



**The Monthly Newsletter of Perch Base - USSVI
Phoenix, Arizona**



April 2010
Volume 16 - Issue 4

www.perch-base.org

**What's "Below Decks" in the
MidWatch**

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Lest We Forget Those Still On Patrol
APRIL ETERNAL PATROLS

USS PICKEREL (SS-177)	03 Apr 1943	74 Lost
Japanese Surface Attack off Honshu, Japan		
USS S49 (SS-160)	04 Apr 1926	4 Lost
Battery Explosion, SubBase New London, Boat survived		
USS SNOOK (SS-279)	08 Apr 1945	84 Lost
Unknown causes off Formosa		
USS THRESHER (SSN-593)	10 Apr 1963	129 Lost
Operational flooding off New England Coast		
USS BONEFISH (SS-582)	24 Apr 1988	3 Lost
Fire and Explosion off Florida, Boat decommissioned		

**APRIL 10
ALL-ARIZONA BASE PICNIC
WHITE TANKS REGIONAL
PARK**

NEXT REGULAR MEETING
12 noon, Saturday, May. 15, 2010
American Legion Post #105
3534 W. Calavar Rd., Phoenix, AZ 85053

2010 Perch Base Foundation Supporters

Perch Base, USSVI, cannot support its on-going operations and provide funds for the Base's float activities on dues alone. While the Base tries to develop activities to raise additional funds, we salute the members, listed below, who have supported the base by making contributions to the Perch Base Foundation. **Remember, if you contribute by check, it must be made out to the "Perch Base Foundation."**

These are the 2010 Foundation Supporters



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ZAICHKIN, JOHN G.
ZOMOK, RONALD J.

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Sailing Orders



APRIL 10, 2010:

ALL-ARIZONA PICNIC:

- White Tanks Recreational Area (west end of Olive Ave,)
 - April 10, 2010
 - This will take the place of our April meeting
 - Time, 1100 until 1500
-

APRIL 10, 2010:

FLOAT SUPPORT FOR THE HOME DEPOT:

59TH AVE AND THE 1010

**STATIC DISPLAY - NEED TWO VOLUNTEERS
WHO AREN'T GOING TO THE PICNIC.**

APRIL 17, 2010:

RIVERSIDE, CA "SALUTE TO VETERANS" PARADE.

**THIS MEANS GOING OVER FRIDAY AND COMING
BACK SATURDAY.**

MAY 15, 2010:

FLAGSTAFF, AZ VETERANS PARADE

FLOAT WILL BE USED.

MAY 31, 2010:

ANNUAL MEMORIAL DAY CEREMONY

PHOENIX MEMORIAL CEMETERY

**(THIS IS A MUST FOR ALL MEM-
BERS!)**

Our Generous Sponsors
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Bob Snedaker

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This is a Way for the Base to Make Money!



American Home Maintenance will donate \$100.00 to Perch Base for every referral that results in an air conditioning sale. Summer is quickly approaching, please let your friends, family, church members and business associates know about this referral program.

There is also deals for estimate service, new equipment, air duct cleaning and other everyday stuff a home owner needs. Contact Tim Moore (see below) for more details.

Tim Moore

secretary@perch-base.org

seawolfssn@q.net

(602) 574-3286

EDITOR'S NOTE:

THIS OFFER FROM TIM MOORE IS THE BASE'S ONLY METHOD OF SUPPORTING ITSELF OTHER THAN SHIP'S STORE SALES WHICH ARE RELATIVELY SMALL. WE REMAIN DEPENDENT ON THE BOOSTER CLUB -- OUR SELF-CHARITY -- FOR INCOME. OTHER INCOME SOURCES HAVE BEEN PROPOSED BUT FOR VARIOUS REASONS, NEVER EMBRACED BY THE BASE. PLEASE KEEP THIS IN MIND.

March Meeting Minutes

The regular monthly meeting of the Arizona Submarine Veterans Perch Base was convened at the American Legion Post #105, Phoenix, AZ at 1205, 13 March 2010. The meeting was called to order by Jim Denzien, Base Commander.

The "Call to Order" was led in a prayer of invocation by Walt Blomgren followed by the Pledge of Allegiance and the standard ceremonial opening. The tolling ceremony was conducted for all boats lost in the month of March and a moment of silence was observed for our shipmates on eternal patrol.

According to the sailing list, 37 members were present.

As the first item of business, a motion was made and seconded that the minutes from the February 2010 regular meeting be approved as published in the MidWatch monthly newsletter. The motion was carried by unanimous voice vote.

Wayne Pettes reported on the bank account changes as a result of meeting with Chase Bank. The new account has no fees associated with it. He also reported on the base's financial status as of 01 March 2010. Jim Denzien reported that he will be moving the SOS accounts over as well. A motion was made and seconded to accept the Treasurer's Report as read. The motion carried by unanimous voice vote.

Base Commander's Board of Directors Meeting Report

Jim announced that he will be sending out an e-mail establishing the Wednesday's prior to the general meeting as a standing meeting for the Board of Directors commencing at 1900 at his home.

Chuck Emmett and Rick Simmons are working on documenting our Policies and Procedures Manual and we are anticipating that a draft will be presented to the board by our April meeting. Once approved to the board it will be presented to the membership.

The fifteenth anniversary of the founding of Perch Base will be coming up in June. The actual date is the 20th and our meeting on the 12th will include a celebration of that event. Jim Newman will be assisting with a ceremony and we want to encourage all Perch Base members to be in attendance for that event.

We will be having a working party for the float on Saturday, 27 March. Anyone interested in assisting, please see one of the board members.

There will be no April meeting; the picnic will be in place of the meeting. Please plan on showing up. This will be addressed later under Old Business.

We are now in the final construction phase of our website. We are working to add some Ship's Stores items to be sold and payable through PayPal.

Other events include a "Thank Your Military Day" which will also be held on the 10th of April at the Home Depot store located at 59th Ave. and the 101. It is in the strip mall located on the southwest corner of that intersection. We will be taking the float as a static display and Tim is coordinating that event and we will be looking for some volunteers to assist in that effort.

We will be participating in the Flagstaff parade on the 15th of May and also the Memorial Day Ceremony on Monday, May 31st at the National Veteran's Cemetery. Everyone needs to put the Memorial Day Ceremony on their calendars. The ladies group is working on both the WWII and Perch Base wreaths for presentation at this event.

We have also been invited to participate in the Prescott Frontier Days Parade on Saturday, July 3rd. Gudgeon Base will be participating with us in that event.

Post 105 has authorized an area in the northeast corner of this meeting room for us to put in a display case. We have a number of awards, certificates and artifacts that we would like to put on display for everyone's enjoyment. We need to find one to purchase, build one or have one donated so we are looking for ideas and assistance in acquiring a display case. One suggestion is to contact Bashas and perhaps get something from one of the stores they are closing.

Stan brought up the idea (and we will explore this possibility) of volunteering for working with Aramark at one of their concessions at Jobbing.com arena and sharing in the profits of that concession. At Phoenix Coyotes home games, they let not for profit businesses come in and help out to raise money for their respective organizations. There may be other opportunities through the Coyotes as well and Stan will look into this. Another idea that was brought up

was to get Fry's Gift Cards to give to consumers and when they are used, the organization that passed them out gets a share of the proceeds.

Reports of Officers and Committee Chairmen

Vice-Commander – Howard Doyle announced that anyone interested in going to the Riverside Veteran's Parade on the 17th of April should contact him.

Secretary – Tim Moore announced that we will be participating in the Navy Days event at the Peoria Sports Complex on 26 March. We will stage between 0900 & 0930. We will also participate in a "Thank Your Military Day" on 10 April at the Home Depot at 59th Ave. & the 101.

We will stage there at 0800. This is in conjunction with the NASCAR race that weekend and the #20 Home Depot car will be there. The float will be used as a static display at both of these events. We will be looking for 4-6 volunteers to support each of these activities.

Treasurer – Wayne Pettes had nothing to report.

Chaplain – Walt Blomgren had nothing to report.

Chief of the Boat – TBA

MidWatch Editor/Interim Webmaster – Chuck Emmett announced that we will add some Ship's Stores items to the website to be sold on the open market. Some items to be considered include Perch Base hats, patches, cups, coins, lapel pins, etc. This might raise revenue for the base. This could be set up to use a PayPal account for payment. We will also add a list of items available from the Ship's Store to the website. Chuck announced that the Booster Club will be going away. It will now be called Perch Base Foundation Contributors and all donations are fully tax deductible as the **Arizona Submarine Veteran's Perch Base Foundation** is an authorized 501 (c) (3) non-profit entity. Chuck also announced that he was contacted by Capt. Russ, USN who is the instructor for Prospective Commanding Officers for SubPac. Capt. Russ requested a copy of the presentation, "A Tribute to Skippers", which Billy Grieves made to our group in January. He wants to include that presentation as part of his training for PCO's who will be manning the boats in SubPac.

Base Storekeeper – DeWayne Lober reminded the membership that he still has a number of \$10.00 shirts and hats available. When these are gone, all the new shirts will be \$20.00.

Membership Chairman – Rick had nothing to report.

Historian – Jim Newman announced that there are some old boat photos available for anyone who wants them.

Events Coordinator – Barry Bowers was not present.

Past Commander – Stan Reinhold had nothing to report.

Old Business

Jim Denzien reminded the membership that our All Arizona Base Picnic will be the 10th of April and final plans are in progress. It will be at the White Tanks Regional Park and the park charges \$6.00 per carload for admission. The picnic will go from 1100 to 1500. This date marks the 110th anniversary of the submarine force and is also the 47th anniversary of the loss of the Thresher which departed on eternal patrol in 1963. All Arizona bases are invited. We are planning a "special event" at the picnic so you will need to show up to find out what it is. For planning purposes we need an accurate head count so please RSVP to Jim Denzien.

The Riverside Veterans Parade will be on 17 April 2010. Howard is the POC for this event. Jim mentioned that for these types of events Perch Base we would like 4 to 6 participants. He went on to say that there are two events where he would like to see the entire membership participate. One is the Memorial Day Ceremony at the National Veteran's Cemetery and the other is the Phoenix Veteran's Day Parade.

New Business

Jim announced that Jack Moore is retired and has officially been appointed Chief of the Boat. His first assignment will be take on the responsibility of being POC for the acquisition of a display case referred to earlier in the Base Commander's Report.

Base elections were conducted. Candidates for the elected position included; Howard Doyle for Vice-Commander, Tim Moore for Secretary, and Wayne Pettes for Treasurer. The floor was opened for additional nominations. There were no additional nominations and a motion was made and seconded to close the nominations and accept the slate of potential officers by a vote of acclamation. The motion was carried by unanimous voice vote.

Jim went on to say that all positions will be up for election next year. We want to encourage all members to consider running for elected officer positions. It is good to have new faces and new ideas. We will begin looking for nominees for the 2011 election immediately.

Good of the Order

Jim announced that in the most recent issue of the American Submariner, there was a Letter to the Editor, Michael Burcumshaw, from ETC(SS) Ret. Ed Fein. This pertained to some historical artifacts that were returned to the Carbonero Association. There was an article in a previous issue of the American Submariner that mentioned that the Carbonero was sunk by the USS Pogy in 1975. And in our midst we have the gent who was on the Pogy as Chief of the Watch when the Pogy sunk the Carbonero. Joe Varese was the one who pulled the firing handle that launched the torpedo that sunk the Carbonero. Chuck Emmett suggested that perhaps the next time Joe should attempt to sink an enemy sub.

Walt brought up that he would like to hear sea stories from our shipmates. It was suggested that we have something on the web page or in the MidWatch where our members could submit their stories for publication. It was further suggested that this could be the Sea Story of the Month and the feature might be called; ***“Now This Ain’t No Sh*t”***. This idea was well received by all members.

Tim brought up that the Air Conditioning Company for which he works, American Home Maintenance, is looking for some additional part-time and/or full-time help for the busy summer air conditioning season. Any interested parties should contact Tim via e-mail or phone for details. Also, American Home Maintenance will donate \$100.00 for every referral for an estimate that results in a sale. Please see the announcement that Chuck has in the MidWatch. This is an easy way for the base to get revenue.

50/50 Drawing

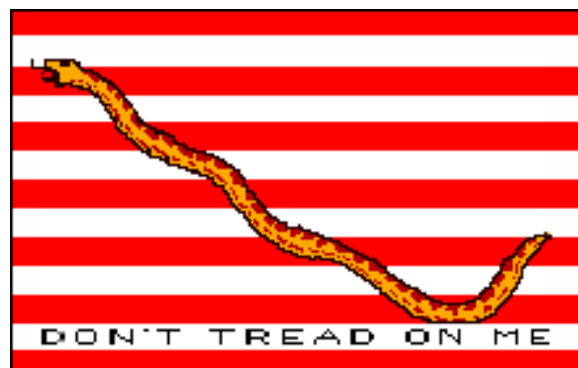
The 50/50 drawing was held and the winner was Howard Doyle who won \$57.00 of the \$114.00 that was in the drawing.

Adjournment

All the outstanding business having been concluded, it was moved and seconded that the meeting be adjourned. The motion carried by unanimous voice vote and the meeting adjourned at 1306 hours.

The benediction was offered by Walt Blomgren.

Tim Moore, Secretary, Perch Base USSVI



A Submariner's Prayer

"Eternal Father, strong to save
 Whose arm hath bound the restless wave,
 Who biddest the mighty ocean deep
 Its own appointed limits keep.
 O hear us when we cry to Thee
 For those in peril on the sea.

Bless those who serve beneath the deep.
 Through lonely hour their vigil keep.
 May peace their mission ever be,
 Protect each one we ask of Thee.
 Bless those at home who wait and pray,
 For their return by night or day."

Do you know a shipmate who is on the lee side of a fair wind? Someone who could use the help of a shipmate? Remember, we are the "**Brotherhood** of the Phin."

Contact our Base Chaplain if you know of any way we can help:

Walt Blumgren
 5120 W. Gelding Dr.
 Glendale, AZ 85306
 (602) 309-4407
chaplain@perch-base.org

ETERNAL PATROL PREPARATIONS

Shipmates, while we hope your day and those of your shipmates is far off in the future, we must nevertheless prepare. Please copy this notice (in the box immediately below) and place it with your will or important papers.

IMPORTANT

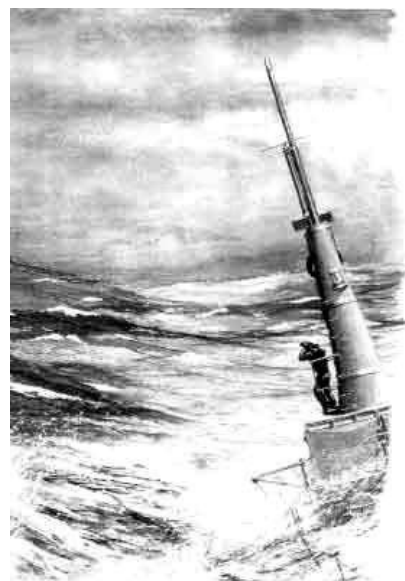
In the case of my death, please immediately notify the U.S. Submarine Veterans Inc., (USSVI) at 877-

542-3483 or 360-337-2978 and give the person on duty the information regarding my death, funeral, and burial arrangements, plus who they can contact for follow-up and support.

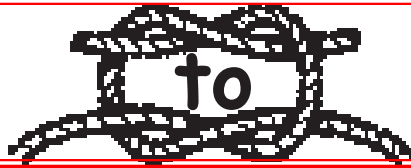
Please ask them to contact my local chapter's Base Commander with this information as well (they can look it up in their membership records).

This information can alternatively be E-Mailed to the National Office at "office@ussvi.org".

But remember, your family should
 always notify the Base Chaplain
 first. He and your local shipmates
 can help!!



Shipmate



Shipmate

Now, THIS AIN'T NO SH*T . . .

We are starting a new feature in this month's Mid-Watch and we're going to need your help! All of us have heard the one about the difference between a fairy tale and a sea story. The fairy tale starts, "Once upon a time," and a sea story starts, "Now this ain't no sh*t!"



Well, that's what we are looking for; sea stories. And they only need to be as true as a sea story ALWAYS is!

So send something in. Here are the rules (or not, whatever):

1. We can use your name or not: your choice just let me know.
2. Grammar and spelling DO NOT COUNT. I will edit and change just enough to make it somewhat readable!
3. Remember, this is from "boat" sailors to "boat" sailors. BUT, since this publication may fall into skimmer hands (or worse, decent civilians!.) I may have to substitute punctuation marks in place of letters in certain words, as in the title.
4. There is absolutely no limit on how many you can send in. I will publish AT LEAST one each month as we get them.

So send them to:

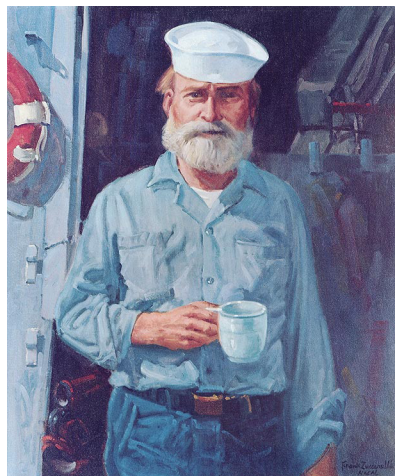
Chuck Emmett

communications@perch-base.org

or

7011 West Risner Road

Glendale, AZ 85308.





**SHIPMATE TO SHIPMATE
STORIES THAT ARE
“ABSOLUTLY, POSITIVELY,
THE TRUTH!”**

//////
Heres my story and it ain't no sh#, I was an FN onboard the USS ARGONAUT SS475 out of Norfolk VA. I don't recall what our mission was or the exact date, we sailed south through cape hatterous, it was rough as usual

Well on with my story ,about three days short of crossing the equator we started the initiation of qualifying for Neptunis Rex realm of the deep, to promote from pollywog to shellback. If you are not familiar with this ritual it is quite demanding on the pollywog.

Neptunis Rex, usually the biggest fattest ugliest guy on board, roams throughout the boat and examines his subjects to see if they are sick or are unhealthy looking. If you look sick he gives you a potion of sardine oil and diesel fuel, this is to keep you healthy,

If you are sick he pokes a hole in a raw egg and makes you suck the egg out of shell, this is supposed to be a pill that will make you healthy again, it generally makes you vomit and then you have to clean it up.

All pollywogs have to do what ever king Neptune wants you to do and he gives you all kinds of tasks menial jobs to do that no one in his widest dreams would think of doing on their own.

The day you cross the equator is the final day of initiation, you have to strip down to your skivvies and crawl on your hands and knees up to the king who has himself perched between the torpedo tubes and you have to kiss his greased up fat belly, this is after you have gotten you ass whooped with what ever they could make paddles out of, plus wetting you down with a hose.

We crossed the equator at Lat 00000 and long34-34 W on Jan 3 1959 we crossed going south submerged, coming back home we crossed on the surface we were all shellbacks on the rerun so it was no big deal no re-quals needed

This is as I recall it and it aint no sh#, I have my qualifying certificate hanging on my wall, iam very proud of it and also my short time as a member of this wonderful brotherhood of the fin

SUBMITTED BY SHIPMATE WALT BLOMGREN

A COLD WAR “DID YOU KNOW?”



The man who located the wreck of the Titanic has revealed that the discovery was a cover story to camouflage the real mission of inspecting the wrecks of two Cold War nuclear submarines.

When Bob Ballard led a team that pinpointed the wreckage of the liner in 1985 he had already completed his main task of finding out what happened to USS Thresher and USS Scorpion.

Both of the United States Navy vessels sank during the 1960s, killing more than 200 men and giving rise to fears that at least one of them, Scorpion, had been sunk by the USSR.

Dr. Ballard, an oceanographer, has admitted that he located and inspected the wrecks for the US Navy in top secret missions before he was allowed to search for the Titanic.

Only once he had used his new underwater robot craft to map the submarine wreck sites was he able to use it to crisscross the North Atlantic seabed to pinpoint the last resting place of the luxury liner. It meant he had only 12 days to find the Titanic.

“I couldn’t tell anybody,” he said. “There was a lot of pressure on me. It was a secret mission. I felt it was a fair exchange for getting a chance to look for the Titanic.

“We handed the data to the experts. They never told us what they concluded – our job was to collect the data. I can only talk about it now because it has been declassified.”

Dr. Ballard said what he had seen during the inspection of the wrecks gave him the idea of finding a trail of debris that would lead to the main sections of the Titanic. Thresher, had imploded deep beneath the surface and had broken up into thousands of pieces and Scorpion was almost as completely destroyed. “It was as though it had been put through a shredding machine. There was a long debris trail.” Dr. Ballard developed a robotic submarine craft in the early 1980s and approached the US Navy in 1982 for funding to search for the Titanic, which sank in 1912 with the loss of 1,500 lives after hitting an iceberg.

He was told that the military were not willing to spend a fortune on locating the liner, but they did want to know what had happened to their submarines. The military were anxious to know how the nuclear reactors had been affected by being submerged for so long.

During the 1980s the nuclear submarine fleet was reduced after the Salt II (strategic arms limitation talks) agreement and one option was to sink unwanted reactors at sea. Dr. Ballard said that samples taken from the reactor sections of both submarines showed that there was little risk to the environment from radioactivity.

The oceanographer was given the funding to embark on two expeditions, one to find the wreck of Thresher in 1984 off the eastern coast of the US and another to find Scorpion in the eastern Atlantic.

Thresher, the US Navy’s most advanced attack submarine at the time, sank with all her 129 crew in April 1963 while undergoing seaworthiness tests after dockyard repairs.

A surface ship, Skylark, was in contact when the submarine’s crew reported that a high-pressure pipe supplying the nuclear reactor with cooling water had blown. The accident 1,000 ft. down, caused the vessel to lose power. It then sank so deep that the pressure hull imploded.

Scorpion disappeared with 99 crew in 1968, and there had been speculation that it was sunk by Soviet forces. Dr. Ballard’s visual examination of the wreck site showed that the most likely cause of its destruction was being hit by a rogue torpedo that it had fired itself.

Perch Base April Birthdays



JEROME F. BECKER	APRIL 2
ROBERT "DICK" CARAKER	APRIL 3
ERNIE PLANTZ	APRIL 3
BARRY BOWERS	APRIL 5
JIM THOMSON	APRIL 7
GEORGE L. CRIDER	APRIL 12
JAMES L. WALL	APRIL 13
RICHARD KUNZE	APRIL 16
JAMES N. EDWARDS	APRIL 16
RICHARD H "RICK" SIMMONS	APRIL 19
DAVID CARPENTER	APRIL 20
TIM MOORE	APRIL 22
ADRIAN M. STUKE	APRIL 30
DAVY JONES	APRIL 30

WHAT'S NEW ONLINE

The Perch Base web site (www.perch-base.org) is always being upgraded and improved. Some of the latest changes:

- Pictures of "Navy Days" at the Peoria Sports Complex on March 26. A great turn-out with 10 Base shipmates supporting the USS Phoenix float.
- We're still running the link that gives a full panoramic view of each compartment on the museum boat USS Pomponito (SS-383), moored in San Francisco. On the main web page, click on "LINKS" on the left.
- Even more entries in the "Submarine, Nautical Terms and Glossary" many with photos. I'm done! Anybody have any additions.



Eternal Patrol April 8, 1945

Editors Note: *Less we forget, each month, one boat on eternal patrol will be highlighted in this newsletter. Sailors, rest your oars.*

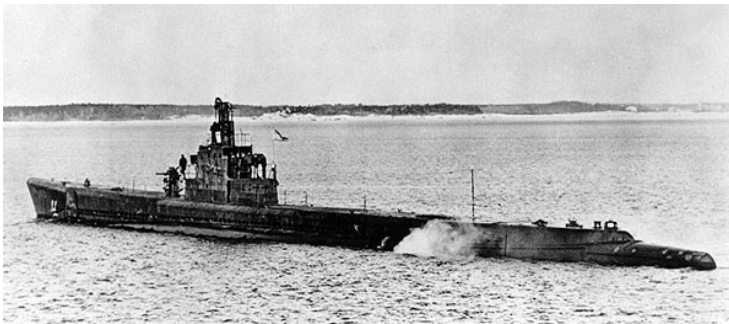
The Final Patrol



Lord, this departed shipmate with dolphins on his chest
Is part of an outfit known as the best.
Make him welcome and take him by the hand.
You'll find without a doubt he was the best in all the land.
So, heavenly Father add his name to the roll
Of our departed shipmates still on patrol
Let them know that we who survive
Will always keep their memories alive.



**USS Snook (SS-279)
April 8, 1945
84 men lost**



USS Snook (SS-279), a Gato-class submarine, was the first ship of the United States Navy to be named for the common snook, an Atlantic marine fish that is bluish-gray above and silvery below a black lateral line.

Snook's keel was laid down by the Portsmouth Navy Yard in Kittery, Maine on 17 April 1942. She was launched on 15 August 1942 sponsored by Mrs. James C. Dempsey, wife of Lieutenant Dempsey who had been awarded the Navy Cross for heroism as commanding officer of the submarine S-27, and commissioned on 24 October 1942 with Lieutenant Commander C.O. Triebel in command.

First patrol

After shakedown training off the New England coast, Snook departed New London on 3 March 1943 and set sail for the Pacific. Following a 12-day stopover at Pearl Harbor, the submarine put to sea on 11 April and headed for the Yellow Sea and East China Sea for her first war patrol. Upon completion of mine planting in the Shanghai area, Snook continued on up the coast of China to the Yellow Sea. On the afternoon of 5 May, she sighted two freighters standing out of Dairen and took up the chase. She trailed both until after nightfall, then fired a spread of three torpedoes that quickly sank Kinko Maru. The lead freighter continued, unaware of the attack, until someone on the sinking ship sounded a whistle. At that point, the freighter began a series of frantic maneuvers to dodge two of Snook's torpedoes, then opened fire with her guns, forcing the submarine to withdraw out of range, returning shortly after and firing three torpedoes, one of which hit Daifuku Maru amidships and sank her. Snook then resumed patrol.

Early on the morning of 7 May, Snook began quickly closing in on a convoy. Upon overtaking the enemy cargo ships, she launched four torpedoes, followed by three others five minutes later. The 4,363-ton cargo ship Hosei Maru was destroyed and several other ships possibly damaged. After destroying two armed trawlers in actions on 13 May and 16 May, Snook terminated her first patrol at Midway Island on 23 May.

Second patrol

Snook set sail from Midway Island for her second war patrol on 9 June and headed for the waters off the Ryukyu



Gato-class diesel-electric submarine

Displacement: 1,549 tons (surf) 2,463 tons (sub)
Length: 311 ft 9 in; Beam: 27 ft 3 in; Draft: 17 ft 0 in]
4 × Fairbanks-Morse Model 38D8-1/8 9-cylinder diesel engines
driving electrical generators; 2 × 126-cell Sargo batteries]
4 × high-speed GE electric motors with reduction gears
two propellers]
5,400 shp (surf); 2,740 shp (sub)
Speed: 21 kn (surf); 9 kn (sub)
Range: 11,000 nmi surfaced at 10 kn
Endurance: 48 hours at 2 kn submerged
75 days on patrol
Test depth: 300 ft
Complement: 6 officers, 54 enlisted
Armament: 10 × 21-inch torpedo tubes
(six forward, four aft)
24 torpedoes
1 × 4-inch/ 50 caliber deck gun
Bofors 40 mm and Oerlikon 20 mm cannon

Islands. In the morning twilight of 24 June, the submarine closed on a six-ship convoy escorted by two destroyers, launched two torpedoes at a large tanker, and heard two hits as she went deep and rigged for silent running to avoid the patrolling escorts. Coming back up to periscope depth, she found a destroyer guarding the crippled ship and was prevented from a second try by overhead aircraft.

Shortly before midnight on 3 July Snook made radar contact with another enemy convoy. Early the following morning, she fired a spread of six torpedoes, sinking cargo ships Koki Maru and Liverpool Maru and severely damaging Atlantic Maru. Snook returned to Pearl Harbor from her second patrol on 18 July.

Third patrol

Snook left Pearl Harbor for her third war patrol on 18 August and arrived off Marcus Island on 30 August to take reconnaissance photographs and stand lifeguard duty for the carrier air strikes of 1 September. Following the air strikes, the submarine resumed patrol and headed for the East China Sea where, in the early morning darkness of 13 September, she torpedoed and sank the 9,650-ton transport Yamato Maru. On 22 September, Snook intercepted and sank 715-ton Japanese cargo ship Katsurahama Maru departing from Dairen. The submarine terminated her third patrol at Pearl Harbor on 8 October.

Fourth patrol

Snook spent her fourth war patrol in a coordinated attack group with sister ships Pargo (SS-264) and Harder (SS-257) in the waters off the Mariana Islands. On 29 November, the submarine sank the passenger-cargo ship Yama-fuku Maru with four torpedo hits, and the cargo ship Shiganoura Maru, as well as damaging an escort ship. Snook returned to Midway Island on 7 December and was routed on to Pearl Harbor.



Fifth patrol

On 6 January 1944, Snook cleared Pearl Harbor and headed for the western coast of Kyūshū and her fifth war patrol. While off the Bonin Islands on 23 January, the submarine torpedoed and sank the 3,120-ton converted gunboat Magane Maru. On 8 February, she attacked a 13-ship convoy, firing a spread of four torpedoes for three hits before diving to evade the escort ships. In this action, she sank the freighter Lima Maru, and heavily damaged freighter Shiranesan Maru. On 14 February, she quickly sank freighter Nit-toku Maru, with one torpedo hit amidships and, on the following day, sank cargo ship Hoshi Maru Number Two. On 23 February, while returning to Midway Island, she spotted an enemy convoy

eight miles away, made a daring approach through a screen of 11 enemy escort ships, and fired five torpedoes, with two hits which sank the passenger-cargo ship, Koyo Maru. The submarine terminated her fifth patrol at Pearl Harbor on 6 March and continued to Hunters Point Navy Yard for a major overhaul.

Sixth patrol

On her sixth patrol Snook attacked and missed two freighters on 12 July, but found no other worthwhile targets, and returned to Midway Island on 14 August.

Seventh patrol

Snook's seventh war patrol was conducted in Luzon Strait and the South China Sea. After stopping at Saipan for repairs from 25 September to 4 October the submarine continued her patrol and contacted an enemy convoy on 23 October. She sank passenger-cargo ship Shinsei Maru Number 1, then evaded two escorts and resumed the chase, sinking the tanker Kikusui Maru with a torpedo which disintegrated the entire after end. After again escaping the escorts, Snook returned and fired five bow torpedoes, sinking cargo ship, or "Hell ship", Arisan Maru, killing about 1,800 American prisoners of war, one of the greatest losses of life in American maritime history. After rescuing a downed airman on 3 November, the submarine returned to Pearl Harbor on 18 November.

Eighth patrol

Snook's eighth war patrol was conducted off the Kuril Islands from 25 December 1944 to 17 February 1945. Her only sightings during this patrol



were two friendly Soviet vessels and a momentary contact with a small patrol craft.

Final patrol

Snook was lost while conducting her ninth war patrol, in the South China Sea and Luzon Strait. On 8 April, she reported her position to submarine Tigrone (SS-419) and when she did not acknowledge messages sent from Tigrone the next day, it was presumed that she had headed toward Luzon Strait. On 12 April, she was ordered to take lifeguard station in the vicinity of Sakeshima Gunto in support of British carrier air strikes. On 20 April, the commander of the British carrier task force reported that he had a plane down in Snook's assigned area, and that he could not contact the submarine by radio. Snook was ordered to search the area and to acknowledge the order. When she failed to make a transmission, submarine Bang (SS-385) was sent to make the search and rendezvous with Snook. Although Bang arrived and rescued the downed aviators, she saw no sign of the missing submarine; on 16 May, Snook was presumed lost due to unknown causes. It is believed that she was sunk by kaibokans Okinawa, CD-8, CD-32 and CD-52. It has also been suggested that Snook may have been lost in combat with one of five Japanese submarines were which also lost in April–May 1945.[5] One candidate is Japanese submarine I-56.[6]

Snook was credited with sinking 17 enemy vessels in her two and one-half years of active service. She earned seven battle stars for World War II service.



Fact #8: Strange Currencies

When the country of Tripoli issued their demands for tribute from the United States for ships to operate freely off their coasts, their demands were: \$40,000 in gold and silver, \$12,000 in Spanish currency, three diamond rings, one sapphire ring, and one ring with a built-in watch, 141 ells of cloth, and four caftans of brocade.

Fact #9: Hoodwinked

In 1911, when civil war broke out in Honduras, Sam Zemurray, an American businessman with many interests in Honduras, appealed to the US government to protect his businesses. He even paid for part of the US Naval expedition that was sent. President Manuel Bonilla, who was deposed in the civil war, was restored with American assistance. He then rewarded Zemurray with large holdings of land for his booming banana business, which eventually became the huge United Fruit Company. Only long after was it learned that Zemurray was the one who financed the war that deposed Bonilla in the first place.

Fact #10: Overkill?

General Douglas MacArthur had a three-point plan to win the Korean War. First, drop fifty atomic bombs on Chinese bases and staging points. Second, Land half a million Chinese Nationalist troops from Formosa behind Communist lines with two US Marine divisions in support to cut off supply lines, and third, after the Red Chinese were defeated, laying a barrier of radioactive cobalt along the Yalu river to keep the Chinese at bay. Needless to say, none of this ever happened.

Fact #11: Size does Matter

In 1932, there were officially 138,069 men on active duty in the regular US Army. But only about 30,000 would have been immediately available for combat. Some guarded the Mexican border, while others served in non-combat roles.

Fact #12: Let's be Fair

On the dark day of September 11th 2001, George W. Bush was widely criticized for waiting seven minutes before reacting to the news of the terrorist attacks. It was easy to forget that Franklin Roosevelt waited 22 minutes before reacting to the news of the bombing of Pearl Harbor.

Fact #13: Damn Computers

In 1980, the computers of the Strategic Air Command in Nebraska indicated that the US was under attack missiles launched by submarine. Within minutes, more than 100 B-52 bombers loaded with nuclear bombs were on their way to the Soviet Union. Fortunately, it was quickly discovered that the computer made a mistake. The culprit was a computer chip, which cost 46 cents.

Fact #14: Let's be Fair (again)

Although he was considered for service in World War II, John Wayne did not serve, causing some to call him a coward who used his celebrity influence to avoid service. In truth, he had a perforated eardrum and four children, so he was ineligible in any case.



Submarines of Today

Nuclear Propulsion (A Primer for Those Who Rode Up Forward)

Nuclear Propulsion

A nuclear-powered ship is constructed with the nuclear power plant inside a section of the ship called the reactor compartment. The components of the nuclear power plant include a high-strength steel reactor vessel, heat exchanger(s) (steam generator), and associated piping, pumps, and valves. Each reactor plant contains over 100 tons of lead shielding, part of which is made radioactive by contact with radioactive material or by neutron activation of impurities in the lead.

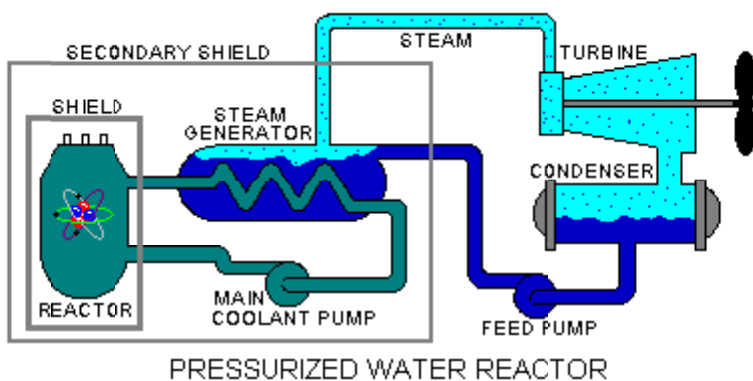
The propulsion plant of a nuclear-powered ship or submarine uses a nuclear reactor to generate heat. The heat comes from the fissioning of nuclear fuel contained within the reactor. Since the fissioning process also produces radiation, shields are placed around the reactor so that the crew is protected.

The nuclear propulsion plant uses a pressurized water reactor design which has two basic systems - a primary system and a secondary system. The primary system circulates ordinary water and consists of the reactor, piping loops, pumps and steam generators. The heat produced in the reactor is transferred to the water under high pressure so it does not boil. This water is pumped through the steam generators and back into the reactor for re-heating.

In the steam generators, the heat from the water in the primary system is transferred to the secondary system to create steam. The secondary system is isolated from the primary system so that the water in the two systems does not intermix.

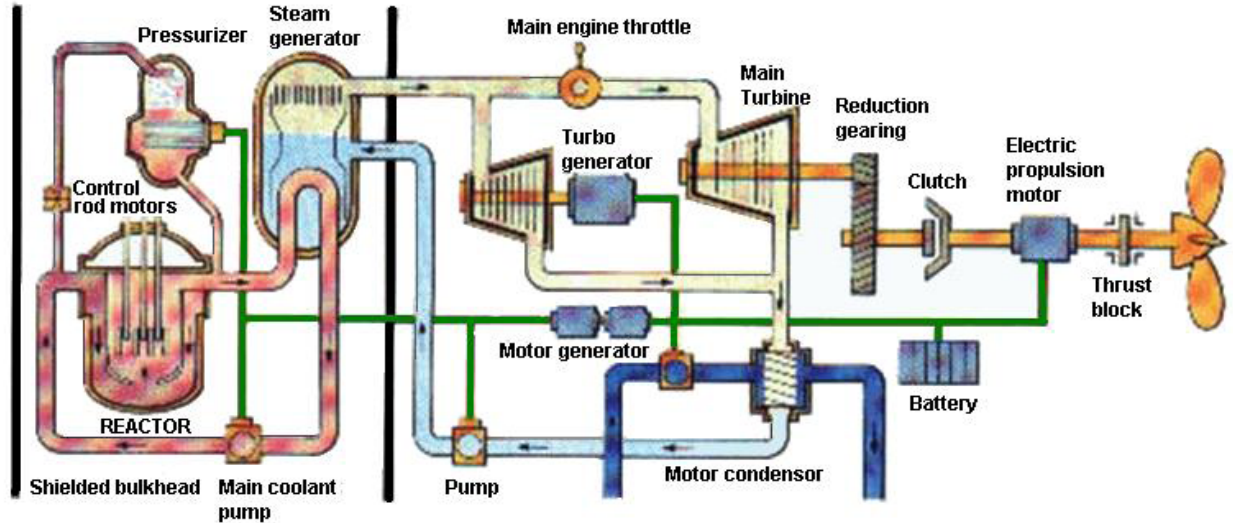
In the secondary system, the steam flows from the steam generators to drive the turbine generators, which supply the ship with electricity, and to the main propulsion turbines, which drive the propeller. After passing through the turbines, the steam is condensed into water which is fed back to the steam generators by the feed pumps. Thus, both the primary and secondary systems are closed systems where water is re-circulated and renewed.

Since there is no step in the generation of this power which requires the presence of air or oxygen, this allows the ship to operate completely independent from the earth's atmosphere for extended periods of time.



Naval reactors undergo repeated power changes for ship maneuvering, unlike civilian counterparts which operate at steady state. Nuclear safety, radiation, shock, quieting, and operating performance requirements in addition to operation in close proximity to the crew dictate exceptionally high standards for component manufacturing and quality assurance. The internals of a Naval reactor remain inaccessible for inspection or replacement throughout a long core life -- unlike a typical commercial nuclear reactor, which is opened for refueling roughly every eighteen months.

Pressurized-water Naval Nuclear Propulsion System

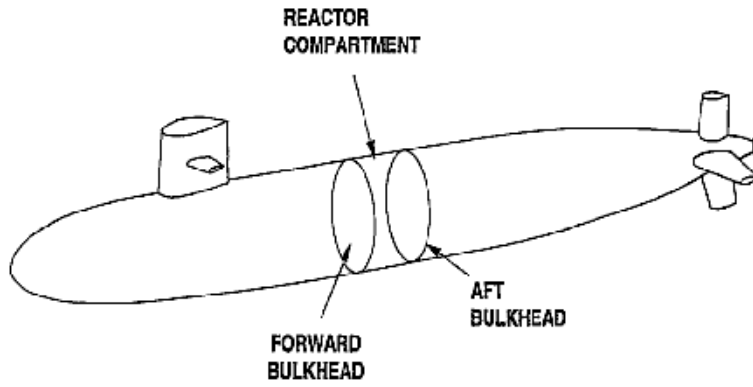


Unlike commercial nuclear power plants, Naval reactors must be rugged and resilient enough to withstand decades of rigorous operations at sea, subject to a ship's pitching and rolling and rapidly-changing demands for power, possibly under battle conditions. These conditions -- combined with the harsh environment within a reactor plant, which subjects components and materials to the long-term effects of irradiation, corrosion, high temperature and pressure -- necessitate an active, thorough and far-sighted technology effort to verify reactor operation and enhance the reliability of operating plants, as well as to ensure Naval nuclear propulsion technology provides the best options for future needs.

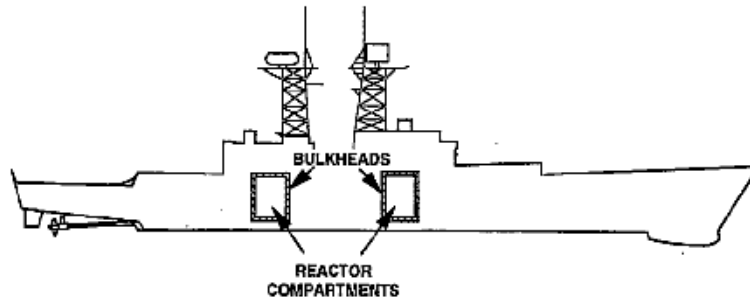
With the demise of the commercial nuclear industry in the 1970's, Naval nuclear suppliers have had virtually no other work to help absorb overhead and sustain a solid business base from which to compete for Naval nuclear work. The result has been reduced competition and higher costs. Requirements for naval nuclear propulsion plant components are far more stringent than needed for civilian products. Costly quality control and work production procedures to meet nuclear requirements generally prevent these firms from competing successfully with firms geared for less sophisticated civilian work. There is no civilian demand for quiet, compact, shock-resistant nuclear propulsion systems which would keep skilled designers and production workers current. This is a distinct difference from the aerospace, electronics, and ground vehicle industries from which DOD buys many of its weapon systems.

The Naval Reactors' program has shown the world that nuclear power can be handled safely, with no adverse effects on the public or the environment. While others have stumbled with this challenging technology, the Naval Reactors' program stands out-in the private sector as well as in the public sector-for vision, discipline, and technical excellence.

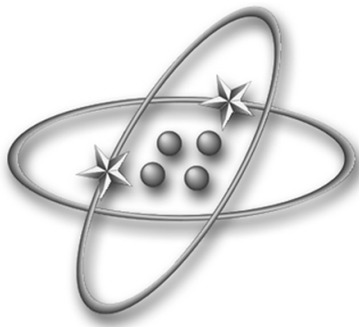
The nuclear propulsion plants in United States Navy ships, while differing in size and component arrangements, are all rugged, compact, pressurized water reactors designed, constructed, and operated to exacting criteria. The nuclear components of these plants are all housed in a section of the ship called the reactor compartment. The reactor compartments all serve the same purpose but may have different shapes depending on the type of ship. For submarines, the reactor compartment is a horizontal cylinder formed by a section of the ship's pressure hull, with shielded bulkheads on each end. Cruiser reactor compartments are shielded vertical cylinders or shielded rectangular boxes deep within the ship's structure.

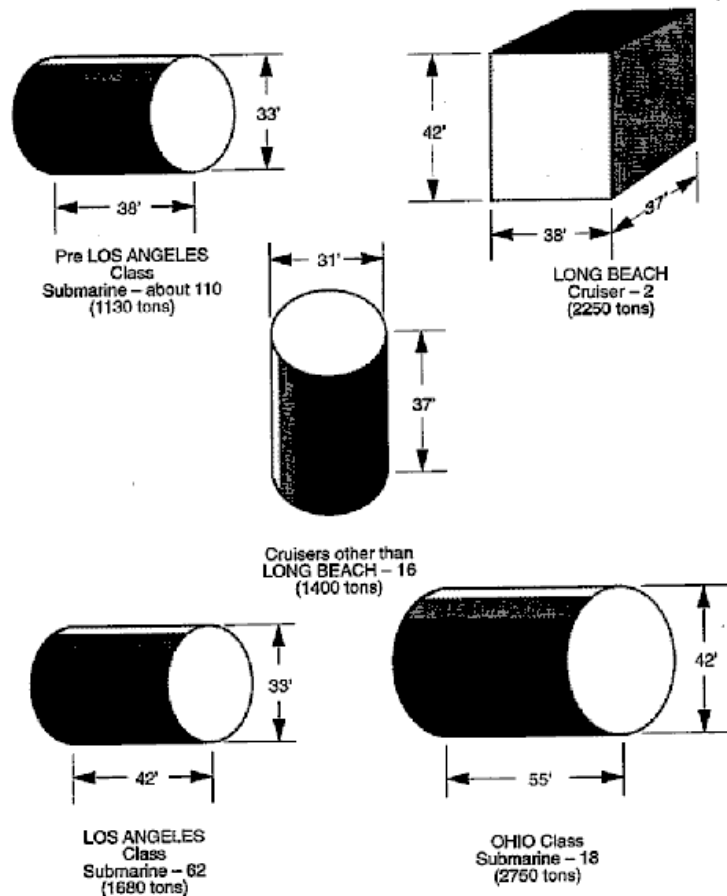


Typical Submarine Reactor Compartment Location



Typical Cruiser Reactor Compartment Location





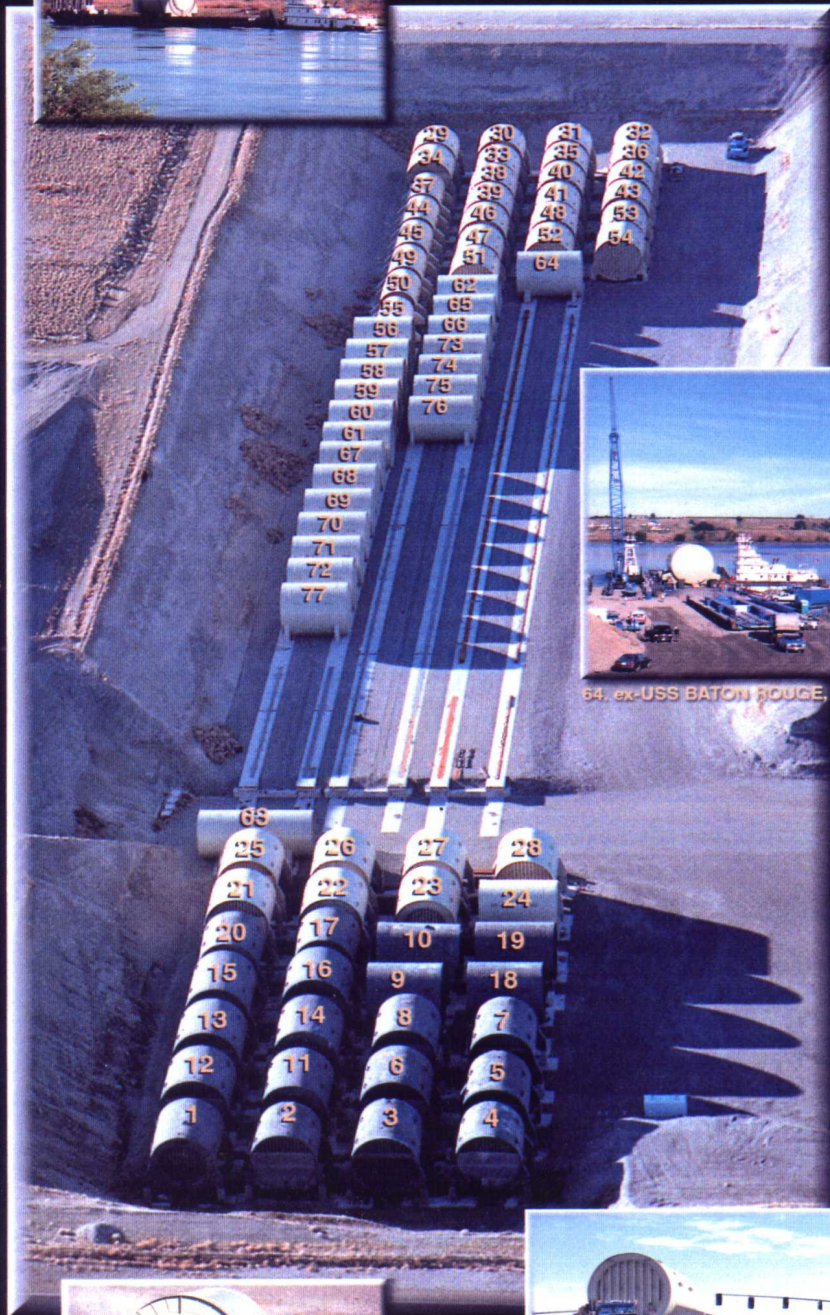
Note: Dimensions and weights are approximate. Quantities are current projections.

Comparison of Reactor Compartment Packages

The propulsion plants of nuclear-powered ships remain a source of radiation even after the vessels are shut down and the nuclear fuel is removed. Defueling removes all fission products since the fuel is designed, built and tested to ensure that fuel will contain the fission products. Over 99.9% of the radioactive material that remains is an integral part of the structural alloys forming the plant components. The radioactivity was created by neutron irradiation of the iron and alloying elements in the metal components during operation of the plant. The remaining 0.1% is radioactive corrosion and wear products that have been circulated by reactor coolant, having become radioactive from exposure to neutrons in the reactor core, and then deposited on piping system internals.

71. ex-USS SUNFISH, SSN 649

1. ex-USS PATRICK HENRY, SSBN 599
2. ex-USS SNOOK, SSN 592
3. ex-USS GEORGE WASHINGTON, SSBN598
4. ex-USS SCAMP, SSN 588
5. ex-USS ROBERT E. LEE, SSBN 601
6. ex-USS THOMAS JEFFERSON, SSBN 618
7. ex-USS THEODORE ROOSEVELT, SSBN 600
8. ex-USS DACE, SSN 607
9. ex-USS JOHN ADAMS, SSBN 620
10. ex-USS ABRAHAM LINCOLN, SSBN 602
11. ex-USS BARB, SSN 596
12. ex-USS ETHEN ALLEN, SSBN 608
13. ex-USS THOMAS A. EDISON, SSBN 610
14. ex-USS POLLACK, SSN 603
15. ex-USS G. P. LIPSCOMBE, SSBN 685
16. ex-USS JAMES MONROE, SSBN 622
17. ex-USS SKIPJACK, SSN 585
18. ex-USS NATHAN HALE, SSBN 623
19. ex-USS PLUNGER, SSN 595
20. ex-USS SHARK, SSN 591
21. ex-USS LAFAYETTE, SSBN 616
22. ex-USS SAM HOUSTON, SSN 609
23. ex-USS JACK, SSN 605
24. ex-USS HADDO, SSN 604
25. ex-USS TINOSA, SSN 606
26. ex-USS GUARDFISH, SSN 612
27. ex-USS PERMIT, SSN 594
28. ex-USS QUEENFISH, SSN 651
29. ex-USS ULYSSES S. GRANT, SSBN 631
30. ex-USS JOHN MARSHALL, SSN 611
31. ex-USS GEORGE C. MARSHALL, SSBN 654
32. ex-USS FLASHER, SSN 613
33. ex-USS GUITARRO, SSN 665
34. ex-USS ALEXANDAR HAMILTON, SSBN 617
35. ex-USS GEORGE WASHINGTON CARVER, SSBN 656
36. ex-USS TECUMSEH, SSBN 628
37. ex-USS HALIBUT, SSN 587
38. ex-USS WILL ROGERS, SSBN 659
39. ex-USS HENRY L. STIMSON, SSBN 655
40. ex-USS DANIEL BOONE, SSBN 629
41. ex-USS GREENLING, SSN 614
42. ex-USS JOHN C. CALHOUN, SSBN 630
43. ex-USS CASIMIR PULASKI, SSBN 633
44. ex-USS SKATE, SSN 578
45. ex-USS SARGO, SSN 583
46. ex-USS FRANCIS SCOTT KEY, SSBN 657
47. ex-USS STURGEON, SSN 637
48. ex-USS BENJAMIN FRANKLIN, SSBN 640
49. ex-USS SWORDFISH, SSN 579
50. ex-USS SEADRAGON, SSN 584
51. ex-USS STONEWALL JACKSON, SSBN 634
52. ex-USS SIMON BOLIVAR, SSBN 641
53. ex-USS HAMMERHEAD, SSN 663
54. ex-USS MARIANO G. VALLEJO, SSBN 658
55. ex-USS TULLIBEE, SSN 597
56. ex-USS LEWIS & CLARK, SSBN 644
57. ex-USS PARGO, SSN 650
58. ex-USS SEAHORSE, SSN 669
59. ex-USS GURNARD, SSN 662
60. ex-USS FLYING FISH, SSN 673
61. ex-USS GATO, SSN 615
62. ex-USS PUFFER, SSN 652
63. ex-USS SEAWOLF, SSN 575
64. ex-USS BATON ROUGE, SSN 689
65. ex-USS BERGALL, SSN 667
66. ex-USS WHALE, SSN 638
67. ex-USS HENRY CLAY, SSBN 625
68. ex-USS JAMES MADISON, SSBN 627
69. ex-USS FINBACK, SSN 670
70. ex-USS SPADEFISH, SSN 668
71. ex-USS SUNFISH, SSN 649
72. ex-USS GEORGE BANCROFT, SSBN 643
73. ex-USS GRAYLING, SSN 646
74. ex-USS PINTADO, SSN 672
75. ex-USS TUNNY, SSN 682
76. ex-USS ARCHERFISH, SSN 678
77. ex-USS WOODROW WILSON, SSBN 624



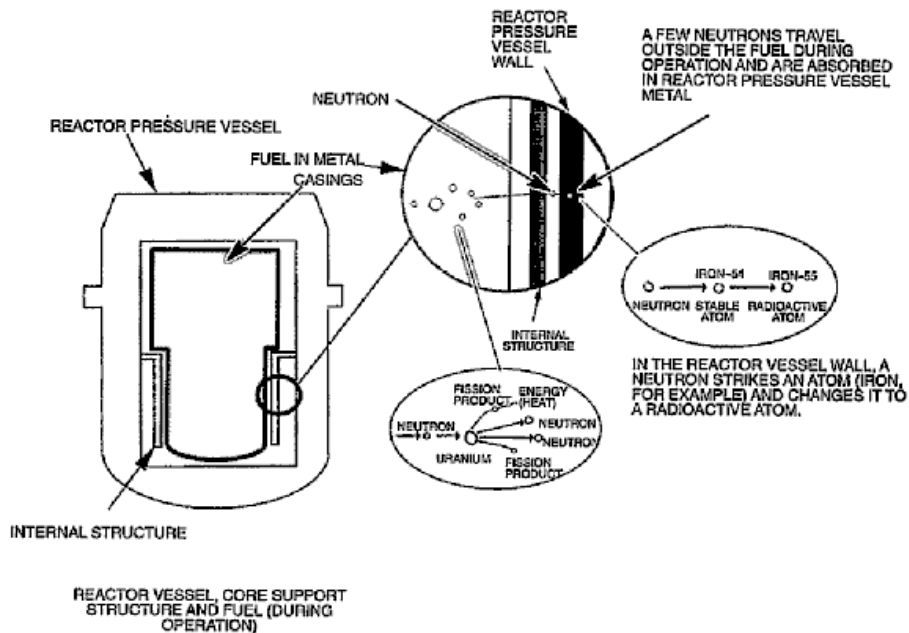
64. ex-USS BATON ROUGE, SSN 689



71. ex-USS SUNFISH, SSN 649



63. ex-USS SEAWOLF, SSN 575



Neutron and Fission Products from Uranium Fission

The fuel in a reactor contains uranium atoms sealed within metal cladding. Uranium is one of the few materials capable of producing heat in a self-sustaining chain reaction. When a neutron causes a uranium atom to fission, the uranium nucleus is split into parts producing atoms of lower atomic number called fission products. When formed, the fission products initially move apart at very high speeds, but they do not travel very far, only a few thousandths of an inch, before they are stopped within the fuel cladding. Most of the heat produced in the fission process comes from stopping these fission products within the fuel and converting their kinetic energy into heat.

Radioactivity is created during fission because some of these fission products are highly radioactive when they are formed. Most of the radioactivity produced by nuclear fuel is in the fission products. The uranium fuel in naval nuclear propulsion reactor cores uses highly corrosion-resistant and highly radiation-resistant fuel and cladding. As a result, the fuel is very strong and has very high integrity. The fuel is designed, built, and tested to ensure that the fuel construction will contain and hold the radioactive fission products. Naval fuel totally contains fission products with the fuel - there is no fission product release from the fuel in normal operation.

Fissioning of uranium also produces neutrons while the nuclear power plant is operating. Most of the neutrons produced are absorbed by the atoms within the fuel and continue the chain reaction. However, some of the neutrons travel away from the fuel, go outside the fuel, and are absorbed in the metal structure which supports the fuel or in the walls of the reactor pressure vessel. Trace amounts of corrosion and wear products are carried by reactor coolant from reactor plant metal surfaces. Some of these become radioactive born exposure to neutrons.

Reactor coolant carries some of these radioactive products through the piping systems where a portion of the radioactivity is removed by a purification system. Most of the remaining radionuclides transported from the reactor core deposit in the piping systems. These neutrons, when absorbed in the nucleus of a nonradioactive atom like iron, can produce a radioactive atom. For example, iron-54 contains a total of 54 particles. Adding an additional neutron produces an atom containing 55 particles, called iron-55. This atom is radioactive. At some later time, it changes into a nonradioactive manganese-55 atom by releasing energy in the form of radiation. This is called radioactive decay.

Due to the need for sailors to live on the ships during operation, reactor compartments are designed to attenuate radiation levels outside of the reactor compartment to extremely low levels. The external surface radiation levels for the normal conditions of transportation of the cruisers and LOS ANGELES Class and OHIO Class submarines are expected to be a fraction of the 200 mrem per hour on contact tit dewed under 49CFR173.

History

Under the leadership of Hyman Rickover, the Navy contracted the Westinghouse Electric Corporation to construct,

test and operate a prototype submarine reactor plant. This first reactor plant was called the Submarine Thermal Reactor, or STR. On March 30, 1953, the STR was brought to power for the first time and the age of naval nuclear propulsion was born. One of the greatest revolutions in the history of naval warfare had begun.

To test and operate his reactor plant, Rickover put together an organization which has thrived to this day. Westinghouse's Bettis Atomic Power Laboratory was assigned responsibility for operating the reactor it had designed and built. The crew was increasingly augmented by naval personnel as the cadre of trained operators grew. Admiral Rickover ensured safe operation of the reactor plant through the enforcement of the strictest standards of technical and procedural compliance.

At the site and at the STR, two missions for the prototype quickly emerged. First was the research and development of advanced reactor plant designs and procedures for the fleet. Second was the mission of training and certifying operators for the fleet. And the fleet came quickly and in large numbers. STR was redesigned S1W, the prototype of the USS NAUTILUS and was followed in the middle to late '50s by A1W, the prototype of the aircraft carrier, USS ENTERPRISE. Also in the late '50s, the Expanded Core Facility was built. It is used to this day to examine expended naval reactor fuel to aid in the improvement of future generations of naval reactors. Finally, in the middle 1960s, S5G, the prototype of the submarine, USS NARWHAL, and predecessor to the reactor plant used to propel the Trident Fleet Ballistic Missile Submarines, was built and placed in service.

As the Navy's presence expanded in eastern Idaho, slowly but surely the Navy support organization matured. By late 1954, the Nuclear Power Training Unit was established. In 1961, the Naval Administrative Unit set up shop in Blackfoot. In 1965, the unit moved to its present location in Idaho Falls, and over the next 30 years, continued to expand and improve its services. By 1979, a separate Personnel Support Detachment had arrived. 1982 saw a branch dental clinic established, and 1983 ushered in a branch medical clinic.

In the early 1950s work was initiated at the Idaho National Engineering and Environmental Laboratory to develop reactor prototypes for the US Navy. The Naval Reactors Facility, a part of the Bettis Atomic Power Laboratory, was established to support development of naval nuclear propulsion. The facility is operated by Westinghouse Electric Corporation under the direct supervision of the DOE's Office of Naval Reactors. The facility supports the Naval Nuclear Propulsion Program by carrying out assigned testing, examination, and spent fuel management activities.

The facility consists of three naval nuclear reactor prototype plants, the Expanded Core Facility, and various support buildings. The submarine thermal reactor prototype was constructed in 1951 and shut down in 1989; the large ship reactor prototype was constructed in 1958 and shut down in 1994; and the submarine reactor plant prototype was constructed in 1965 and shut down in 1995. The prototypes were used to train sailors for the nuclear navy and for research and development purposes. The Expanded Core Facility, which receives, inspects, and conducts research on naval nuclear fuel, was constructed in 1958 and is still operational.

The initial power run of the prototype reactor (S1W) for the first nuclear submarine, the Nautilus, was conducted at the INEEL in 1953. The A1W prototype facility consists of a dual-pressurized water reactor plant within a portion of the steel hull designed to replicate the aircraft carrier Enterprise. This facility began operations in 1958 and was the first designed to have two reactors providing power to the propeller shaft of one ship. The S5G reactor is a prototype pressurized water reactor that operates in either a forced or natural circulation flow mode. Coolant flow through the reactor is caused by thermal circulation rather than pumps. The S5G prototype plant was installed in an actual submarine hull section capable of simulating the rolling motions of a ship at sea. The unique contributions of these three reactor prototypes to the development of the United States Nuclear Navy make them potentially eligible for nomination to the National Register of Historic Places.

The Test Reactor Area (TRA) occupies 102 acres in the southwest portion of the INEL. The TRA was established in the early 1950s with the development of the Materials Test Reactor. Two other major reactors were subsequently built at the TRA: the Engineering Test Reactor and the Advanced Test Reactor. The Engineering Test Reactor has been inactive since January 1982. The Materials Test Reactor was shut down in 1970, and the building is now used for offices, storage, and experimental test areas. The major program at the TRA is now the Advanced Test Reactor. Since the Advanced Test Reactor achieved criticality in 1967, it's been used almost exclusively by the Department of Energy's Naval Reactors Program. After almost 30 years of operation, this reactor is still considered a premier test facility. And it's projected to remain a major facility for research, radiation testing, and isotope production into the next century.

The Navy makes shipments of naval spent fuel to INEL that are necessary to meet national security requirements

to defuel or refuel nuclear powered submarines, surface warships, or naval prototype or training reactors, or to ensure examination of naval spent fuel from these sources. The Secretary of Defense, upon notice to the Governor of the State of Idaho, certifies the total number of such shipments of naval spent fuel required to be made through the year 2035. The Navy will not ship more than twenty four (24) shipments to INEL from the date of this Agreement through the end of 1995, no more than thirty six (36) shipments in 1996, and no more than twenty (20) shipments per year in calendar years 1997 through 2000. From calendar year 2001 through 2035, the Navy may ship a running average of no more than twenty (20) shipments per year to INEL. The total number of shipments of naval spent fuel to INEL through 2035 shall not exceed 575. Shipments of naval spent fuel to INEL through 2035 shall not exceed 55 metric tons of spent fuel.

Decommissioning and Defueling

US Navy nuclear ships are decommissioned and defueled at the end of their useful lifetime, when the cost of continued operation is not justified by their military capability, or when the ship is no longer needed. The Navy faces the necessity of downsizing the fleet to an extent that was not envisioned in the 1980's before the end of the Cold War. Most of the nuclear-powered cruisers will be removed from service, and some LOS ANGELES Class submarines are scheduled for removal from service as well. Eventually, the Navy will also need to decommission OHIO Class submarines.

US Navy nuclear-powered ships are defueled during inactivation and prior to transfer of the crew. The defueling process removes the nuclear fuel from the reactor pressure vessel and consequently removes most of the radioactivity from the reactor plant. Defueling is an operation routinely accomplished using established processes at shipyards used to perform reactor servicing work.

A disposal method for the defueled reactor compartments is needed when the cost of continued operation is not justified by the ships' military capability or when the ships are no longer needed. After a nuclear-powered ship no longer has sufficient military value to justify continuing to maintain the ship or the ship is no longer needed, the ship can be: (1) placed in protective storage for an extended period followed by permanent disposal or recycled; or (2) prepared for permanent disposal or recycling. The preferred alternative is land burial of the entire defueled reactor compartment at the Department of Energy Low Level Waste Burial Grounds at Hanford, Washington.

A ship can be placed in floating protective storage for an indefinite period. Nuclear-powered ships can also be placed into storage for a long time without risk to the environment. The ship would be maintained in floating storage. About every 15 years each ship would have to be taken out of the water for an inspection and repainting of the hull to assure continued safe waterborne storage. However, this protective storage does not provide a permanent solution for disposal of the reactor compartments from these nuclear-powered ships. Thus, this alternative does not provide permanent disposal.

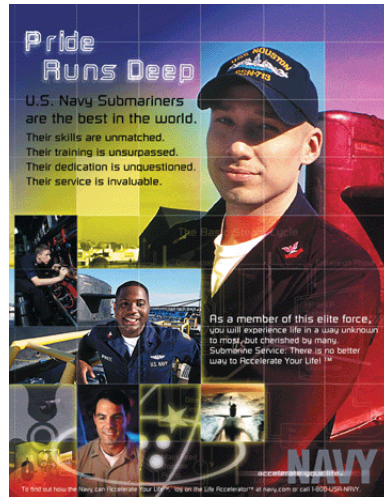
Before a ship is taken out of service, the spent fuel is removed from the reactor pressure vessel of the ship in a process called defueling. This defueling removes all of the fuel and most of the radioactivity from the reactor plant of the ships. The fuel removed from the decommissioned ships would be handed in the same manner as that removed from ships which are being refueled and returned to service. Unlike the low-level radioactive material in defueled reactor plants, the Nuclear Waste Policy Act of 1982, as amended, requires disposal of spent fuel in a deep geological repository.

Prior to disposal, the reactor pressure vessel, radioactive piping systems, and the reactor compartment disposal package would be sealed. Thus, they act as a containment structure for the radioactive atoms and delay the time when any of the radioactive atoms inside would be available for release to the environment as the metal corrodes. This is important because radioactivity "decays" away with time; that is, as time goes on radioactive atoms change into nonradioactive atoms. Since radioactivity decays away with time, the effect of a delay is that fewer radioactive atoms would be released to the environment. Over 99.9% of these atoms are an integral part of the metal and they are chemically just like ordinary iron, nickel, or other metal atoms. These radioactive atoms are only released from the metal as a result of the slow process of corrosion. The remaining 0.1% -- which is corrosion and wear products -- decay away prior to penetration of the containment structures by corrosion.

The Hanford Site is used for disposal of radioactive waste from DOE operations. The pre-LOS ANGELES Class submarine reactor compartments are placed at the Hanford Site Low Level Burial Grounds for disposal, at the 218-E-12B burial ground in the 200 East area. The disposal of the reactor compartments from the cruisers, LOS ANGELES, and OHIO Class submarines would be consistent with the pre-LOS ANGELES Class submarine reactor compartment disposal program. The land required for the burying of approximately 100 reactor compartments from the cruisers, LOS ANGELES, and OHIO Class submarines would be approximately 4 hectares (10 acres) which is

similar to the land area needs for the pre-LOS ANGELES Class submarine reactor compartments.

An estimated cost for land burial of the reactor compartments is \$10.2 million for each LOS ANGELES Class submarine reactor compartment, \$12.8 million for each OHIO Class submarine reactor compartment, and \$40 million for each cruiser reactor compartment. The estimated total Shipyard occupational exposure to prepare the reactor compartment disposal packages is 13 Rem (approximately 0.005 additional latent cancer fatalities) for each LOS ANGELES Class submarine package, 14 Rem (approximately 0.006 additional latent cancer fatalities) for each O-0 Class submarine package and 25 Rem (approximately 0.01 additional latent cancer fatalities) for each cruiser package.



From the Wardroom Base Commander's Message

Shipmates:

The time is zooming by. There will be no formal meeting in April. Instead we will be having our annual picnic together with the other bases in Arizona. We will be at the White Tank Mountain Regional Park in Ramada 4B from 1100 until 1500. April 10th is the Submarine Force birthday (110 years) and it also commemorates the anniversary of the loss of the USS Thresher in 1963. Plan on being there and meet some of your shipmates!! We do need a count of our members who will be attending along with any guests they are bringing so we can complete planning. Let us know.

Congratulations to Howard Doyle, Tim Moore and Wayne Pettes our their election as Vice Commander, Secretary and Treasurer respectively. Congratulations also to Jack Moore who has been appointed as Chief of the Boat.

Perch Base will be participating in the Salute to Veterans parade in Riverside CA on April 17th. If you would like to participate, contact Howard Doyle or me for details.

Fraternally,

Jim Denzien, Base Commander

Return To:

U. S. Submarine Veterans, Perch Base
7011 West Risner Road
Glendale, AZ 85308
E-Mail: communications@perch-base.org

<http://www.perch-base.org>



NEXT MEETING
11 a.m., April 10, 2010
All-Arizona Base Picnic
White Tanks Regional Park
west-end of Olive Ave.
Wadell, AZ