HEARING TO RECEIVE TESTIMONY ON NAVY SHIPBUILDING PROGRAMS IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2012 AND THE FUTURE YEARS DEFENSE PROGRAM

WEDNESDAY, MAY 25, 2011

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:27 p.m. in room SR–232A, Russell Senate Office Building, Senator Jack Reed (chairman of the subcommittee) presiding.

Committee members present: Senators Reed, Blumenthal, Wicker, and Ayotte.

Majority staff member present: Creighton Greene, professional staff member.

Minority staff member present: Christopher J. Paul, professional staff member.

Staff assistants present: Jennifer R. Knowles and Brian F. Sebold.

Committee members' assistants present: Carolyn Chuhta, assistant to Senator Reed; Gordon Peterson, assistant to Senator Webb; Jeremy Bratt, assistant to Senator Blumenthal; Lenwood Landrum, assistant to Senator Sessions; Joseph Lai, assistant to Senator Wicker; and Brad Bowman, assistant to Senator Ayotte.

OPENING STATEMENT OF SENATOR JACK REED, CHAIRMAN

Senator REED. Let me call the hearing to order. I want to welcome our witnesses to the hearing this afternoon. We're honored to have: Sean Stackley, Assistant Secretary of the Navy, Research, Development, and Acquisition; Vice Admiral Kevin M. McCoy, Commander, Naval Sea Systems Command; and Captain William J. Galinis, Supervisor of Shipbuilding for the Gulf Coast. Thank you, gentlemen. We're grateful for your service to the Nation and certainly grateful for the service of your fellow naval personnel and marines who do so much to assure our safety and our freedom. Thank you.

The Navy continues to be faced with a number of critical issues as it tries to balance its modernization needs and procurement needs against the costs of current operations. The shipbuilding budget remains at a level where it will be difficult at best to field the Navy we want, and indeed even the Navy that we need.

With that in mind, we need to ensure that we are getting good value for every shipbuilding dollar that we spend. We were very pleased to see the Department's decision to continue budgeting for two Virginia class submarines per year. We believe that what the Navy and the contractor team have been achieving in driving down costs and reducing construction should be a model for other Navy programs.

And we support the Navy's efforts to drive costs out of the *Ohio* replacement SSBN program. SSBNs will remain a vital leg of the nuclear triad for the foreseeable future. Achieving cost reduction goals in these two programs will yield significant stability to our Navy's submarine industrial base and provide the Navy with a modern, capable submarine fleet for many years to come. As we have been told on numerous occasions, stability is a very important factor in achieving quality and affordability.

We now have the prospect of achieving some stability in the Littoral Combat Ship, or LCS, program. Since last year, after conducting a winner-take-all competition, the Navy decided that by awarding 19 ships to each shipbuilder the Navy could save $2.9 billion, or $1 billion more than the program of record, and could purchase an additional LCS vessel during the same period of the FYDP, 20 ships rather than 19.

We understand that each builder has been making much better progress on the second ship in terms of cost, quality, and schedule. Stability in the program should permit the contractors to make further improvements.

On a somewhat less happy note, there have been lingering problems in some shipbuilding programs. The highest profile among these has been the LPD–17 program. We have had a host of problems on these ships, not the least of which has been cost growth, schedule delays, and construction problems, particularly on the earlier ships in the program.

The Navy took delivery of the first and second ships while they were still in an incomplete form and has subsequently identified numerous construction problems on the first two ships. We also know that the Navy has had problems with the later ships in the class as well. There have been welding problems, pipe hanger installation problems, lube oil contamination problems, and others.

Now, the goal here is not to single out a particular shipyard. In fact, you can look at every naval program over the last several decades and find significant problems. When I was first elected in 1991, the Seawolf was suffering from cost overruns, from quality control, etcetera. So our purpose is not singling out shipyards. It's really to find out systemically what we have to do to ensure that all the shipbuilding programs of the Navy are operating on budget, on time, with high quality. And that's the challenge we all face. If we understand these systemic issues, we can help the Navy deal with them, and that is our intention.

Secretary Stackley, we talked last week about the bow wave in procurement costs and bow wave of operating and support costs facing the Department and the Marine Corps ground systems. I suspect that we could have a similar discussion today about Navy ships. Later in this decade we will need to ramp up surface ship construction to meet missile defense and fleet air defense require-

ments, and we'll have to begin construction of an Ohio class replacement submarine. The 30-year shipbuilding plan lays out all of these programs along with the resources necessary to execute the plan.

However, in our country's current fiscal environment it is very unlikely that we will have as much money to spend on the 30-year shipbuilding plan as that plan assumes. And fundamentally that is why this hearing is so important.

We need to focus on harvesting the savings from quality improvements and efficiency improvements in the shipyards across the entire shipbuilding program without exceptions. We need to do this not only because of the direct savings, but also because we need to demonstrate to the taxpayer that we are using defense dollars wisely.

There are significant challenges and we fear they have the potential to add a great deal of instability to the Navy shipbuilding budget even in the near term. If the Department of the Navy is not able to control its acquisition program and drive our cost growth while still getting quality ships, drive that cost growth down, the Navy will not be able to afford the 313-ship fleet the Chief of Naval Operations says he needs to meet the requirements identified by the Quadrennial Defense Review.

We look forward to hearing your testimony this afternoon on these and other issues facing the Navy.

With that, I will recognize my colleague Senator Wicker, then Senator Ayotte if she has any comments.

Senator Wicker.

STATEMENT OF SENATOR ROGER F. WICKER

Senator WICKER. Mr. Chairman, thank you very much for holding this very important hearing today.

I'd like to thank our witnesses for their attendance today as well as their selfless service to our Nation, and also thank all the attendees in the hearing room today for their interest.

I'm sure I speak for all subcommittee members when I say that our thoughts and prayers are with all our deployed sailors at sea and ashore, including those expeditionary sailors from Mississippi, our Seabees, explosive ordnance disposal teams, riverine and maritime security forces, particularly those who are currently engaged in combat. Their hard work and dedication reflect the very finest traditions of the Navy, and of course their sacrifices are matched only by those of their families, who have supported these men and women in the service of their country.

There are many issues for us to discuss today. I know our esteemed witnesses as well as the tens of thousands of dedicated naval shipyard workers throughout our country share a joint commitment to providing our sailors and marines with the finest ships in the world on time and on budget. I look forward to the testimony of our witnesses in this regard.

The Navy's 30-year shipbuilding plan sets a course to build from the current battle force inventory of only 286 ships to a goal of a minimum of 313. Over the next decade, the Navy begins to ramp up its production of destroyers, amphibious landing and support

ships, submarines, Litoral Combat Ships, oil tankers, and Joint High Speed Vessels.

I'm concerned about the amount of funding needed for ship construction going forward. The *Ohio* class replacement ballistic missile submarines run about $6 to $7 billion each and the *Virginia* class submarines cost about $2 billion each. With more than half of the construction and development cost dollars being needed to build extraordinarily expensive nuclear submarines, I am concerned that our commitment to submarines may be crowding out funding needed to build large surface ships and to modernize the fleet. I hope the witnesses can tell us what they are doing to reduce the cost of building these submarines and give us their views on the impact of submarine construction costs on surface shipbuilding, including amphibious ships, and how it may impact the shipbuilding industrial base.

In addition, there are concerns that continued design problems and the Navy's recent decision to continue a dual source—a dual sole source LCS strategy, may increase cost risks in these and other complex acquisitions. From the first ship in its class, the LPD–17 San Antonio class amphibious ship program has displayed chronic problems in terms of safety, engineering, design, and oversight. These problems have been so significant that they give rise to broader concerns about a widespread readiness problem afflicting our surface fleet.

I'm pleased with the leadership of the Atlantic Fleet Commander, Admiral Harvey, in starting to turn these problems around. But I'm troubled by how we got to this point. As to the LPD–17 class of ships, for example, how, with five already delivered and four under construction, have we been left with an entire class of ships that, according to the Pentagon's chief independent weapons tester, is "not effective, suitable, and not survivable in combat."

With Northrop Grumman's sale of its shipyards, I'd like to know what the Navy's plans are for the construction of the last LPD–17 ship.

In addition to these points, I would also like the Gulf Coast Supervisor of Shipbuilding and the Naval Ships System Commander to address the apparent downward trend in funding for maintenance, with the negative impact falling more heavily on surface combatants than on carriers and submarines.

Now let me say a quick word about the F–35 Joint Strike Fighter program, which has a couple of important test events coming up this year that relate to the shipbuilding portfolio, in particular shipboard testing on a carrier and on the L-class ship for the Navy's F–35C and the Marines' F–35B respectively.

Given the well-deserved focus on the JSF program recently, I'd like to know from our witnesses what challenge do they see—what challenges do they see in having each of those F–35 variants effectively integrated to the ships from which they are supposed to operate.

The Navy faces many difficult challenges. That said, the performance of our sailors and marines has never been more gratifying to watch. They make us proud every day.

I look forward to hearing from the witnesses on these and other tough but important issues which go squarely to how we arm and

equip those men and women who serve their Nation so selflessly at home and abroad.

Thank you, Mr. Chairman.

Senator REED. Thank you, Senator Wicker.

Senator Ayotte, do you have any comments?

STATEMENT OF SENATOR KELLY AYOTTE

Senator AYOTTE. Thank you, Mr. Chairman. I would just again welcome the witnesses and thank you for your service. I do want to give a special welcome to Vice Admiral McCoy, who is a former Commander of the Portsmouth Naval Shipyard, and we're very honored to have him since I'm very proud of our shipyard.

Senator REED. Thank you very much, Senator.

Secretary Stackley.

STATEMENT OF HON. SEAN J. STACKLEY, ASSISTANT SECRETARY OF THE NAVY [RESEARCH, DEVELOPMENT, AND ACQUISITION]

Mr. STACKLEY. Yes, sir. Mr. Chairman, Senator Wicker, Senator Ayotte: Thank you for the opportunity for Vice Admiral McCoy, Captain Galinis, and myself to appear before you today to address Navy shipbuilding. And thank you, of course, for your steadfast support to our sailors and marines as you provide and maintain our Navy.

With your permission, I propose to keep my opening remarks brief and to submit a formal more detailed statement for the record.

Senator REED. Thank you.

Mr. STACKLEY. Today's Navy is a battle force of 286 ships, as many as half of which are under way on any given day, providing presence and maintaining readiness to respond to crisis or conflict wherever our Nation's interests are challenged. Our Navy's ability to reliably meet the demands that come with global presence and readiness rely upon certain enduring qualities: one, the size of the force, measured in numbers of ships; the capabilities designed and built into these ships, the skills and productivity of our government and industry workforce responsible for building and maintaining these ships; and the skill, dedication, and resourcefulness of our sailors and marines who put to sea in them.

The CNO and the Commandant have defined the 313-ship Navy as the force necessary to meet our naval requirements. In fact, the CNO has emphasized that 313 ships is the floor. So to this end, the 2012 budget request includes funding for 10 ships and over the 5-year future defense plan includes 55 ships, an increase of 5 ships over the plan of a year ago.

This increase reflects a priority placed on shipbuilding and reflects efforts to improve affordability within our shipbuilding program, efforts which must prove effective if we are to succeed in recapitalizing ship classes which were constructed during the buildup of the 600-ship Navy.

Our budget request includes continued funding for CVN–78, advanced procurement for CVN–79, and funding for the refueling overhaul of CVN–72, all necessary to sustain an 11-carrier force over the next 3 decades.

We continue *Virginia* class construction at two boats per year, a build rate essential to recapitalizing our submarine force, essential to affordability, and essential to ramping up our industrial base as we approach construction of our next fleet ballistic missile submarine.

We sustain DDG–51 production, adding capability and capacity to our sea-based missile defense, and to our plan of a year ago we have added a second destroyer in 2014 which, with the planned proposal for a multi-year procurement in 2013, will leverage the stability of this mature program, improve build rates for our two combatant shipbuilders, and improve affordability.

Our Aegis modernization efforts are equally critical, serving to increase the number of missile defense platforms from 21 today to 41 by the end of the FYDP, while also improving their material condition to meet readiness demands in the second half of their service lives.

We increase Littoral Combat Ship construction to four ships per year. Efforts to stabilize design, improve production planning, invest in shipbuilder improvements, build at efficient rates, and leverage long-term vendor agreements, all within the framework of competitive fixed price contracts, have markedly improved affordability for this 55-ship program.

We increase our amphibious lift capacity and capability with procurement of the 11th LPD–17 class ship and our extending the service of the USS *Peleliu* to maintain nine operationally available big decks while awaiting delivery of the lead ship of the America class, LHA–6.

We're also increasing our logistics lift capability with procurement of the third Mobile Landing Platform, or MLP, and a Joint High Speed Vessel. Actions by Congress and the Navy to accelerate the MLP program significantly improve affordability while also addressing a critical work load valley confronting that shipbuilder.

In the second half of this decade, we will need to proceed with recapitalization of three major ship programs. We're accelerating introduction of our next fleet oiler, T–AOX, beginning in 2014. T–AOX will bring modern commercial design to our refueling at sea capabilities while also providing critical stability to an important sector of our industrial base.

We plan to commence replacement of the LSD–41 class amphibious ships in 2017 following definition of lift requirements for this new ship class. And most significantly, we will procure the lead ship of the Ohio class replacement in 2019. It is vital that we sustain development activities for this submarine with sufficient lead times to ensure our ability to produce this highly complex, uniquely capable ship on schedule. But it's equally vital that we address cost risk on this program or we place other ship programs at risk. So we've carefully defined capabilities necessary to ensure the ship's ability to meet its requirements while embarking on a focused design for affordability effort to capitalize on lessons learned in the Virginia program at a much earlier stage in the Ohio replacement program.

In the most pragmatic terms, in balancing requirements, risk, and realistic budgets, affordability does control our numbers. So to this end we're focused on bringing stability to the shipbuilding pro-

gram, finding the affordable 80 percent solution, strengthening our acquisition workforce, imposing cost discipline as we define our requirements, clamping down on contract design changes, placing greater emphasis on operating and support costs in our designs, and placing greater emphasis on competition and fixed price contracts.

Modernizing today's force and recapitalizing the fleet affordably cannot be accomplished without strong performance by industry. So we are working with industry to benchmark performance, to identify where improvements are necessary, to provide proper incentives for capital investments where warranted, and to reward sustained strong performance.

As well, we're working with industry to improve quality in construction and reliability and readiness in service. LPD–17 reliability, Aegis wholeness, completion levels of new construction carriers, and isolated quality issues on even our most reliable construction program, the submarine, have caused us to methodically and aggressively attack root causes in design, construction standards, workforce training and qualifications, oversight and compliance, ship's force manning and training, documentation, software maintenance, and logistics support.

Much progress has been made in these areas. Quality of delivered ships continues to improve. Readiness measures are improving. Underlying issues that have affected readiness are being identified. But much work remains. We need to sustain these efforts to improve quality and readiness while also ensuring the higher standard becomes the standard practice.

In sum, the Department is committed to building the fleet required to support the National Defense Strategy, to which the 2012 budget request addresses near-term capability needs, while also laying the foundation for long-term requirements. Ultimately, we recognize that as we balance requirements, affordability, and industrial base considerations, it is vital that we, Navy and industry, improve affordability within our programs in order to build the Navy needed by the future force.

Mr. Chairman, thank you for the opportunity to appear before you today and we look forward to your questions.

[The prepared statements of Mr. Stackley, Admiral McCoy, and Captain Galinis follow:]

Senator REED. Well, thank you, Mr. Secretary. I presume that Admiral McCoy and Captain Galinis do not have statements; or do you, sir?

STATEMENT OF VADM KEVIN M. MCCOY, USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND

Admiral MCCOY. I have a short statement, sir.

Senator REED. Excellent. Please go ahead.

Admiral MCCOY. Mr. Chairman, Ranking Member, and distinguished subcommittee members: Thank you very much for the opportunity to testify on shipbuilding initiatives and the material readiness of our Navy. As the Commander of Naval Sea Systems Command, I have been actively engaged with senior Navy leadership, the shipbuilders, and the NAVSEA organization to improve the quality of ships delivered to the fleet and ensure that our ships

retain their warfighting effectiveness and achieve their full service lives.

Let me speak up front to the LPD–17 class program. Similar to previous shipbuilding programs, the LPD–17 class continues to improve and mature as lessons learned on early ships are rolled into follow ships and each successive hull completes the building process. NAVSEA and SUPSHIP Gulf Coast are working closely with the shipbuilder to incorporate lessons learned from the lead ship into follow ships.

Relative to this class, NAVSEA's focus has been in three areas: One, addressing the shortcomings of government oversight at the Supervisor of Shipbuilding. SUPSHIP Gulf Coast has hired over 284 new employees in the past 6 years, resulting in a 21 percent increase in manning, including having a second Navy captain assigned as the deputy supervisor for operations.

SUPSHIP has already conducted quality audits and made improvements in the shipbuilding process, including better foreign material exclusion from piping and increased quality assurance compliance inspections, with particular focus on working with the shipbuilder to assess and improve the compliance with critical ship construction processes. These efforts are independently validated by my staff on a regular basis, including an annual comprehensive quality assurance audit conducted by outside experts focusing on both the Supervisor of Shipbuilding and the shipbuilder.

Two, ensuring shipbuilder compliance in areas of—in all areas of construction and having the metrics and situational awareness of deckplate performance to catch trends early as possible in the shipbuilding process.

Three, implementing strike team modifications to make the ships more reliable in service. We have created a cross-functional strike team that includes engineers and fleet representatives to address issues associated with this new class of ship. Significant focus areas include: redesigning the filtering elements of the diesel engine and steering systems; improving the reliability of electrical generation and distribution systems; and updating the software in the engineering and ship control systems.

The LPD–17 class brings tremendous warfighting capability to the Navy and the Marine Corps and it's imperative that we continue to ensure that our warships are available for tasking now and in the future. Moving forward, we are committed to leveraging lessons learned during the fleet introduction of LPD–17 class into our initiatives to improve overall service readiness.

I will add that last week we had all five delivered LPD–17 class ships under way, two on deployment, two on local operations, and one just back—and one is just back from successful sea trials.

I think we're over the big hurdles on that class, sir. In fact, San Antonio, who's been off line for about 18 months during a major rebuild from some earlier construction issues, is back at sea, having been at sea over a week on sea trials, and so far doing well.

With respect to surface force readiness in general and the findings and recommendations of the fleet review panel in 2010, at NAVSEA we fully embrace our responsibility to: one, define with rigor the processes and methods of ensuring our ships meet their full service lives; and two, ensure that maintenance and mod-

ernization are executed in a formal, deliberate, and efficient manner to ensure the operational readiness, reliability, safety, and effectiveness of our ships.

We're working hard to address these issues in order to keep America's Navy number one in the world.

I'd be happy to take any of your questions, sir.

Senator REED. Thank you very much, Admiral, for that excellent testimony.

Captain Galinis, do you have a statement?

STATEMENT OF CAPTAIN WILLIAM J. GALINIS, USN, SUPERVISOR OF SHIPBUILDING, GULF COAST

Captain GALINIS. Sir, I do have a short statement.

Senator REED. We'd like to hear that. Thank you.

Captain GALINIS. Mr. Chairman, Senator Wicker, Senator Ayotte: Thank you very much for this opportunity to testify on Navy shipbuilding and the quality issues affecting some of our ship construction programs. I have been the Supervisor of Shipbuilding Gulf Coast since September 2009 and before that served as the LPD–17 class program manager.

As the Supervisor of Shipbuilding, I serve as the Navy's on-site or waterfront representative responsible for the day to day administration of Navy shipbuilding contracts with private shipyards under my area of responsibility. At SUPSHIP Gulf Coast my team currently oversees ship construction work across the Gulf Coast from Alabama to Louisiana and as far north as Wisconsin. The shipyards we oversee are currently constructing the DDG–51 class, LHA–6, and LPD–17 class ships at the Ingalls Yards in Mississippi and Louisiana, the LCS class Freedom variant Littoral Combat Ships in Marinette Marine in Wisconsin, oceanographic and special purpose ships at VT Halter Marine in Mississippi, and several smaller yards, including foreign military sales work at many of the yards in Alabama, Mississippi, and Louisiana.

As the Navy's waterfront representative for these contracts, I am responsible for overseeing shipbuilder quality compliance and ensuring that the ships delivered for Navy service meet all of our requirements. My team works on a daily basis with the shipyards to ensure that contractors satisfy their contractual obligations. It's no secret that we have struggled with quality of some recently delivered ships from Gulf Coast shipyards. We, my organization and the shipbuilders that we work with, have done a lot of work in this area over the last 2 years implementing many improvements to improve quality.

In some cases, this is simply getting back to the basics, namely reinstituting a culture of quality and a culture of compliance with well-engineered written processes and procedures, monitoring deckplate execution, and then measuring our performance against these requirements. Both the supervisor and the shipbuilders are heavily focused on process compliance and are continually assessing our performance in this area.

We are not done yet. Namely, we are executing quality work, but the near-term additional oversight measures are causing cost increases. We need to continue to improve our first-time quality and reduce rework. My team and the shipbuilders building these ships

are committed to improving overall ship construction quality, building these ships as affordably and on schedule and delivering ships that are safe and reliable. I believe that my shipmates, our sailors and marines deserve nothing less, and I look forward to discussing these efforts with you.

Thank you.

Senator REED. Thank you very much.

Gentlemen, thank you for the very insightful testimony. Let me begin with Secretary Stackley. We have, both Senator Wicker and I, have commented on the LPD–17 and both Admiral McCoy and Captain Galinis also. Just a preliminary question. We took delivery of these ships and found there were significant shortcomings, at least the initial ships. Were we obligated to take delivery or did—my assumption, and this is someone who did not have the benefit of an Annapolis education, Mr. Secretary, assumed that we'd only take delivery if everything was okay.

Mr. STACKLEY. Yes, sir. In the case of LPD–17 we were not compelled to take delivery. The ship delivered in the summer of 2005. She did receive an acceptance trial. There was a unique circumstance with regards to funding and completion of the ship. A decision was made that work would be deferred, to be completed in post-delivery, that deferred work would be documented by NSURV and they would actually come back and do a, call it, a final acceptance trial after that post-delivery period.

Literally days after that event, Hurricane Katrina hit the Gulf Coast and all good intentions were abandoned. The ship basically stayed at the shipyard for the amount of time necessary to get it ready to get under way and all the deferred work moved with it to its home port in Norfolk, where it was contracted out under a competitive bid process.

So there was a confluence of events there that—the Navy was not required to take delivery by any means. It was a conscious decision, but the planning went awry when basically Katrina overturned events.

Senator REED. But when you took delivery, was it contemplated that the Navy would pay the additional costs for the rework, or is that somehow still the responsibility of the yard?

Mr. STACKLEY. Well, the reality is that the first four ships were awarded back in about the '96 time frame under a single cost-plus contract. So in a cost-plus, within the terms of a cost-plus contract, the government is responsible for paying the cost of the work and then industry basically puts at risk fee. But if there are costs incurred, allowable and allocable costs incurred on the contract, then the government is responsible for paying those. And that does include rework so long as there isn't any fraud or mischarging or things of that nature.

Senator REED. So just to be clear in my mind, because of the nature of that cost-plus contract taking delivery of the ship did not shift costs to the government or the contractor?

Mr. STACKLEY. Not at all, no, sir.

Senator REED. My presumption is that we're not contracting like that in the future.

Mr. STACKLEY. In fact, the fifth ship of the class was also cost-plus, and what we did several years ago was convert that to a fixed

price to basically stop the bleeding. In general, we have contracted lead ships of a class inside of a cost-plus contract because of all the parallel development that takes place with the lead ship, and then we look to move to a fixed price environment as quickly as possible after that.

In this case, a single contract awarded the first four as cost-plus.

Senator REED. Now, I think what Admiral McCoy indicated was that the recent ships that have delivered have much fewer problems. Your sense is that the trend line is now in the right direction, that they're leaving the yard basically ready for sea trial?

Mr. STACKLEY. Absolutely. I'll let the two gentlemen on either side add to that, but several aspects of that. First, the program's just far more mature now. So the design deficiencies have been corrected, the, call it, the build plans associated with the shipbuilder and how he builds the ship have matured. The vendor base has matured.

Equally important is the government's oversight has matured. Admiral McCoy mentioned the strengthening of the Supervisor of Shipbuilding. A complete audit and review of processes and procedures is in place to ensure compliance.

The challenge that we've got is going after the first- time quality, as opposed to the inspected-in quality. So we're working side by side with the shipbuilder, because it's impacting them as well inside of this. They're in a fixed price environment now, so their cost of rework, they're paying that. So we're both working to get it right the first time, so that we're not incurring costs late in a ship's build cycle correcting deficiencies.

Senator REED. Admiral McCoy?

Admiral MCCOY. Mr. Chairman, let me add. Fundamental completion and fundamental quality improved on 21, for example, the last one that we took delivery of. We did have, I would say, two lingering problems that were late in discovery for the class, that did affect the 21, and that is grit in the lube oil system, so we had some re-bearing and flushing to do to the engines; and insufficient socket weld length of material, and so we had a significant number of welds to go back and redo.

But all the other, all the other stuff greatly improved from the first. In fact, we had a highly successful final contract trial just earlier this spring on New York and received lots of praise from NSURV during that trial.

Senator REED. Just let me, before I recognize Captain Galinis. Admiral, you've made the very explicit point that you've beefed up dramatically your supervisory staff. I think it sort of implies, I think quite clearly, that one of the defects was a lack of Navy supervision. I think that's the case, correct?

Admiral MCCOY. Yes, sir. First let me just say, though, the fundamental responsibility for constructing the ship right lies with the contractor. However, as a backstop we have Supervisor of Shipbuilding in place that we expect to monitor the contractor's quality performance and be able to pull the penalty flag out of the back pocket when necessary. And that did not effectively happen here.

I'll let Captain Galinis talk about some of the things that he's done to get us much more in a compliance mode and be looking at the same metrics the shipbuilder is looking at and being able to

backstop the shipbuilder effectively. But I would say yes, that is a fundamental responsibility of the government and that did not happen here, sir.

Senator REED. Let me, one follow-on question before I recognize Captain Galinis. You have learned a great deal. We've all learned a great deal. And I presume that you're operationalizing these lessons, not just along the Gulf Coast, but in every aspect of shipbuilding.

Admiral MCCOY. Yes, sir.

Senator REED. Also, you're taking this and you're trying with Secretary Stackley to plug it into the design phase and the build phase of future vessels, so that we don't have to relearn this lesson every time we have a new class of ship. Can you just comment briefly on that?

Admiral MCCOY. Yes. Let me just address the first part first. We as part of what we learned coming out of the Gulf Coast issues, we instituted across the four supervisors of shipbuilding—Bath, Bath Iron Works, up at Electric Boat, at Newport News, and down on the Gulf Coast—what we call back to basics. It's heavily focused on compliance, as well as contract oversight and training.

So we realized that we had—as a matter of fact, so Captain Galinis is not the only one. We have increased the staffing across all four supervisors by over 200 just in terms of gross numbers. We were at about 900 across the force SUPSHIPS. We're now at about 1,100. So we recognized that across the board, particularly with this ramp-up of shipbuilding—two LCS classes, Joint High Speed Vessel, two Virginias—that we weren't postured the way we needed to be and we needed to get back down to the fundamentals; and that we also had in many cases a green workforce that needed significantly more training.

So we went off on that direction across the board, across the corporation. I can let Captain Galinis talk about some of the things that he's done.

Senator REED. Before he does that, just a final point about how you, Mr. Secretary, have taken these lessons learned and put them into the development of new ships or new classes of ships?

Mr. STACKLEY. I would say if you look at the LPD–17 class of ships, fundamentally it's a great class of ship. The Marine Corps loves it. The Navy operators love it. The Achilles heel has been some of these nagging reliability issues, like the grit in the lube oil, which has been kind of a mission kill from a propulsion standpoint. But yes, we have been looking at those issues across the board and looking at our other classes and saying: Okay, where could we have the same problem?

For example, welding. We have beefed up welding at every—welding oversight and compliance at every one of our four supervisors of shipbuilding, because we know that is one of those critical processes that if it gets away from you it's very difficult to recover from. Critical coatings is another one, in terms of paint and things like that. So we're looking at that across the board, Senator.

Senator REED. Let me—can I do this, Mr. Secretary? Because my colleagues have been very indulgent and I've taken a lot of time and I want to recognize Senator Wicker. I'm going to come back with the second round and ask you sort of the same question,

which is how are you working to take these lessons, incorporate them, not just in shipbuilding supervision but in design, in decisions about what ship classes you can build on the force. So you can think about that.

But one reason I requested that Captain Galinis be here is that Admiral McCoy is a great commander and he probably reaches out every day, in fact several times a day, to you, Captain, and says, what's going on on that waterfront, what are we doing, etcetera? I wanted to be able to get the benefit of the kind of advice that Captain McCoy, Admiral McCoy, because of his leadership skills gets. So can you give us, as Admiral McCoy suggested, some sort of feel of what you think the problems are and how we've addressed them and where we have to do more?

Captain GALINIS. Yes, sir. So fundamentally what I've seen since I've been down there, if we could root cause this, the basic root cause of this really comes down to process compliance. I think what we found on our team working with the shipbuilders down there is generally across—and we look at it at four functional areas in shipbuilding, okay: piping systems, electrical, coatings, and structure. Across those four major processes that it takes to build a ship, fundamentally the work items and the processes are sound. What we found—and this is on both sides; this is on the Navy side and the shipbuilder—we have gotten away from or deviated from following those written processes.

So collectively there has been, I'll say, a renewed focus to look at the work scope, the work processes that are in place, and ensure that we're following those, and then measure our compliance to those processes.

So what did we do at SUPSHIP Gulf Coast specifically for our workforce? In addition to the increased hiring that we've been able to do over the last several years, training has been a big factor in our quality organization. We've structured—essentially, we've restructured our quality organization and we've provided a career path now where a person can enter the quality workforce at an entry level and work his way all the way to essentially a subject matter expert as a quality assurance specialist.

That was not there before. And that training comprises two aspects of it. There's formal training, classroom, schoolhouse type training, as well as experience that needs to be documented and logged. For example a nondestructive tester who would inspect welds, he goes through a formal training course and then he's required to incur so much on time on the job performance, that essentially gets documented and he works under the supervision of a more qualified welder.

The second thing that we've done working with the shipyard is we have aligned our inspection attributes and the things that we look at, so that we know when we get reports from the shipbuilder that we understand what they're looking at and they understand what we're looking at, so our metrics, if you will, are somewhat aligned. That was a tremendous process. It sounds fairly basic, but it was something that over time, again, we had gotten away from.

So then once we aligned those, those metrics, then what we started doing is what we call critical process pulse audits. Again, across those four areas that I mentioned—electrical, piping, struc-

ture, and coatings—we've been doing this every other month now, a joint inspection using the common attributes that we've developed. What the has done for us is allowed us to realize and understand where our risk areas are, where the crafts are deviating from the processes that are in place.

We've been doing this for probably about 14 or 16 months, since the early part of 2010. We have a pretty good track record now that we can go back and we can see where our risk areas are. So where in the past we didn't know what we didn't know, now we know where our risk areas are.

Then the results of those processes are fed directly back to the operations, the craft leadership, and I meet on a monthly basis with the craft directors and we literally go through these, these metrics. Then from that they either adjust their training, the shipyard training for the craftsmen, we adjust training for the quality inspectors if we need to do that. And in some cases maybe we do make changes to the processes.

So that in a nutshell is kind of the process that we've been through over the last almost 20 months or so.

Senator REED. Thank you very much.

Senator Wicker.

Senator WICKER. Well, let me just observe that the chairman, with neither an Annapolis education or a fine ROTC education, seems to have been able to drill down on some very good points here.

Let me see if I can summarize in layman's terms. Things are better now with the LPD–17 because the program has matured, and that stands to reason. Admiral McCoy says that actually things are going pretty well there now and the people love it. And yet, as late as the winter of 2010 we did have this independent weapons tester saying that the ship is not effective, suitable, and is not survivable in combat.

Admiral McCoy, is that—I'll get back to summarizing it in a minute, but do you take issue with that? Was it correct at the time it was made and in a short time that's been rectified, or what can you tell the committee?

Admiral MCCOY. Senator, I think if you look at the issues that they identify, I don't take issue with the issues. We were having mobility issues, no doubt about that. We were in the middle of grit and lube oil on just about all our ships that we were dealing with, so that was a mobility issue.

We were also——

Senator WICKER. When was the grit solved?

Admiral MCCOY. The grit, I'd say right now with San Antonio going to sea and doing well I think we can say the grit is behind us now.

Senator WICKER. Just behind us?

Admiral MCCOY. Yes, sir. We've had to flush, we've had to change system design, and we've had to prove with a significant number of hours on the engines that these ships are reliable. I hate to knock on wood, but I'll knock on wood here and say, with two deployed and last week three others out at sea doing well, and I think a good understanding of the issues both at the shipbuilder

and how we get the grit out and flush and service and some of the system design changes, that I think that one's behind us.

There were also issues with the SWAN, the Ship-Wide Area Network. On the earlier ship, you had the less reliable, outdated, obsolete, almost the ATM version, and we're now putting the Gig E version. Two of the ships have got it and we've got a program to put that on the others.

We had issues with interior communications that we've been dealing with. So we have been systematically going through some of these issues and I think we're in a much better, a much better place. I know we've answered—we have answered this question before and I'm happy to give an update to the committee, sir. We'll take that one for the record in terms of the status of each one of those items.

[The information referred to follows:]

[SUBCOMMITTEE INSERT]

Senator WICKER. Okay. Do you think the independent tester went a little overboard late last year in stating, as I have quoted, not effective, not survivable in combat? Went a little too far in your judgment?

Admiral MCCOY. I certainly don't want the second guess the inspector. I will tell you that in my mind I had serious issues a year ago on reliability of the propulsion plant because we were still coming through it, and I think we're through that. So I don't want to take issue with the tester, sir.

Senator WICKER. Okay. Secretary Stackley, are you trying to jump in?

Mr. STACKLEY. I was going to add to that. We did a thorough review of the findings from the T&E community coming out of OTE and three basic categories emerged. One was a reliability issue associated with the propulsion plant, which Admiral McCoy has highlighted and the efforts that have gone into identifying things from the low boil system to engine alignment. Those issues technically understood; fixes are either in place or being completed throughout the class.

The second category was reliability associated with, the Admiral mentioned, the SWAN and the obsolete technology. That technology is being refreshed, so in fact the system reliability with the new technology—and this touches everything from propulsion system to interior communications to motor-operated valves——

Senator WICKER. Was that a design defect or a manufacturing failure?

Mr. STACKLEY. Actually, at the time that was the state of the art. So this was mid-90s technology, was state of the art for basically passing signals from one end of the ship to the other. You get to a decade later, it's obsolete technology. It has been far surpassed by this gigabit ethernet approach which we're incorporating throughout the class.

The third category is the combat systems, and on LPD–17 the combat systems—I will call them Navy standard systems. They're the same systems that you'll find on other Navy ships. There are some deficiencies associated with those systems against certain threats that are known throughout the Navy, that are being addressed Navy-wide in terms of upgrades to those systems, and

when we have the Navy-wide solution that will be back-fit on the LPD–17 class.

So the findings we found to be generally accurate and the final determination, that's DOT&E's call.

Senator WICKER. Let me get back to my—to try to boil this down with regard to the LPD–17. We had gotten away from a culture of quality, and I take it from the testimony that the shipyard itself had gotten away from the culture of quality.

Number two, the Navy didn't follow the process closely enough. Number three, part of that was not enough Navy personnel were assigned to this task to make sure we stayed with this culture of quality.

And then number four, getting down to specifics, there were written instructions as far as the process that simply were not followed.

Captain Galinis, I'll let you take the first stab at this. Have I summarized at least four important parts there correctly? And if not, how did I—what did I miss? I think the chairman is asking the exact right question. This program has matured and it's going to be fine and folks like it now, but it sure has been a mess.

Are we learning lessons, not just for this system, but for the next system, so that shipyard, Navy, all around, it can be avoided again?

Captain GALINIS. Yes, sir. First of all, I believe you did characterize the points correctly there. Again, the written processes that we have I think are good processes. As I said, what we have in place now, I believe, the inspections that we have, working with the shipyard, give us the ability to measure compliance with those processes. And I believe that probably in the past we were not as effective in that area collectively, both the Navy and the shipbuilder, as we should have been or certainly could have been. I think that's what led to some of the issues that we're seeing.

The pipe weld issue that Admiral McCoy referred to, okay. The mil standard, if you will, that's in place to measure weld quality has, I'll say, about 18 different attributes, and I'll say over time our inspectors both on the Navy and the shipbuilder side maybe were only looking, I'll say, at six of those, as an example. So we were not catching all of the particular attributes that would lead to a quality weld.

So that's just, that's one example that over time we've just kind of, I'll say, atrophied how we look at particular issues. Well, I think again through the training processes now that we've put in place both on the Navy side and the shipbuilder side, and within the last—one of the things that Admiral McCoy referred to, his teams that have come down, since I have been down there, in almost 20 months we've had 8 different quality or technical authority type-based assessments done between the shipbuilder and the Supervisor, as well as a number of other informal audits.

So one of the things that came out of that early on was the training of the craftsmen on the deckplate, not knowing exactly what process they should be using. In the Ingalls yard that we work with, they have three different contracts in place at the same time. So there are different requirements across those different contracts. So for the craftsman on the deckplate, to do the job correctly he

had to understand what the requirements were for the ship that he was working on and the processes he should follow.

A lot of times that information wasn't being flowed down to the craftsman. Well, I'll tell you that's one thing that the shipyard has corrected, and within the last year they have a very robust training program in place now, not just for new hires, but also for people in the workforce to go back and refresh those skills.

I had—just 2 months ago I had the opportunity to go through that school myself and we walked through what they're doing for the welders, how they're training the electricians, the pipefitters. So a very good effort in that place, and I think that gets us to that process compliance piece that we're striving for.

Senator WICKER. Well, thank you very much. I'll stick around for a second round, but I know Senator Ayotte has been very patient, so I'll let her take a turn.

Senator REED. Senator Ayotte.

Senator AYOTTE. Thank you, Mr. Chairman. Thank you so much, Senator Wicker.

Secretary Stackley, I wanted to ask you about the issue of modernization of our shipyards. In your written testimony you cite the impending attack submarine force structure gap that you anticipate coming in the 2020s. You've also stated that you plan to address this impending attack submarine force structure gap by reducing the construction span of the Virginia class submarines and extending the service life of selected attack submarines and extending the length of selected attack submarine deployments.

I wanted to ask you, from someone who I've already indicated certainly the Portsmouth Naval Shipyard is a very important public shipyard in our country. There is a gap in terms of the modernization of our shipyards in terms of the backlog there. Just to use Portsmouth as an example—I'm sure that the other shipyards have backlogs as well, but the backlog at Portsmouth is approximately $500 million in modernization.

What I'd like to understand, just how with the backlog—what steps do we plan to take to address that, given if we're going to focus on extending the life and the maintenance? A shipyard like Portsmouth is very critical in having the ability and modernization to be able to do that in the most efficient and appropriate manner to meet your goals.

So I wanted to ask you about what steps you think we should be taking to prepare for an increased workload, as I would see it actually, in what we do at the shipyard, ask the Secretary that.

And then also, Admiral McCoy, if you could comment, based on your previous experience as the commander at the Portsmouth Naval Shipyard, how you think the Navy's plan to address the attack submarine forces structure gap will impact Portsmouth, and also what steps we can be taking now and what steps you anticipate taking, I guess both of you, to address this backlog so that we can be prepared to meet what your proposal is.

Mr. STACKLEY. Yes, ma'am. Let me start by describing first the mitigation efforts that you highlighted from our written statement. Those are mitigation only. They don't close the gap. If you look at the force structure tables, in fact our submarine force structure drops down to a low of about 39 submarines in about 20 years.

That's of deep concern to us. So when we look at what that potentially means with regards to operational cycle, turnaround times, turnaround ratios, it means that we have to stay right on top of the maintenance plan for the Virginia class. Now, historically we have. Historically, submarine and carrier maintenance has been funded to about 100 percent. It's at the top of the priority list when it comes to our O and M account and so we ensure that we do fully fund the maintenance that's planned.

Now, you're getting at the flip side, which is, okay, how about the infrastructure that's going to be responsible for executing the maintenance? We have a couple of benchmarks that we look at. The investment in terms of infrastructure for our depots, we're required and we do meet the requirement to ensure that we invest at least 6 percent of our maintenance budget would be going through those depots, going into the infrastructure. So we carefully ensure that we meet that benchmark.

Now, the backlog is the delta between that benchmark and then the long potential list of things that we'd like to do to upgrade or modernize our facilities. That then comes back to the rest of the budget process. So after we hit our benchmarks in terms of ensuring that we've fully funded the maintenance and the modernization and that we've met the benchmarks for taking care of the infrastructure, this remaining list of work has to compete inside of the budget process based on priority.

So there we're looking across the board in terms of our depot investments and the projects that either are a higher priority or return the greatest bang for the buck, looking at the future requirements for those depots, is how it plays out. Each of the depots in fact are looking at that type of a backlog and it simply comes down to the budget that's available, prioritizing the requirements inside of the budget, and ensuring that we meet the maintenance demands for the force today and foreseeable.

Senator AYOTTE. Just as a brief follow-up, you said you are deeply concerned about the 39 submarine structure, and then also the purpose of the modernization, obviously, would be to make sure that we can most efficiently use our shipyards. So I guess in terms of your deep concern about that, if you could tell me a little bit more about that I think it would be important.

Mr. STACKLEY. Well, first, it's both maintenance and modernization. One of the other things that we've done with Virginia and, frankly, the latter half of the LA class and Seawolf and for the replacement, is gone towards the ARC–E concept, which is basically modernizing as you go. In other words, rather than bring submarines in to deep modernization periods to upgrade their capability to pace the threat, we've gone towards a more open systems approach, so that the impact associated with modernization periods is less dramatic.

But the other aspect of it then is just class maintenance plan, is doing the periodic maintenance and the condition-based maintenance on a regular cycle. That's the two parts. It's, one, ensuring the maintenance is funded, which it has been and foreseeably will continue to be; and the other is to ensure that the infrastructure is there to conduct the maintenance.

I haven't reviewed the backlog list at Portsmouth. I suspect that Admiral McCoy has. But I'm not aware of an issue at Portsmouth regarding the backlog of upgrading that facility that directly places at risk our ability to maintain the submarine force that will be relying on Portsmouth as a depot.

Senator AYOTTE. Admiral, I know you're quite familiar with the shipyard. I wanted to get your thoughts on this.

Admiral MCCOY. If you did know, I'm one of the fiercest defenders of the four naval shipyards within DOD, because they are so critical to sailing in the Navy. As a matter of fact, I tell people every single man-day at least for the next 5 years has already been accounted for in the four naval shipyards with known work. It's that critical to the fleet.

I watch and evaluate the MILCON and the sustainment and restoration money that goes into the four naval shipyards. I am satisfied, and we argue vehemently inside the Navy rack and stack process, that the critical maintenance, piers and drydocks, the things we need to do to execute our mission every single day, is in fact done, and the critical replacements that we need to do.

After that, as Secretary Stackley said, it becomes where in the budget in terms of this thing or that thing. Maintenance, MILCON, modernization, equipment buys, hiring people, apprentice training, things like that, where in the priority is the best expenditure of our dollars at any given time. But we are very conscious to make sure that our four naval shipyards get the critical maintenance that they need and MILCON that they need to execute their mission.

Now, relative to—if you would, I'd like to address the attack submarine backlog. That's an issue that all of us are working on within the Navy. There are things that we can do that I will just point out that the folks up in Portsmouth are intimately involved with. We've got the SUBMET folks, about 250 people up there at the Portsmouth Naval Shipyard, co-located up there along with the shipyard, and in fact we're looking at ways, how do we collapse the maintenance cycle down? Can we do less maintenance with good engineering and with the track record and with the trending that we've been doing over the years?

So for example, a year ago we signed out a change to the second half of the 688 class life where, instead of doing 4-year on-center SRA, selected restricted availabilities, we're now doing 6-year on centers. That one change just between 2010 and 2016 gave us 12 submarine years back.

So I think there's a tremendous opportunity for the submarine repair industrial base that Porstsmouth is deep in the middle of to look at how on the repair side we can reduce the amount of maintenance required to give more operational time to the fleet.

We're looking at right now how do we get engineered overhauls from about 20 months down to 18 months? Again, that gives us 2 more months of submarine time. So there's a huge role for our public shipyards in helping that submarine gap out there in the future, as the Secretary said.

Senator AYOTTE. Thank you very much for your answers. I appreciate it.

My time is up.

Senator REED. Thank you very much, Senator.

Let me go back to the question that both Senator Wicker and I alluded to, Mr. Secretary.

That is, we've learned a lot through not just the LPD- 17 program, but so many programs that you've all spoken about. How are we capturing these lessons, not just in terms of oversight of the shipyards, but in the design and the contractual arrangements that we are going to see in the future to ensure the ships come in on time, on budget, at high quality?

Just as a footnote, one of the things I think that's lessons learned is you've got to have the people on the shipyard, Navy personnel on the shipyard. My sense was in the 90s that presence was a billpayer for a lot of things we did. And as we go forward, with the tough budget ahead of us, we can't do the same thing again or we'll squander these lessons.

So with that as a prelude, Mr. Secretary, your comments? And Admiral McCoy, if you have comments I'd appreciate it; and Captain Galinis also.

Mr. STACKLEY. Yes, sir. Let me start at the very front end of the process, which is requirements. If you get the requirements wrong, you can't fix them downstream. What we've spent a lot of time and effort on more recently is requirements definition, looking at risk, how much development is being required to meet the capabilities that are being lined up with the requirements, and what's it going to cost, cost realism.

I can tell you that with the LPD–17 program cost realism was approximately nonexistent at the front end. LCS had a similar problem getting out of the starting blocks. If you don't understand the cost and if in defining the requirements you bring a lot of risk associated with developing new capabilities, then downstream when you're trying to actually execute what was planned on the front end you're going to run into cost problems, you're going to run into schedule problems when you have concurrent development, design, and construction going on.

So we've been focusing on the front end, bringing cost realism, looking for that 80 percent solution to achieve the requirements, to reduce the risk, and reduce the cost as we get into the design and construction phase. The Ohio replacement program is a good example, where we spent a year unlocking those requirements and looking at trades inside of capabilities to figure out how do we get the cost of this large program down so that later on 5, 10 years report now we're not breaking other shipbuilding programs to meet that national strategic requirement.

There's the requirements piece, there's the cost realism piece. Then to go with that is design for affordability. It's really bringing lessons learned from other shipbuilding programs into the front end. That's much—we're in a much better position to do that today with the design tools that we have. We're away from vellums, we're away from paper. We're going into standard CAD design tools that allow us to design a ship many times before we build it.

So we can capture—catch and capture design deficiencies, interferences. We can bring standard practices. We can have more people reviewing the design, and then look at producibility in that process. So it's get the requirements right, it's leveraging some of the lessons learned in the design tools that we have.

Then the other key piece is get the design done, get it done before you build, so you're not carrying concurrency into the construction cycle. In fact, several things that came through BUSARA; one of them was something like a product readiness review before you start a new ship program and have the Secretary of the Navy certify, before you go cutting steel on this new ship program, you certify that the design is done, it's mature, so that we're not incurring concurrency in the construction process.

Those are probably the three key things on the front end. Then a lot of the discussion today has been about compliance and oversight. I can tell you that the focus on that today is where it needs to be, from the top, the Secretary, CNO, on down, to ensure that we're investing in terms of our people, putting the right people, right skills, right location, to perform that oversight function, and also reviewing, as we talked about, all the procedures and processes so that we don't have disparity, a local disparity, relying on judgment at the deckplate level, but in fact we've got certified processes and procedures in place driving that compliance.

Then it's the contract, ensuring that you've got a contract vehicle that enforces what you've tried to set up through that requirements, design, and specs and standards piece. I can tell you we need to continue to work on that. There's a lot of experience that's required to write a good contract, and we've lost a lot. Not only are Supervisors of Shipbuilding attriting, but also at our headquarters.

So those folks who are extremely experienced, that have the 30 years school of hard knocks on what the right terms and conditions and how to structure a good contract, they're small in number. So we're going towards things like peer review process, where we bring in the larger acquisition workforce to review contracts to try to harden up everything from terms and conditions, incentives, contract type.

You see a lot of this coming through in the discussion with Dr. Carter and the better buying power initiatives. That is largely about how we buy what we buy, to write a good strong contract to enforce the intention that was on the front end.

So a lot of parallel efforts. They need to be sustained. A lot of training of the workforce that goes with that. I think we're seeing early returns. We're seeing early good trends. But it really is a long-haul effort, and as we get into—you describe the challenges ahead with regard to the budget, new ship programs—we've really got to carry this discipline further forward to ensure that we don't have breakage at a period when the budget is potentially coming down and major programs are trying to rise.

Senator REED. Admiral McCoy or Captain Galinis, any comment?

Admiral MCCOY. I'll just add. I agree with everything that the Secretary said relative to getting the requirements right and flowing that into the design. I would say probably 90 percent of my problems over the last almost 3 years now with the LPD–17 class have not been design or requirements, have really been fundamental compliance with known requirements that were not built into the ship, either welding or foreign material exclusion from critical fluid systems, that kind of thing.

So what we've been trying to do is across the four supervisors of shipbuilding hire up to adequate staff, proper staff, get the train-

ing, and then focus really on a compliance mentality and oversight with the shipbuilder.

Senator REED. Thank you.

Captain Galinis, comments?

Captain GALINIS. Sir, the only thing I would add, and take it maybe to a little bit more of a tactical level, what we're doing day to day on LPD–22, which is our next LPD to deliver, which is going to deliver this year, one of the things, the program office and the PEO several years back stood up the strike team. This is an organization with input from the fleet, from the builders, from the program side, to kind of capture lessons learned across the class, things, problems to go solve.

They have developed a pretty good database of issues. They've solved a great deal of those. What we have done is we've leveraged off of that database and put together what I'll call focus groups to go and look at high-risk areas for this class, many of the things that Admiral McCoy and Secretary Stackley talked about: main propulsion, electrical, the mission systems area, which is your hydraulic ramps, the stern gates, some of the big heavy equipment on board the ship, ventilation systems, coating systems. Those are those high-risk areas that we've had problems on the ship.

We've put together focus teams that include, I'll say, resident experts from the warfare centers, from the fleet, from the program office, the supervisors' office, to work with the shipbuilder to ensure that we've got those captured. Where we can get design changes in, we're doing that. Where some of the other fixes are really just performing the work correctly the first time, we're ensuring that. So there's a laser focus on those issues for LPD–22 as we go forward.

Senator REED. Thank you.

I have got some questions that I'll submit in writing, and we'll recognize Senator Wicker.

Senator WICKER. I want to thank the panel for really being willing to go in depth with us on this issue.

Let me ask about the cost of the 30-year plan, the 2011 30-year shipbuilding plan. The Navy says it's going to cost $16 billion per year. CBO says it will cost $19 billion per year. What can we make of that?

Mr. STACKLEY. Let me describe. We tend to take the 30-year plan and break it down into three windows: first 10, second 10, and third 10, recognizing that in the first 10 years of the 30-year plan we've got a lot of fidelity, better accuracy, better understanding of the ships in the plan, what the requirements are, what their costs are.

So we believe we have fairly high fidelity in our cost estimates for the first 10 years of the plan, and that's in the $14 to $15 billion per year, maybe just a tad north of that.

The second 10 years, it starts to—you start to lose some of that fidelity, and that's a critical 10-year window because that's also where you're into heavy construction of the Ohio replacement program and other new ship programs are starting to emerge.

Senator WICKER. Let me interject. Does CBO approach it with three windows of 10 years each also? And if so, are they closer in the first 10 years?

Mr. STACKLEY. Yes, sir. I was going to wrap around to that, because—I will cut to a little bit of the punch line in terms of—

Senator WICKER. Oh, please.

Mr. STACKLEY.—the difference between the CBO and the Navy. Dr. Labs and I have had this conversation on a number of occasions. We have a difference in terms of how we escalate and then de-escalate the price of ships in the out years. It's a difference between the way the Navy cost estimators account for inflation versus the way CBO accounts for inflation. That difference makes up the majority of the difference between CBO's estimates and the Navy's estimates.

What happens between that 10, 20, and 30-year window is the further out you go obviously the greater the impact the inflation will have, and that's where it tends to exacerbate the difference between the Navy and the CBO.

So, going back to the 10, 20, 30-year look, in the first 10 years I think we're fairly close in our estimates. We start to diverge in that second window, which is a combination of that escalation difference and also some assumptions regarding largely the Ohio replacement program. Then when you get out to the third, the last 10 years of the 30-year plan, we're fairly far apart, again driven by difference in escalations, but now you're also starting to get into programs that don't exist and what assumptions are you going to make, for example, regarding a DDG–X out 30 years from now.

So that's why I break it down to those three windows. We're very much focused on the first 10-year window. We're very concerned about the second because that Ohio replacement program is so dominating. The third we look at for long-range planning and consideration, but we don't do a whole lot in the near term to try to affect that last decade of the 30-year plan.

Senator REED. That makes sense. Let me just ask in conclusion—and I will also be submitting questions for the record. Let me ask in conclusion about the industrial base. We want our shipyards to do right and to get this right, but also we want to keep them viable. And there are concerns that the relatively low orders for new ships in the 2011 plan may jeopardize the administration's plans to support the shipbuilding industrial base over the intermediate to long term.

So tell us what you can to reassure us in that regard, Mr. Secretary?

Mr. STACKLEY. Yes, sir. Let me describe—in the FYDP we talked about adding five ships to the future years defense plan, 5 years of the future years defense plan. If you look at the ships we've added, there was a very heavy focus on, one, it's a valid requirement, but two, the industrial base. So we've added a 2014 destroyer, for example. We have two surface combatant builders. We have a sawtooth profile, which is marginal, to support—and I'm using a euphemism there—to support two surface combatant builders. What we would really like to do is get that build rate up to a more stable flow of work that helps our affordability, helps their viability, and meets the force structure requirement.

Senator WICKER. We'd like to help you on that.

Mr. STACKLEY. Yes, sir.

So there's the surface combatant piece. So we've added a destroyer in the FYDP. I believe we have further to go and we need to continue to work on that.

We also added the T–AOXs and we pulled the MLP to the left. Today we have two auxiliary builders and we need to pull that work into the FYDP to keep the auxiliary sector of our shipbuilding industrial base viable, recognizing that that by itself is not going to be able to support two auxiliary shipbuilders or we are at risk of losing both.

So that was critical to the sector, but if the shipyards were side by side with me they would describe that as not sufficient to support both of the auxiliary builders today.

The other aspects of our shipbuilding plan, submarines are going to two per year. In fact, in some years in the out years when Ohio starts up we're at three. I think that sector is very healthy compared to the past 10 to 15 years. Carriers, very stable between new construction and RCOHs, so that sector is healthy. Then the last piece is amphibs and between our big deck build plan and the LPD–17 winding down, we have in fact pulled the LSD–X, which was originally going to be out in the 2020s, and we pulled that in to the 2017 time frame and are going to be kicking off that AOA, again with concerns for the industrial base.

So we keep a close eye on the industrial base when we build the shipbuilding plan. We are in a 15, $16 billion rate over that 30-year window. Some people would argue that we're going to be challenged to meet that, meet that budget plan. But in the near term we're doing everything we can to address the rise in the budget and the types of ships that we build with an eye on the industrial base.

Senator WICKER. Thank you very much.

Mr. Chairman, this is going to do it for me today. I really appreciate this panel working with us to help us increase our understanding of these very large and expensive and complex issues.

Senator REED. Thank you, Senator. I want to join you in thanking the panel for a very insightful and very, very helpful, constructive testimony this afternoon. We look forward to working with you, because this is a long-term ongoing, mutually involved exercise. So thank you very much.

Admiral, thank you for your service. Mr. Secretary and Captain, thank you, because you brought a real from-the-dockside view of the process and we appreciate it very, very much.

With that, there will be some written questions provided to you within the week and we hope you respond as quickly as possible; and we'll now adjourn the hearing. Thank you.

[Whereupon, at 3:52 p.m., the subcommittee adjourned.]