

Association of Air Force Missileers AAFM Newsletter

"Victors in the Cold War"

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Our Cryogenic ICBMs - Atlas and Titan



Atlas Test Launch

LOX and RP-1 - Fire Waiting to Happen - by Col (Ret) Charlie Simpson, AAFM Executive Director

Our early missiles, especially the first intermediate range and intercontinental ballistic missiles, used a cryogenic propellant for the oxidizer, a practice still used today for many space launch vehicles. For space launch, it is merely a matter of filling up the tanks with the propellants before launch while the missile sits on the launch pad and conducting the launch. For IRBMs and ICBMs, it was a much more complex situation. Reaction time, vulnerability, safety and maintenance were all concerns. Now the entire force of alert missiles consist of solid fueled missiles.

The cryogenic oxidizer could not be loaded until immediately before launch. While the Atlas F and Titan I could sit in the silo with the kerosene based rocket propellant-1 (RP-1) on board the missile, oxygen in a liquid state (LOX) is at a temperature of minus 297 degrees Fahrenheit, so it must be stored in special insulated tanks - basically really big Thermos bottles. Once the LOX is loaded into the oxidizer tank of the missile, the

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missile had to be launched in a fairly short time because the liquid begins boil off - returning to the gaseous state. As you might expect, this combination is also extremely hazardous, so everything involved with the missile systems must be kept "LOX-clean" to prevent non-compatible materials from coming in contact with the extremely high oxygen content and causing a fire or explosion.

However, in the late 1940s development of solid rocket motors was in its earliest stage, so liquid was the only way to go for large payloads. The Thor, Jupiter, Atlas and Titan I were all developed in the early to mid-1950s, and all were cryogenic systems. For the Thor, Jupiter and early Atlas (D and E models) the problem was a little less complicated because all of these systems sat - or laid - on alert in a horizontal position. When launch was directed, the missiles were raised to vertical launch position, filled with LOX and RP-1 and launched. The systems were a lot simpler than later silo based systems, but from the time the missile was raised until it was launched, the missile was sitting in the open unprotected from enemy attack. That period was usually several minutes - fifteen or more in most cases.

The Atlas F and Titan I both sat on alert in hardened silos, with the fuel (RP-1) stored on board the missile. When launch was directed, the first step of the launch



Atlas PLX at Plattsburgh

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The Mission of the Association of Air Force Missileers -

- Preserving the Heritage of Air Force Missiles and the people involved with them
- Recognizing Outstanding Missileers
- Encouraging Meetings and Reunions
- Keeping Missileers Informed
- Providing a Central Point of Contact for Missileers

LOX (Continued from Page 1)*Atlas F Launch Control Console*

process was to fill the missile with LOX, a process that could take up to eight or ten minutes. Then, the fully loaded missile, on its launch platform, was raised above ground - well over a one hundred foot lift of the missile - locked in place and launched. The loaded missile and elevator platform weighted over 550,000 pounds. Cryogenic missiles could not sit on alert with the oxidizer on board because of the boiloff of the extremely cold fluid. The missile could be topped off for a short time while still in the silo but once raised above ground, no more LOX could be added, and the missile had to be launched or lowered back to the silo and downloaded in a fairly short period.

All of the new Atlas and Titan missiles were exercised by the contractor at turnover with a dual propellant loading. It was an impressive sight to see all three Titan I missiles at a single site up and locked, full of RP-1 and LOX, in the final demonstration of the system before the Air Force took control. Shortly after the turnover of the new systems, we began exercising them ourselves to develop reliability histories for the new missiles. Most units had just begun what we called a PLX - a propellant loading exercise - on Air Force owned missiles when the Cuban Missile Crisis of 1962 occurred. We quickly got every Atlas and Titan possible on alert and kept them there throughout the crisis. By the end of 1962, we had returned to the test program. Initially, SAC directed that we run ten consecutive PLXs on each missile, with the last two successful. When someone realized how long this would take with the force the size we now had, the program changed to just the second part, two consecutive successes on each missile. A PLX could be a single or a double propellant loading exercise depending on the system. Nuclear safety concerns meant we could not have RP-1, LOX and the reentry vehicle

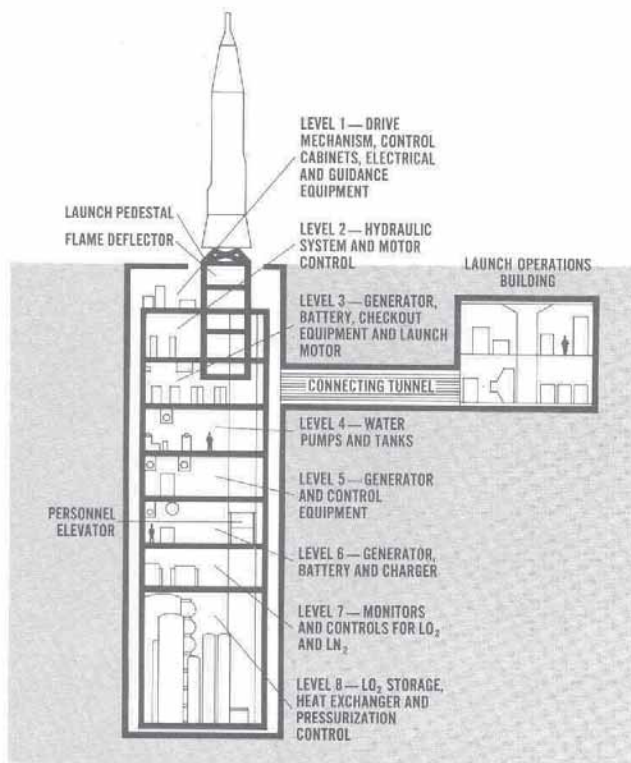
(RV) all on board during an exercise. In Atlas, that meant removing the RV, because the missile had to be in stretch or pressurized if not full of propellants. For Titan I we normally removed the RP-1 and kept the reentry vehicle on the missile, loading LOX for the PLX. Preparation for each exercise took some time. Besides removing the fuel or RV, all of the explosive ordnance had to be removed - igniters, explosive bolts, staging rockets and other devices. Television cameras were placed in several silo locations to observe system function. Recovery after a PLX took as long - everything had to be returned to normal alert configuration.

We went through major modifications to the systems shortly after activation - the Red Heat program for Atlas and the Top Banana program for Titan. These mod programs were designed to fix some of the earlier shortcomings in the new missile systems. For example, in Titan I, there was a major change to the LOX loading systems designed to improve the safety and effectiveness of the fill and drain valves and connections.

Working around LOX required a lot of care - safety and cleanliness were both prime concerns at all times. We thought we had what we called "hospital clean" silos until a major LOX spill at Mountain Home - everyone was amazed at how much dust was stirred up in the silo by the rapid expansion of the liquid into gas. We had breathing apparatus, sensors and a myriad of other safety equipment, and were careful in every task. We still made mistakes - some resulted in some serious accidents. Some were mistakes in design, some in judgement and some in procedure. We were working with a brand new, very complex and very dangerous system - and were the first to do it. Amazingly, none of the serious accidents resulted in death or injury. There were deaths and injuries during the construction phase, but once the Air Force

*Atlas F Silo - looking down**(Continued on Page 3)*

LOX (Continued from Page 2)



Atlas F Silo Drawing

began to operate the Atlas and Titan, none of these major events caused any.

One of the first big booms was one we have documented before in the AAFM Newsletter, with articles in the January 1996 issue. The Titan I Operational System Test Facility at Vandenberg was undergoing a dual propellant loading before a test launch. When the missile was being lowered back into the silo after the test, the braking unit failed, allowing the missile to rapidly fall to the bottom of the silo and explode, destroying the missile and silo but causing no injuries. There were other accidents in Titan I, including the loss of a missile at Mountain Home (see the January 1994 issue). We fired staging rockets in error, collapsed a few Atlas missiles, spilled LOX and RP-1 and other mistakes, but none were as serious as the accidents in Atlas F described later.

The Atlas Accidents

During 1963 and early 1964, four serious accidents occurred involving Atlas F missiles, three at Walker AFB, NM and one at Altus AFB, OK. Each of these accidents destroyed the missile and made the silo unusable, and some said at the time that the accidents were a factor in the early phaseout of the Atlas F system. This article was put together using several sources, with much

of the information taken from the congressional record of hearings on the accidents, titled "Series of Explosions of Air Force's Atlas F Intercontinental Ballistic Missiles", before the Senate Preparedness Investigating Committee in July and August 1964.

Those testifying included BGen William Bacon, the commander of the 22nd Strategic Aerospace Division with some of his staff, BGen William Campbell, commander of the 816th Strategic Aerospace Division with some of his staff, BGen Harry Goldsworthy, Director of Production and Planning, USAF Headquarters, with Col Milo Secomb, William Van Horn, General Dynamics-Astronautics with some of his staff, and LtCol Miles Wiley, Chief, Missile Systems Branch, Headquarters, SAC. with Maj A. P. Samuels. LtCol Wiley provided the detailed briefings on the accidents, with all participants taking part in the question and answer sessions.

The First Accident

The first accident was at Walker AFB, NM on 1 June 1963, at site 1 with Crew R-22 on duty. The crew was conducting a PLX on the missile. For a PLX on an Atlas F, the warhead and pyrotechnics were removed, and missile hold-down locks installed on the launcher. The airborne battery was removed and four television cameras used to monitor critical operations. During the countdown process, 18,600 gallons of LOX is loaded onto the missile, which already has 12,000 gallons of fuel, RP-1 on board. After LOX is loaded, the missile is raised topside on the silo elevator and goes through a simulated launch and flight. At the end of the flight sequence, the crew lowers the missile back to the bottom of the silo and the LOX is off-loaded.

By June 1963, Atlas had been operational for less than one year, and all the missiles were undergoing PLXs to determine the reliability of the system. This PLX on site 1 was the first conducted by the unit - the only previAt



One of the two Atlas F Diesels

(Continued on Page 4)

LOX (Continued from Page 3)*Atlas F in launch position*

ous exercises were the ones conducted at turnover by the contractor, where the requirement was that the final PLX before turnover was successful. This site had been turned over to the Air Force shortly before the Cuban Missile Crisis, so had not been exercised since that date. Later in 1963, SAC began requiring a PLX on each missile at least every 90 days.

Crew R-22 had been combat ready since April, and had conducted three PLXs before the one on 1 June. The exercise at site 1 was a successful PLX, and the crew initiated the "Abort Sequence." Interestingly, Senator John Stennis keyed on the phrase "abort" and was told that this was not a malfunction situation - that the term "abort" in this case meant the start of the recovery sequence after a successful exercise. The missile lowered successfully and at about 1805, the automatic LOX drain operation to remove the LOX from the missile began. About twelve minutes later, the crew noted that the drain valve indicator changed from "full" to "intermediate", or not fully open or closed. This valve normally stayed open for 45 minutes to ensure that all LOX was drained from the missile. Because of the indication, technicians were directed to enter the silo, but at 1822, before they could enter, the indication changed back to normal open. Two minutes later, the indication changed back to intermediate and the technicians were dispatched again. At

1927, they attempted to enter through the final door to the silo, door three, and found resistance, indicating the door was being held by an overpressure in the silo. At about the same time, sparks and flashes were seen on the level 8 television monitor and the fire alarm sounded, and the technicians were recalled from the silo. The fog system was activated to extinguish the fire. At 1828, electrical power failed followed by an explosion in the silo. An orderly evacuation was made, no one was injured, but the silo and missile were destroyed.

The Causes

The investigation of the accident indicated one of two possible causes - either contaminated LOX or broken bolts in the liquid oxygen filter. The investigating board determined that it was possible that hydrocarbon contaminants could have caused the fire and resulting explosion. Before this accident, there was no requirement to run a sample of the LOX at the site to determine if there was any contamination. After the investigation, procedures were changed requiring sampling before a PLX. The board also found broken J-bolts in the filter and speculated that with a broken bolt, the opening and closing of the filter that occurred could have caused the filter element to move enough to create enough friction to start the fire.

The Second Accident

The next accident, also at Walker, was at Site 5 on 13 February 1964, during a SAC Operational Readiness Inspection. Crew R-60 conducted the PLX, as part of a recurring evaluation of the crew by Standardization Crew S-03. This PLX was the fifth and last required during the ORI. Crew S-03 had participated in ten PLXs and crew R-60 three.

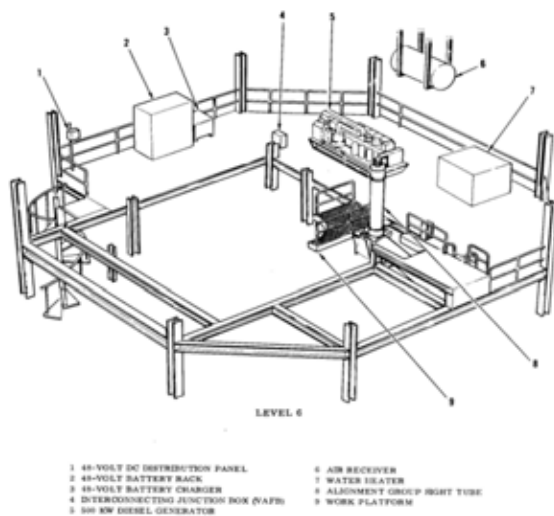
*An Atlas E after loss of pressurization.**(Continued on Page 5)*

LOX (Continued from Page 4)

At about 1010, the PLX was started and at about 1014 a low oxygen indication occurred. This was considered noncritical and the countdown was continued. As the launcher rose off the disconnects, the crew noted liquid spillage of about 5 to 50 gallons on the level 8 camera, in the area of the launcher platform. AT 1021, the missile was fully up and locked and one minute later the PLX was declared successful for the ORI. The Abort Sequence was delayed to investigate the spill as a possible fuel spill. At 1024, a team proceeded to the silo cap to check for a fuel leak and found no indication. The team returned to the LCC and the ORI inspectors departed the site.

At 1031, the squadron commander, after advice from the standboard crew, directed the “nonessential bus” to be shut down. This bus provided power for pumps that circulate cooling water to the diesel generators, the main silo exhaust fan and the fire fog system pump. The primary diesel engine overheated and the alternate diesel was started. Since the missile was still topside, pressure in the fuel and LOX tanks could not be controlled unless a pneumatics test set was connected to the missile. The test operator in the fall-back area moved the test set and began connecting it until he heard a popping sound and noticed gaseous oxygen in the test-set cab and on the ground. He saw LOX spraying out the main fill-line disconnect on the launch platform. The television cameras on levels 2, 6 and 8 were obscured by gaseous oxygen vapors and at 1100, loss of power occurred, followed by an explosion in the silo. The missile and silo were destroyed but no personnel were injured.

Drawing of silo level 6, Atlas F

**The Cause**

The investigating board determined that the liquid spill that occurred when the launcher raised was fuel. When the nonessential bus was shut down, the fuel vapors mixed with the hot exhaust vapors from the overheated diesel and ignited. The resulting fire burned wires in the logic set on level 3, causing the LOX fill and drain valve to open. The LOX draining from this valve called what LtCol Wiley called a “terrific explosion” It was determined that the squadron commander made an error when he direct the nonessential bus to be shut down, and that a design deficiency existed in the wiring panel, as well as in the fuel drain line. Changes were made to manually drain the fuel line for 20 minutes prior to a PLX, and a poppet valve was designed to prevent leaks from the line.

The Third Accident

The next explosion of an Atlas F happened on 9 March 1964 at Site 2 at Walker. Standardization crew S-02 was evaluating crew R-27. Crew S-02 had conducted 13 PLXs and R-27 had done 2. Site 2 had undergone seven previous PLXs, all failures. Countdown started on a schedule PLX at 1300 and was normal until the launcher platform stopped after about 3 feet of upward travel, at 1312. A 25 percent silo oxygen alarm sounded indicating a possible LOX spill, so the abort sequence was initiated. The launcher did not begin to lower as it should have, so at 1326, the crew began the emergency procedure checklist.

The standboard crew commander determined that the boiloff valve on the missile should be left closed because of the high oxygen content in the silo, so the emergency boiloff pushbutton was not depressed. Personnel were dispatched to the silo to troubleshoot the launcher lift system so the missile could be returned to the normal down position. By 1439, pressure built up in the LOX tank of the missile to over 30 pounds per square inch, resulting in the automatic opening of the boiloff valve, resulting in a rapid expulsion of liquid and gaseous oxygen. The safety technician on the team in the silo detected increasing oxygen concentration and the silo was evacuated. At 1447, the pressure in the LOX tank had dropped to normal pressure so the pressurization system was returned to automatic. Shortly after, white smoke was seen coming out of the silo exhaust system both by topside personnel and on the television monitor. This smoke turned from white to grey and then black and the fog spray was activated. At 1452, electrical power was

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LOX (Continued from Page 5)

lost and at 1453 the first of two explosions occurred. Again, all personnel were evacuated with no injuries.

The Cause

When the standboard crew decided to keep the boiloff valve closed, pressure built up in the missile lox tank, causing the boiloff to open by itself when the pressure exceeded 30 psi. The LOX that was ejected when the valve suddenly opened, at -297 degrees, struck the wire rope cables that support the launcher platform, which was about three feet above the bottom of the launcher. The cables fractured, allowing the loaded missile and launch platform to suddenly drop these three feet, rupturing the bulkhead between the LOX and RP-1 tanks and causing the explosion. The investigating board attributed the basic cause to be an error in judgement on the part of the crew - if the boiloff had been opened, pressure would have stabilized at a safe level and maintenance could have repaired the lift system.

The Fourth Accident

Altus AFB, OK, site 6 was the location of the fourth explosion, on 14 May 1964. The site had just completed the major update modification called Red Heat and was being checked by the contractor to return to SAC control. Site 6 was the fourth site to have the update modification completed at Altus. Squadron crew R-20 was manning the console for the PLX under contractor supervision. R-20 had conducted three previous PLXs.

Countdown began at 1104 and rapid LOX loading commenced at 1105. At 1109 a high oxygen concentration was detected by the silo sensors. Rapid LOX load was almost complete at this point. The crew initiated the abort sequence, automatically starting LOX off-load from the missile. The silo fire alarm sounded and the crew activated the fire fog system. This system did not function - it was later determined that a valve controlling the water failed to open. A safety technician and crewmember entered the silo and found very high oxygen concentration. As they evacuated, they observed a fire in the exhaust ducting on level 2. At 1138, manual silo door opening was begun to utilize a truck mounted purge fan. The television monitors showed fire and smoke as the doors became partially open, and the control center began getting indications of system deterioration. Power was lost and at 1148 the first of three explosions occurred. At 1150, the personnel in the control center evacuated to the fall-back area. There were no injuries.

The Cause

While the cause could not be definitely determin-

ed, the most probable cause was the result of a misalignment of the liquid oxygen disconnects where the large line comes up to the base of the launcher platform to mate with line down from the missile. This line disconnects when the launcher raises. The contractor had noted alignment problems during completion of the modification but corrective action had been completed and cleared in the records. The misalignment caused a substantial LOX leak during the LOX loading process, resulting in the fire. A contributing factor was the failure of the fire fog system, since a successful activation may have prevented a fire.

In Summary

The Senate committee that looked into these accidents talked to a number of Air Force and contractor witnesses about the accidents, system operation and system performance. There was much discussion about discipline, housekeeping and daily operation at the two bases involved, as well as discussion on the future of the Atlas F. At the time of the hearings, Atlas D and E and Titan I were being scheduled of phaseout, but Atlas F was expected to be around for some time. Shortly after the hearing, when the phaseout schedule was announced, all three Atlas systems and Titan I were all scheduled to be gone by the middle of the following year, 1965.

More Information about Missile Accidents

There are a lot of sources for more about the history of both the development and the problems encountered during the early days of our ICBM force. A number of AAFM members have provided the association with documents and reports, including the congressional record extracts used as one of the major sources for the article above. AAFM has a large library of early contractor documents, and some have been scanned and included on our "History CD."

There is, as one might expect, even more on the internet. During research for the article, I searched for such things as "the Walker Atlas accidents", "Beale Titan accidents" and more. Some of the pages only have limited information, but a lot of folks have collected a lot of information about ICBMs and put them on the web. For example, one source lists every missile manufactured by "tail number", sorted by year, and tells the current location or what happened to it. Siloman even has an interview with one of the enlisted crew members from one of the Walker accidents. If you want to learn more, contact AAFM and we can provide details on some of the sources or loan some of our documents to you.



Guarding the GC Trophies

Malmstrom, Patrick, Peterson tops at Guardian Challenge 2006

- by Capt. Catie Hague, AFSC Public Affairs

Peterson AFB - inside Hangar 140, the air was thick with anticipation as teams from across Air Force Space Command maintained nervous conversation over dinner 17 Aug, awaiting the announcement of the Guardian Challenge 2006 winners. Gen Kevin P. Chilton, AFSPC commander, reminded a highly motivated crowd that no matter who took home the trophies, each competitor was critical to the command's warfighting mission. "We have the best space and missile professionals in the world," General Chilton said. "You are what make the mission of Air Force Space Command go. I don't care what badge you wear on your chest - operator, maintainer, security forces, comm specialist, pilot - you're all integral to our mission."

The general noted that the Guardian Challenge



Competitors gather in the Hartinger Building

competition is ultimately about training, taking away lessons learned to hone mission effectiveness. He told competitors to take advantage of Guardian Challenge by talking to other competitors and bringing best practices back to the wings. "Our training, education, technology and the willingness to meet any challenge make us the world's best space force," he said. "There are thousands of space and missile professionals on duty around the clock every day of the year, and more than 900 Airmen from Air Force Space Command currently deployed overseas," the general said. "That's what it's all about."

General Chilton said that the teams' performances at Guardian Challenge 2006 sent a clear signal to the nation, its allies and adversaries. "Air Force Space Command is ready ... ready to take on all comers!"

Since April, competitions held at various bases throughout the command tested more than 150 space professionals in space communications; missile maintenance; spacelift launch; and operations. Security forces members competed here 14-16 Aug for Best Security Forces Team honors.

"The spirit of competition is alive and well," said BGen Don Alston, AFSPC director of air, space and information operations. "Guardian Challenge is larger than the weeks and months of preparation and competition. It's about instilling and reinforcing our combat-ready values."

With that, MajGen Roger Burg, competition judge and director of strategic security, office of the Deputy Chief of Staff for Air, Space and Information Operations, Plans and Requirements, announced this year's winners:

Blanchard Trophy for Best Intercontinental Ballistic Missile Space Wing - 341st Space Wing (SW), Malmstrom AFB.

Schriever Trophy for Best Space Launch Wing - 45SW, Patrick AFB.

Aldridge Trophy for Best Space Operations Wing - 21SW, Peterson AFB

Overall team winners:

Space Communications - 460SW, Buckley AFB

Missile Maintenance - 341SW

Spacelift Launch Group - 45SW

Security Forces Team - 30SW, Vandenberg AFB

Best individual team winners:

Missile Maintenance

Communications - 90SW, F.E. Warren AFB

Electro-mechanical - 341SW

Missile Mechanical - 91SW, Minot AFB

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GC2006 (Continued from Page 7)

Missile Handling - 90SW
 Power, Refrigeration and Electrics - 341SW
 Security Forces
 Tactics Exercise - 45SW
 Combat Marksmanship - 45SW
 Obstacle Course - 50SW, Schriever AFB
 Operations Crews
 Spacelift Operations - 30SW
 Space Operations - 20th Space Control Squadron, 21SW
 Missile Operations - 90SW
 "Sit and Spin" Helicopter Hover Competition - 341SW
 Helicopter Flight Scenario - 91SW
 Overall Helicopter Operations - 341SW

The tradition of Guardian Challenge began in 1967 when Strategic Air Command opened its first missile combat competition, nicknamed "Curtain Raiser." Two combat crews from each intercontinental ballistic missile wing and a single combat targeting and alignment team competed to determine the best of the best. As General Alston reminded the more than 700 awards banquet attendees, the pioneers who stretched the envelope in the face of criticism as air power evolved, eventually reshaped the way wars would be fought forever.

"I see before me the pioneers for the next 60 years and certainly the future leaders of AFSPC," General Alston said. "In future conflicts, space power will play a predominant role; space will influence the outcome."

AAFM and GC2006

Once again, your association was a participant in the activities connected with the annual space and missile competition. There was no comp in 2005, and 2006 almost didn't happen, either. But the leadership at AFSPC decided that we needed to continue the tradition of the competition even if it meant some significant and hopefully temporary changes. The two biggest were a downsizing of the teams competing and moving the main event to Peterson from Vandenberg. Since the comp began in 1967 at Vandenberg, it has been held every year except for 1967, 2003 and 2005. Each year that was canceled was due to the cost and operational tempo related to the war - Viet Nam in 1967 and the war on terrorism in the last two years.

Moving the event to Peterson meant that the vast majority of the competition was held at the home base for each unit. That meant that missile and space operators, maintainers and others involved competed their comp exercises months before coming to Peterson for

awards ceremony at the final night's banquet. The security forces did compete during the final week, with their events conducted at Schriever and the Air Force Academy.

We had the opening ceremony at the Peterson auditorium - some said it brought back memories of Sesto Auditorium at Vandenberg, and all the other comp-related events, the Contractor Expo, local area civilian seminars, Curtain Raiser party and golf still took place. AAFM had our display at the expo, and board member Bob Kelchner, who competed in Curtain Raiser, flew in from California to help meet and greet folks and gain members for our association. Your president, Jay Kelley, was in Europe during the comp this year, so recently retired and recently elected board member Gen Lance Lord joined Kelchner and your executive director on the stage at the awards banquet to present the representational GC2006 coin to BGen Alston. Each participant received one of this year's coins, and a few are available to members as a donation - see the inside back cover.

A number of us were invited to join Gen and Mrs Chilton at his house for a reception prior to the banquet. The banquet, score posting and awards were held in one of Peterson's hangars, as is done at Vandenberg, with AAFM member and 1982 Blanchard winner MajGen Roger Burg acting as judge. The Santa Maria BBQ wasn't quite up to Santa Maria standards, but the rest of the evening definitely was. It may not have been Vandenberg, but it was a great event.

The command is discussing the possibility of making Guardian Challenge a once every two year event, similar to other Air Force competitions. Several of us expressed our concern that the event needs to be at Vandenberg - and that 2007 is a very important year. Next year will not only be the 40th anniversary for the competition, it is also the 25th anniversary of Air Force Space Command and 60th anniversary of the US Air Force. We'll keep you advised of the decision.





Titan I in Quincy, Illinois - by *Tiffany Musholt, a Junior in high school in Quincy*

The Illinois Veteran's Home in Quincy, IL, contains a museum with a nice display of helicopters, tanks and inside exhibits of all the wars. However, this Veteran's Home is also the home to a neglected Titan I. The missile is sitting at the top of the hill off to the side. At this point the general public would refer to it as "a piece of scrap metal." The Veteran's Home is in the long process of trying to remove or dispose of the missile. Hopefully with a little help the missile will be saved and kept in Quincy where it belongs.

This missile is serial number 61-4497, from the 569SMS at Mountain Home AFB and is currently on loan from the Air Force. No one has any idea how the missile ended up in Quincy, but it was probably brought here to show a connection between the military and space program. Sadly though, it has been neglected over the years. Some adults in Quincy even told me how they used to climb on the rocket as kids. It is upsetting to see a Titan I in this condition. Quincy has no other artifact of this kind. It should be displayed properly with an informational sign to educate the public of its significance. This could especially be a great educational or inspirational display for grade school students. I remember going to the Veteran's Home Museum in fifth grade and seeing all of the exhibits. The missile was not even mentioned once the entire time we were there.

Despite the missile being neglected, there are many people in Quincy who would like to see it displayed properly. The issue is that no one in the past was willing to put together a plan to help the missile. I'm a sixteen year old junior in high school who has decided to try to restore the Titan I to get it to an acceptable condition in the eyes of the general public. This does not mean a full Smithsonian style detailed restoration, but instead a smaller more appropriate restoration. It would be

unrealistic to try to raise enough money for a full restoration. Also, a smaller restoration would justify the educational purpose for restoring the rocket, just as well.

I became interested in this missile one day while at the Veteran's Home. Last year I had gone to the home for Beta Club, a service organization, but hadn't noticed the missile until recently. I'm interested in pursuing aerospace engineering in college and naturally want to know anything about an artifact related to the field. I had no idea what type of missile this was and there were no informational signs about the missile. After calling the Veteran's Home and getting no answers to what it was, I contacted the Smithsonian and sent pictures. They then sent me a few pages of information in. Since then I have been talking through email with people who are knowledgeable about the Titan I.

The plan I have created to restore the missile in a horizontal manner is made up of seven different parts. First, the rocket will need a stable display, so it will no longer be a liability issue. I believe a cement rectangular base with bars to hold up the rocket will be efficient. Cleaning the rocket will be the next big step. The rocket been vandalized a little bit in a couple of places, such as names scratched in the rocket and a little bit of spray paint around the engine. Also, it has been through many years of unpredictable Illinois weather, such as snow, hail and rain. The biggest part of the project will include fixing the holes in the rocket. Finding the place to do this task will also be difficult. I am looking for an airplane metal specialty company in Illinois or Missouri that would be willing to come here to work on the missile, so it doesn't have to be moved. The next part of restoration will be moving the rocket to its new location at the Veteran's Home. If all goes well, they would like the missile in a more central location. One of the last decisions to be made is what needs to be painted on the rocket. The 4497 is very faded on both sides. However, it would look incorrect if only that was painted. I realize that the Titan I did not have paint, but just a silverish-green tint from the metal; however, painting might be required depending on how it looks after the holes are fixed. Painting will make the rocket stand out and draw attention to the public, however it will take away some of its authenticity. Lastly, some sort of sign or plaque at the missile site and an exhibit in the museum will be added for education.

At this point I'm in the process of finding companies and contacting them to get an estimate to see if the restoration is even feasible. I'm not quite sure

Illinois Titan *(Continued from Page 7)*

how much time I have to do this though. The Veteran's Home will not delay the process of getting rid of the missile at this point, since they have supposedly been working on it for three years with the Air Force. At this point, with no valid plan and financial backing, the missile is primarily a liability issue for them. However if I come up with a plan, the estimate, and some sponsors, then they will hold off on disposing it. Another thing is that if I fail, then the rocket may face being cut up into scrap metal. Therefore, I encourage any organization that may want this Titan I to contact the National Museum of the United States Air Force and start filling out the paperwork now. I'm hoping the rocket can stay here in Quincy, but I'd rather see it displayed in another community, then to be turned into scrap metal.

If anyone is interested in helping with restoring this Titan I, then write me at 2628 North 16th St, Quincy, IL 62305 or e-mail airborne.darth.tiffles@gmail.com. The problem I'm having right now is finding a good airplane metal company to get estimates to repair the holes in the missile. I frankly do not know of any companies or how to find them at this time. Also, any advice anyone has on painting or any other issues would be greatly appreciated.

I would personally like to thank the AAFM executive director for giving me the opportunity to include this article in your newsletter.

If you can help Tiffany with this project - a big one - let her know. We have provided a copy of the tech order and lots of other information, but that is the easy part. Incidentally, your executive director was once signed for 4497 - it was in C Site at Mountain Home.

Minuteman Models

AAFM is working with Pacific Aircraft, a maker of quality wooden hand carved aircraft and missile models, to get a better selection of missile models. We are working only Minuteman now, but hope to pursue other systems in the future. I have two of Pacific's models, the Minuteman I and II, and a Minuteman III is on the way. The current models sell for about \$200 each, with an occasional sale for half price - we have carried information in previous newsletters about Pacific's models. Contact informaton is below.

Many of you want the missile in "real" colors, and the 576FLTS at Vandenberg is hoping to have models available for presentations. We are working with them and others to not only get the real color scheme but also to determine how much demand there is. With all the options available (color scheme, missile graphics, base layout) we may have to limit the choices some, unless you want to pay extra for custom paint or graphics. Right now we are working only on the MMIII version, probably with a base logo from either SAC or AFSPC. The color scheme would be the real green, white and natural metal/composite material mix on the missiles in the silo.

If you are interested, mail one of the forms below or e-mail us your interest - at some point we may have to ask for a deposit to get the project launched.

Pacific Aircraft is at www.warbirds.com (search for Minuteman) or at 800-950-9944. Mail your form to AAFM, PO Box 5693, Breckenridge, CO 80424.

Yes - I would like a model

Model	Color		Base Graphics			Missile Graphics		
	White	Real	SAC	AFSPC	USAF	None	SAC	AFSPC
Minuteman I _____	_____	_____	_____	_____	_____	_____	_____	_____
Minuteman II _____	_____	_____	_____	_____	_____	_____	_____	_____
Minuteman III _____	_____	_____	_____	_____	_____	_____	_____	_____

Name _____

Address _____

City, State, Zip _____

E-mail address _____

Phone _____

Articles and Series for Future Issues

We recently asked those of you with e-mail addresses on file for ideas for future newsletters. We got a number of good recommendations. Now we need your articles and stories. We can use articles in many formats, easiest is by e-mail, but typed, handwritten or on a disk all work. We can also use other ideas for later issues.

Here are some of the ideas submitted for you to consider.

Hank Bender suggested articles about command and control, from the bottom to the top. We have members with experience at many levels, so should have some good informative articles as well as good tales.

Mike Novak, an active duty maintainer, would like to see more about the history of combat targeting. Your Treasurer, Bob Kelchner, is preparing an article on early Minuteman targeting for the next issue, and some of you could address other parts of the history of "how we target our missiles."

Roger "Shorty" Lippold suggests some updates on how maintenance jobs in the Minuteman have changed. He comes from the era of no time lines, work until you finish - not the way it is done now.

Ben Lucas wants to know where missileers went when they left missiles. He ended up working in System Safety on Space Station, Shuttle and now for NASA JPL. Your story might be a different Air Force career field, a post retirement job, or just what you did when you grew up and out of missiles.

Eric Wuest thinks we could scan through the posts on The Mercenary Missileer discussion pages. Topics there include health problems crew members may have developed, changes in the bases and missile facilities and histories of the wings. (We have done some histories in the past, but far from all of them.)

Richard Kleckner, who authored the recent GLCM article, wonders what happened to the six GLCM bases we left for the host nations.

Randall Schramm asks about an article on the 526 ICBM Systems Wing and its predecessors (ICBM System Program Office, Ballistic Missile Office, etc.) and what they have done and continue to do for the ICBM. We have members who served throughout the history of these organizations that must have some good stories.

That is a pretty good start that may fill a couple of years of our newsletter issues. Send in your stories now and share with the other 3,000 missileers in AAFM.

An Update on The Cold War Museum - by Gary Powers, Founder

July 2006 marked the Museum's tenth anniversary. During the past ten years we have amassed a collection of over \$2.5 million dollars in international Cold War artifacts including items from USS Liberty, USS Pueblo, USMLM, Stasi, KGB, CIA, Nike and Pershing Missile Veterans, Iceland Radomes veterans, Radio Operator veterans, and many former Eastern Bloc countries. Some of our more unique items include a Stasi Prison Door and cot, US Mailbox used by Aldrich Ames to contact his handlers, and an SA-2 missile. Recently, we photographed a small portion of the items that are in our storage facility. These photographs can be found on-line at www.coldwar.org/pictures/index.html. Artifact donations to The Cold War Museum will help keep your family's Cold War history alive for future generations to reflect upon. If you would like to learn more about donations or bequests of Cold War artifacts, please email editor@coldwar.org.

We have the largest collection of Civil Defense items in the United States and plan to "rebuild" the former DC Civil Defense HQ within the Museum. To view pictures of the former DC Civil Defense HQ visit www.coldwar.org/museum/physical_location2.html. This past weekend, our Collection Management expert, Beth Eubanks and several George Washington University Museum Studies students, alumni, and volunteers helped to tag and pack up the Civil Defense Bunker in preparation for a move to safe and secure storage facility. I would like to personally thank Fairfax County and the Park Authority for their support and assistance to store these items over the past few years and to also assist with the packing logistics.

We have support from the Embassies of Lithuania, Latvia, Estonia, Bulgaria, Poland, Hungary, Slovakia, and have established a Midwest chapter in Milwaukee/Chicago and a Berlin Chapter in Germany. We are working with the Embassies of Poland and Hungary currently to produce an October 14 conference on the 50th anniversary of the Polish and Hungarian uprisings of 56. We have implemented a Spy Tour of Washington, and conduct other educational programs. Our mobile exhibit on the U-2 Incident has been displayed coast to coast in the US and also internationally at the Allied Museum in Berlin.

We are a functional Museum in spirit despite not having a physical location, but that is about to change. to

(Continued on page 12)

Cold War Museum *(Continued from Page 11)*

Fairfax County Park Authority is reviewing our proposal to locate at the former Nike Missile base in Lorton, VA 20 miles from Washington, DC and we expect to sign a lease for use of that site by the end of this year. A state grant from Virginia the past two years in the amount of \$100,000 each year has helped us to moved forward but it is estimated that we will need to raise over 3 million over the next two years for the interim phase of our project. To that end, we have just hired St Claire Partners to conduct our Capital Campaign and are looking into a test Direct Mail Campaign. I am pleased to announce that the Museum has received a \$200,000 pledge of support from a local Fairfax company for 2007.

The 50th Anniversary of the Polish and Hungarian Uprisings is just around the corner. The Cold War Museum will convene a distinguished gathering of diplomats, officials and historians on Saturday, 14 October in Fairfax County to discuss the 1956 Polish and Hungarian uprisings against the Soviets and Communism. Among those participating will be Sergei Khrushchev, son of the late Soviet premier; David Eisenhower, grandson of President Eisenhower; Mr. Laszlo Rajk, the son of an executed Communist leader of Hungary; a representative from Poland; Dr. Charles Gati, historian from Johns Hopkins University; and Christian Ostermann, historian from the Cold War International History project. Northern Virginia politicians such as Congressman Tom Davis, Supervisor Gerald Connolly, and Supervisor Sean Connaughton are expected to attend.

The daylong program will be at the South County Secondary School, 8501 Silverbrook Road, in Lorton, Virginia. South County students are assisting with conference logistics and 250 are scheduled to attend the event. Registration will begin at 0830., with the program starting at 0930. The fee is \$25 per person, which includes a continental breakfast and lunch. Morning sessions will feature Hungarian and Polish panelists and will be moderated by Christian Ostermann of the Cold War International History Program at the Woodrow Wilson International Center for Scholars in Washington. An afternoon panel discussion will focus on reflections of the 1956 events by Sergei Khrushchev, David Eisenhower, and will be moderated by Dr. Charles Gati from Johns Hopkins University. Breakout sessions in the morning and afternoon will include the collection by students of oral histories from area Nike Missile and other Cold War veterans.

During one of the breakout sessions a photo shoot for the Cold War Museum is planned with the dignitaries participating. Plans call for the Museum's permanent head-

quarters to be located on the grounds of the former US Army's National Nike Missile Site also in Lorton. Following the conference, the Polish and Hungarian Embassies in Washington, DC will co-host an evening reception for invited guests. The Hungarian and Polish embassies, Fairfax County Economic Development Authority, the Hungarian Technology Council, as well as the Museum and the South County Secondary School, are hosts for the program. Sponsors include the Marriott Corporation; EnviroSolutions, Inc., and K. HovnanianR Homes. For more information on the conference, sponsorship opportunities, or to volunteer, please email editor@coldwar.org.

In the May 1 issue I referenced "The Nike Missile Veterans Association," which is incorrect. I should have said Nike Historical Society. We have asked the Nike Historical Society, a nonprofit organization founded to preserve the critical role the Nike missile system played in the air defense of our nation during the Cold War, join us in the Cold War Museum's project to build the Museum at the Lorton VA Nike site. The Society has designated a representative to work with us, and at our May Board meeting we elected Gordon Lunn to our Advisory Board. Gordon is a former Nike battery officer and battalion staff officer, and was later assigned to HQs Army Air Defense Command as a senior Nike evaluator. The Society's association with us is especially important due to the fact that the Museum will be constructed atop one of the Lorton site's underground Nike launch magazines, which we plan to restore to its original configuration. The Society's aid in identifying the required missile system materiel and providing technical expertise in the restoration of the Nike missiles and launch magazine will be invaluable.

I am pleased to announce that Brickworkz is creating a Lego logo mosaic of the Cold War Museum thanks to the support of one of our Museum friends. Brickworkz was created in 2004 to design LEGO mosaics for companies and individuals. Your Mosaic can be based on your favorite photo or portrait, your organization's brand or logo, or anything else you can think up! Contact Brian at (804) 502-3983 brian@brickworkz.com) or learn more at www.brickworkz.com.

If you can volunteer, write a written history, record an oral history, take a Spy Tour, arrange a lecture, send an artifact, or make a financial donation, now is the time that we need your support the most. If you know of friends or family that would like to assist, please let them know that the Museum needs their support, too.

(Continued on page 13)

Cold War Museum *(Continued from Page 12)*

We need to raise an initial \$3 million over the next two years to keep on track with opening our interim museum. Now is the time that we need your help the most. Donations to The Cold War Museum can be made through a secure online website at www.guidestar.org/partners/networkforgood/donate.jsp?ein=54-1819817 or www.justgive.org/giving/donate.jsp?charityId=18894. In addition, you can help support the Cold War Museum by doing online searches through www.goodsearch.com/Default.aspx. For every search done in this medium, the Cold War Museum will receive a small donation.

Please consider making a donation to the Cold War Museum. Your gift will help us plan for the new physical location. Tax-deductible contributions and artifact donations to the Museum will ensure that future generations will remember Cold War events and personalities that forever altered our understanding of national security, international relations, and personal sacrifice for one's country. Please help spread the word about the Museum. Together we can make this vision a reality. If you should have any questions, want additional information, or would like to subscribe to our Cold War Times email newsletter distribution list, send an email to editor@coldwar.org

Contact information for the Museum
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703-273-2381 Museum
703-273-4903 Museum Fax
gpowersjr@coldwar.org
www.coldwar.org

AFSPC Honors 6 Space, Missile Pioneers

- by Capt. Catie Hague, AFSP Public Affairs

Six visionaries were inducted into the Air Force Space and Missile Pioneers Hall of Fame in a ceremony at Air Force Space Command Headquarters 24 Aug. Gen Kevin P. Chilton, AFSPC commander, presented the accompanying awards to this year's inductees. Those inducted into the Air Force Space and Missile Pioneers Hall of Fame are significant players – military and civilian – in the advancement of Air Force space and missile programs, said Skip Bradley, AFSPC command historian and project officer for the event. To be considered, they had to have made significant contributions to Air Force programs more than 30 years ago.

Col (Ret) Wilbert F. Craig III was a leader of the "Moonwatch" project at Kirtland AFB, NM, creating one of the first Air Force satellite tracking sites. He subsequently developed Air Force satellite tracking tables, algorithms and equations in the early 1960s that made SPACETRACK possible. He led orbital analysis for the first seven live tests of the nation's only deployed anti-satellite system.

BGen (Ret) Maurice A. Cristadoro was assigned to the office of the deputy for Research and Development in 1952 where he worked on site surveys for future deployment of the Atlas intercontinental ballistic missile program, and was responsible for all aspects of Atlas systems acquisition. In July 1961, General Cristadoro became Air Force Systems Command project director for ballistic missiles, taking on the responsibility of shifting resources from Atlas to the Titan and Minuteman ICBMs.

MGen (Ret) Ben I. Funk was assigned to Air Materiel Command in 1956 where he supported efforts to develop, test, produce and deploy the first generation of ballistic missiles. He became the commander of Space Systems Division. His teams carried out launches at an unsurpassed rate to achieve initial operational capability of satellite systems for nuclear detection, meteorology, communications and missile warning. General Funk went on to support NASA's Mercury and Gemini programs through the development and modification of Atlas and Titan II missiles as human-rated space launchers.

Col (Ret) Francis J. Hale was deputy director of the Thor missile program beginning in January 1956, and successfully advocated for eliminating radio-inertial guidance and concentrating on all-inertial guidance. He became the first plans and programs officer, then deputy director, of the Minuteman ICBM program

LtCol. Albert W. Johnson joined the Weapon System-117L satellite program in August 1958 as project officer for the recovery vehicle being developed to return data from orbit. He also worked with biomedical experimenters to develop life-support and recovery packages for mice and monkeys on Discoverer flights, and was the first project officer on the design of components and subsystems to detect and counter possible enemy interference with Air Force satellite operations.

Col (Ret) Richard S. Leghorn worked for then Col Bernard Schriever on planning for reconnaissance systems, laying the groundwork for the U-2 reconnaissance aircraft. He was a consultant to President Dwight D. Eisenhower's assistant for Disarmament Affairs from 1955 to 1956, instrumental in formulating the "Open Skies" doctrine.

A Word from the Association

National Meeting - By the time you read this, our seventh National Meeting will be history - almost 300 missileers and their guests gathered in Cheyenne for a great event. We had superb support from 20AF and the 90SW, the city of Cheyenne and the Little America Hotel and Resort. General Chilton, AFSPC commander, joined us as our banquet speaker, and we had about thirty guests from Warren who currently operate, maintain and support our ICBM force. We will thank all those who helped make the event a success in the next newsletter. Even before we completed work on the 2006 meeting, we began planning for 2008. The board of directors will select the location - those being considered are the Washington, DC area, Cocoa Beach, Colorado Springs and the Vandenberg area. I will travel to the selected area shortly after our Cheyenne meeting to start making plans for 2008.

AAFM's Executive Director - Every few years, I write a note about the future of the AAFM staff - which consists of one person, your executive director. I have been taking care of all the day to day work for AAFM since late 1992, and don't plan to quit anytime soon, but I occasionally ask if anyone out there is interested in stepping into my shoes at some point in the future. The job can take as much time as you want to spend on it - but I still manage 150 or more rounds of golf a year, 50 or 60 days of skiing and almost four months of travel, so it isn't quite full time. The only pay is the opportunity to stay involved with today's missile and space warriors, visit current missile and space installations and talk to some great folks. The job does cover most expenses, but all those hours building newsletters, answering member letters, tracking dues and dealing with researchers, authors and television producers are "voluntary." Some duties are farmed out - Kevin Mortensen still mails our dues notices and Bob Kelchner does a lot of the newsletter detail work. It helps if you live in Colorado, since we are a Colorado chartered organization, but there are ways around that. If you would like to be involved, call me.

Letters to the Association

Address your letters to AAFM, Box 5693, Breckenridge, CO 80424, or send by e-mail to aafm@afmissileers.org. Letters may be edited to fit - content/meaning will not be changed.

2006 OAY - I would very much like to thank AAFM and all the AAFM members for their continued support over the past 4 plus years of the AFSPC Outstanding Airmen of the Year program. AFSPC'S recognition program, in my humble opinion, is a first class event and the best of all the commands. I contribute a great deal to the AAFM's support. Please pass on to all the members my sincere thank you to all. *CMSgt (Ret) Ron Kriete, MbrNo A2171, Colorado Springs, CO*

Chief Kriete recently retired after serving as the AFSPC Command Chief Master Sergeant.

Evergreen Museum - Thank you for keeping us in the loop! Just wanted to let you know that we have received confirmation that another Titan - the Titan IV - is coming our way! I can't remember if I mentioned our work with the good folks at Vandenberg AFB/Lockheed Martin toward building a Launch Control Room, complete with shaking and sound! We've begun to acquire artifacts (a camera, water nozzles, lights, etc.) from the two launch pads at Vandenberg, plus computer consuls, floor tiles, and more from the actual launch room. We plan to create an exciting hands-on exhibit for educational groups, that will provide the opportunity to participate in an "actual" launch sequence, which will end with the viewing, on a large screen, of a Titan launch. I am working on creation of a packet requesting funding, that will include drawings, etc. Also, we are increasing our search for space related vehicles and other artifacts, including flight suits and other related memorabilia for the new space facility we're building. We break ground later this summer and the project is really heating up - pun intended! Of course, we're always looking for volunteers, too. *Katherine Huit, Evergreen Aviation Museum McMinnville, OR (Home of the Spruce Goose)*

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Letters (Continued from Page 14)

GLCM and INF Corrections - There are some wrong dates in my article in the June issue. 1st paragraph, "INF Treaty between 8 December 1987 and 31 May 2001" Page 12, 3rd paragraph under photo, last sentence; "Ratification and start of the treaty was 1 June 1988". Page 12, top paragraph of right column; "The treaty's duration was from 1 June 1988 to 31 May 2001". Though not as critical (same paragraph), a comma would make this sentence read better; "To me, this revealed the true fear that the Soviets had, that NATO would have used...".

Richard Kleckner, MbrNo SA017, Guthrie, OK

Refueling Minuteman - Reference the Officers Club Placemat in the June issue, I was a SSgt daily scheduler in Plans and Scheduling in the 579SMS, the Walker Atlas F unit. The F missiles kept 11,489 gallons of RP-1 (Rocket Propellant-1, pretty much kerosene) on board full time, ready to load LOX in the countdown. My memory is that there was a 360-day dash 6 requirement to recirculate and dewater the fuel. In 1963 or early 1964, we had one in progress that wasn't going well. This was a lengthy process, drawing the RP-1 out of the missile, down thru the launch mount, then up thru the plumbing over 100 feet, to the cap, where the dewatering unit was hooked up, then returning the RP-1 to the missile. Periodic checks were made for impurities and water, and the recirculating went on until the checks met the spec. The missile was off alert during the process, so as the hours added up, it drew the attention of HQ SAC. The checks were still coming out bad, and we were faced with having to replace the RP-1. None of any quantity was kept on base, since the missiles were all fueled full-time. Following some discussions with the SAC staff, the troops on site continued to recirculate the fuel, and I got a call from a lady at Wright-Patterson AFB, wanting to know if the Walker POL section had the capability to receive the RP-1 from a KC-135 (on the ground). If so, she was prepared to fly us adequate supplies of RP-1 to get the bird back on alert. While I was checking with POL, we started getting good samples on site. I called the lady back at Wright-Patt with the good news. She was relieved not to have to get SAC to divert a tanker for the RP-1 pickup and delivery. I always thought it would have been neat to be a part of the planning to refuel an Atlas from a KC-135. *John Nailen, MbrNo A1262, Ogden, UT*

John and I both experienced unusual requests from higher headquarters about our missiles - we decided it is a good topic for a future issue - send in your stories.

about the interesting request (or order) you got some from airplane oriented controller, staff officer of director - there were lots of them.

38TMW - The host 38TMW page and all of the associated pages have finally been restored. The home page is, and will remain, <http://www.mace-b.com/38TMW/> Everything should be back, as well as the two expanded Kadena pages, thanks to Dennis Cralley, Sr. Thanks to everyone for the much needed moral support and the photo and comment contributions which make this site possible. If there are corrections or problems, such as links that show a "404 error," please let me know and I'll correct it as soon as possible. As always, if you have photos or momentos you would like to have on the site, send it to me and I'll see if I can work it in where it would be appropriate. *George Mindling, MbrNo A1761, Port Charlotte, FL*

564SMS - In 1959 I graduated from the US Naval Academy, selected the Air Force, and was assigned to Warren AFB to the 564SMS, which operated and maintained three Atlas "D" ICBM's. Several of my classmates were assigned to the 565SMS. It was my understanding that the 564th was the first operational ICBM squadron in the free world - excluding Vandenberg claims and capabilities. I never see any references to the 564SMS or 565SMS. It seems that they have been absorbed by the 389SMW which I think was the number designation for the 389MMS missile maintenance squadron on Warren during those years. I seem to recall that we were all part of the 706SMW. Can you clarify what happened to the 564SMS and 565SMS? *Ed Manton, MbrNo A0999, Greenville, TX*

The two Atlas D units closed in late 1964, but the 564SMS came back to life a short time later as the Deuce squadron at Malmstrom - and is still there. It may be going away again, though, since that system might be closed down, leaving only 450 Minuteman III missiles. And teh 389SMW was the redesignation for the 706SMW.

Taps for Missileers

Col (Ret) Donald W. Johnson commanded the 451SMW, the Titan I wing at Lowry, and the 90SMW at Warren, and lived in Winter Park, FL

CMSgt (Ret) Lowery E. (Gene) Moore served in the 392nd Training Squadron on the team that launched the first Thor rocket in December 1858 and trained Royal Air Force personnel, and lived in Lompoc

TSgt (Ret) Wilfred Seetoo served in Altas in the 548SMS and lived in Glendora, CA

Strategic Defense Initiative

Author Nigel Hey has a new book, "The Star Wars Enigma", that has just become available through bookstores and at www.nigelhey.com. This general-reader-ship book had its genesis in discussions with colleagues at Sandia National Laboratories and elsewhere, and is the result of six years of subsequent study and analysis. It contains a great deal of original information about the genesis and consequences of SDI, much of it newly provided by government officials and scientists who were involved in the program. It also contains previously unpublished information on the Soviet Union's near-analog to SDI. The author includes comments from two individuals who have "previewed" the book.

New Items in the Store

We add new items often to our Donations/Store section, both on the web page and as listed on the inside back page of each issue. All of these items help us raise money for our programs, and most have been contributed by members. You will find a number of patches, many of them new "copies" of old missile unit patches, most of which were made by a member for a specific unit reunion. We just added 576SMS patches to the many others listed.

Earlier this year, we added lapel pin size miniatures of each of the six versions of the missile badge - this has been a very popular item for donors. We just added all three versions of the new space badge - the "wings" that some of you dislike - but they are here to stay and popular with many members of the current force. You can order any of the pins in any combination you want - see the instructions on the web page and back cover.

We often add publications to our dash one and historic CDs - not too quickly sometimes, because it takes me a while to scan in a 500 page document. The Atlas E dash one is almost done, and we are looking for other dash ones to add to our collection. We also recently added more of Bob Wyckoff's poems (see the June issue).

Visit our Donations/Store web soon or use the form at the back of this issue to get the latest AAFM offerings.



Thor Book

Member John Boyes is writing a book on the Thor missile in RAF Service. He has already managed to contact a number of fellow members many of whom have been most helpful. However, he says "I am still keen to contact anyone involved with the UK aspect of the Thor's history that may have slipped my net. I wonder if you could make mention of this in the next AAFM Newsletter. I am particularly anxious to contact anyone who may have knowledge of Thor during the Cuban Missile Crisis." To contact John -

John Boyes, Telephone 0044 (0)1279 814225
5 Queens Close, Stansted, Essex CM24 8EJ
United Kingdom

Email JBoyes5652@aol.com

Greg Ogletree's Patches

Greg and your executive director are still working weekly to add more of his patch collection to our online gallery. Greg has eleven binders of patches in his collection - at present the gallery has about half of the collection online. We hope to get the rest up by the year's end, and plan to add text about each patch. It is a giant job for both of us, but the results are great. Note when you go to the gallery that many of the specific "pages" are really many pages - you need to navigate through each one to see all of the collection.

We recently added competition patches, Minuteman flight patches and other unique parts of Greg's collection. A reminder to those who occasionally offer a scan of a patch to Greg - this is his collection - which means the only patches shown will be those he actually has a patch for in his binders. Feel free to donate patches to him if you have some that aren't shown.

Reunions

The "real" 20th Anniversary of 308SMW Deactivation, 12-16 September 2007, Little Rock, AR, contact William Leslie, 937-255-2783, info at www.308smw.com or e-mail william.leslie2@wpafb.af.mil
SAC 2008 - 30 April - 4 May 2008, Dayton, OH, reunion and dedication of the SAC Memorial
TAC Missileers, 2-4 May 2007, Tucson, AZ, contact Joe Perkins, perkster@fcsl.com
455SMW (Minot) 3- 8 April 2007, Austin, TX, contact dsmith5331@aol.com or eduardkat@yahoo.com

Reunion Notices should be to AAFM as early as possible for the newsletter, web page and e-mail updates.