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The Silent Sentinel

April 2011

Our Creed and Purpose

To perpetuate the memory of our shipmates who gave their lives in the pursuit of their duties while serving their country. That their dedication, deeds, and supreme sacrifice be a constant source of motivation toward greater accomplishments. Pledge loyalty and patriotism to the United States of America and its Constitution.

In addition to perpetuating the memory of departed shipmates, we shall provide a way for all Submariners to gather for the mutual benefit and enjoyment. Our common heritage as Submariners shall be Strengthened by camaraderie. We support a strong U.S. Submarine Force.

The organization will engage in various projects and deeds that will bring about the perpetual remembrance of those shipmates who have given the supreme sacrifice. The organization will also endeavor to educate all third parties it comes in contact with about the services our submarine brothers performed and how their sacrifices made possible the freedom and lifestyle we enjoy today.

Taiwan Is Running Out Of Time

Strategy Page, March 12, 2011

March 12, 2011: Taiwan is running out of time to find replacements for its aging submarine force. Taiwan currently has four boats. Two are 70 year old American Guppy class subs. These are used only for training, and are increasingly difficult and expensive to maintain. The two Hailung class subs were built in Holland and entered service in 1986. These 2,500 ton boats are armed with twenty torpedoes and Harpoon missiles (launched from the torpedo tubes.) But there's a new problem as well, because of plummeting morale among the 200 sailors who run these boats. Years of delays in obtaining new subs, and dim prospects of ever getting them, discourages qualified young sailors from volunteering for the submarine service, and many old hands are retiring as soon as they are eligible.

Nevertheless, the search for a shipyard willing to build, for Taiwan, eight diesel-electric submarines, continues. None of the European shipyards that specialize in this sort of thing will do it, as they fear economic retaliation from China. The United States had not built a diesel electric sub since the 1950s. Getting an American shipyard up to speed on building diesel electric subs would be expensive, and no one is sure exactly how expensive. Moreover, the uncertainty of how much it might cost is scaring many Taiwan supporters in the U.S. government. So alternative solutions are still being sought. Publicly, Taiwan says it wants the subs for anti-submarine work. But it's been pointed out that there are cheaper and more effective anti-sub capabilities available via helicopters, aircraft and UAVs. What is left unsaid is that the subs could also be used to shut down China's ports, crippling the economy and causing lots of political problems for China's leaders. It's also possible to shut the ports without using subs (air dropped naval mines, or just threatening to attack any merchant ship entering Chinese waters), but nothing does this sort of thing as effectively as a submarine, especially a very quiet diesel-electric sub.

Ideally, Taiwan wants eight new diesel-electric boats, preferably with AIP (air independent propulsion). This would drive the price up to nearly a billion dollars a boat. There are two potential sources.

One prospect is India, which has become quite alarmed at China's growing naval strength. India is building its own subs. Currently, six French Scorpene class diesel-electric submarines are being built in India. The Scorpene is a very modern design (and the result of cooperation between a French and a Spanish firm) that displace 1,700 tons, and with a crew of 32. It has six 533mm (21 inch) torpedo tubes, and carries 18 torpedoes and/or missiles. It is equipped with an AIP.

With well trained crews, Scorpenes can get close to just about any surface ship, no matter how good the defender's anti-submarine defenses are. But it's the AIP boats that makes these boats real killers. Without AIP, subs spend most of their time just below surface, using their diesel engines (via a snorkel device that breaks the surface to take in air, and get rid of the engine exhaust.) Snorkels can be spotted by modern maritime patrol aircraft, and both nations are getting more of these.

India is getting its first Scorpene in 2015, with one a year after that. Only the last three will have AIP. The price of the contract is quoted as $300 million for each boat. That could include AIP, because the boats are being built in Indian yards, which have much lower costs. European built AIP boats go for about half a billion dollars each. Typically, AIP adds about $100 million to the cost of a sub.

Since the Scorpenes are being built with Spanish and French technology, China could still pressure those nations to forbid India to build any of these boats for Taiwan. But India is also building nuclear subs, using Indian technology. At the moment, India is building all these nukes for their own use. But a Taiwanese order for over $10 billion worth of nuclear boats could change that. There are no active discussions with India on this matter. But the Taiwanese have approached Russia on the matter of collaborating in submarine construction. These discussions are still underway, and might come to fruition before Indian options become real.

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The Silent Sentinel via Email

To all of my Shipmates and families who currently receive our Great newsletter via the mail who would like it sent via email or continue to receive it via mail, please fill out the form and mail it to the base or myself. We are trying to cut the cost of the newsletter down from $3700 to about $1900 a year. By receiving the Silent Sentinel via email will cut down the printing and mailing cost. The other plus to receiving it via email is you can save it on your computer and not have the paper lying around the house.

A subscription to the Silent Sentinel newsletter will be available to surviving family members via internet email, at no charge, upon notification of the Membership Chairman. If a printed hard-copy is preferred, via US Post Office delivery, an annual donation of $5.00 will be requested to cover costs.

NAME: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

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Would like the SILENT SENTINEL emailed: YES_____ NO_____

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*DUE TO LOGISTICS CONSTRAINTS, ALL INPUTS FOR THE SILENT SENTINEL MUST BE IN MY HAND NO LATER THAN **ONE WEEK** AFTER THE MONTHLY MEETING. IF I DO NOT RECEIVE IT BY THIS TIME, THE ITEM WILL NOT GET IN. NO EXCEPTIONS! MIKE*

April Meeting

Our monthly meetings are held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our next meeting will be on 12 April 2011. The post is located one-half block West of Mission Gorge Road, just north of I-8. The meeting begins at 7 p.m. The E-Board meets one hour earlier at 6 p.m.

Check us out on the World Wide Web
www.ussvisandiego.org

BINNACLE LIST

Bob Medina

Submarine Losses in March

Submitted by C J Glassford

SKATE (SS23) - 21 Men on Board

Sunk, on 25 Mar 1915, Following Battery Explosion, Off the Coast of Honolulu, Hawaii : " ALL HANDS LOST "

SEAWOLF (SS28) - 23 Men on Board

Foundered and Sunk, on 12 Mar 1920, Off Santa Margarita Island, California : " 4 MEN LOST "

PERCH (SS 176) - 59 Men on Board:
Scuttled, on 3 Mar1942, after Severe Damage suffered from Japanese Destroyers, Entire Crew ended up in POW Camp :
" SIX MEN DIED IN POW CAMP "

GRAMPUS [Bell} (SS 207) - 71 Men on Board:
Sunk, on the night of 5 Mar 1943, by Japanese Destroyer, In Blackett Strait :
" ALL HANDS LOST "

TRITON (SS 201) - 74 Men on Board:
Sunk, on 15 March 1943, either by Japanese Destroyer or by Submarine Chaser, North of Admiralty Islands :
" ALL HANDS LOST "

TULLIBEE (SS 284) - 79 Men on Board:
Accidentally Sunk, on 29 March 1944, by Circular run of her own Torpedo, Off Palau, Islands :
" 78 MEN LOST - ONE SURVIVOR "

TRIGGER (SS 237) - 89 Men on Board:
Sunk, on 28 April 1945, by Japanese Patrol Vessel, and Coastal Defense Vessel, In the Nansei Soto Area :
" ALL HANDS LOST "

Minutes of the San Diego Base Submarine Veterans Meeting, March 8, 2011.

1900 – Monthly meeting called to order by senior vice Commander, Bill Earl. Conducted opening exercises:
Reading of the Creed:
Pledge of Allegiance:
Senior Vice Commander lead in opening prayer and Tolling of the Boats for

the month of March:
Secretary reports 33 members and 1 guest present (Larry Bissler).
Treasurer presented report.
Binnacle list: CJ is in the hospital for check up he is not in any danger and will be out to the hospital by the end of the week.
Bob Medina is still on the list.
Al Strunk has been on the list but is present tonight.
Membership: 2010 – 2011 we have lost ten members. Our total membership is almost at 350.
Scholarship committee: We need all applications in for the scholarship program by April 15.
Storekeeper: We have new items for sale in the back of the room along with a catalog of items.
New Holland club members presented:

Jack Addington, Charles Simmons, James Potts, John Grienenberger, and Nihil Smith.

New members were call forward and presented Holland club certificates.
1920 - Break
1940 – Meeting called back to order.
Unfinished business:
Dave Ball, Treasurer, Dave presented a copy of the budget for members to read and he discussed some corrections and the different categories' on the budget.
There was a question and answer period for the members.
A request for a motion to accept the budget was request, a motion was made to accept the budget. A second was made, a call in favor say aye, ayes had it and the budget was passed as presented.
Member Al Strunk made some suggestion on possible fund raisers, one was with Outback Steak House which would refund for dinner bought with tickets sold through the origination and he other was with Applebees. Both companies would provide flyers and tickets to allow the organization to make extra money. Commander suggested we chair this proposal until next meeting and can get more information and present this to the membership for a vote.

North Pole patch was presented John for approval of the membership. These patches are original design and can be offered to other bases and the USSVI for sale. A motion was made be membership to accept the patch and work out the pricing with the storekeeper. Motion was passed.
T-Shirts have been offered by the Pasadena base for all bases, but no design was specified. Member suggested this be left for the storekeeper to investigate and purchase t-shirts if price and design are ok.
We are still looking for a member to become chairman for an Eagle scout program.

Kaps for Kids program is still available if someone would like to take charge and set up this program. It has been very successful in some parts of the country.
Submarine Ball will be held on Saturday, May 28, 2011.
New Business:
It was requested by leadership the we looking into sponsoring a little league baseball team. A donation of 250 dollars would put sponsors name and patch on each team member and our organization will be recognized on opening day. A discussion was made by the membership, but members decided to pass on this proposal.
Vern Southwell funeral will by on Sunday, March 20 at 1300 in Oceanside.
Scamp Base will be having pot luck at the American Legion in Escondido, Thursday March 24 at 1900. The plan to have a Holland Club installation, all are welcomed.
Holland club dues change will be voted on at the next meeting.
Good of the Order:
Doc Coates commented that no one was present to teach the food handlers class this past week.
There are new set of photos on the website from CJs photos collection.
Al Strunk commented on two individual that took a notice on how he was feeling and encouraged him to seek help which eventually saved his life. Submitted by *Manny*

Sailing List

PHILL RICHESON	BILL EARL	JOEL EIKAM
JIM HARER	PAUL HITCHCOCK	LARRY DORE
BOB FARRELL	JACK KANE	RAY FERBRACHE
CHARLIE MARIN	DAVID KAUPPINEN	CHUCK BABCOCK
RON GORENCE	ED WELCH	CHARLES SIMMONS
TOM POLEN	DAVID BALL	NIHIL D. SMITH
CLIFF BRITT	MATT BAUMANN	LARRY KENDALL
MIKE HYMAN	DENNIS MORTENSEN	JIM POTTS
JACK L. ADDINGTON	BOB COATES	JOE DUBOIS
MANNY BURCIAGA	WILLIAM JOHNSTON	JOHN BRIENENBERGER
MIKE COSGROVE	AL STRUNK	

Upcoming Parades

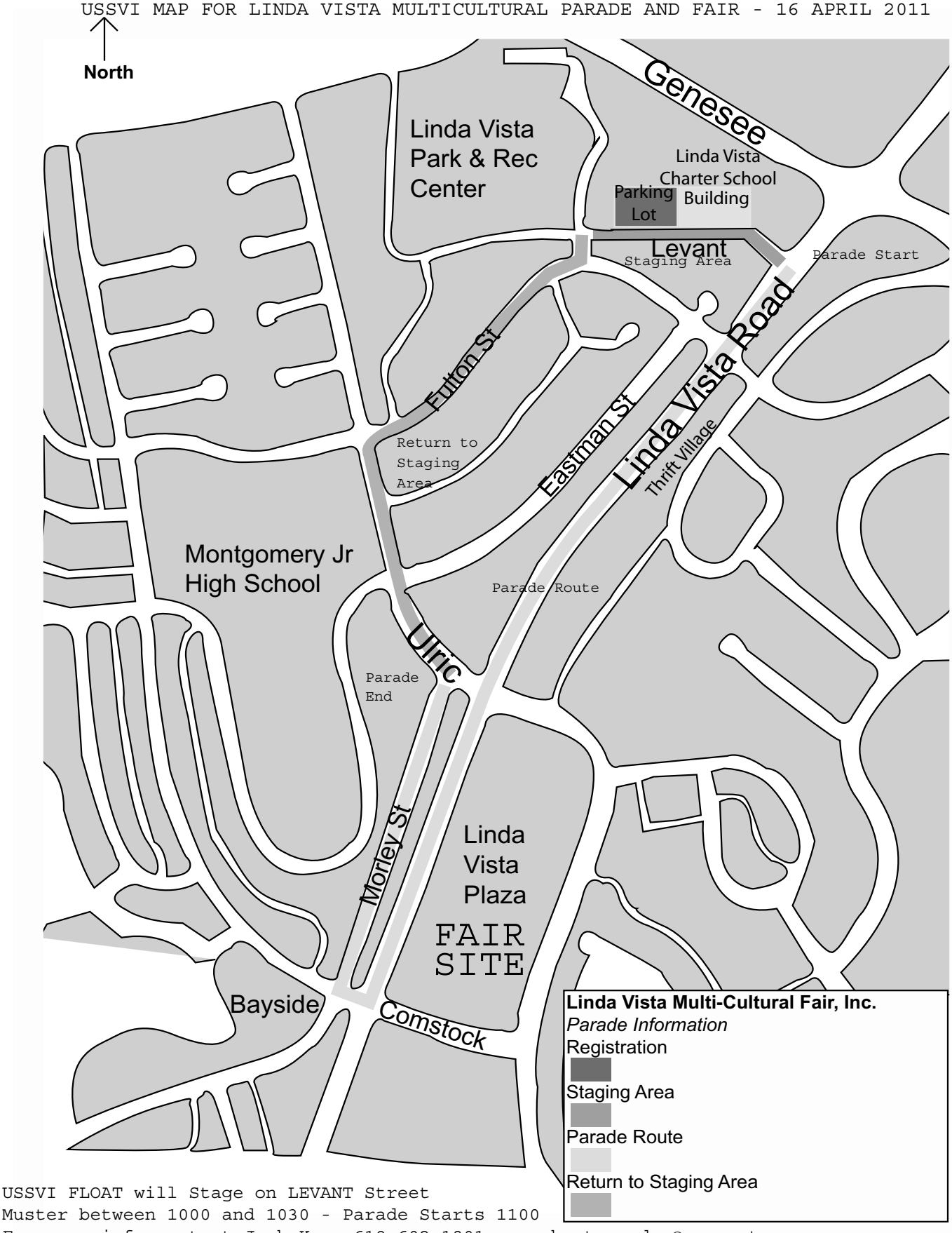
26th Annual Linda Vista MultiCultural Fair and Parade
Saturday, April 16. 2011. Parade starts at 1100 muster at 1000.

La Mesa Flag Day Parade
Saturday, 4 June 2011. Parade starts at 1100 muster at 1000.

Maps for both parades will be available at the next Monthly Meeting and in the April Sentinel.

For more info contact Jack Kane (subvetparades@cox.net) or 619-602-1801.

USSVI MAP FOR LINDA VISTA MULTICULTURAL PARADE AND FAIR - 16 APRIL 2011



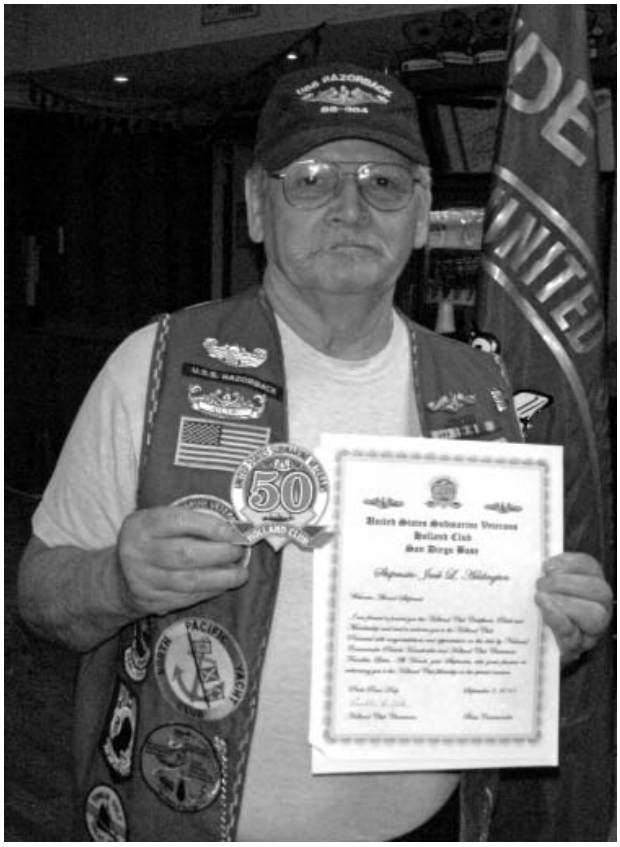
USSVI FLOAT will Stage on LEVANT Street
Muster between 1000 and 1030 - Parade Starts 1100
For more info contact Jack Kane 619-602-1801 or subvetparades@cox.net

HOLLAND CLUB INDUCTEES

Nihil Smith James Potts John Grienenberger Jack Addington

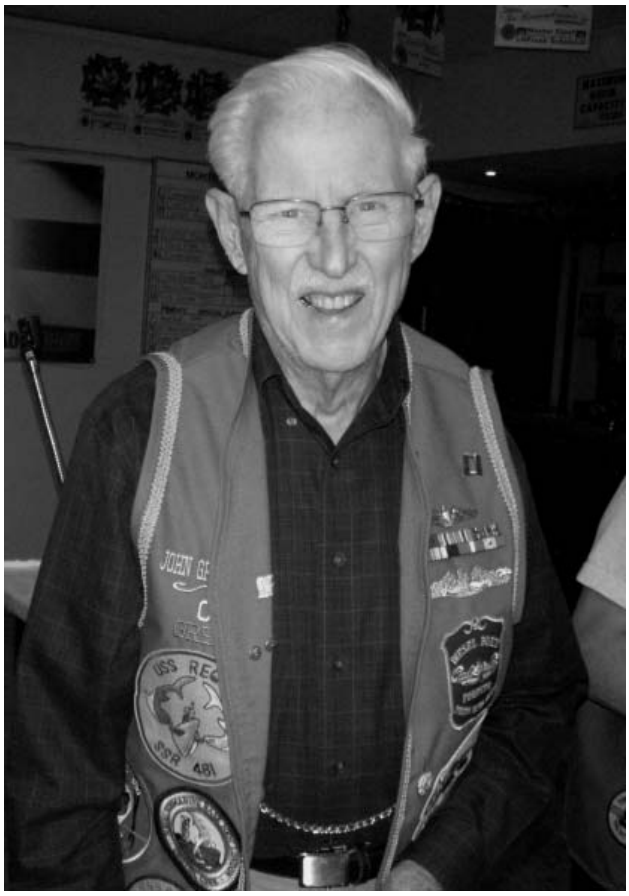
Bill Earl inducting Charles Simmons

Simmons



Addington

Potts



Grienenberger

Smith

Membership Report for March, 2011

New Members: Welcome Aboard to our newest member: Charles Shelby, of Chula Vista, who qualified on USS Florida (SSGN-758) in 1983.Dues Status: 326 members.

Member Notes: As of February, a dozen SD Base members have been dropped by USSVI National from the rolls for non-payment of dues. Another seven have paid National, but not the base, and will become Members At Large (MAL) if I am not notified by at least calling me at 619 264-3327. (The Mailing Label on the last Sentinel to these members stated, in red "B10 DUES" –please check).

Eternal Patrol: On January 22 this year, Gary Carsen, MMCM(SS), of Ramona, went on Eternal Patrol; Gary qualified in submarines on the USS Sea Devil (SS-400) in 1962. Fair winds and following seas, shipmate.

As promised in the November, 2010 issue: "On 11/07/2010, Thomas Matthews ENC(SS) accepted his Eternal Patrol orders in Ewa Beach, Hawaii after a long and painful bout with cancer. Tom signed my Trim and Drain drawing in 1957 aboard Razorback — I'll post a short sea story later."

Here is a vivid and fond memory I hold of Tom:

Once upon a time, when I was a mess cook on Razorback (1957), Mattie (Tom Matthews) was the leading Auxiliaryman. At that time, just above the deep sink used for washing dishes, was a small CRES liquid soap-tank about the size of a large book with a little petcock on the bottom for replenishing dishwater soap. It was the only valve on the ship I was allowed to operate unsupervised as a Non-Qual, but on the last day of a Northern Patrol, I put the petcock valve handle nearly perpendicular to the piping, and a small stream of almost invisible liquid soap meandered down the CRES bulkhead, across the hot/cold water valves, and then trickled into the rinse sink., I eventually noticed more bubbles in the rinse sink than in the dishwater, so I began changing the rinse water more frequently until the COB, who was eating lunch, asked, "You just changed that water when I sat down—how often are you changing it? We're on patrol now so plan on spending a few hours on still watch if you succeed in emptying our fresh water tanks."

About ten minutes later, the duty cook growled, "Change that damn rinse water; can't you see it's soapy?" Since I was a non-rated, non-qual, junior mess-cook—the lowest possible form of human life on a submarine—conflicting orders weren't a big deal to me, so I just sort of compromised.

Later, peeling spuds for the evening meal, I watched Mattie storm past me growling something about a plugged flapper valve in the head, which he had to fix. I looked aft and saw that there were five or six guys waiting for the stools, and he growled at them too. In a few moments, I got a call on the XJA phone, and was told to wake one of the off-duty lookouts to relieve a guy on the bridge who was feeling sick…and then another for a guy on the sticks in Maneuvering Room. When I got back to the mess hall, the XO was whispering to Cookie, who was shaking his head and saying, "No. No Sir, definitely not…Never!" When the XO finished shaking his finger at him, Cookie was mumbling something about being accused of poisoning the crew, which is not a good thing for anybody, regardless of horsepower, to say to a cook.

By the time I'd finished serving supper, all the toilet paper—so carefully counted, weighed, and stowed for the patrol—was gone. Then Playboy Magazines and Louis L'Amore shit-kickers started disappearing, along with all the bales of rags stored in both engine rooms; Mattie was pulling everything from brown lens-paper to old muddy skivvies out of the johns. And of course, since all news on a

submarine eventually passes through the mess hall, I soon learned that we might have to stop the ship and lay-to in order to send divers over the side to free rag-clogged overboard discharge valves on #2 Sanitary Tank before we could dive; there were also rumors of an impending lynching party as soon as enough crew members could venture away from the heads. So, the happy, smiling mess-cook, who'd memorized how everyone on the ship liked his eggs, was suddenly wishing he could flush himself into Sanitary tank to hide. The two days of steaming into Yokosuka were the longest twenty-four hours of my life.

Mattie spent the rest of the WesPac cruise aboard the ship, and then transferred in Pearl to another boat heading west. He was married to a Japanese girl, and said he hadn't been back to the States in years. He never mentioned the soap episode again, but it took five attempts to finally get my Trim & Drain diagram signed off; I don't know if I got special treatment, but you can be sure I knew every valve, switch, kink and curve in the system by then.

Almost fifty years later, I ran into Mattie again at the San Diego Base of USSVI, and enthusiastically asked if he remembered me. He simply said "No." I remembered that he'd served on over a dozen diesel boats in order to stay close to the love of his life, so I did understand. I couldn't muster up the guts to refresh his memory, but I wish I had—I think he'd probably have laughed, and then asked me a T&D question.

As always, if you know anyone who has financial (or health) difficulties, let me know, and we'll work something out discretely.
Fraternally,
RonG

USS Providence Is Known For Being Where The Action Is

Submarine's ex-skipper recalls strikes against Taliban; now it's Libya
By Jennifer McDermott, The Day, March 29, 2011

The crew manned their battle stations. "Commence launch," the commanding officer of the USS Providence ordered.

The Tomahawk cruise missile left the launch tube. The ship shook. The floor dropped.

Breaking through the water's surface, the missile illuminated the night sky. It looked like daylight to the sailor watching from the periscope during the October 2001 strike into Afghanistan.

That was less than a month after the Sept. 11 attacks, when the Groton-based submarine was firing the opening shots from the Persian Gulf in the war against the Taliban.

Ten days ago, the Providence fired Tomahawks into Libya on the first day of the missile assault on the North African country to support a no-fly zone.

"They've always been where the action is," said retired Capt. Scott B. Bawden, who led the Providence (SSN 719) at the start of the war in Afghanistan.

Bawden described launching missiles into Afghanistan on Monday to give insight into the submarine's recent actions off the coast of Libya. The standards for combat operations in the Submarine Force have stayed fairly similar over time, he said.

Bawden oversaw the launch of 27 missiles into Afghanistan over three weeks in October 2001. His superiors told him it was the "first true combat patrol of the modern age."

The submarine left Groton in April 2001 for what was supposed to be a six-month deployment to the Mediterranean and Persian Gulf. While it was on its way home, terrorists attacked the World Trade Center and the Pentagon.

The leaders on the sub marveled at a brief message bearing the news, not quite sure what to make of it since they couldn't see a television or listen to the radio. Then their training kicked in, Bawden said.

"They didn't need me to say, 'Get organized, we need to go to war,'" he said. "Ashore, there was a lot of confusion over who should go where and do what. We were able, within the confines of the ship, to determine where we needed to go and tell the bosses that this is what we propose doing."

The Providence made a U-turn in the Indian Ocean.

At the time, some of the crew did not know the whereabouts of their relatives and friends in New York City and Washington, D.C. But, Bawden said, they couldn't allow that to distract them from the mission at hand.

"This was America's response to that tragic act. The ability to be involved was big in everyone's thinking- the president decided on a military response and he was relying on us to do a good job here," he said, adding that the crew later learned their loved ones were safe.

After the first missile was launched, there were no high-fives, no bravado. Everyone was professional and focused, Bawden said.

Typically, the submarine received information about a target, then there was time to plan where the missiles should fly, and how fast, to hit multiple places at the same time for maximum effect. On one occasion, the missiles had to be launched immediately.

"Everyone said we couldn't do it," Bawden said. "From the time we got the targeting data until the missiles were airborne was less than 10 minutes. We destroyed the targets for the battle-force commander before they could move and we took those guys out of the game. You get good at it after you've done it a few times."

Bawden saw the before-and-after aerial photos of the Afghan targets. He can't discuss what they were aiming at but he did say that the before view showed "something," and after there was "just nothing."

For his role in combat operations, Bawden was awarded the Bronze Star. The Providence received the Meritorious Unit Commendation and the Navy Unit Commendation. Bawden's successor on the Providence oversaw the launch of 23 missiles at the start of the war in Iraq.

American and British ships and submarines began the strikes on Libya after Libyan leader Moammar Gadhafi continued his attacks on Libyan rebels instead of implementing a cease-fire. As of Monday, the number of Tomahawk cruise missiles launched was close to 200, seven of which were from coalition partners.

Today's Providence, Bawden said, "is doing business exactly the same way we did it then."

Bawden, who retired in 2007, now lives in Washington State and works for a defense contractor. He's proud that the Providence is always there when needed, he said, and "always seems to be called upon when there's hard work to be done."

5 Washington Peace Activists Get Prison For Weapons Protest At Sub Base

Boston.com, March 29, 2011

TACOMA, Wash. — Two priests, a nun, and two other women in their 60s who cut through fences at Naval Base Kitsap-Bangor to protest submarine nuclear weapons were sentenced yesterday to prison terms ranging from two to 15 months.

US District Judge Benjamin H. Settle sentenced Jesuit priest Stephen Kelly, 61, of Oakland, Calif. and retired teacher Susan Crane, 67, of Baltimore to 15 months in prison, the News Tribune reported.

Jesuit priest Bill Bichsel, 82, of Tacoma, was sentenced to three months in prison and three months' home monitoring. Anne Montgomery, 84, a nun from Redwood City, Calif., got two months in prison and four months' home monitoring, and social worker Lynne Greenwald, 61, of Tacoma, got six months in prison.

The judge ordered Kelly to be taken to prison immediately. Settle was going to allow the other defendants to report to prison next month, but when they told the judge they might not show up, he ordered them to be taken to prison immediately.

In December, a federal jury convicted the demonstrators of conspiracy, trespass, and destruction of property. Prosecutors recommended sentences of six months to 36 months.

Court documents say the group cut through fences on Nov. 2, 2009, to reach an area near where nuclear warheads are stored in bunkers. The protesters put up banners, sprinkled blood on the ground, scattered sunflower seeds, and prayed until they were arrested.

About 250 demonstrators gathered outside the courthouse before the sentencing, some carrying signs saying "Blessed are the Peacemakers."

U.S. Navy Sub's Broken Oxygen Maker No Big Deal

By Christopher P. Cavas, Defense News

The failure of the oxygen generator aboard one of the U.S. Navy's newest submarines is not a major casualty, according to the service. "U.S. Navy submarines employ redundant systems that provide safe and operationally suitable environments for their crews," the Naval Sea Systems Command (NAVSEA) said in an emailed statement. "At no time was there any elevated risk for the crew of the submarine." The submarine New Hampshire, a Virginia-class nuclear powered attack boat that entered service in the fall of 2008, was approaching a floating ice station north of Prudhoe Bay, Alaska, on March 19, when its oxygen generator failed. The submarine switched to its backup system - oxygen-producing sodium chlorate candles - and continued operations, according to NAVSEA.

New Hampshire, along with the Seawolf-class submarine Connecticut, was taking part in Ice Exercise 2011 (ICEX), working with the Applied Physics Laboratory Ice Station built on an ice floe in the Beaufort Sea.

A sailor onboard the New Hampshire was also suffering from appendicitis, and the submarine surfaced in shallow ice to evacuate him.

ICEX routinely attracts a stream of VIP visitors, and Navy Secretary Ray Mabus was on hand at the station to witness the Connecticut surfacing through the ice cap. The Navy secretary had been scheduled to visit the New Hampshire, as well, but did not because the submarine surfaced earlier than planned and farther away from the scene.

As reported by a Reuters reporter who visited the submarine, New Hampshire also suffered from condensation that dripped water on sensitive equipment. Plastic sheets were rigged over the equipment to protect it, according to the reporter. "The submarine incurred other minor habitability issues relating to temperature and humidity levels," NAVSEA said March 24. "These issues have been addressed and also do not affect the safe operation of the submarine." The failed oxygen generator is known as an Integrated Low Pres-sure Electrolyzer (ILPE) and is made by Hamilton Sundstrand, a subsidiary of United Technologies, Hartford, Conn. With the vessel unable to fix the ILPE, technicians were dispatched from Hamilton's base in Windsor Locks, Conn., according to company spokesman Dan Coulom.

The technicians arrived at Prudhoe Bay late March 24, according to Kevin Copeland, spokesman for the Atlantic Fleet Submarine Force. They flew to the ICEX base the following day, and were to be helicoptered to the sub March 26.

The oxygen generator aboard Virginia-class submarines is a low-pressure system introduced with that class, according to the Navy. Earlier U.S. submarines use a high-pressure generator.

The system is considered very reliable, according to a number of Navy and industry sources. This may be the first instance of a sustained failure of an ILPE.

The Navy took pains to point out that the oxygen-generating system onboard the submarine is different from that used onboard the British submarine Tireless during an earlier ICEX. Two sailors were killed March 21, 2007, by an explosion when similar candles were used on the boat.

An investigation later revealed that the Self-Contained Oxygen Generators used on Tireless could have come from a batch once sent to a hazardous waste dump and then returned to the British Royal Navy.

"While both the Royal Navy and U.S. Navy submarines use sodium chlorate candles to produce oxygen, they are not identical systems," NAVSEA said. "Aboard U.S. submarines, candles are burned in a specially designed furnace only after being removed from the shipping container and inspected by the ship's crew to ensure that they are in proper working order.

"The Royal Navy utilizes a system called the Self Contained Oxygen Generator, and burns the candles within the shipping container, not a furnace," NAVSEA said. "After the accident aboard HMS Tireless, the U.S. Navy conducted extensive testing to ensure the safety of the U.S. system and deter-mined that if a similar incident occurred on a U.S. submarine, the furnace would safely vent the resultant energy." The Royal Navy made several changes in its system as a result of the Tireless explosion.

Virginia-class submarines use two furnaces to burn the sodium chlorate candles. The ship's ventilation system easily distributes oxygen around the submarine, said one retired submarine commander. Although a sustained oxygen generator failure is not normal, use of the candles aboard a submarine is fairly routine, according to a number of U.S. Navy sources. Generators are shut down for maintenance and sometimes for operational reasons, the retired commander said, as well as for training.

"They do a great job putting out oxygen. They work like a champ," he said. "They're a good backup source for oxygen. Ships have been using them forever." The candles have been in use for about 50 years, according to NAVSEA, but the retired commander added that they produce a fine dust that has to be cleaned around the sub.

Submarines can operate for prolonged periods using the candles, the Navy said. New Hampshire is carrying enough candles to make it back to its base in Connecticut if need be, and if the submarine can surface or come up to periscope depth, it can be ventilated.

Exclusive:U.S. Submarines Show Force Amid Race For Arctic Riches

By Andrea Shalal-Esa, Reuters, March 25, 2011

APPLIED PHYSICS LABORATORY ICE STATION, Arctic Ocean, March 24 (Reuters) - The United States is staging high-profile submarine exercises in the Arctic Ocean this month as evidence mounts that global warming will lead to more mining, oil production, shipping and fishing in the world's last frontier.

Pentagon Comptroller Robert Hale, Navy Secretary Ray Mabus and a Who's Who of other VIPs braved below-zero temperatures this month to visit a temporary camp on the ice about 150 miles north of Prudhoe Bay, Alaska, where two nuclear-powered U.S. submarines are conducting military training exercises.

"It is important for us to continue to train and operate in the Arctic," said U.S. Navy Captain Rhett Jaehn, the No. 2 official overseeing U.S. submarine forces.

He said U.S. submarines are a powerful symbol of U.S. military power, and the training was meant to ensure that the United States maintained access to the Arctic, home to the world's largest undiscovered oil and gas reserves.

"It is a key potential transit line between the Atlantic and the Pacific. We want to be able to demonstrate that we have global reach. That we can operate in all oceans, and that we can operate proficiently in any environment," Jaehn said.

Russia, the United States, Denmark, Greenland, Canada and Norway, which border the Arctic, and China are already jockeying for position to benefit from new business opportunities there.

Navy scientists predict the Arctic will have one ice-free summer month in about the mid-2030s, and two to three ice-free months by around mid-century. Less ice means the 56-mile wide Bering Strait between Russia and Alaska could one day compete with the Persian Gulf and other shipping lanes because it is as much as 40 percent shorter than conventional routes.

Changing ice conditions in the Arctic are expected to lead to greater commercial traffic, increasing the need for submarine and Coast Guard patrols.

The Navy's chief oceanographer, Rear Admiral David Titley, who visited the camp last week, said just finding a thick enough multi-year ice sheet to put the camp was difficult this year.

First-Person Account of Powering Up One of the World's First Nuclear Reactors

By Alexis Madrigal, The Atlantic, 22 March 2011

Commander E.E. Kintner was the project officer for the world's first nuclear reactor to produce a useful amount of power. The Submarine Thermal Reactor was constructed in the desert of the Snake River plain, fifty miles west of Idaho Falls, Idaho. It was the prototype for the naval propulsion systems that came later, and became the patterning design for the world's nuclear power plants.

In my introduction to this section of the Future of Energy special report, I argued that researchers settled on a design too soon as they rushed to make nuclear power work for the government and industry. Kintner's account of building and testing that first reactor under the hard-driving supervision of H.G. Rickover is a fascinating account of daredevil engineering that demonstrates the uncertainty and contingency of the entire enterprise. It also shows how much the design of the reactor was driven by the particular use to which it would be put: driving submarines around the ocean for the Navy.

The takeaway is: If the high-risk tests described below had failed, we don't know how the technological path of nuclear power may have been affected. Given that there were dozens of proposed reactors with different characteristics, it's certainly possible that a different, possibly better reactor design may have come to the fore.

We now bring you the first-person account, which ran in the January 1959 issue of The Atlantic, and which has never been digitized. Kintner has just finished reciting the litany of issues that were unresolved when the construction of the plant was completed, namely, safety, overheating, lubrication with water instead of oil, and the life of the core. When they switched the reactor on, they were flying in the scientific dark:

These and many other serious problems remained unanswered when in late May, 1953, construction of Mark I was completed.

The pumps and valves and heat exchangers, turbines, electrical generators, thermometers, control panels — all the many hundreds of items which made up the complex and interrelated systems of the plant — had been mechanically and electrically tested until they were as nearly perfect as they could be made. The crews had practiced for a week at carefully opening the main turbine throttle from an oil-fired boiler so as to disturb the reactor as little as possible. They were rehearsed in casualty drills, and STR Mark I was ready for an attempt at power operation.

Captain Rickover, who had followed preparations on an hourly basis, flew to Idaho in company with Atomic Energy Commissioner Thomas E. Murray, a man who ahd contributed much support to the Navy's nuclear propulsion program and who was to have the honor of opening the turbine throttle valve, admitting steam generated by a power reactor into a turbine for the first time. Murray knew that eight years had passed since Hiroshima and that, except for the Navy's program, no U.S. atomic power project was anywhere near fruition. He knew also that the Navy and the AEC were committing almost one quarter of a billion dollars to the project was success was now to be determined.

That first operation was amazingly successful. After a two-hour run, during which power levels of several thousand horsepower were achieved, the reactor was shut down. Six years of study, organization, planning, conniving, fighting for funds, building laboratories, manipulating people, developing new materials and devices had paid off. The first day of Mark I had surprised its most optimistic proponents.

There were many happy people in the Idaho desert the night of May 31, 1953. The happiest was Captain Rickover, who had had the vision, constantly forced the program against opposition, and provided the technical judgment to steer it through areas far beyond those previously known.

Then followed a month of careful, precise building up in power level. Test operations went on night and day, seven days a week. Power was increased in small steps. What could happen on these increasing steps could only be conjecture until the trial run had been completed. Every man at the desert site knew the danger associated with each increase in power.

The first feasibility question to be answered affirmatively was that of safety. Mark I turned out to be a calm and stable machine and even when treated roughly, as its inexperienced operators often treated it, showed no tendency to become an atomic bomb. There was no indication of any dangerous overheating in the reactor fuel elements. The shield designers were surprised to find that radiation levels were less than half of those which they had calculated, indicating that the Nautilus could easily carry her radiation shield. As additional physics data became available, the estimate of reactor life was greatly increased.

The major difficulty was with the numerous safety circuits, any one of which could cause the reactor to shut down suddenly. These circuits were meant to be extremely tender in their operation; they were, in fact, so sensitive as to provide a serious difficulty to the operators. A submarine propulsion plant not capable of operating without emergency shutdowns under sea motion and depth-charge attack would not be satisfactory, yet the Mark I had a constant plague of "scrams" from such slight causes as vibration from a crew member's walking through the reactor compartment or a bolt of lightning striking a Montana power line three hundred miles away.

As the crew gained operating experience, and as additional information was obtained concerning safety, the number of signals causing "scram" was selectively reduced to less than twenty. By this means, and by intensive crew training, the problem was licked. As a result, the Nautilus experienced very little difficulty of this sort.

On June 25, 1953, full design power was reached. Not one part of the plant indicated failure to meet the rigid specifications. In less than a month after power generation by the world's first nuclear power plant, Mark I was running smoothly at its maximum rating. The one remaining question was whether the machinery could withstand long high-power running.

The operating crews began a forty-eight-hour test at full power to obtain important physics information. At the twenty-four-hour point the data obtained seemed sufficient, and the engineers intended to shut down the plant. Rickover, who was at the site, inadvertently learned of this plan and immediately overruled it. He had visualized that if the forty-eight-hour run turned out well, they should continue on a simulated cruise across the Atlantic. He reasoned that such a dramatic feat, if successful, would end the doubts in the Navy that nuclear power was a feasible means for propelling ships. It would give the project the momentum and breathing space needed to carry on the development without constant harassment until the Nautilus could get to sea.

I was the senior Naval officer at the site. I felt that extension of the run was unwise considering the many uncertainties, and told Rickover that beyond forty-eight hours I could not accept responsibility for the safety of the $30 million prototype. Rickover directed me to proceed with the simulated voyage.

Charts of the North Atlantic were posted in the control room and a great-circle course to Ireland plotted. The position of the ship after each four-hour watch was computed and marked on the chart. For watch after watch, the course ploted in the control room crawled toward Ireland. No submarine had covered more than twenty miles submerge at full speed. A propulsion unit, even for a surface ship, need steam only four hours at a full power to obtain acceptance for Naval use.

At the mid-point of the Atlantic crossing, the operation seemed ot be going well. As one of the Nautilus crew members standing watch in the hull state, "She just sits there and cooks." A veteran marine engineer, familiar with the large quantities of fuel oil which would have been required to drive a ship so far with a conventional propulsion plant, pointed to the propeller shaft and then to the reactor and said, "So much comes out back here, and nothing goes in up there!"

At the sixtieth hour, however, difficulties began. Carbon dust from the brushes depositing in the windings caused difficulty in the vital electrical generating sets. Nuclear instrumentation, operating perfectly at the beginning of the run, became erratic, and the crews could not be sure what was happening within the reactor core. One of the large pumps which kept the reactor cool by circulating water through it began making a worrisome, intermittent whining sound. We had not had any check on "crud" build-up; we feared that heat transfer would be so reduced by this point that the core would burn up. The most pressing problem, however, was caused by the failure at the sixty-fifth hour of a tube in the main condenser into which exhausted turbine steam was being discharged. Steam pressure fell off rapidly.

The Westinghouse manager responsible for the operation of the plant strongly recommended discontinuing the run. In Washington, the technical directors of the Naval Reactors Branch was so concerned that he called a meeting of all its senior personnel, who urged Rickover to terminate the test at once. But the Captain was adamant that it should continue until an unsafe situation developed. "If the plant has a limitation so serious," he said, "now is the time to find out. I accept full responsibility for any casualty." Rickover had twice been passed over by Naval selection boards for promotion to Rear Admiral. As a result of congressional action, he was to appear within two weeks for an unprecedented third time. If the Mark I had been seriously damaged, Rickover's prospects for promotion and his Naval career were ended.

The tensions surrounding the test increased the challenge to the crews, and as each watch came on duty it resolved it would not be responsible for ending the run prematurely. Crew members worked hard to repair those items which could be repaired while the plant was in operation.

Finally, the position indicator on the chart reached Fastnet. A nuclear-powered submarine had, in effect, steamed at full power non-stop across the Atlantic without surfacing. When an inspection was made of the core and the main coolant pump, no "crud" or other defects which could not be corrected by minor improvements were found. It was assured that the Nautilus could cross an ocean at full speed submerged.

A month after nuclear power was first produced, the most doubting among those who had participated in the STR project knew that atomic propulsion of ships was feasible, that it was only a matter of time before the technology developed for Mark I would bring about a revolution in Naval engineering, strategy, and tactics. We knew, too, that industrial nuclear power could be built on the same technological foundations. The Pressurized Water Reactor at Shippingport, Pennsylvania — the world's first solely industrial power reactor — was in fact developed from STR experience under Admiral Rickover's direction.

To those of us who had participated in the STR project, who knew how many chances were taken, how far previous engineering knowledge had been extrapolated, the fact that all the unknowns had turned out in our favor was a humbling experience. Rickover, paraphrasing Pasteur, put it this way: "We must have had a horseshoe around our necks. But then Nature seems to want to work for those who work hardest for themselves."

STR Mark I is now a flexible facility providing much of the experimental information for the Navy's nuclear propulsion program, which today includes thirty-three submarines, a guided missile cruiser, and the first nuclear-powered aircraft carrier. It provides the practical training for all the hundreds of officers and enlisted men wh will man our nuclear fleet. The courage, the will, the judgment and resourceful which went into STR Mark I have made the United States Submarine Nautilus an outstandingly successful venture in man's long struggle with nature.

A New Wave Of Russian SSGNs

StrategyPage.com, 23 March 2011

The Russian navy believes it has government support to build ten of the new Graney class SSGN (nuclear powered cruise missile sub). The first one recently received its crew and began testing. Russia had originally planned to build 30 Graneys. The 9,500 ton Graneys carry 24 cruise missiles, as well as eight 650mm (25.6 inch) torpedo tubes. Some of the cruise missiles can have a range of over 3,000 kilometers, while others are designed as shorter range "carrier killers." The larger torpedo tubes also make it possible to launch missiles from them, as well as larger and more powerful torpedoes. The ship is highly automated, which is why there is a crew less than half the 134 needed to run the new U.S. Virginia class boats. The Graney design is based on the earlier Akula and Alfa class SSNs.

Russian submarine building has been on life support since the Cold War ended in 1991. Many subs under construction at the end of the Cold War were cancelled, and the few that avoided that fate, spent a decade or more waiting for enough money to get finished. The Graney's got lucky.

Two years ago, construction began on a second Graney class SSGN. Previously, the navy planned to build only six boats of this class by the end of the decade, but now ten are planned by the end of the decade. Construction of the first Graney class boat, the Severodvinsk, began in 1993, but lack of money led to numerous delays. Originally, the Severodvinsk was to enter service in 1998. Work on the Severodvinsk was resumed seven years ago. If work is not interrupted, the second Graney class boat should be ready in less than five years.

During the Cold War, Russian pioneered the development of SSGNs (particularly the Charlie class boats), and the U.S. responded by adding cruise missile launch tubes as standard equipment on its SSNs.

Navy To Axe 'Fukushima Type' Nuclear Reactors From Submarines

Reactors sharing similar design to ones at Japanese plant to be dropped because they fail to meet safety standards

By Severin Carrell, The Guardian, 23 March 2011

The Royal Navy is to drop a dangerous type of reactor used in its existing nuclear submarines because it fails to meet modern safety standards, defence ministers have disclosed.

A safer type of reactor is expected to be used in the submarines that will replace the Trident fleet, as the existing design shares very similar features to the nuclear reactors involved in the Fukushima Daiichi disaster in Japan.

Liam Fox, the defence secretary, told MPs there was a "very clear-cut" case to use the new type of reactor because it has "improved nuclear safety" and would give "a better safety outlook".

A heavily censored Ministry of Defence report disclosed earlier this month by the Guardian and Channel 4 News said the current reactors are "potentially vulnerable" to fatal accidents, which could cause "multiple fatalities" among submarine crews.

The report, written by a senior MoD nuclear safety expert, Commodore Andrew McFarlane, said the existing type compared "poorly" with those in the most modern nuclear power stations because it relied on a vulnerable type of cooling system, falling "significantly short" of modern best practice for nuclear reactors.

McFarlane warned that the naval reactors are "potentially vulnerable to a structural failure of the primary circuit". An accident could release "highly radioactive fission products", posing "a significant risk to life to those in close proximity and a public safety hazard out to 1.5km [1 mile] from the submarine".

Known as the PWR2, this type is used in the four Trident submarines based at Faslane, near Glasgow, and six Trafalgar-class ones now being taken out of service. Like the Fukushima power station north of Tokyo, the PWR2 relies entirely on back-up power supplies to provide emergency cooling in the event of an accident.

Despite the anxieties about its safety, PWR2s are also being fitted in the seven Astute-class submarines being built. These vessels will also be based at Faslane.

There have been debates within the MoD and the navy about whether the PWR2 should be used if a replacement to Trident is finally approved – or if a safer type, PWR3, should replace it. The PWR3 uses "passive" cooling, which makes it far less reliant on back-up power, and has additional methods of injecting coolant into a reactor.

The PWR3 is widely used in modern US nuclear submarines. The debate has delayed a decision on what type of reactor to install by 18 months, McFarlane's report disclosed, and has cost a further £261m.

Fox was questioned in the Commons on the reactor's safety by Angus Robertson, the Scottish National party's defence spokesman, after the disclosure of the report. Fox said: "The government's view is that that is the preferred option, because those reactors give us a better safety outlook. That is a debate on both sides of the Atlantic, but we believe that in terms of safety, the case is very clear-cut."

Robertson said: "This still raises concerns about the currently operational and incoming nuclear submarines, which don't satisfy acceptable safety standards. The UK should give up its nuclear obsession."

John Ainslie, from the Scottish Campaign for Nuclear Disarmament, who uncovered the original McFarlane report, said the new reactor would push up costs for the Trident replacement fleet by billions of pounds, since it would need designing and testing.

"There is another option: they should completely abandon their plan to squander billions on new nuclear submarines," he said.

Hero grapples with killer gunman on nuclear sub: Councillor fells sailor who shot one officer dead and wounded another

By Stephen Wright, Ian Drury and Chris Greenwood
UK Mail Online, 8 April 2011

Mayor and Southampton City Council chief exec on board during tragedy
Royal Navy serviceman arrested for shooting of two colleagues
Defence Secretary Liam Fox 'greatly saddened' by 'tragic incident'

A deadly gun rampage on a nuclear submarine ended when the killer was overpowered by a council leader visiting the vessel.
Royston Smith was in the control room with fellow dignitaries when the renegade sailor opened fire with an assault rifle, killing one officer and seriously wounding another. Last night the 46-year-old described the extraordinary scenes on HMS Astute, a £1.2billion attack submarine.

A guy appeared in his gear,' he said. 'He had all his body armour and camo on and was carrying a weapon, not a handgun, an SA80.
'The first two shots I heard, I didn't see. Three and four were reasonably close. Fortunately most people were out of the way.
'He was stood in the doorway. I was about five yards away. I didn't think about it but took a decision that if I didn't stop him I might get hit or other people might get hit.

'I just charged at him, and pushed him against the wall. I got hold of his weapon and had a tussle.'
Mr Smith, who served in the RAF as a mechanic, said the gunman made no noise during the struggle.
'I was shouting a bit. That wasn't successful so I threw him, charged him against the other wall,' he added. 'I managed to pull the rifle away from him.
'In the first tussle he let off shot number five. I felt something but it didn't hurt. There were about five or six shots in total.
'I took the gun and threw it to my left under a table out of his reach.'
Schoolchildren – aged 14 to 16 and on a visit to the vessel in Southampton Docks – ran for cover when the shooting broke out.

The dead man is Lieutenant Commander Ian Molyneux, the submarine's weapons engineering officer and a father of two who was in his thirties. He was due to transfer to the Navy's second Astute class sub, HMS Ambush, and was second in rank to the submarine's commander.
The wounded man was named last night as Lt Cdr Chris Hodge,
The man accused of firing the shots is believed to be able seaman Ryan Donovan, 22. He was under arrest last night and is said to have snapped after being refused shore leave.
Mr Smith, a Tory who became leader of the city council last year, added: 'People were in shock. Most people didn't do anything but we only had seconds. I wasn't going to take it lying down.
'I don't feel like a hero. I rather wish it had never happened. The naval officers had been shot so they weren't in a position to do anything. They weren't in a good state. I'm just lucky that I got to come home tonight because some of those guys won't.'
Mr Smith was on board with city mayor Carol Cunio and council chief executive Alistair Neill. They all escaped injury.
The Ministry of Defence confirmed the shooting was not related to terrorism.
A security review will now examine the case for tighter controls on those allowed to carry weapons on nuclear-powered submarines.

The gunman's psychiatric state will also be examined. Police plan to speak to 30 witnesses to the midday incident. Last night Alec Samuels, a Tory councillor, told the Daily Mail: 'I've heard that Royston Smith helped to overpower the gunman.
'I'm not surprised because he is an extremely energetic and courageous fellow. That is exactly how I would expect him to respond.
'He has been keeping fit by climbing mountains to raise money for injured British soldiers coming back from overseas conflicts.
'This would have stood him in good stead. In fact, I would have been very surprised if he had done nothing on that submarine.'
Armed police, firemen, paramedics and the Hampshire and Isle of Wight Air Ambulance helicopter were sent to the dockside where the submarine had been berthed since Wednesday.
The vessel had been due to stay in the port for five days, on a public relations mission. Brian Cedar, who lives at the city's marina, said: 'I saw at least six people carry a stretcher off the gangway into a waiting ambulance.
'If you can have a shooting like this on a nuclear submarine it is worrying.'
A 50-year-old dock worker said: 'The whole place just filled with police and we thought it might be a nuclear incident.'
Senior Royal Navy officer, Captain Phil Buckley, who is in charge of nuclear submarines based at Faslane in Scotland, said last night: 'The submarine is in an entirely normal and safe state. There is no nuclear incident taking place.'

Hampshire Police spokesman Alan Smith said: 'There were a number of naval personnel plus visitors on board at the time of the shooting.
'What happened forms part of the investigation which is at a very early stage and everyone who was on board is a potential witness.

'There were around 11 children aged 14 to 16 on the quayside when the incident occurred and they were aware of what happened but left soon after. They are being offered support if needed.'
HMS Astute had been scheduled to host visits from Sea Scouts and school and college pupils from Southampton and the New Forest.
Defence Secretary Dr Liam Fox said: 'I am greatly saddened to hear of this incident and of the death of a Royal Navy service person in this tragic incident.
'It is right and proper that a full police investigation is carried out and allowed to take its course.
'My thoughts and sympathies are with those who have been affected and their families.'
Astute hit the headlines when it ran aground on a shingle bank between the Scottish mainland and the Isle of Skye and remained marooned for several hours.
The embarrassing incident in October last year cost Commander Andy Coles his command of the submarine.
He was replaced by Commander Iain Breckenridge.

Trident More Effective With US Arming Device, Tests Suggest
Tests Have Implications For UK Role In Future Disarmament Talks And Raise Questions About Independence Of Nuclear Missiles
The Guardian, April 6, 2011

Successful tests have been carried out in the US on a new warhead firing system to arm Britain's nuclear missiles, making them more accurate and more capable.

The move underlines the extent to which Britain's Trident system is dependent on the US, and it could have serious implications for Britain's role in any future disarmament negotiations, military analysts and experts on British and US nuclear weapons say.

The tests on an upgraded nuclear warhead component, called W76-1, to arm Britain's Trident missiles have been disclosed by Sandia National Laboratories in the US. "The first W76-1 United Kingdom trial test" provided data "critical to the UK implementation of the W76-1", according to a report in the latest issue of Sandia's official publication, Labs Accomplishments.

Defence sources admit that the new arming device would make Britain's nuclear missiles more accurate and more effective.

The Ministry of Defence has always been reluctant to comment publicly on plans to equip Britain's Trident missiles with US components. It describes the new US firing system fuse as a "non-nuclear part" of the warheads but insists that the nuclear warheads themselves are British designed and built. The submarines are designed in Britain but the Trident missiles are leased from the US.

US navy officials say the upgraded American firing mechanism would make Trident missiles more effective against "hard targets". British defence officials privately agree.

Such comments suggest "a significant improvement of the military capability of the weapon", Hans Kristensen, director of the Nuclear Information Project at the Federation of American Scientists, said. "The fuse upgrade appears to be modernisation through the back door," he added.

Nick Ritchie, an expert on Trident and research fellow at Bradford University's Department of Peace Studies, said Sandia's revelations "underline the extent to which the UK's nuclear weapons programme is fully integrated with the US programme, reinforcing our technical, political and financial nuclear dependency and a fuzzy, at best, notion of being an independent nuclear power." A new US arming, fusing, and firing system that controls the detonation of the warhead, combined with the high accuracy of Britain's Trident warheads will allow the UK to threaten hard targets such as underground bunkers, Ritchie added.

He said the US programme would extend the service life of Trident warheads by 30 years.

The government was first questioned about the new US components for Britain's Trident missiles in 2007 by Nick Harvey, the Liberal Democrat defence spokesman and now armed forces minister. Des Browne, then defence secretary, told him: "I am not prepared to discuss the detailed performance characteristics of our nuclear weapons."

The government is particularly sensitive about the Trident nuclear warhead upgrade as it could be seized on by non-nuclear states in any forthcoming international disarmament talks.

The disclosures come at a time when discussions about how to replace the existing Trident system is causing severe strains within the government.

Liam Fox, the defence secretary, insists the existing fleet of four submarines must be replaced like-for-like and Britain must persist with a continuous at-sea deterrent (CASD) – that is, having one nuclear-armed submarine on patrol every day of the year.

Harvey told the Guardian earlier this year that alternatives did not seem to have been given detailed or objective assessments. "The debate has been very much yes or no to this single notion of how a credible deterrent can be provided," he said.

No date has yet been fixed for the "initial gate" decision on the design of the new Trident submarine fleet. The MoD first said it would be announced in December. One of the problems is what kind of nuclear reactor would propel the submarines. The choice is between the existing pressurised water (PWR2) reactor of the kind used in the navy's Astute-class conventionally armed submarines and a new PWR3 reactor of US design.
A decision about the final makeup of a successor to the existing Trident system has been put off until after the general election, due in 2015. The MoD was unable to immediately respond to Sandia's disclosures or their significance.

N.Korea Steps Up War Games Near Border
Channel News Asia, April 7, 2010

SEOUL: North Korea has intensified submarine drills near the tense Yellow Sea border with South Korea, putting Seoul defence officials on alert, a report said Thursday.

JoongAng Ilbo newspaper, citing a Seoul military source, said the North had been staging exercises involving five or six submarines at the Bipagot submarine base on its west coast since last month.

They feature the signature 325-tonne submarines as well as the new and bigger Shark-class submarines called K-300, it said.

"It's highly unusual for them to beef up submarine drills in March so we're intensely monitoring the situation," said the source.

Pyongyang has also started moving its military hovercraft from the northwest to a new naval base near the border to be completed in June, said another source quoted by the paper.

The new base at Koampo will make it possible for the North's troops to land via hovercraft on the South's border islands within 30 minutes, it said.

Seoul's defence minister said Tuesday the North may attempt surprise attacks across the sea border after practising marine infiltration drills.

Kim Kwan-Jin told lawmakers the drills began after the ice started to thaw. He warned of the possibility of "various types of surprise local provocations".

The disputed Yellow Sea border was the scene of deadly naval clashes in 1999, 2002 and November 2009.

The South also says a North Korean submarine fired a torpedo to sink one of its warships in March 2010 near the borderline, with the loss of 46 lives.

Pyongyang denies that attack.

Last November, North Korea shelled a border island, leaving four South Koreans including two civilians dead and briefly sparking fears of war.

Bribery Probe In Greek Submarine Purchase
Macedonia International News Agency, April 6, 2011

A prosecutor has determined that three former Greek defense ministers are investigated over the purchase of three submarines for the navy.

Supreme Court deputy prosecutor Athanasios Katsirodis said details should be sent on to Parliament.

Prosecutors have called a total of 37 people, including high-ranking members of the armed forces and businessmen, to answer questions about allegations of bribery linked to the purchase of the four submarines.

Greece ordered the Type 214 diesel-electric submarines, manufactured by ThyssenKrupp in Germany, between 2001 and 2005 in a deal worth $1.8 billion.

Investigators allege the bill was inflated, allowing for more under-the-table payments to be made, by the navy and Defense Ministry asking for the submarines to be fitted with a variety of extra equipment.
Yiannos Papantoniou, Spilios Spiliotopoulos and Vangelis Meimarakis were defense ministers during the period in question.

Netanyahu To Revive Bid For Discounted German Sub
By Dan Williams, Reuters, April 6, 2011
JERUSALEM, April 6 (Reuters) - Israeli Prime Minister Benjamin Netanyahu, who travels to Germany on Wednesday, will lobby Berlin to sell Israel a sixth naval submarine at deep discount, an official said.

Talks on the Dolphin submarine deal stalled last year after the Germans declined to underwrite it, as they had done with Israel's previous purchases. Israel sought up to a third off the $500 million to $700 million price for the new Dolphin.

"We're still hoping for a discount, and the prime minister will raise this matter" in a meeting with German Chancellor Angela Merkel scheduled for Thursday, the Israeli official said without elaborating.

Political turbulence in the Middle East has led Israel to float higher defence spending, which may allow it to absorb more of the cost of a new Dolphin. The diesel-powered submarines are widely regarded as an Israeli vanguard against foes like Iran.

Israel has three Dolphins in service, and two on order from Germany with delivery expected in the next two years.

Germany is dedicated to the security of the Jewish state, founded in the wake of the Holocaust. Merkel has championed an international campaign to rein in Iran's contentious nuclear programme, which Israelis consider a potentially mortal threat.

But Berlin has budgetary constraints and in the past heard misgivings from German opposition parties about exporting weapons to crisis areas. Israel is reputed to have the region's only atomic arsenal, including submarine-fired nuclear missiles.

Netanyahu' s agenda in Germany will also include trying to curb Palestinian efforts to garner European support for a unilateral declaration of statehood in West Bank land occupied by Israel.

Israeli officials say such a move would circumvent peace negotiations, though these talks have broken down over the issue of Jewish settlement building in the West Bank. Palestinians say construction must stop, a demand refused by Netanyahu.

Israeli media say Merkel lambasted Netanyahu earlier this year when he phoned to complain that Germany had backed a U.N. Security Council vote criticising the settlements.

She was reported as saying she was very disappointed that Netanyahu had not done more to promote peace initiatives. After his brief visit to Germany, Netanyahu will travel for talks to the Czech Republic, which is seen as one of Israel's closest European allies.

Britain, France Talk About Nuke Projects
UPI, April 4, 2011

LONDON, April 4 (UPI) — A top official from the British Defense Ministry wants to save money by having Britain and France jointly build a nuclear deterrent.

Nick Harvey, a Liberal Democrat minister in the British Defense Ministry, told British newspaper The Guardian that such a proposal was put to French defense experts last week. He said the idea to share submarines armed with nuclear missiles was warmly received.

It would be a major turnaround for traditional naval rivals France and Britain.

Both countries have a fleet of submarines armed with nuclear ballistic missiles, enabling them to have one sub constantly at sea to strike in case of an attack.

In Britain, the nuclear deterrent called Trident is up for a renewal that could cost upward of $30 billion — just as defense budgets across Europe are shrinking.

London last October announced it would cut defense spending by 8 percent but agreed not to make a decision on Trident until after the next election, which is scheduled for May 2015. France has previously suggested it was open for cooperating on the nuclear deterrent.

Both powers in November signed extensive military cooperation deals that foresee aircraft carrier sharing, a joint rapid-reaction ground force, the coordinated development of high-tech arms and joint nuclear weapons testing.

British Defense Minister Liam Fox, a conservative, has in the past spoken out against sharing the nuclear deterrent. But Harvey said London may have no choice but to reconsider.

"The U.K. needs to revisit the case in the long term for the U.K. maintaining a permanent 24-7 at sea capability. We pay an enormous premium to maintain this," Harvey told The Guardian. "It is quite feasible that we could continue with a permanent at sea submarine patrol in conjunction with the French either with three British submarines as proposed to the current four."

France and Britain could "work together on research and development of replacement submarines, so nearly halving the development costs," he added. "Over a 25 to 30-year cycle … the potential is to save many billions of pounds."

Countering possible fears of the loss of national sovereignty, Harvey said both nations could maintain separate command operations.

"It is unlikely we would face circumstances in which Britain would be faced with an external nuclear threat that would not apply to the French national interest at the same time," he said.

Sippican To Improve Shallow-Water Performance Of MK 48 Submarine-Launched Torpedo
By John Keller, militaryaerospace.com, April 1, 2011

WASHINGTON-The U.S. Navy is asking Lockheed Martin Sippican in Marion, Mass., to build and deliver Common Broadband Advanced Sonar System (CBASS) functional item replacement (FIR) kits for the MK 48 Advanced Capability (ADCAP) MOD 7 heavyweight torpedo under terms of a $50.7 million contract.

The CBASS replacement kit consists of a guidance and control box, broadband analog sonar receiver, preamplifier, cable assemblies, and guidance and control materials. The kit will provide the MK 48 ADCAP torpedo with a wideband sonar and advanced broadband signal processing algorithms to enable the torpedo to attack targets effectively in noisy shallow waters and harbors.

The MK 48 ADCAP torpedo is the primary anti-submarine and anti-ship weapon for Los Angeles- and Virginia-class fast attack submarines, and built by the Raytheon Co. Integrated Defense Systems segment in Keyport, Wash.
The MK 48 ADCAP heavyweight torpedo is the submarine's key weapon for attacking surface ships and other submarines. The MK 48 is 19 feet long, weighs more than 3,500 pounds, and has advanced homing, wire guidance capabilities and a 660-pound high-explosive warhead. It is designed to kill fast, deep- diving nuclear submarines and high-performance surface ships.

German Subs 'Will Only Last 6-7 Years'
Navy chief wants early approval for purchase
Bangkok Post, March 31, 2011

Navy chief Kamthorn Phumhiran has reiterated the need to buy six second-hand submarines from Germany but he now says they only have six to seven years of useful life left.

Previously it had been thought that the submarines, costing a total of 7.7 billion baht, would be able to operate for another 10 years.

Adm Kamthorn said the Royal Thai Navy first conceived a plan to procure submarines 60 years ago.

The navy initially proposed a project to buy submarines from Japan, but when it was defeated in World War II, no spare parts from that country would have been available, so the plan had to be scrapped.

The navy then came up with a second proposal to procure submarines from Israel but that plan was also unsuccessful.

As a result, the navy's submarine technology had been stalled for many decades, Adm Kamthorn said.

He said the Thai navy wanted to be one of the leading naval forces in the region, with its efficiency on a par with that of neighbouring countries which acquired submarines years ago.

Adm Kamthorn confirmed the six submarines were still in use in Germany and could continue to operate for six to seven years. Germany has just built a new fleet of submarines and moved its navy personnel to serve on the new ones. That meant the six submarines were not being used, although they receive constant maintenance.

Adm Kamthorn dismissed claims they had been left idle for decades before being offered to Thailand.

He said the navy's current operations are three-fold - surface marine, air and land operations. However, it still lacked submarine technology to train personnel in actual underwater operations.

He said the navy was aware the government would be hard-pressed to provide funding for brand new submarines, which cost at least 10 billion baht each, because of budgetary constraints.

In light of this, the navy was willing to settle for second-hand submarines, which were still efficient, he said.

Adm Kamthorn said details of the 7.7-billion-baht procurement had yet to be finalised. The project was now being scrutinised by Defence Minister Prawit Wongsuwon.

He said he was trying to ensure the project was approved and the purchase of the submarines pushed through by the end of next month before an expected House dissolution in early May.

Critics claim the submarines would be unable to operate in the shallow waters of the Gulf of Thailand.

Adm Kamthorn said the navy would carefully weigh up the pros and cons before making a decision to buy them.

He said the navy would also draw on its annual budget to buy the submarines through instalments over the course of five years.

Included with the submarines will be weapons, a simulator for training and other necessary equipment.

Adm Kamthorn dismissed suggestions that the navy would get a commission from buying the submarines.

The six submarines are of the U-206 class. They are powered by diesel engines and electric motors and designed for coastal patrol operations.

The German navy had used the six submarines for more than 30 years and was going to decommission them. However, a navy source said they could still be used for another 10 years.

The navy's new submarine unit had been set up to oversee military operations that would be carried out in conjunction with training exercises for naval officers who for the first time would be trained in submarine technology and underwater missions with Thai-owned submarines.