONUS-based mission that crewmembers deploy to, then give them credit for fighting the war in the strategic commons.

Conclusion

In the current nuclear enterprise situation, the AF seems to understand the current and future site pictures and has the senior leader attention to make things happen. Standing up GSC

and HAF/A10 are major steps in that direction and they are working diligently on the roadmap action items. In addition to these action items, more detailed examination should be done in the ICBM organizational and cultural arenas. These are difficult tasks because they cannot easily be checked off. They take time, money, resources, and senior leader endorsement to turn the nuclear culture around. It is critical not to simply retreat to SAC ideals/culture. As this paper showed, SAC had both positives and negatives. In fact, comparing crew life in SAC and AFSPC reveals similar crewmember complaints. It took many years for the ICBM nuclear enterprise to get into the current condition and the AF needs to understand we are on a long journey to fix it. Organizational culture takes time to truly change but if done correctly, the ICBM enterprise will benefit and improve.

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Endnotes

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[1] For the purpose of this paper a culture is defined as, "A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems." Edgar H. Schein. *Organizational Culture and Leadership second edition.* San Francisco: Joessey-Bass Publishers, 1992, page 12.

[2] House Appropriations Committee Defense Testimony on the 2009 AF Posture, 3 Jun 2009, page 2.

[3] Columbia Accident Investigation Board. National Aeronautics and Space Administration and the Government Printing Office, Washington D.C., August 2003, page 9.

[4] Ibid, page 9.

[5] Ibid, page 9.

[6] Charles Perrow. Normal Accidents Living with High-Risk Technologies. Princeton, New Jersey: Princeton University Press, 1999, page 16.

[7] The DSB reported that since the end of the Cold War, there has been "a marked decline in the level and intensity of focus on the nuclear enterprise and the nuclear mission. The decline in focus took place gradually as changes were made to policies, procedures, and processes." DSB Permanent Task Force on Nuclear Weapons Surety. *Report on Unauthorized Movement of Nuclear Weapons.* Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, Washington D.C., February 2008, revised April 2008, page 7.

[8] Clark A. Murdock. *DoD and the Nuclear Mission in the 21st Century, a Beyond Goldwater-Nichols Phase 4 Report*, Center for Strategic and International Studies, Washington D.C., March 2008, page 4.

[9] James R. Schlesinger. *Phase I: The AF's Nuclear Mission*, Report of the Secretary of Defense Task Force on DoD Nuclear Weapons Management, Pentagon, Washington D.C., September 2008, page 1.

[10] Gen Donald C. Alston. *Reinvigorating the AF Nuclear Enterprise*, AF Nuclear Task Force, Headquarters United States AF, 24 October 2008, page 2.

[11] On October 19, 1948 LeMay took command and channeled all his energy and efforts into making SAC warriors. With a reputation of "the Iron Eagle" to those who admired him and the "Iron Ass" to those who didn't, he commanded with a vengeance. Many stories of strict discipline and hard work capture the persona of being an "Iron Ass" and conversely, the "Iron Eagle" left a mark in SAC with improved housing, pay, recreation, promotion, medical care, and other personnel requirements. General LeMay installed the Management Control System at SAC Headquarters which was used as a template to subordinate commands. This system gave "LeMay the capability to spot every breakdown or potential breakdown within the SAC system, and because lower-echelon commanders were aware of his system and used it themselves, potential breakdowns were usually detected and corrected before they occurred." Boyne, Walter J. *Beyond the Wild Blue A History of the U.S. AF*. St. Martin's Press, New York, N.Y., 1997, pages 100-102.

[12] Ibid, page 102.

[13] Association of AF Missileers. "ICBM Milestones." http://afmissileers.com/ICBM%20Milestones.pdf, page 3.

[14] Claude Witze, "Deterrence is Still the Prime Mission." *Air Force and Space Digest*, Vol. 51, No. 6 (June 1968), page 48.

[15] Silo sitters comprised the "white coverall missile crew force of the early 1960's [that] was largely composed of officers who had served several tours of duty elsewhere." Maj Ronald E. Meschberger and Maj John G. Whitcomb. "Countdown to Lift-off A Handbook for Missile Crewmembers." Maxwell AFB, AL: Air Command and Staff College, Air University, May 1981, page 3.

[16] "In order to have the highest quality personnel assigned to missile command and staff positions, action must be taken to improve the motivation of missile crewmembers to remain in the missile career field." Maj George F. Lunsford. "Study of Duplication in SAC's ICBM Evaluation Program." Maxwell AFB, AL: Air Command and Staff College, Air University, May 1979.

[17] General Bruce K. Holloway. "CINCSAC's Comments," *Combat Crew*, XXI, No. 5 (May 1970), page 2.

[18] Col William R. Brooksher and Col Jimmy R. Scott. "A Study of the ICBM Operations Career Field." Washington DC: Unpublished National War College Study, 1973. FOUO, page 22.

[19] Ibid, page 12.

[20] During the typical tour of duty, crews were evaluated as a minimum yearly by local evaluators, with three separate monthly tests on EWO, weapon system, codes testing, and numerous simulations throughout the year by higher headquarters (HHQ) and local trainers and evaluators. A 1973 National War College study surveyed approximately 500 current and former missile crewmembers and concluded, "The incessant evaluations and inspections…and the eternal push for perfection are viewed as an onerous aspect of the job." Col William R. Brooksher and Col Jimmy R. Scott. "A Study of the ICBM Operations Career Field." Washington DC: Unpublished National War College Study, 1973. FOUO, page 56.

[21] Col William R. Brooksher and Col Jimmy R. Scott. "A Study of the ICBM Operations Career Field." Washington DC: Unpublished National War College Study, 1973. FOUO, page 56.

[22] Ibid, page 23.

[23] Capt Wm. Thomas McDaniel, Space and Missiles Systems Organization, Norton AFB, CA, Telecon April 4, 1973.

[24] Success was defined in terms of not having to launch an ICBM. This problem was first foreseen in 1958, "There will be no indication to the officers or airmen what their combined efforts are achieving. They will be denied the satisfaction derived from a job well done." Robert R. Rodwell. "Morale in a Missile Force," Aeronautics, Vol. 18 (March, 1958), pages 64-69.

[25] AFSPC can tie its history to the same German rocket technology heritage and same distrustful concerns about the Soviet Union. Sputnik's launch in 1957 not only caused missile-gap concerns but created similar space concerns. Lt Col Kevin McLaughlin. "Military Space Culture." Commission to Assess United States National Security Space Management and Organization. http://www.fas.org/spp/eprint/article02.html#iiia1 (accessed 25 Oct 2009).

[26] Ibid.

[27] The space community looks to cradle-to-grave space systems and has significant roots in research, development, and acquisition. In 1970, a small space operations career field was created with space engineers with technical degrees. Clark A. Murdock. *DoD and the Nuclear Mission in the 21st Century, a Beyond Goldwater-Nichols Phase 4 Report*, Center for Strategic and International Studies, Washington D.C., March 2008, page 25.

[28] "In 2002, a four-star commander thought about nothing but nuclear; today (2008), it is a retired lieutenant colonel who heads up the Nuclear Command and Control office." Clark A. Murdock. *DoD and the Nuclear Mission in the 21st Century, a Beyond Goldwater-Nichols Phase 4 Report*, Center for Strategic and International Studies, Washington D.C., March 2008, page 4.

[29] DoD. *Report of the DSB Task Force on Nuclear Deterrence Skills*. 11 September 2008, page 37.

[30] Ibid, page 37.

[31] Although the nuclear team lacks depth, USSTRATCOM Commander General Kevin Chilton made some movement in the USSTRATCOM organization and established a one star position to handle nuclear matters in addition to establishing a Nuclear Enterprise Council and Board with general-officer oversight. MSgt Ben Gonzales. "STRATCOM Leader Charts Nuclear Path for American Military." AF News Agency, 23 September 2008. http://www/af.mil/news/story_print.asp?ip=123116467 (accessed 24 October 2009).

[32] Clark A. Murdock. *DoD and the Nuclear Mission in the 21st Century, a Beyond Goldwater-Nichols Phase 4 Report*, Center for Strategic and International Studies, Washington D.C., March 2008, page 26.

[33] Arms Control Association. "Strategic Offensive Reductions Treaty." http://www.armscontrol.org/print/2489, 24 May 2002.

[34] When AFSPC took ownership of ICBMs, there were 6 missile wings, 20 operational squadrons, and three ICBM weapon systems. When GSC takes control of the ICBM mission, there will be 3 missile wings, 9 operational squadrons and one weapon system.

[35] This was due to the numerous and expensive space programs that rose to the top of the AFSPC's priority list and may actually have been necessary for the command due to the post-Desert Storm "first space war" embrace for space and the subsequent increased enthusiasm and desire for space-focused programs. Often times, the nuclear portfolio was shorted in order to pay other organizational bills. Lt Col Mark Stout observations while serving in AFSPC/XP.

[36] Consider the rationale--ICBM crewmembers will never go to war by themselves—they will always have a crew partner in EWO. Therefore, let them take their written EWO test as a crew. This will diminish the stress they have taking the monthly EWO tests and is more reflective of accomplishing the EWO mission. This was tested for a

short time until realization that a weak crewmember could ride the coattails of a strong crewmember and not identify the weaknesses that required training.

[37] Another idea explored was the Training and Evaluation Flight (TEF). The TEF was supposed to save manpower and allow squadrons to do their own training and evaluation much like the rated community did. Likewise, manning cuts may have caused the debate of going to 3 versus 5 flights, again similar to the rated community.

[38] Another idea that came out of hesitancy of space operators to do missile operations after their space crew was to motivate them with 3-year versus 4-year tours. AFSPC even tried a second crew tour for selected individuals.

[39] One of the most recent improvements that was tested for quick implementation was 3-day alerts. Initially the thought was there would be manpower savings; but this was disproven through much analysis by the wing scheduling personnel. The idea was then sold as a leadership opportunity. Just like the security forces and maintenance personnel were out in the field more than 24 hours, ICBM crews should be out there leading the missile operations. The 3-day alert was advocated up the chain as ICBMs doing their part to transform. Huge notes, warnings and caution flags went up and were dismissed; missile crews began three day alerts on 30 September 2006. At the same time as the nuclear incidents occurred that ignited the nuclear scrutiny, 20th AF decided to go back to the 24-hour alert in June 2008. There was a huge sigh of relief by all involved.

[40] Office of the Secretary of Defense for Acquisition, Technology, and Logistics. Report of the DSB Permanent Task Force on Nuclear Weapons Surety Nuclear Weapons Inspections for the Strategic Nuclear Forces. DoD, Washington D.C., December 2008, pages 20 and 27.

[41] Based on author's personal observations from Vigilant Eagle Board results.

[42] During this time, it was encouraged for rated officers to get space experience on their records. The rated officers were to also better "operationalize" space.

[43] As there were more space operations squadrons than missile operations squadrons, this equated to more opportunities to command in space than in missiles.

[44] The competition unified missile wings to work hard and try to win the Blanchard Trophy. It was also a great opportunity to leave the cold of the north, visit sunny Vandenberg and cross talk with other missile experts. You can look at officer performance reports during that era and read of "best missile crew" or "Olympic Arena trainer" or others who competed or supported. Each wing even had a mascot to raise spirits.

[45] Author's personal observation while serving at Twentieth AF.

[46] Michael C. Sirak. "The Nuclear Force Revival." *AF Times*, 5 February 2009, http://www.stratcom.mil/news/article/56/The_Nuclear_Force_Revival, (accessed 24 October 2009).

[47] The Minuteman Education Program (MMEP) provided an opportunity for ICBM crewmembers to attain a masters degree at no cost while pulling missile alert duties. Raymond Ebbs, Major. "SAC Needs a Few Good Men and Women" – A Guide to ICBM Operations Duty. Air Command and Staff College, Air University, April 1988, page 3.

[48] Major General Donald Alston briefing to Air War College students. Oct 2009.