

Sea-based X-Band Radar (SBX) Sourcebook

Version of 2007-07-24



*Additional material for this sourcebook would be welcome.
Please send contributions to Allen Thomson,
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Sourcebook note: The material in the main body of this sourcebook is intended to be arranged approximately in inverse chronological order of the events reported (newest first). Appendix C, the SBX Usenet Chronicle, on the other hand, seemed best ordered in chronological order (oldest first).

http://www.navytimes.com/news/2007/07/ap_hawaiidefense radar_070719/

Hawaii defense radar getting \$27M in upgrades

By Audrey McAvoy - The Associated Press

Posted : Thursday Jul 19, 2007 17:20:39 EDT

PEARL HARBOR, Hawaii — The military's \$900 million, 28-story-tall missile defense radar is back in Hawaii from its remote base in Alaska for renovations recommended by an independent assessment.

The Missile Defense Agency plans to spend \$27 million equipping the floating complex topped with a globe that looks like a giant golf ball with a new rescue boat, lights on its helicopter pad and other upgrades over the next half-year.

The modifications address problems outlined in a report the agency commissioned last year, said Army Col. John Fellows, the radar's project manager. The study was designed to help officials move the recently built apparatus beyond the testing stage and prepare it for real-world operations, Fellows said.

"There were some things that frankly we wanted to do a bit more robustly," Fellows said during a tour of the facility this week.

The radar became familiar to the people of Honolulu when it spent several months at Pearl Harbor last year before moving to Alaska. It's already been back once before for repairs.

The Sea-Based X-Band Radar is expected to undergo a round of upgrades at Pearl Harbor Naval Shipyard through early next year. It will take a break for a few months starting in August, however, to participate in missile defense tests off Hawaii and California.

The radar is a key part of the missile defense network the military is building to protect the U.S. and its allies from enemy missiles.

It's based in the Aleutian Islands port of Adak in part to best spot any missiles North Korea might fire at the U.S. Washington believes Pyongyang, which has been developing long-range missiles and nuclear weapons, poses one of the most serious missile threats to the U.S. and its allies.

The radar is designed to feed data about incoming projectiles to a command center as well as to troops tasked with launching interceptors from underground silos in Alaska and California.

It also will supply information to Navy ships equipped with interceptor missiles.

The Sea-Based X-Band Radar, or SBX, is so powerful it can spot baseball-sized objects from 3,000 miles away. That level of precision enables it to distinguish between missile warheads and decoys so U.S. interceptors can seek the right target.

It gets its power in part from its size. The radar, protected by a white globe, reaches the equivalent of about nine stories above a 19-story platform made from an oil rig modified to sail anywhere at sea. It dominates the Pearl Harbor skyline, towering over nearby ships and apartment buildings.

Critics say the radar is too expensive, symbolizing an unproven, inadequately tested missile defense program that is costing taxpayers billions of dollars each year.

But Fellows argues it's a small investment if it prevents a ballistic missile from landing on a U.S. city.

The modifications being done at Pearl Harbor include adding lighting and additional tie-downs to the existing helicopter pad so that all types of choppers, from Army Black Hawks to commercial helicopters, will be able to land in an emergency.

The new rescue boat will help crew members swiftly retrieve anyone who may fall into frigid Alaskan waters. The existing boats aren't able to rescue overboard sailors as quickly.

The radar's gym, meanwhile, will get satellite TV, boosting the quality of life for the crew.

The SBX is normally staffed with about 85 crew members who come aboard for 54-day rotations. All are generally civilian contractors, except when the radar participates in a missile defense test and military officials come on board.

Fellows acknowledged adversaries might view the radar as a prime military target. But he said the U.S. Pacific Command, which is responsible for security in the region, is ready to dispatch planes and ships to protect it as needed. The vessel also has security guards on board, he said.

"This is a national asset, and it's protected as such," Fellows said.

<http://www.khnl.com/Global/story.asp?S=6797888>

Floating White Dome at Pearl Harbor Protects Nation

July 17, 2007 12:02 AM CDT

By Beth Hillyer

PEARL HARBOR (KHNL) - The largest and most sophisticated mobile radar system in the world is back in Hawaii for a port call.

This giant white radar dome is hard to miss. And for the first time we get to see what's inside the protective fabric. What looks like a mosaic is such a powerful radar system. It can detect ballistic missiles and determine whether they are real or fake. Operators have been working out the bugs over the past year.

SBX Project Manager Colonel John Fellows says "We went on a 34-hundred nautical mile voyage, a winter shakedown to test out the system."

They took a test run to it's homeport of Adak, Alaska.

"In particular to the Aleutian Islands to the Bering sea. We encountered very harsh weather elements and we were able to validate design perimeters, operate in seas of 50-60 foot waves and 70 miles per hour winds," explains Fellows.

[Sourcebook note: The great-circle distance between Pearl Harbor and Adak is slightly over 2000 nautical miles. A voyage from Pearl Harbor to Adak to the vicinity of San Francisco, where SBX-1 was in early April 2007, and back to Pearl Harbor would have covered somewhat more than 6,000 nautical miles.]

And when North Korea conducted missile tests last July;

"If they were to have launched threat missiles in our direction first of all the system was available to defend our nation and we were available to collect critical data," adds Fellows.

The radar dome rests on an oil drilling platform. Reporter Beth Hillyer learned, "There are about 85 crewmembers and contractors who live aboard this sea-based platform. Here at Pearl Harbor this vessel is getting some comforts of home, modifications to the kitchen and onboard gymnasium."

Workers at Pearl Harbor will perform about 27-million dollars in modifications to the radar system over the summer.

http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news_view&newsId=20070717005801&newsLang=en

BAE Systems Wins More Work on Sea-Based Missile Warning Radar

July 17, 2007 10:18 AM Eastern Daylight Time

HONOLULU--(BUSINESS WIRE)--BAE Systems has been awarded a second contract from Boeing for work on the Sea-Based X-Band Radar (SBX-1), a floating, self-propelled, mobile missile warning radar station.

The radar arrived at BAE Systems Hawaii Shipyards in Pearl Harbor from Alaska on June 26 and will remain there through February 2008. The company had previously performed maintenance work on the SBX-1 in 2006.

BAE Systems will conduct maintenance and systems upgrades to include fuel oil tank cleaning; tow bridle repairs; a deadweight survey; antenna installation; catwalk and ladder repairs; crane upgrades and additions; galley and scullery upgrades; and will install a quick launch recovery boat.

SBX-1 is part of the United States Missile Defense System, operated by the Missile Defense Agency. Designed to operate in high winds and heavy seas, the Missile Warning radar is mounted on a fifth generation Norwegian-designed, Russian-built CS-50 semi-submersible twin-hulled oil-drilling platform. It is based at Adak Island, Alaska and can roam over the Pacific Ocean to detect incoming ballistic missiles. It has the capability to identify baseball-size objects from thousands of miles away.

“We are pleased that Boeing and the Missile Defense Agency continue to place high value in our versatile maintenance capabilities for such an important project,” said Al Krekich, president of BAE Systems Ship Repair. “The SBX-1 is key to our nation’s ballistic missile defense.”

BAE Systems Ship Repair is the United States’ leading non-nuclear ship repair, modernization and conversion company – focused on dry dock and ship repair services for the U.S. Navy, other defense agencies and commercial customers. It has major operations in Norfolk, San Diego, San Francisco and Hawaii.

<http://www.honoluluadvertiser.com/apps/pbcs.dll/article?AID=/20070717/NEWS08/707170331/1001/NEWS>

Radar returns to Pearl Harbor for repairs

By William Cole

Advertiser Military Writer

Posted on: Tuesday, July 17, 2007



Boeing executive Paul Smith helps supervise the improvements and repairs being made to the massive vessel. Built on a former oil platform, it is self-propelled and ballasted for stability during storms.

Photos by JEFF WIDENER | The Honolulu Advertiser

Boeing executive Paul Smith helps supervise the improvements and repairs being made to the massive vessel. Built on a former oil platform, it is self-propelled and ballasted for stability during storms.

The Sea-Based X-Band Radar carries radio equipment so powerful that it can detect a baseball-sized object thousands of miles away. It is a key part of U.S. defenses against ballistic missile attacks.

PEARL HARBOR — The outside of the 280-foot-tall Sea-Based X-Band Radar, a platform large enough to accommodate 18 basketball courts on its six pillar legs, is impressive enough.

But inside the domed top, the nine-story phased-array radar — an octagonal flat panel studded with 45,000 radiating elements delineated in Aztec-like geometry — really gets the "wow" factor.

The radar is so powerful it can detect a baseball-sized object thousands of miles away. Part of the United States' developing missile defense system, it will be used to track targets and can tell nuclear warheads from decoys.

The \$900 million-plus radar returned to Hawai'i last month from the waters of the Aleutian Islands for \$27 million in repairs and upgrades — up to \$12 million of which will go to BAE Systems Hawai'i Shipyards.

Boeing is in charge of development of the system for the Missile Defense Agency.

The towering radar will be a fixture on the Pearl Harbor skyline until early August, when it will head

out to sea for systems and ballistic missile defense testing, and then return in October or November for several more months before returning to its home base in Adak, Alaska.

There, it will be moored to eight anchor chains for the first time, or moved around the ocean for missile tracking tests. In March, the radar and two Aegis destroyers tracked a long-range missile fired from California.

Army Col. John Fellows, project manager for the sea-based radar, yesterday said the plan was to move the one-of-a-kind platform to Adak and use it as a test asset.

"As we learn more and more about the system, we want to make sure that we have the right capability, so we have adjusted the plan," Fellows said.

The radar has come and gone multiple times from Pearl Harbor, sometimes as a result of sea testing and sometimes to fix problems, since it first arrived in January 2006 from Corpus Christi, Texas, perched on a heavy-lift vessel.

Valve damage to ballast piping was discovered, then an independent examination in June 2006 found a host of other problems with the former oil-drilling platform.

Among the improvements being made at Pearl Harbor are the addition of a second crane, improvements to its helicopter landing platform, rescue boat changes, improvement of the galley and addition of satellite TV for the crew of up to 100.

The self-propelled radar platform can take on ballast to ride 45 feet lower in heavy seas. It endured 100-knot gusts and 50- to 60-foot waves on the winter shakedown trip to the Bering Sea.

"When you are ballasted down, you don't feel the movement of the ship. Generally, it's a lot better than any cruise I've been on," Fellows said.

"It's different for sure," said Edward Pillert, a Kane'ohe resident and captain of the Sea-Based X-Band Radar, or SBX.

In April, Lt. Gen. Henry "Trey" Obering, the director of the Missile Defense Agency, told a Senate panel that "ballistic missile threats are real and growing," with the pace of foreign missile testing twice that of last year.

Since June 2004, Obering said, the U.S. had placed 17 long-range interceptors in Alaska and California, modified 16 Aegis ships for missile tracking, upgraded three land-based early warning radars and delivered transportable radars, including the Sea-Based X-Band radar.

<http://the.honoluluadvertiser.com/article/2007/Jul/17/ln/radar.html>

Posted on: Tuesday, July 17, 2007

Photo gallery: Sea-Based X-Band Radar

Photos by Jeff Widener





The X-Band radar platform is large enough to accommodate 18 basketball courts on its six pillar legs.



An armed security guard keeps a eye on visiting media touring the Sea-Based X-Band Radar ship which is in Pearl Harbor for repairs. The towering radar will be a fixture on the Pearl Harbor skyline until early August, when it will head out to sea for systems and ballistic missile defense testing, and then return in October or November for several more months before returning to its home base in Adak, Alaska.



Capt. Edward Pillert commands one of the world's tallest ship control centers aboard the Sea-based X-band Radar.



Visitors are greeted with signs that warn of tight security.

A closer look at giant 'golf ball'

The X-Band Radar will be upgraded over two construction periods

By Gregg K. Kakesako / gkakesako@starbulletin.com

The Honolulu Star Bulletin

Vol. 12, Issue 198 - Tuesday, July 17, 2007

The high-rise Sea-Based X-Band Radar with a white dome that has become a familiar sight will undergo more than \$27 million in upgrades at Pearl Harbor Shipyard over the next four months.

The 28-story, modified semisubmersible oil drilling platform -- five stories taller than the Ala Moana Building -- returned late last month after spending nearly six months in the frigid Bering Sea.

The radar plays a critical role in U.S. missile defense, tracking and identifying incoming missiles and warheads and relaying the information to interceptor bases in Alaska and California.

Army Col. John Fellows, X-Band Radar project manager, said that since January the fifth-generation, twin-hulled self-propelled platform traveled more than 3,500 miles in the northern Pacific undergoing a battery of tests. "The key thing was to verify its ability to operate in an adverse environment," Fellows said.

He said the \$900 million platform encountered waves from 50 to 60 feet and winds with sustained speeds of about 80 mph with gusts up to about 115 mph.

The radar platform's time in Hawaii will be broken into two construction periods of 30 to 40 days. Between the construction periods, the radar platform will be taken out to sea for tests, Fellows said.

The modifications, which are being done by Boeing Co., include:

- » Installing eight mooring and anchoring systems.
- » Adding a second crane on the port side of the platform.
- » Increasing its ability to launch rescue boats.
- » Upgrading its fuel system.

Fellows said the amenities for the platform's crew of 75 also will be improved by installing a satellite television system and upgrading the ship's gymnasium and galley facilities.

Yesterday, Fellows gave reporters a quick look inside the now-familiar white dome, which is more than 10 stories high. The dome is the protective covering for the X-Band Radar, which weighs 4 million pounds.

Pressurized air keeps the dome in place over the radar system, which Fellows described as having 45,000 radiating elements that can be tilted and rotated in every direction. The Missile Defense Agency official said the floating radar system can pinpoint a pingpong ball 3,000 miles away and 250 miles above sea level.

Fellows said the floating radar system is so sensitive that it can distinguish a real warhead from a dummy one.

Besides searching, tracking and defining a hostile ballistic missile, Fellows said the radar also is able to assess whether the intercepting missile hit and destroyed the threat.

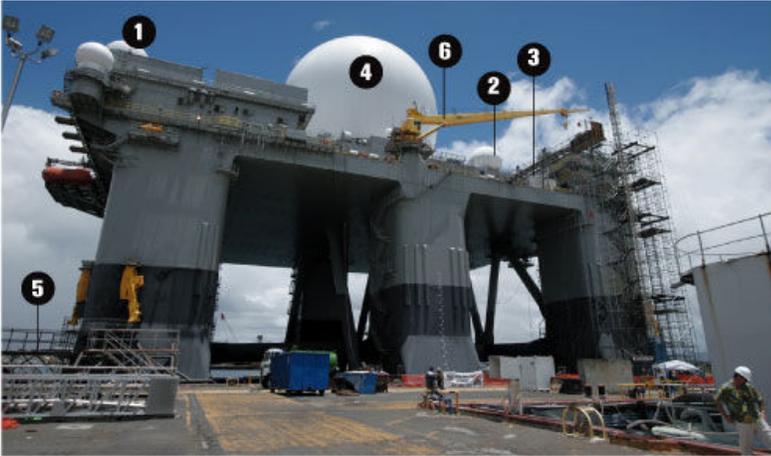
Information gathered by the radar is transmitted to ground-based missile interceptor bases at Fort Greeley in Alaska and Vandenberg Air Force Base in California. The X-Band Radar is considered a key part of the missile defense shield the military is setting up in the Asia-Pacific region to defend the United States and its allies against long-range missiles, particularly from North Korea.



RICHARD WALKER / RWALKER@STARBULLETIN.COM

Reporters were allowed aboard the Sea-Based X-Band Radar yesterday while the craft is docked at Pearl Harbor for upgrades. The giant radome houses the craft's massive radar and is the largest air-inflated dome in the world. The smaller radomes are for communications.

How the big 'Golf Ball' Radar works



- ❶ **IFICS data systems terminal** (In flight interceptor communication system) sends information to interceptor missile systems in Alaska and California to shoot down enemy missiles.
- ❷ **4 SATCOM terminals** (4 satellite communication terminals)
- ❸ **Helo deck** (helicopter landing pad)
- ❹ **X-Band Radome** (protects the X-band radar)
- ❺ **Pontoons** (2 pontoons support the semi-submersible platform)
- ❻ **Crane** (one on starboard side and another on port side will be added during the next four months)

Source: Missile Defense Agency

STAR-BULLETIN

<http://starbulletin.com/2007/07/01/news/story07.html>

Pearl Harbor fixing giant radar facility

By Gregg K. Kakesako

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Honolulu Star Bulletin

Vol. 12, Issue 182 - Sunday, July 1, 2007

[EXCERPTS]

The 27-story sea-based X-band radar, part of the \$3.4 billion Missile Defense Agency system, is back at Pearl Harbor for four months of maintenance and testing.

The floating radar system, which resembles a giant golf ball on a floating platform, docked at Pearl Harbor on Tuesday [*presumably 2007-06-26*].

Pam Rogers, spokeswoman for the Missile Defense Agency, said the "scheduled maintenance" and planned upgrades will be done by BAE Shipyards, which is under contract to Boeing Missile Systems.

She described the work that will be done on the converted floating oil platform to be "the normal sort of thing needed for a vessel that has spent six months at sea: scraping, painting and general maintenance."

Victor Rhoades, BAE director of operations, said all of the maintenance work will be done in the interiors of the platform in two different segments over the next four months. He said this portion of the maintenance contract is valued at \$5.4 million.

Rhoades said the work won't be "as challenging" as the last time BAE workers had to work on the platform. That occurred during last year's heavy rains and all the work was on the exterior of the platform.

"We had to hang scaffoldings on the exterior of the vessel," he added.

That job took 90 days and cost \$6.5 million.

The SBX was at sea for 174 days before returning to Pearl Harbor, and traveled more than 6,000 nautical miles, Rogers said.

After arriving at its home station in Adak, Alaska, at the end of the Aleutian Chain, the floating radar system last year "successfully demonstrated its ability to operate in the harsh winter weather conditions of the Northern Pacific and participated in two tests of the Ballistic Missile Defense System," the Missile Defense Agency said in a news release last month.

Last year the nearly \$900 million rig had to return to Pearl Harbor several times for repairs before it finally made it to its homeport in Alaska. A leak discovered in its ballast system resulted in \$1 million worth of upgrades.

http://www.brownsvilleherald.com/news/boeing_77850___article.html/amfels_defense.html

Faulty military contract work claimed at port
BY EMMA PEREZ-TREVIÑO
The Brownsville Herald
June 30, 2007 - 9:58PM

The structural integrity of a \$900 million missile defense system could have been compromised here, U.S. federal court records suggest.

The Missile Defense Agency, however, states that the Sea-Based X-Band Radar or SBX, which was partially built at the Port of Brownsville, does not yet show signs of faulty construction.

A confidential informant, however, told U.S. Department of Homeland Security Senior Special Agent Richard A. Perez in June 2004 that labor lease employees at Keppel AmFELS provided false welding certificates and shoddy work on SBX.

AmFELS officials were not available for comment but have said that the firm cooperated fully with investigators.

SBX is slated to be a key part of the country's ballistic missile defense system, and it was at the Port of Brownsville from May 2003 through 2005.

[Sourcebook note: Although the SBX platform, Moss Sirius, arrived at the Port of Brownsville on 30 May 2003, AmFELS did not receive the contract for its modification until mid-October 2003.]

Boeing Co. is the prime contractor for the Defense Department's Ground-Based Midcourse Defense program.

SBX is a component of the program. It consists of a sea-based modified oilrig platform which supports radar to track and is supposed to help defend against missile attacks on the United States.

Boeing subcontracted AmFELS to outfit the bare hull of the platform, construct and assemble living quarters, electrical work, networking and mechanical work, AmFELS' literature states. The contract was worth \$73 million.

The confidential informant told Perez that labor lease employees "were falsifying welding certificates, providing substandard workmanship as it relates to the structural integrity of the SBX and that drug use and theft was widespread," states Perez's 2004 affidavit in support of search warrants.

Perez sought documents or contracts relating to the U.S. government, Defense Department, Boeing Co., welding certificates, awards and documents regarding the certification and technical expertise of AmFELS employees.

Questions regarding the work performed here surfaced amid an investigation into allegations that lease labor corporations, including LAMC and CPEP at the Port of Brownsville, were providing AmFELS with undocumented immigrants to work on contracts, including the SBX project.

LAMC and CPEP did business together as Port Fabricators. A review by The Brownsville Herald showed 357th state District Judge Leonel Alejandro recently acted as chairman of both LAMC and CPEP and helped found Port Fabricators. Alejandro has said the corporations have cooperated fully.

Boeing and U. S. Missile Defense Agency spokesmen did not comment on the investigation.

"Boeing is not a party to the suit in question, and it is not our practice to comment on pending legal matters, particularly those in which we are not involved," Boeing said in a statement.

Regarding SBX's integrity, Missile Defense Agency spokesman Rich Lehner said, "Boeing and government officials have conducted comprehensive inspections on welds, weld X-rays and weld inspection processes as part of the normal required inspection process for a vessel like the SBX platform."

Though no discrepancies were found, Lehner said, "The welds will be continuously monitored as part of the routine maintenance and inspection process applied to similar vessels."

In a statement earlier this month, Boeing said, "At this point, it's not clear that any undocumented workers worked on the SBX program, therefore to the best of my knowledge, there was no negative impact on the program."

The federal investigation kicked off when state officials arrested an AmFELS welder in July 2003 for allegedly selling fake documents to an undercover officer.

The welder said he obtained the documents from a man working at AmFELS, according to court documents.

The two lease labor corporations and two former employees were indicted in May in the U.S. District Court, Southern District of Texas, and charged in a plot to provide undocumented workers to AmFELS from 2002 through 2004.

During this period, AmFELS paid \$30.4 million in labor lease contracts to Port Fabricators, which employed 1,041 lease employees to fulfill AmFELS contract. Of these, 624 provided invalid proof of employment-eligibility, the indictment states.

Boeing stated that AmFELS completed the work on SBX and that to the best of its knowledge, the Defense Department did not take administrative action against Boeing or AmFELS.

"Boeing cooperated fully with the DOD investigators," according to the statement.

As for Boeing's continued working relationship with AmFELS, Boeing stated that "there are no plans to utilize" the company. SBX is still undergoing testing.

Missile Defense Agency Director Air Force Lt. Gen. Henry Obering III announced in a statement on June 7 that SBX was on its way to Hawaii for scheduled maintenance and system upgrades.

Obering also said there were no plans to turn on the SBX radar while in port.

If it became necessary, "It would be at a very low level and emit considerably less energy than a microwave oven," the statement reads.

Missile Defense Agency spokeswoman Pamela Rogers said planned upgrades and repairs "don't involve structural issues, just routine maintenance."

<http://www.kodiakdailymirror.com/?pid=19&id=4885>

Defense agency plans missile retest this fall
Sea-based radar system heads back to Hawaii, will be tested later in 2007
Article published on Friday, June 15th, 2007
By BRYAN MARTIN
Mirror Writer
[EXCERPTS]

A failed missile test in May fired from the Kodiak Launch Complex as a target for an interceptor shot from California is being set for a rerun in August.

“It will be a repeat of the (test) last month,” said Rick Lehner, spokesman for the Missile Defense Agency in Washington, D.C.

The failed May test was designed to see if the interceptor could hit the target.

The missile retest set for August or September replaces a launch to be scheduled for later in the year, which is to test the sea-based X-band radar (SBX) homeported at Adak and used to track the target missile.

Lehner said today the floating radar, designed to differentiate between decoys and real missile warheads, is due to arrive next week at Pearl Harbor, in Hawaii, for maintenance and upgrades.

Lehner said the floating SBX radar, which rises some 28 stories from its keel to the top of the radar dome, would be in the shipyard near Oahu for several months.

Lehner said, however, the SBX, which has been cruising the Pacific Ocean the past several months, will leave its Hawaii port for a test later this fall and the SBX radar systems will be a primary focus of that test.

The target-interceptor test in May was aborted when the missile at Vandenberg

Air Force Base was eight to 10 minutes from liftoff. The interceptor was supposed to collide with the target high over the Pacific Ocean southwest of the California coast.

The Kodiak target missile plummeted into the Pacific Ocean after problems occurred in its motor. The interceptor was unable to identify the target missile as a threat.

MDA officials said the test was designed to simulate the speed, altitude and trajectory of a possible ICBM launch from North Korea.

Lehner said only two target interceptor tests from Kodiak have taken place – May 25 and Sept. 2, 2006.

The upcoming August launch is to be the 12th missile fired from KLC since its inception in 1993.



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 14

Week: 24/07

[EXCERPT]

HI ISLANDS - MILITARY OPERATIONS - RADAR CALIBRATION

The military will be conducting radar calibration in the following position:

20-14N, 158-44.5W
20-20N, 158-52.5W
20-12N, 158-59W
20-06N, 158-51W

The operations will take place daily on June 13, 2007, through June 26, 2007. In the interest of safety request all vessels remain clear of the area during the specified times.

[Sourcebook note: This is the same area used for radar testing by SBX September-October 2006]

<http://www.honoluluadvertiser.com/apps/pbcs.dll/article?AID=/20070608/NEWS08/706080352/1001/NEWS>

The Honolulu Adviser

Posted on: Friday, June 8, 2007

Military's 'golf ball' coming back

By William Cole

Advertiser Military Writer

The military's Sea-Based X-Band Radar, otherwise known as the giant floating golf ball, is turning out to mean a lot of work for the Pearl Harbor shipyard.

The 28-story-tall radar, built atop an oil-drilling platform, will return to Hawai'i this month for maintenance and system upgrades, the Missile Defense Agency said.

The towering radar has come and gone multiple times from Pearl Harbor, sometimes as a result of sea testing and sometimes to fix problems, since it first arrived in January of 2006 from Corpus Christi, Texas, perched on a heavy-lift vessel.

Since departing Pearl Harbor in January of this year for its home base of Adak, Alaska, the radar "successfully demonstrated its ability to operate in the harsh winter weather conditions of the northern Pacific" and participated in two tests of the nation's ballistic missile defense system, the missile agency said.

The \$900 million-plus radar is so powerful, officials have said, that from Chesapeake Bay it could detect a baseball-sized object over San Francisco. It is intended to track missiles in space.

The U.S. Northern Command reported in March the sea-based radar was in the northern Pacific near the Aleutian island of Adak.

The radar received a paint job and other work in Hawai'i in early 2006, and the Defense Department said at the time it would leave for Adak in March of that year.

But a leak was detected in the ballast piping before an independent review found a host of other problems on the one-of-a-kind platform, and \$1.2 million in upgrades were ordered.

The radar platform may be at Pearl Harbor for several months. During that time it may go back out to sea to participate in another test of what's called the Ground-Based Midcourse Defense program, and then return to port here again.

The radar is so strong it can interfere with aircraft, automobiles and other devices that cross the beam's path. The military previously said the radar could cause "electro-explosive devices" to detonate, such as car airbags and military aircraft ejection seats.

The Missile Defense Agency said there are no plans to turn on the radar while the platform is in port. If activation becomes necessary for testing following upgrades, it would be at a low level and emit less energy than a microwave oven, officials said.

BAE Shipyards at Pearl Harbor was selected to perform the unspecified work.

Reach William Cole at wcole@honoluluadvertiser.com.

<http://www.mda.mil/mdalink/pdf/07fyi0099.pdf>

07-FYI-0099

7 June 2007

Sea Based X-Band Radar Returns to Pearl Harbor for Maintenance

Air Force Lieutenant General Henry “Trey” Obering III, Missile Defense Agency Director, today announced the giant 28-story Sea Based X-Band Radar (SBX) will return to Pearl Harbor for scheduled maintenance and planned system upgrades later this month. Since departing Pearl Harbor last January, the SBX successfully demonstrated its ability to operate in the harsh winter weather conditions of the Northern Pacific and participated in two tests of the Ballistic Missile Defense System.

The world’s largest phased-array x-band radar, carried aboard a self-propelled semi-submersible oil platform, could be at Pearl Harbor Shipyard for several months, in order to complete the maintenance and system upgrades. During this time, it may go back to sea, to participate in another test of the Ground Based Midcourse Defense Program, then return to Pearl Harbor again for completion of the scheduled work.

There is currently no plan to turn on the SBX radar while in port. If it becomes necessary to turn on the radar following the maintenance and upgrades for testing purposes, it would be at a very low level and emit considerably less energy than a microwave oven.

BAE Shipyards at Pearl Harbor was selected from among several locations that bid on a competitive contract to accomplish the anticipated maintenance and upgrades.

The SBX will be visible from Honolulu for several hours before entering Pearl Harbor.

Contact: Rick Lehner, MDA Public Affairs, at (703) 697-8997, Richard.Lehner@mda.mil or Ms. Pam Rogers, at (256) 955-2952, Pamela.rogers@mda.mil

[Sourcebook note: As of the date of this sourcebook, no information relating to the competitive bidding process implied above has been located. A Freedom of Information Act (FOIA) request for such information was submitted to the Department of Defense on 2007-07-14.]

http://www.brownsvilleherald.com/articles/attorneys_76876___article.html/project_amfels.html

Attorneys seek to strike mention of security project
BY EMMA PEREZ-TREVIÑO — The Brownsville Herald
May 29, 2007 – 11:21PM

Attorneys for CPEP Inc. and LAMC Inc. claim prosecutors are attempting to link a threat to national security with a federal indictment against the corporations.

Corporate attorneys who are tied to state District Judge Leonel Alejandro are seeking to eliminate mention of one aspect of the federal indictment against the corporations — the SBX project — claiming it could prejudice a jury.

A modified oil-drilling platform, SBX stands for the Sea-Based Test X-Band Radar Platform. It was developed to support the U.S. Department of Defense's missile defense system.

The Defense Department awarded the SBX contract to the Boeing Company, which in turn subcontracted oil rig manufacturer Keppel AmFELS at the Port of Brownsville for the \$73 million project.

The mention of the SBX project “. . . could serve only to inflame the jury, confuse the issues and blur the elements necessary for conviction . . .,” attorneys stated, citing case law in a motion recently filed in federal court.

The corporations, doing business as Port Fabricators at the Port of Brownsville, and former employees Rolando Villanueva, 31, and Ernesto Casas, 33, were indicated earlier this month in an alleged plot to supply undocumented workers to AmFELS.

The indictment alleges that between January 2002 and September 2004, AmFELS paid Port Fabricators \$30,382,250 in labor lease contracts.

In this time period, Port Fabricators employed about 1,041 labor lease employees to fulfill the contract with AmFELS and of these, investigators found that 624 provided invalid proof of eligibility for employment.

Corporate attorneys maintain that the SBX project was not the only project that AmFELS was working on during the two years in question. “Yet, of all the projects underway at AmFELS during the two-year period, the government has highlighted the SBX project,” attorneys John Patrick Smith, Trey Martinez, and Eric Reed noted in their motion.

“The inclusion of references to ‘missile defense systems’ has no relevance to an indictment involving the hiring of illegal aliens and procurement of immigration documents,” the attorneys allege.

They maintain that the language inflames fear and prejudice and suggests that foreign citizens endangered national security.

Presiding Judge Hilda G. Tagle had not ruled on the motion at press time, according to court documents.

Alejandro recently acted as chairman of both CPEP and LAMC, and the he was AmFELS's attorney before taking his seat on the court in January 2003, according to public records.

In a recent statement, Alejandro said he helped develop Port Fabricators and still has some involvement with the company. Alejandro also said that the company has continuously cooperated throughout the inquiry.



Department of Justice
U.S. Attorney's Office
Southern District of Texas

Donald J. DeGabrielle, Jr. • United States Attorney

FOR IMMEDIATE RELEASE

MAY 9, 2007

WWW.USDOJ.GOV/USAO/TXS

MEDIA CONTACT OFFICE

MEDIA CONTACT NUMBER: (713) 567-9301

**GRAND JURY INDICTS LABOR LEASE COMPANIES AND
EMPLOYEES FOR HIRING ILLEGAL ALIENS AT AMFELS SHIPYARD**

(BROWNSVILLE, TX) Two area labor lease companies and two former employees have been indicted for hiring illegal aliens to work at the Keppel AmFELS shipyard as the result of a Department of Defense investigation, United States Attorney Don DeGabrielle announced today.

CPEP, Inc. and LAMC, Inc., both doing business as Port Fabricators, Rolando Villanueva, 31, and Ernesto Casas, 33, both of Brownsville, TX, have been charged in a 15-count indictment with conspiracy and multiple counts of hiring illegal aliens and document fraud. The indictment was returned under seal on Tuesday, May 1, 2007, by a Brownsville grand jury, and unsealed today, following the service of summonses upon the corporations. Villanueva turned himself in on Monday and was released on a \$30,000 bond. Casas was arrested today, and will appear before a United States Magistrate Judge tomorrow. A representative of CPEP, Inc. and LAMC, Inc., Texas corporations which operate simultaneously and do business as Port Fabricators, did appear before a United States Magistrate Judge today. Villanueva and Casas are expected to appear before a United States Magistrate Judge Thursday for arraignment.

CPEP, Inc. and LAMC, Inc., doing business as Port Fabricators, held labor lease contracts with Keppel AmFELS ("AmFELS"). Villanueva and Casas, former personnel employees of Port Fabricators, were responsible for recruiting and hiring skilled and unskilled employees for these labor lease contracts. All defendants are accused of conspiring to encourage and induce aliens to come to, enter or reside in the United States, knowing the aliens had entered or resided in violation of law; to knowingly hiring for employment ten or more persons within a year knowing the persons were aliens unauthorized to work in the United States; to knowingly completing or causing others to complete Employment Eligibility Verification forms (Form I-9s) using false, fraudulent, or fictitious resident alien cards or Social Security cards; and knowingly accepting or causing others to accept false, fraudulent, and fictitious resident alien cards and Social Security numbers knowing them to have been forged, counterfeited, altered or falsely made or to have been procured unlawfully.

According to allegations in the indictment, Keppel AmFELS ("AmFELS") is a shipyard located within the Free Trade zone of the Port of Brownsville, TX, which constructs, refurbishes and repairs a

complete range of mobile offshore drilling rigs and platforms. Between January 2002 and September 2004, AmFELS entered into multi million dollar labor lease contracts with Port Fabricators to recruit and hire employees to fill skilled and unskilled position on a number of government contracts awarded to AmFELS during that time period. In October 2003, AmFELS was awarded one such contract, named SBX, by the Department of Defense to refit a large semi-submersible seagoing oil platform. AmFELS had contracted with the defendant companies among others, to meet its demand for 1,000 - 1,200 employees to perform the contract.

As human resource employees of the labor lease companies, Villanueva and Casas were responsible for verifying that each applicant for employment at AmFELS was legally authorized to work in the United States. The indictment alleges that for a fee and for the benefit of the two defendant labor lease companies, Villanueva and Casas knowingly hired, recruited and referred aliens not authorized for employment in the United States, and continued to employ aliens no longer authorized for employment by means of selling or transferring fraudulent identification documents to the alien, or encouraging and instructing aliens to change their name or appearance, and apply to continue to work at AmFELS.

The three-year investigation leading to this indictment was initiated in September 2004 with a comprehensive sweep of the day shift employees working on the SBX project for possible document fraud in September 2004 by special agents of the Immigration and Custom Enforcement (ICE) with the assistance of the Social Security Administration Office of Inspector General, Department of Defense Office of Inspector General, Texas Department of Public Safety and Customs and Border Protection. That sweep resulted in the identification of 41 illegal aliens working on the SBX platform. Of the forty-one, twenty-three were employed through the labor lease contracts with Port Fabricators.

If convicted, Villanueva and Casas face a maximum of ten years imprisonment for each count of transferring or accepting a fraudulent document. Each count of conspiracy or hiring illegal aliens carries a five-year maximum sentence. Additionally, each count of aggravated identity theft mandates a two-year sentence consecutive to any other sentence. The labor lease defendants face fines of \$500,000 for each count of conviction.

An indictment is a formal accusation of criminal conduct, not evidence. A defendant is presumed innocent unless and until convicted through due process of law.

<http://www.kodiakdailymirror.com/?pid=19&id=4793>

Target break- down halts missile test

MDA says test was incomplete, does not reflect system's reliability

Article published on Friday, May 25th, 2007

By BRYAN MARTIN

Mirror Writer

A dummy missile fired early today from the Kodiak Launch Complex failed to reach its destination, plummeting into the Pacific Ocean and resulting in a "no test" in which a ground-based interceptor from Vandenberg Air Force Base in California was aborted.

The missile launched from KLC at 6:15 a.m.

It was not immediately known why the target, an old intercontinental ballistic missile (ICBM), failed after launch from Kodiak Island.

"The target did not reach sufficient altitude to be deemed a threat, and so the ballistic missile defense system did not engage it, as designed," said Air Force Lt. Gen. Henry "Trey" Obering, III, Missile Defense Agency director.

The interceptor was eight to 10 minutes from liftoff from Vandenberg when its flight was canceled. The interceptor was supposed to collide with the target high over the Pacific Ocean.

Obering said the test was the first failure of a target in the test program.

In 2001, a missile defense system target rocket launched from KLC had to be destroyed shortly after takeoff because of lost data transmission.

Obering said that a program of modernizing targets has begun to reduce the risks involved in using ICBMs.

The national missile defense system currently includes interceptors based at Fort Greely and Vandenberg.

"There is always a risk of this occurrence since we are flying old intercontinental ballistic missile motors in our targets," Obering said. "We have initiated a target modernization program, within our existing budget, which should mitigate these risks for the future."

Obering said a target test is scheduled for this fall, and today's test may be repeated sometime this summer.

Obering said MDA officials are conducting an extensive investigation to determine the cause of the malfunction.

He said the MDA has conducted 16 of 17 successful flight tests since 2005 and has achieved 27 of 34 successful intercepts since 2001.

Rick Lehner, MDA spokesman in Washington, D.C., said today's test does not reflect on the accountability or success of the nation's overall missile defense system.

Lehner said there were no systems tested since the interceptor was not launched.

"The system did not identify the target missile as a threat," Lehner said.

Lehner said the Kodiak missile plummeted into the Pacific Ocean, but he did not know its exact location.

Lehner previously said the test was designed to simulate the speed, altitude and trajectory of a possible ICBM launch from North Korea.

On July 4, 2006, North Korea attempted to test launch its first ICBM, known as the Taepodong-2. However, the missile malfunctioned and failed shortly after take-off.

"This test today shows that if Iran launched a missile at the United States, it also could easily fail and fall somewhere in Europe," Lehner said. "It would be the same type of failure as today."

Lehner said it demonstrates the importance of establishing a defense shield in Poland and the Czech Republic being considered by the Bush administration, but meeting opposition from countries such as the Russian Republic.

The interception and destruction of the test missile was expected at between 100 miles and 200 miles above the eastern Pacific Ocean.

Lehner said only two target interceptor tests from Kodiak have taken place, today's and one on Sept. 1, 2006.

Today's launch was the 11th missile fired from KLC since its inception in 1993.

The September test was graded a success after the California missile hit the Kodiak missile, even though that was not the primary goal of the test. The goal of that launch was to test the radar at Beale

Air Force Base, near Sacramento, Calif.

The next launch, tentatively scheduled for the fall, is to test the sea-based X-band radar (SBX) homeported at Adak and used to track the attacking missile.

"I don't know if the SBX got a track on this one today," Lehner said.

Mirror writer Bryan Martin can be reached via e-mail at bmartin@kodiakdailymirror.com

<http://www.lompocrecord.com/articles/2007/05/22/news/news03.txt>

VAFB missile defense test set for Thursday

By Janene Scully/Associate Editor

May 22, 2007

[EXCERPTS]

For the second time, a missile defense interceptor is poised to fly on Thursday [2007-05-24] morning from Vandenberg Air Force Base on a mission to collide with a target launched from Alaska.

The test for the Ground-based Midcourse Defense system, with a price tag of about \$85 million, will be similar to one last September.

Thursday's launch window is 7 a.m. to 11 a.m. Thursday. The missile from Kodiak Launch Complex, Alaska, will blast off first, with the interceptor expected to pop out of its underground silo on north Vandenberg about 20 minutes later.

While the test's main goal is to end with an intercept, that's not the only objective, according to Richard Lehner, Missile Defense Agency spokesman.

"But still the overall objective of the test, like all of them, is to measure system performance so that we can make it better," Lehner said.

This test has been delayed several months "mainly because we wanted to update the software based upon some ground testing that we did," Lehner said.

"We also had an issue with some of the telemetry equipment on board the test missile. ...That's all been fixed," he added.

While Vandenberg has previously launched the targets, this will be the second time it launches the interceptor missile.

That's because the geometry - speed, altitude and trajectory - make it operationally realistic to test the Vandenberg system's response to a missile launch from North Korea, Lehner said.

A launch readiness review is set for today to verify that all systems are ready.

While a weather forecast wasn't available Monday, launch officials are keeping an eye on a system set to land in Alaska today. Range safety rules set guidelines that prevent launching the target in unfavorable conditions such as rain or lightning.

"Hopefully the weather will be good enough, though," Lehner said.

Janene Scully can be reached at 739-2214 or janscully@lompocrecord.com.

<http://www.kodiakdailymirror.com/?pid=19&id=4714>

Missile tentatively set for late May launch
Article published on Thursday, May 10th, 2007
By BRYAN MARTIN
Mirror Writer

A missile is tentatively scheduled to be fired from the Kodiak Launch Complex between May 24 and May 27 to test an interceptor launched from Vandenberg Air Force Base in California.

The U.S. Coast Guard's Marine Safety Detachment in Kodiak has announced safety water zones due to the upcoming launch.

However, Rick Lehner, spokesman for the Missile Defense Agency in Washington, D.C., said today, the dates could change since they are not set until a week before the launch.

U.S. Coast Guard Lt. Cmdr. Patrick Lee, Marine Safety Detachment supervisor, said his unit is meeting next week with KLC personnel to develop logistics for the safety areas.

The safety zones, in effect from 2 a.m. and 10:30 a.m. each day, include navigable waters in the vicinity of Narrow Cape and Ugak Island.

Lee said coordinates would be broadcast so that mariners are notified of the safety zones.

Unauthorized entry into or through a zone is prohibited and may result in civil or criminal penalties, including fines of up to \$32,500.

Lee said there would also be a hazardous rocket impact area established at a point where the rocket stages are predicted to enter the ocean.

The first is centered approximately 90 miles southeast of Kodiak Island, with a time window of 6 a.m. to 10 a.m. each day.

"Mariners are strongly advised to stay clear of this area," Lee said.

The other two hazardous rocket impact areas are centered approximately 100 miles southwest of Dehlinger Seamount and 75 miles west of Erben Tablemount off the California coast.

Lehner said the upcoming launch has a "primary objective of striking the target missile."

He said a Sept. 1, 2006, launch in which the Kodiak missile was hit did not have an intercept strike as its primary objective.

The upcoming Kodiak launch will be the 11th time a missile has been fired from KLC.

Lehner said the sea-based X-band radar (SBX), homeported in Adak, will shadow the missile test but will not be the sole-source radar.

The SBX, now cruising in the Pacific Ocean, will not be fully operational until the next launch tentatively set for fall.

The SBX can pinpoint a baseball ball 3,000 miles away with its high-frequency radar, making detailed, long-range imagery possible at the North American Aerospace Defense Command (NORAD) on Peterson Air Force Base in Colorado Springs, Colo.

Radar systems at Beale Air Force Base in California are the primary radar tracking system for the launch.

Mirror writer Bryan Martin can be reached via e-mail at bmartin@kodiakdailymirror.com.

<http://www.kmxt.org/?q=node/2180>

Safety Zones Established For Upcoming Rocket Launch

Fines Up To \$32,500 For Violators

3 May 2007

Casey Kelly/KMXT

[EXCERPTS]

In preparation for an upcoming rocket launch by the Kodiak Launch Complex, the U-S Coast Guard has established a safety zone for mariners off Narrow Cape on Kodiak Island. Lieutenant Commander Patrick Lee with the Kodiak Coast Guard base says the safety zone is the same one established for previous launches.

The safety area is a few miles off shore around Narrow Cape, including Ugak Island. Lee says the times that the safety zone will be in effect are slightly different than the launch window.

There's a hefty fine for boaters who violate the safety zone. Lee says the Coast Guard is also establishing three hazardous impact areas, starting about 90 miles southeast of Kodiak Island. Although there's no fine for being in those areas, he says it's a good idea to avoid them.

The exact coordinates for the safety zone and hazardous impact areas of the upcoming launch are listed below.

The Safety Zone is in effect from May 24 through May 27, 2007, between 2 a.m. and 10:30 a.m. each day, or until cancelled. The Safety Zone includes all navigable waters contained within the area bordered by the following points: 57 deg. 29.8' north, 152 deg. 17.0' west, 57 deg. 21.1' north, 152 deg. 11.2' west, 57 deg. 19.9' north, 152 deg. 14.2' west, 57deg. 25.4' north and 152 deg. 28.2' west.

There will also be a hazardous rocket impact areas established at points where the rocket stages are predicted to enter the ocean. The first is centered approximately 90 miles south-east of Kodiak Island from May 24 through May 27, 2007, between 6 a.m. and 10 a.m. each day, or until cancelled. The hazard area is defined by the points 56.5 degrees north, 151.3 degrees west, 55.95 degrees north, 150.65 degrees west, 56.05 degrees north, 150.35 degrees west, 56.6 degrees north and 151.0 degrees west. All mariners are strongly advised to stay clear of this area.

The other two hazardous rocket impact areas are centered approximately 100 miles southwest of Dehlinger Seamount and 75 miles west of Erben Tablemount from May 24 through May 27, 2007, between 1500 and 1900 Zulu each day, or until canceled.

The second stage hazard area is defined by points 41.15 degrees north, 138.35 degrees west, 39.5 degrees north, 137.45 degrees west, 39.5 degrees north, 136.85 degrees west, 41.15 degrees north and 133.0 degrees west.

The third stage hazard area is defined by points 33.25 degrees north, 135.0 degrees west, 30.9 degrees north, 133.75 degrees west, 30.9 degrees north, 133.0 degrees west, 33.25 degrees north and 134.25 degrees west.

http://www.ktva.com/alaska/ci_5643273

Missile Defense plans May launch from Kodiak Island

Associated Press

Article Last Updated: 04/11/2007 01:18:35 PM AKDT

The military's Missile Defense Agency says it's planning a rocket launch for the Kodiak Launch Complex next month. Spokesman Rick Lehner says a date has not been chosen but a target missile will be fired from Kodiak and intercepted by a missile fired from Vandenberg Air Force base in California. The sea-based X-band radar, now in the Pacific Ocean, is to play a major role in the test.

The 280-foot tall SBX radar can identify baseball-size objects from thousands of miles away. The 815 million-dollar radar is mounted on a self-propelled, semi-submersible platform that can sail to any location where the military needs to track missiles.

A missile fired from Kodiak was intercepted and hit in September, the sixth hit for the overall program out of 11 attempts. After the May launch, another is planned for the fall and two or three launches are being planned for 2008.

<http://64.70.221.24/DiscBoard/viewtopic.php?p=15889&sid=c5016d2a5ba7afea5a1050f9e1e83f11>

Posted: Mon Apr 09, 2007 8:42 am
Post subject: AIS on Military Vessels

Here is another military vessel AIS sighting. This one is definitely "different".

I've been playing with my SR-162 AIS receiver, and the ShipModul Miniplex 42BT (on the workbench at home), and have been watching this strange vessel that has been parked about 50 to 100 NM offshore of San Francisco for the last several days. The name is SBX-1, and I couldn't locate the name, the call, or the MMSI in any of the regular databases. There has been a tug named "Dove" running in and out of S.F. Bay then holding station a few hundred feet from SBX-1. I had been suspecting that I was watching a drug transfer or something (but with the AIS transponders turned on???), until I finally did some google searching.

It turns out that SBX-1 is Sea-Based X-Band Radar -- a floating, self-propelled, mobile radar station designed to operate in high winds and heavy seas. It is part of the United States Government's Ballistic Missile Defense System. (from the Wikipedia entry: http://en.wikipedia.org/wiki/Sea-based_X-band_Radar). The Dove is the SBX-1 support vessel. The SBX-1 semi-submersible hull was built in Russia's Vyborg shipyard. The superstructure and radars were installed in Texas, and SBX-1 was then sent through the Straits of Magellan to Pearl Harbor. It is to be based in Adak Island in the Aleutian Islands, but it is obviously mobile, and for some reason is now near San Francisco.

My home is about 40 miles north of San Francisco, and is a few miles from the coast at an elevation of 1000 ft. I regularly see AIS signals out to 100 miles, and if the tropo ducting is active, I can receive from much further out. My record so far is about 1000 NM, around the tip of Baja California.

[deletia]

There is some pretty strange stuff out there!

-Paul

Paul Elliott
S/V VALIS - Pacific Seacraft 44 #16
Sausalito, California
<http://www.sailvalis.com>

[Sourcebook note: AIS positions of M/V Dove in San Francisco Harbor April-May 2007 are shown in Appendix F]

<http://www.navcen.uscg.gov/lnm/d11/lnm1115.pdf>



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 11

Week: 15/07

NORTHERN CALIFORNIA-HAZARDOUS OPERATIONS-SAN FRANCISCO

The SBX-1 will be conducting radar test operations from 4 April to 22 April 2007 in approximate position:

37-52.0N 123-51.0W

SBX-1 requests that mariners approach no closer than 3 miles when passing. Mariners are advised to use caution when transiting the area. For more details or comments contact LT Michael Delury at 907-271-6727.

Chart 18010

LNM: 15/07

<http://www.navcen.uscg.gov/lnm/d11/lnm1116.pdf>



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 11

Week: 16/07

NORTHERN CALIFORNIA-HAZARDOUS OPERATIONS-SAN FRANCISCO

The SBX-1 will be conducting radar test operations from 22 April to 1 June 2007 in approximate position:

39-00.0N 129-00.0W

SBX-1 requests that mariners approach no closer than 6 miles when passing. Mariners are advised to use caution when transiting the area. For more details or comments contact LT Michael Delury at 907-271-6727.

Chart 18010

LNM: 16/07

<http://www.navcen.uscg.gov/lnm/d11/lnm1119.pdf>



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 11

Week: 19/07

NORTHERN CALIFORNIA-HAZARDOUS OPERATIONS-SAN FRANCISCO

The SBX-1 will be conducting radar test operations from 22 April to 1 June 2007 in approximate position:
39-00.0N 129-00.0W

SBX-1 requests that mariners approach no closer than 6 miles when passing. Mariners are advised to use caution when transiting the area. For more details or comments contact LT Michael Delury at 907-271-6727.

Chart 18010

LNM: 16/07

<http://www.navcen.uscg.gov/lnm/d11/lnm2011.pdf>



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 11

Week: 20/07

NORTHERN CALIFORNIA-HAZARDOUS OPERATIONS-SAN FRANCISCO

The SBX-1 will be conducting radar test operations from 22 April to 1 June 2007 in approximate position:
39-00.0N 129-00.0W

SBX-1 requests that mariners approach no closer than 6 miles when passing. Mariners are advised to use caution when transiting the area. For more details or comments contact LT Michael Delury at 907-271-6727.

Chart 18010

LNM: 16/07

<http://www.navcen.uscg.gov/lnm/d11/lnm1121.pdf>



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 11

Week: 21/07

NORTHERN CALIFORNIA-HAZARDOUS OPERATIONS-SAN FRANCISCO

The SBX-1 will be conducting radar test operations from 22 April to 1 June 2007 in approximate position:
39-00.0N 129-00.0W

SBX-1 requests that mariners approach no closer than 6 miles when passing. Mariners are advised to use caution when transiting the area. For more details or comments contact LT Michael Delury at 907-271-6727.

Chart 18010

LNM: 16/07

http://www.careerbuilder.com/JobSeeker/Jobs/JobDetails.aspx?IPath=FJSG&job_id=J8G3NJ6XBX33M2LVG3W&cbRecursionCnt=1&cbid=e8f91b118c7549039b91d686eb3b76bd-229624358-JB-5

Port Engineer SBX1

Company: Interocean American Shipping

Posted: 4/4/2007

Location: US-AK-Anchorage

Manages Others: Yes

Job Type: Engineering

Req'd Education: 4 Year Degree

Req'd Experience: More than 5 Years

Req'd Travel: Not Specified

Relocation Covered: Yes

Description

Interocean American Shipping Company has an immediate opening in their Anchorage, Alaska facility for a Port Engineer SBX1.

This position supports and assists SBX Marine Superintendent with overseeing and management of the SBX-1.

Designs and oversees installation and repair of marine power plans, maintains the power plants, propulsion systems, heating and ventilation systems, mechanical, electrical, navigational and safety equipment on the SBX vessels

Manages special technical engineering projects as directed

Maintains vessel in a condition that provides the highest probability of success during operation in support of Owner's objectives

Manages assigned vessel on site

This essential evolution is labor intensive and involves extended working hours

Supervises and coordinates the repairs, crewing, storing of the vessel and determines when the vessel is ready for sea trials

Monitors and reports on vessel's operational conditions and makes needed arrangements to correct any deficiencies. Reports status

Prepares repair, activation and deactivation specifications, as required

Evaluates performance and operation of equipment; recommends repairs, modification and/or renewals when necessary

Maintains records of all annual, bi-annual, midterms, etc. inspections and surveys required by classification societies and government agencies

Insures that all vessels have proper certificates on board and assists in the timely arrangement of vessel surveys

Assures that USCG certification items and other regulatory body items are completed. Interfaces with local regulatory bodies to implement compliance with customer and government regulations

Maintains and updates spare parts inventories as required

Oversees repairs to equipment such as boilers, steam driven turbine engines, heat exchangers, fire control and communication systems, electric power systems, or piping and related fittings and valves

Keeps records of engineering performance and costs for vessel. Submits reports as required

Assures that ship security, safety and quality standards are properly provided

Other duties as assigned

07-NEWS-0028

21 March 2007

Missile Defense Flight Test Successfully Completed

Lt. Gen. Henry “Trey” Obering, Missile Defense Agency director, today announced the successful execution of an important test involving the tracking of a long-range target missile by radars that are being incorporated into the Ballistic Missile Defense System (BMDS).

The target missile was launched today from Vandenberg Air Force Base, Calif. at 9:27 pm PDT March 20 (12:27 am EDT March 21). The target was successfully tracked by the Sea-Based X-band (SBX) radar and two Aegis Ballistic Missile Defense ships using onboard SPY-1 radar. The Missile Defense Agency is developing and deploying an extensive network of land and sea-based radars to detect and track all types of ballistic missiles and to provide targeting information to interceptor missiles through the Command, Control, Battle Management and Communication (C2BMC) system.

A primary focus of this system test was to assess the execution and functionality of various BMDS Engagement Sequence Groups. An Engagement Sequence Group identifies the combination of weapons and sensors that work together to detect, track and intercept an enemy missile. During the test, target tracking data from the SBX radar was successfully transmitted to the C2BMC system and the Ground-based Midcourse Defense fire control system at the Joint National Integration Center in Colorado Springs, Colo. While no live interceptor missiles were launched, a weapon task plan (intercept solution) was generated and simulated interceptor missiles were “launched” from Fort Greely, Alaska using performance data from previous interceptor launches. Similarly, Aegis ships tracked the target missile and performed a simulated engagement using a simulated Standard Missile-3 (SM-3) interceptor missile.

The largest radar of its type, the SBX is designed to track and discriminate small objects in space, which makes it especially effective for missile defense. It provides very accurate information to help direct ground and sea-based interceptor missiles in a position to collide directly with an in-coming missile warhead for a “hit to kill” intercept to destroy the warhead before it reaches its target in the United States with a nuclear, chemical or biological weapon.

Participants from the ballistic missile defense operational community included the Operational Test Agencies, U.S. Northern Command, U.S. Pacific Command and U.S. Strategic Command. The test provided a significant opportunity for warfighters from Combatant Commands to practice and refine tactics, techniques and procedures to defend the United States.

Program officials will continue to evaluate system performance based upon telemetry and other data obtained during the test. Flight test results will help to further improve and refine the performance of numerous BMDS elements that will be used to provide a defense against the type of long-range ballistic missile that could be used to attack an American city with a weapon of mass destruction.

News media point of contact is Rick Lehner, Missile Defense Agency, at (703) 697-8997 or richard.lehner@mda.mil

<http://www.lompocrecord.com/articles/2007/03/20/news/centralcoast/news08.txt>

Launch set tonight at VAFB; weather may delay
Staff report
March 20, 2007

Vandenberg Air Force Base plans to launch a target tonight for a U.S. Missile Defense Agency test involving a new sea-based radar parked in the central Pacific Ocean.

Liftoff of the target is expected about 8:30 p.m., with the launch window remaining open until about 12:30 a.m. Wednesday, though weather predictions cast a shadow over the plan.

There's a 30-percent chance that conditions won't accommodate blastoff. An assortment of concerns including rain, clouds, lightning and winds could delay or scrub the test.

The Vandenberg launch will be "part of a sensor exercise for new sea-based X-band radar," according to Richard Lehner, MDA spokesman.

This is a "data collection exercise for the radar in preparation for its participation in two intercept tests this year," he said. The first is set for May or June, the second in the fall. However, the radar will only shadow the test on the first try.

The radar being tested is designed to track incoming missiles, discriminate between threatening warheads and decoy objects, and assess incoming target missiles. If the radar performs as planned, it will increase the agency's ability to conduct realistic tests of the Ground-Based Midcourse Defense element, according to an MDA fact sheet.

[deletia]

"With the successful completion of fine-calibration testing, SBX moves one step closer to becoming the cornerstone of surveillance in the defense of our nation," said Pete Franklin, vice president of Raytheon Integrated Defense Systems Integrated Air and Missile Defense.

"The Raytheon-developed X-Band Radar provides a one-of-a-kind capability. It is the sensor that can precisely track targets at long ranges, discriminate them to isolate the threatening objects from non-lethal ones, and perform midcourse hit assessment."

http://pogoblog.typepad.com/pogo/2007/03/tonights_missil.html

Tonight's Missile Defense Exercise is "Secret"

March 20, 2007

[EXCERPTS]

A missile defense exercise this evening will be classified as Secret, according to an email sent to government personnel with the Missile Defense Agency and obtained by POGO, shutting off real-time media access to the general results, despite the fact that previous tests have been open to the media. However, missile defense personnel will be able to monitor the voice communications and the target flyout if they RSVP. (UPDATE: Down in the comments, Rick Lehner, a spokesman for the Missile Defense Agency, disagrees that media access will be curtailed.)

According to a Missile Defense Agency (MDA) budget document (pdf), the exercise this evening is to help prepare for a flight test involving the Sea-Based X-band (SBX) radar platform slated for later this year. Tonight's Field Training Exercise 02 (FTX-02) is to simulate an intercept of a live target to collect data and "provide system test risk reduction for" the actual interceptor test which will utilize the SBX and, in effect, test its radar abilities. The SBX is the primary tracking instrument for the United States' Ground-based Missile Defense (GMD) system, and is meant to track warheads as they cross over the Northern Pacific and Arctic Oceans towards the U.S. West Coast.

The exercise tonight is to take place sometime between 9:30pm and 1:30am U.S. eastern time.

=====

Comment [by MDA spokesman Rick Lehner]

The missile launch at Vandenberg AFB, Calif. and the sensor exercise supporting it will not "shut off real-time access to the general results." Media will certainly be able to view the missile launch from Vandenberg as they are able to do for any missile launch from the base. Actually, people can see launches from Vandenberg from hundreds of miles away. Since this is a sensor exercise involving the new sea-based X-band radar plus sea-based radars aboard two Navy ships, we will have a good indication of initial radar performance a few hours after the test and this will certainly be released to the public within the bounds of normal classification procedures. It will take at least several weeks to analyze and evaluate the huge amount of data that will be captured by test equipment and the command and control network.

Posted by: Rick Lehner | Mar 20, 2007 1:34:11 PM

<http://www.northcom.mil/News/2007/031907.html>

New radar helps USNORTHCOM defend homeland

By Sgt. 1st Class Gail Braymen

NORAD and USNORTHCOM Public Affairs

March 19, 2007



The Sea-based X-band Radar, shown here in its current location near the Aleutian Island of Adak, is designed to track and discriminate small objects in space, making it especially effective for missile defense. After tests this spring, U.S. Northern Command will collect and analyze data from the SBX to provide situational awareness to the USNORTHCOM commander and also to senior Department of Defense leadership. Photo courtesy Missile Defense Agency.

PETERSON AIR FORCE BASE, Colo. — U.S. Northern Command will soon have a new tool to use in its mission to defend the American homeland. The Sea-based X-band Radar recently traveled to Alaska and is floating in the northern Pacific Ocean, near the Aleutian Island of Adak.

The SBX is designed to track and discriminate small objects in space, which makes it especially effective for missile defense.

USNORTHCOM uses the ground-based midcourse defense system to defend the homeland against long-range ballistic missiles. The SBX not only detects incoming objects, but the data it provides helps

guide interceptor missiles – under the command and control of USNORTHCOM – more precisely to their targets.

While the country's current radar system is good, said Army Col. Hugh Bell, chief of USNORTHCOM's ballistic missile defense division, the new SBX radar is even better.

"The radars that we have out there now do an outstanding job of searching for and finding the objects that are coming at the United States," Bell said. "What they struggle with a little bit is on telling us which piece of metal that's coming through the sky. The Sea-based X-band radar is such high-quality data, it will be able to tell us which one of those pieces of metal coming at the United States is the right one."

USNORTHCOM collects and analyzes data from the SBX and other sensors to provide situational awareness to the USNORTHCOM commander and also to senior Department of Defense leadership. That information helps leaders at the highest levels determine if and when to engage a threat target.

The SBX will undergo further testing before it becomes operationally available to USNORTHCOM.

"There's a flight test coming up at the end of this month and another one probably in the April-May time frame where it will be used in the system," Bell said. "It will generate the data that the fire-control computer needs in order to make an engagement."

The SBX radar is mounted on a platform that was originally designed to support oil-drilling equipment. The platform itself is supported by two pontoons, each one the size of a submarine.

The structure is "absolutely huge," Bell said.

"In total height, it's 282 feet, which is about 30 stories," he said. "When it's traveling, it actually floats up on the pontoons and can go fairly quickly. When the weather gets bad or it's in a mission, using the radar, and they want it to be as steady as possible, it actually goes down in the water quite a ways. That gives it stability so the waves are just washing over it and there's almost no motion on the ship at all."

The Sea-based X-band Radar conducted sea trials and radar calibration and supported missile defense tests off the coast of Hawaii before arriving at its current location in Alaska in February.

<http://www.pr-inside.com/sea-based-x-band-radar-completes-fine-r64161.htm>

Sea-Based X-Band Radar Completes Fine Calibration Testing

2007-03-13 17:28:54

TEWKSBURY, Mass., March 13, 2007

/PRNewswire/

[EXCERPTS]

Raytheon Company has successfully completed fine calibration of the X-Band Radar portion of the Sea-Based X-Band Radar, or SBX, marking a major achievement in the development of a key component of the Missile Defense Agency's Ground-Based Midcourse Defense (GMD) system.

[deletia]

"With the successful completion of fine calibration testing, SBX moves one step closer to becoming the cornerstone of surveillance in the defense of our nation," said Pete Franklin, vice president, Raytheon Integrated Defense Systems Integrated Air and Missile Defense. "The Raytheon-developed X-Band Radar provides a one-of-a-kind capability. It is the sensor that can precisely track targets at long ranges, discriminate them to isolate the threatening objects from non-lethal ones, and perform midcourse hit assessment."

Raytheon IDS completed the radar calibration procedures, including initial, coarse and fine calibrations, while SBX was undergoing sea trials in the Gulf of Mexico and off the coast of Hawaii. This successful conclusion of the calibration phase allows the radar to undergo final performance verification testing. All key calibration metrics are now within the demanding requirements defined by the contract.

[deletia]

As a key sensor for GMD, the X-Band Radar performs the critical functions of cued acquisition, target tracking, discrimination, and engagement hit assessment. The radar will help identify the hostile warhead from the decoys and countermeasures, providing additional capability for interceptor missiles to protect the U.S. and its friends and allies from ballistic missile attacks.

Aboard the maneuverable SBX, the X-Band Radar can be positioned in the ocean to support testing and provide radar coverage for possible threat missile launches throughout the world.

[deletia]

http://hotjobs.yahoo.com/job-J989675TP-1-Huntsville-AL-c-Government_Military

Acquisition Security Specialist (1178): Analex Corp.

Job ID 172597

Company Name Analex Corp.

Job Category Government/Military; Law Enforcement/Security

Location Huntsville, AL

Position Type Full-Time, Employee

Salary Unspecified

Experience 5-10 Years Experience

Desired Education Level High School

Date Posted March 4, 2007

Provides Acquisition Security support to Missile Defense Agency activities, primarily focused on the security deployment of the Sea Based X-band Radar (SBX) system. Security deployment of this system requires advanced knowledge and application of maritime and port security polices and procedures. This position requires an excellent working knowledge of DoD security contracting requirements and operations. It requires the individual to interact with deployed security personnel tasked with providing day-to-day security for the vessel monitoring, recommending changes to, and overseeing the contract security operations. The SBX-1 and operational support vessel (M/V Dove) will transit through various Combatant Command Areas of Responsibility (AORs) and require the individual to independently interact with various warfighting entities to ensure adequate security responses to threats in each AOR. This position requires a highly flexible individual who can adjust to periodic program changes (and resultant security mission changes) as the SBX-1 and M/V Dove relocates from port to sea to support various MDA test and operational activities. The individual must be capable of analyzing existing acquisition programs or start-up acquisition programs to identify all critical program information and determine security requirements to protect that information. The individual must be able to draft, coordinate and finalize staff level correspondence to meet protection goals. Additionally, individual must be capable of identifying protection requirements from concept definition- to-fielding and work with non-security personnel to map the security strategy for the program. Supported activities range from acquisition program related research and development projects, through test and evaluation, advanced technology demonstrations, military exercises, and technology insertions into operational weapon systems deployment. Activity will include documentation reviews, analysis, assessments, critical program information identification, threat and vulnerability analysis, risk assessments, countermeasure development, technical writing, staff coordination, training, program implementation, briefing preparation, and program reviews. Individual must be able to interact successfully with personnel from all branches of military, government civilians, contractors and engineers. Frequent travel is expected. The position may require embarking/disembarking via a personnel offshore safety lift (Billy Pugh) from an Offshore Support Vessel. This position requires a Secret clearance.

Required Skills:

- Proficient with MS Word, Excel, PowerPoint, Outlook, and Windows Explorer
- Proficiency with MS Project and MS Access (Desired)

- Excellent Oral and Written Communications skills
- Highly adaptable to varied leadership styles within headquarters and field environments
- Able to analyze information and propose solutions

Required Experience:

At least six to ten years experience in one or more of the following:

- DoD or Service security staff level experience
- Research & technology protection; acquisition systems protection or program protection
- Security operations; security management; physical, industrial, operations, and/or organizational security

http://www.alaskajournal.com/stories/022507/hom_20070225011.shtml

Web posted Sunday, February 25, 2007

[Accessed 2007-02-24T13:25Z]



The sea-based X-Band radar sails into Pearl Harbor, Hawaii, aboard the MV Blue Marlin, in January 2006. The 280-foot tall sea-based X-band radar, to be used as part of the missile defense program, has arrived in Alaska's Aleutian Islands. AP FILE PHOTO/Ronen Zilberman

On the front line: Alaska's role grows in nation's missile defense system

By Tim Bradner

Alaska Journal of Commerce

[EXCERPTS]

JUNEAU — Here's a chilling thought: Iran may have an intercontinental ballistic missile capable of reaching the United States in nine years.

Rogue nations like Iran and North Korea, and other countries as well, are much further along in ballistic missile development than many Americans believe, the chief of the U.S. Missile Defense Agency told a state legislative committee in Juneau.

On average, 90 ballistic missile tests per year are carried out by foreign nations, and last year 100 tests were done, Air Force Lt. Gen. Trey Obering, director of the U.S. Missile Defense Agency, told the Legislature's Joint Armed Services Committee Feb. 14.

[deletia]

The huge, seagoing X-Band radar facility, home-ported at Adak, in the Aleutian Islands, is now on station in the North Pacific, he said.

<http://www.sanluisobispo.com/mld/sanluisobispo/16663195.htm>

Posted on Fri, Feb. 09, 2007

Missile defense program to track Vandenberg missiles

By Mary Pemberton

The Associated Press

[EXCERPTS]

ANCHORAGE, Alaska (AP) — A very powerful radar to be used as part of the national missile defense program made the trip from Hawaii aboard its oceangoing platform to Alaska waters, where it will remain until mooring facilities can be constructed.

"The main advantage of having one as powerful as this one it can not only track and identify the warhead you are trying to hit but can distinguish the warhead from any decoys or countermeasures traveling with that warhead," *[Missile Defense Agency spokesman Rick] Lehner* said Thursday.

The missile defense program is designed to protect the U.S. against long-range missile attacks. The radar will be used to identify and track incoming missile targets for interceptor missiles based in Alaska and California.

The radar, which is bigger than a football field, will be home-ported at Adak in the Aleutian Islands. About 75 crew will be stationed with the radar.

The radar floats on an oil drilling platform that was provided with twin-hulled propulsion and can travel at between 5 and 7 knots. It has the added advantage of being mobile, so it can be used wherever the military needs it, Lehner said.

"We can put it anywhere, in any ocean," Lehner said. However, he said it will remain in the Pacific Ocean.

Several tests are planned for the radar this year. In March, the radar will be used to track a missile out of Vandenberg Air Force Base in California to calibrate the radar. The test also will be used to gather the type of data it needs to eventually be integrated into the missile defense system, Lehner said.

In April or May, the radar will be used to track a missile in an intercept test between the launch complex on Kodiak Island and Vandenberg. During that test, it will rely on radar in California.

In the fall, Lehner said the radar will be used as the primary radar where the data it collects from the target missile will be used to formulate "an intercept solution."

Lehner said the radar's mooring facilities should be ready by summer's end.

Missile Defense Agency
News Release

07-NEWS-0024
7 February 2007

New Sea-Based Missile Defense Radar Completes Successful Journey to Alaska

Lt. General Henry "Trey" Obering, Missile Defense Agency director, announced today that the Sea-based X-band Radar (SBX) has successfully traveled from Hawaii to the waters of the Aleutian Island chain of Alaska.

The SBX departed Pearl Harbor, Hawaii on Jan. 3, and conducted numerous sea trials and exercises while en route to Alaska, and also continued the calibration of the X-band radar mounted on top of the ocean-going platform. The largest radar of its type, the SBX is designed to track and discriminate small objects in space, which makes it especially effective for missile defense since it can provide very accurate information to the missile defense command and control system to help direct ground and sea-based interceptor missiles to a point in space where they can be placed in a position to collide directly with an in-coming missile warhead for a "hit to kill" intercept, while ignoring decoys and countermeasures.

As a testament to its durability and overall seaworthiness, the SBX successfully navigated several winter storms in the northern Pacific Ocean, encountering waves of more than 50 feet high and wind gusts of more than 100 miles per hour. The SBX's platform was originally designed to support oil drilling equipment in the harsh environment of the North Sea, with its high waves, strong winds and freezing temperatures. Contrary to some published reports, this was the first time the SBX left Hawaii to make the journey north to Alaska. Previous departures from Hawaii over the past several months were to conduct sea trials, radar calibration and to support missile defense tests, not to transit to Alaska.

The SBX is 240 feet wide and 390 feet long. It stands 280 feet high from its keel to the top of the radar's protective dome, and weighs almost 50,000 tons. The SBX will be home-ported at the Aleutian Island of Adak starting late this summer after its mooring facilities have completed construction. The ocean-spanning mobility of the SBX allows the radar to be repositioned as needed to support both actual operations to defend the United States, its deployed forces, allies and friends against a ballistic missile attack, and is also used to support operationally realistic missile defense flight tests.

News media point of contact is Rick Lehner, Missile Defense Agency, at (703) 697-8997 or richard.lehner@mda.mil

http://hotjobs.yahoo.com/jobseeker/jobsearch/job_detail.html?job_id=JG7TALG0A

Sr Field Engineer I - RF Systems: Raytheon Company

Job ID TSC107811HJO

Company Name Raytheon Company

Job Category Engineering/Architecture

Location Anchorage, AK

Position Type Full-Time, Employee

Experience 2-5 Years Experience

Desired Education Level Bachelor of Science

Date Posted January 26, 2007

Sr. Field Engineer - RF Systems

SBX Shipboard Platform

Raytheon Technical Services Company LLC (RTSC) provides technical, scientific, and professional services for defense, federal, and commercial customers worldwide. RTSC specializes in management, operation, and maintenance of customer facilities, equipment, and systems; logistics and life-cycle support; overhaul and repair depot operations; engineering, logistics, and personnel support; space and earth sciences; test and training range support; IT services, and privatization of government services.

With annual sales of greater than \$2 billion and over 11,000 employees, RTSC is organized into three primary business areas: mission support services, professional services, and industrial/depot services.

OPPORTUNITIES ARE SHIPBOARD ON AN OCEAN-GOING MARINE VESSEL, WORKING EXTENDED HOURS FOR MULTIPLE WEEK ROTATIONS

Job Description: RTSC is currently seeking a Sr. Field Engineer to maintain the RF systems on the SBX-1 Radar System onboard a shipboard platform. As our Sr. Field Engineer, you will perform technical tasks in support of the maintenance, test & evaluation of all radio frequency (RF) elements, to include receiver-exciters, transmit/receive modules, beam forming networks. You will be responsible for calibration, integration, and maintenance of all RF systems from receiver through antenna including near field antenna diagnostic paths. You will act as SBX system operator as required during system level missions and/or tests. This position will require working extended hours on multiple week rotations on an ocean-going marine vessel.

Required Skills: You should have at least 4 years experience in test, integration, maintenance, alignment, adjustment, calibration and operation of RF equipment associated with radar systems, to include transmitters, receivers, modulators, mixers, control systems, cabling and interconnects. You must be experienced in establishing and assessing the performance of complex RF systems, as well as in monitoring, troubleshooting, isolating failures and removing/replacing failed components in such systems. You will have the ability to read and understand design drawings, specifications and vendor technical documentation related to electromechanical systems. You must be capable of climbing and performing work at heights of 100' to 200' above the ground. You must meet the requirements of an extended maritime service physical examination.

Desired: Ability to communicate clearly in both verbal and written formats regarding technical issues. Experience in dealing with customer representatives and in coordinating actions with other contractors.

Experience working in a maritime shipboard environment for extended periods. Working knowledge of Microsoft Office suite of desktop application software. Familiar with Raytheon practices regarding technical documentation. Familiar with US Department of Defense testing and acceptance practices for facilities sub-systems.

Educational Requirements: Bachelor's degree in Electronics and at least 4 years of related experience; OR Associates degree in Electronics and 8 years of related experience; OR High School Diploma and 12 years of related experience.

Raytheon is an equal opportunity employer and considers qualified applicants for employment without regard to race, color, creed, religion, national origin, sex, sexual orientation, gender identity and expression, age, disability, or Vietnam era, or other eligible veteran status, or any other protected factor.

<http://hotjobs.yahoo.com/jobs/AK/Anchorage//J6TGKUP96>

SBX-1 Sr Logistics Specialist - Anchorage, AK: Raytheon Company

Job ID TSC107832HJO

Company Name Raytheon Company

Job Category Manufacturing/Operations

Location Anchorage, AK

Position Type Full-Time, Employee

Experience 2-5 Years Experience

Desired Education Level Bachelor of Science

Date Posted January 25, 2007

[View Raytheon Company profile and job listings](#)

[deleted]

OPPORTUNITIES ARE SHIPBOARD ON AN OCEAN-GOING VESSEL, WORKING EXTENDED HOURS FOR MULTIPLE WEEK ROTATIONS

Job Description: RTSC is currently seeking a Sr. Logistics Specialist to support the SBX-1 Radar System onboard a shipboard platform. The primary focus of this individual is the on-board logistics posture of the Sea Based X-Band Radar (XBR) including status of spares quantities, unique XBR consumables, preventive maintenance schedule, corrective maintenance actions and quality assurance. The Sea Based XBR On-Site Sustainment Lead serves as the on-board key interface between the Platform, the Primary Support Base (PSB), and Raytheon Program Management Office (PMO) for XBR logistics matters. This individual is responsible for ensuring a proactive approach is taken in keeping Sea Based XBR in the most pristine operational condition and ready for deployment. This position would require multiple week rotations on an ocean-going vessel, working extended hours during those deployments.

The Sea Based XBR On-Board Sustainment Logistician will report to the XBR Program Manager (or designee) and the RTSC site manager on the vessel. Responsibilities include developing and reviewing documents and maintaining processes, methods, support equipment and tools required for the operation of the XBR logistics. Administers processes in such product support areas as system analysis and planning, estimating related to spares, repairs and supply chain management.

* Performs maintenance planning for depot level repairs.

* Interacts with the Boeing provided Computerized Inventory and Maintenance Management System (CIMMS)

* Maintains routine communications with Sea Based XBR engineering functions on matters such as maintenance activities, parts availability, order status, and current schedules for delivery of products and services.

* Ensures coordinated crew rotation and parts management between XBR and prime contractor.

- * Works according to and within established Raytheon guidelines.
- * Assists Sea Based XBR On-site manager in administrative matters.
- * Applies experience gained, primarily on the job, to investigate and develop solutions to such problems of moderate scope and complexity as support planning and analysis; estimating; scheduling; and tracking repair, overhaul, lease and exchange activities.
- * Participates in analysis, definition, and implementation of new and revised XBR support systems, processes, and policies

Required Skills:

- At least four years experience with product support, logistics, or other technical administrative processes and procedures.
- Advanced computing skills, including specialized product support systems and applications.
- Proven knowledge of procurement requirements, inventory operations, property management, OSHA requirements, materials handling equipment, shipping and receiving operations including shipment of hazardous materials, traffic management operations, export control, and packaging and crating.
- Required to obtain and maintain a Secret level government issued security clearance.

Desired Skills: Experience with Microsoft Office, Enhanced Automated Graphical Logistics Environment (EAGLE), Boeing's Computerized Inventory Maintenance Management System (CIMMS). Additional experience in radar systems transportation, maintenance, supply, and operations is desirable.

Required Education(including Major): Bachelor's degree and at least 4 years of related experience; OR Associates degree and 8 years of related experience; OR High School Diploma and 12 years of related experience.

Raytheon is an equal opportunity employer and considers qualified applicants for employment without regard to race, gender, age, color, religion, disability, veterans status, sexual orientation, or any other protected factor.

http://www.spacewar.com/reports/Raytheon_Awarded_Subcontract_for_Sea_Based_X_Band_Radar_Sustainment_Support_999.html

Raytheon Awarded Subcontract for Sea-Based X-Band Radar Sustainment Support
by Staff Writers
Tewksbury MA (SPX)
Jan 05, 2007

Raytheon Company has been awarded a \$32.7 million subcontract to provide sustainment support for the X- Band Radar (XBR) portion of the Sea-Based X-Band Radar (SBX). The award was made by Boeing Integrated Defense Systems, the prime contractor for the Ground Based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS). SBX is a component of GMD.

Raytheon Integrated Defense Systems (IDS) will provide trained personnel for on-platform sustainment and operation of the XBR along with radar maintenance and development of spares. The contract will run through 2007, and work will be performed at the company's Missile Defense Center in Woburn, Mass., and Integrated Air Defense Center in Andover, Mass., and by Raytheon Technical Services Company on site at the SBX platform.

"This award signals that the Sea-Based XBR is entering a new phase as it takes its place in the BMDS," said Pete Franklin, vice president, Raytheon IDS Missile Defense Business Area. "Raytheon's XBR is a key element of the Missile Defense Agency's vision of protecting our country from all ranges of threats, and we're committed to providing a missile defense capability to meet the MDA's mission with no doubt."

Raytheon IDS designed and built the XBR for the BMDS, drawing on extensive sensor knowledge from its "Family of Radars." As a primary sensor for the BMDS, the XBR performs the critical functions of cued acquisition, target tracking, discrimination and engagement hit assessment.

The radar will help identify the hostile warhead from the decoys and countermeasures, providing additional capability for interceptor missiles to protect the U.S. and its friends and allies from ballistic missile attacks. Aboard the relocatable SBX, the XBR can be positioned in the ocean to support both testing and provide radar coverage for possible threat missile launches throughout the world.

SOUND WAVES

*A Newsletter of Marine Acoustics for Clients of Noise Control Engineering
Winter 2006*

Noise Control Engineering or NCE is an engineering consulting firm specializing in shipboard noise and vibration control. NCE's services include: Noise Predictions & Analysis, Treatment Design & Selection, FEA, Shipboard Surveys and Diagnostic Testing for Airborne Noise, Vibration and Underwater Radiated Noise.

NCE Completes SBX Testing

In September, NCE participated in the GOM2 trials of the Boeing SBX-1, an experimental semi submersible radar platform for the Missile Defense Agency. The platform will be stationed in the Aleutian Islands to provide midcourse corrections for ballistic missile interceptors as part of the National Missile Defense program. NCE has been involved with the project from early on, providing dynamic finite element analysis (FEA) of the structure and dockside testing of the platform for The Glosten Associates, the naval architects of the project. For these trials NCE was on board to provide vibration measurements and analysis in support of Glosten. Vibration is extremely important to the platform as many of the elements of the SBX system were designed as land based systems, not intended to withstand normal shipboard vibration.

Inside the Army
December 25, 2006

GMD INTERCEPT DELAY CAUSES MDA TO SHUFFLE TEST OBJECTIVES

A delay to the next intercept test flight of the Missile Defense Agency's Ground-based Midcourse Defense system has caused MDA to shuffle some of its future test objectives, an agency spokesman told sister publication Inside Missile Defense last week. In September, an interceptor missile successfully shot down a target missile in a test the agency says was not designed with an intercept as a core goal. MDA was originally scheduled to hold a subsequent formal intercept test of the GMD system by the end of 2006 or in early 2007, according to a testing schedule submitted by MDA to Congress in March.

That test -- labeled FTG-03 -- is now scheduled for "the late-April, early May time frame," Lt. Gen. Trey Obering, the head of MDA, said in a Dec. 5 National Defense Industrial Association breakfast speech.

Aviation Week & Space Technology reported last week that MDA wanted to make several software and hardware changes stemming from last September's successful shoot-down, changes that would cause the next intercept test to be pushed back to the spring of 2007. "All of this is why the test is moving to the spring, so we can get as much data as possible for a better assessment on performance," MDA spokesman Rick Lehner told Bloomberg News Dec. 18.

According to MDA's March 17 "GMD Corrected Testing Schedule," objectives for FTG-03 included testing the system's ability to: * "Demonstrate [ground-based interceptor] intercept of a [generic rest-of-the-world] target;" * "Demonstrate Operational Functionality to support the Engage on [Upgraded Early Warning Radar located at Beale Air Force Base, CA] Engagement Sequence Group;" * "Demonstrate Operational [exoatmospheric kill vehicle] Aimpoint Selection;" * "Demonstrate [Space Based Infrared System] Operational Capability to Provide Initial Warning to the [Ballistic Missile Defense System];" * "Demonstrate C2BMC Operational functionality to Provide Situational Awareness"; and * "Collect Aegis Data for Post-Mission Analysis."

Last week, Lehner told IMD in an e-mail that the current plan calls for using the Beale early warning radar system in California with FTG-03 in the spring and the Sea-Based X-band Radar in the fall with FTG-04. MDA's March testing schedule called for demonstrating SBX during the subsequent FTG-05 test.

"We are also adding a tracking exercise for SBX in [the] March '07 time frame with [a] target [launched] from Vandenberg" Air Force Base, Lehner writes. -- John Liang

http://www.cbsnews.com/stories/2006/12/20/cbsnews_investigates/main2286618.shtml

CBS News Investigates

Special Report with Armen Keteyian

Can Costly Radar Survive In Alaska?

System would Warn If Missile Was Launched At U.S., But Can It Cope With Alaska's Harsh Weather?

Dec. 20, 2006

[Figure caption:] Plans call for the Sea-Based X-Band Radar, or SBX, to be up and running in Alaska next fall. But there are questions as to whether the system can cope with Alaska's weather.

(CBS) It looks like a giant golf ball teed up atop a massive oil rig. It's 28 stories tall — and can detect an object the size of a real golf ball from 2,500 miles away.

The new Sea-Based X-Band Radar — SBX for short — is the eyes of the next generation of U.S. missile defense, a system designed to detect, track, and ultimately knock nuclear warheads out of the sky, CBS News chief investigative correspondent Armen Keteyian reports. Its eventual home is under the likely path of any North Korean nukes fired at targets inside the United States.

"It's a very powerful radar, good resolution," says Phillip Coyle, senior advisor at the Center for Defense Information.

But it won't come cheap. The price tag is at \$1 billion and counting. This raises the billion-dollar question: Can the SBX not only detect a hostile threat, but do it in the Bering Sea, home to some of the most unforgiving weather in the world?

"All that electronics is out in the middle of the ocean, and salt water and waves and bad weather and all, and electronics don't go well together," Coyle says.

In March, an independent study called the SBX "rugged and suitable" for the mission, but cited a letter in which the Alaska Coast Guard command called the waters "inherently dangerous."

"It's a matter of what the system is designed for. Is it designed for that environment? Is it designed to operate in that environment?," says Lt. Gen. Henry Obering, director of the Missile Defense Agency. "The answers to those questions was yes. Yes, it is."

But CBS News also obtained an internal document^[1] in which lead contractor Boeing asserts "ice accumulation could ... induce enough damage to the rigging to cause it to fall."

An internal Coast Guard communication, dated just last month, depicts a sense of anxiety about the project, warning of the "land mine potential" of any interview that questions "the system's suitability for operating in Alaska waters."

That's a pretty damaging document. "I don't know what they mean by 'land mine,' though," Obering says. "All I can tell you is, again, that the platform is well designed for the mission."

The SBX sat in Pearl Harbor for almost a year during its shakedown phase. Even in the warm Pacific waters, it was dogged by power failures, fuel leaks, and sun and salt disrupting sensitive hardware.

It's an expensive mistake if it misses. "If we can stop one more hit, one nuclear weapon from detonating on an American city, I think we will pay that back many, many times over with respect to that investment," Obering says.

The SBX is currently on sea trials near Hawaii. The hope is that it will be up in Alaska and running its intricate radar next September.

[1]

A significant impact of winter weather on SBX-1 operations is Superstructure Icing.- In certain weather conditions ice accumulating on hulls and superstructures can be a serious danger to ships. Ice accumulation may occur from three causes:

(a) Fog with freezing conditions.

(b) Freezing rain or drizzle.

(c) Sea spray or seawater breaking over the ship when the air temperature is below the freezing point of seawater (about 28.6°F).

Ice accumulation from the first two causes, if appreciable, could induce enough damage to the rigging to cause it to fall. This is minor however, in comparison with the weight of the ice accumulated in rough weather and low temperatures, when large amounts of spray and often heavy seas break over a vessel. When the air temperature is below the freezing point of sea water and the ship is in heavy seas, considerable amounts of water will freeze to the superstructure and those parts of the hull which are sufficiently above

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D744-22370-1 Rev NEW
November 01, 2006

the waterline to escape being frequently washed by the sea. The amounts so frozen to surfaces exposed to the air will rapidly increase with falling air and sea temperatures, and might in extreme cases lead to capsizing of the vessel. The dangerous conditions are those in which gale force winds last for several days in association with air temperatures of 28°F or lower. These conditions will normally occur when the wind comes from the northern quadrants. Indications of when these conditions are likely to occur can often be obtained by observing the rate of fall of the barometer, at the onset of strengthening winds from a cold quarter, together with observations of air and sea temperatures.

Order Code RL33745

CRS Report for Congress

Sea-Based Ballistic Missile Defense —
Background and Issues for Congress

December 4, 2006

Ronald O'Rourke
Specialist in National Defense
Foreign Affairs, Defense, and Trade Division

[EXCERPT]

Sea-Based X-Band Radar (SBX)

What is the Sea-Based X-Band Radar (SBX)?

General. The Sea-Based X-Band Radar (SBX) is DOD's other principal seabased BMD element. It is a midcourse fire-control radar designed to support longrange BMD systems. Its principal functions are to detect and establish precise tracking information on ballistic missiles, discriminate missile warheads from decoys and debris, provide data for updating ground-based interceptors in flight, and assess the results of intercept attempts. SBX is intended to support more operationally realistic testing of the ground-based midcourse system and enhance overall BMD system operational capability.

SBX is a large, powerful, phased-array radar operating in the X band, a part of the radio frequency spectrum that is suitable for tracking missile warheads with high accuracy. The radar is mounted on a modified, self-propelled, semi-submersible oil platform that can transit at a speed of 8 knots and is designed to be stable in high winds and rough seas.(36)

SBX was completed in 2005 for the Missile Defense Test Bed. The semisubmersible platform was designed by a Norwegian firm and built in Russia. It was purchased for the SBX program, and modified and integrated with the SBX radar in Texas.(37) SBX underwent sea trials and high-power radiation testing in the Gulf of Mexico in 2005. It was then moved by a heavy transport vessel to Hawaii, arriving there in January 2006. From there, it is to transit to Adak, Alaska, in the Aleutian Islands, where it is to be homeported and put into operation.

Technical Issues. Technical issues relating to the SBX platform have delayed the SBX's planned departure for Alaska. A November 2006 press report stated that:

the vessel carrying the radar has sprung leaks and blown out electrical circuits.

Such mundane problems have kept this vital part of the nation's defense against missile attacks stuck in the wrong harbor. If all had gone according to plan, the \$950 million radar rig, known as SBX, would be operating now off the Aleutian Islands in Alaska and ready to defend against

threats from North Korea. Instead, after a three-year odyssey from Norway to Texas and around South America, the 28-story-high converted oil platform is in Hawaii, 2,000 miles and months away from its final destination....

By late 2005, it looked as if SBX might come close to meeting its [end-of-2005] target for arriving in Alaska. After trials in the Gulf of Mexico, it was hauled 15,000 miles around South America — the rig is too big for the Panama Canal — and it arrived in Hawaii in January of this year [2006]. The trip to Alaska seemed around the corner, but in March, alarms went off in SBX's engine room. A leaky valve caused water to flood into SBX's pontoon. The rig had to return to Pearl Harbor for repairs to the flaw, which an independent panel later called a 'major casualty.'

Then in June [2006], an electrical fault tripped circuit breakers, forcing SBX back into port for two more weeks of repairs. Such problems are typical during the initial 'shakedown' phase of a new class of ship, says Tom Alexiou, Boeing's SBX program manager. Most important, adds Paul Smith, a Boeing radar manager, there haven't been major issues in the 'far more complex' task of integrating the radar with other ship systems....

Col. John Fellows, the Pentagon's manager for SBX, says staying near Hawaii makes it easier to iron out kinks and join the tests, although officials are eager for the radar's permanent deployment. We're pressured on both sides,' he says.

In any case, further issues must be sorted out before the trip to Alaska. The independent panel hired by the Pentagon concluded in June that while SBX 'is an inherently rugged and suitable platform,' the vessel needs 47 modifications before it goes into service. Among them: a better plan for operating in harsh winters and steps to ensure the rig is protected against being rammed by boats. Senior program officials call the modifications minor and say they have agreed to almost all of them.

The panel also noted that maintaining morale poses a challenge. SBX's crew is composed mostly of defense-industry employees and merchant mariners hired by Boeing subcontractors. Only a handful of shipmates are servicemen. Civilian mariners rotate only every 56 days, much longer than work cycles for comparable oil-industry jobs. Leisure consists of a gym, a basketball hoop on the deck and movies under the stars, though plasma TVs and more DVDs are on the way.

Funding for SBX's mooring in the Aleutians, previously cut in another headache for project managers, has been restored, but construction won't be finished until next August, says Col. Fellows. The latest projection for the trip to Alaska is sometime next year [2007].(38)

The independent assessment referred to in the above-quoted article was completed in June 2006. The report concluded that SBX:

is an inherently rugged and suitable platform for the intended mission[,] however, the [assessment] panel found that at the current time:

1. Crew Readiness and Materiel Readiness issues indicate that SBX-1 needs additional underway shakedown time and inport time to address crew and material issues in the Hawaiian area, and
2. Operational Considerations identifies issues for which operational commanders and developing commands need a full understanding of associated implications, and which require resolution prior to departure from Hawaii and operations at the Adak winter MODLOC [modified location] in the Bering Sea.(39)

According to a November 2006 press report, the top U.S. military officer in Alaska believes the SBX will arrive in Adak in January 2007.(40)

Potential Other Uses. A March 2006 press report states:

Boeing missile defense officials refuse to answer questions about whether they are developing techniques to produce high-energy weapon effects from the SBX sea-based radar. However, since large distributed-array devices [like the SBX] can be focused to deliver large spikes of energy, powerful enough to disable electronic equipment, the potential is known to exist and is being fielded on a range of U.S., British and Australian aircraft.⁴¹

(36) The platform is 238 feet wide and 398 feet long. It measures 282 from its submerged keel to the top of the radar dome. The SBX has a total displacement of almost 50,000 tons — about one-half the full load displacement of a Navy aircraft carrier. SBX is operated by a crew of about 75.

(37) The platform was designed by Moss Maritime, a Norwegian firm, and built for Moss in 2001-2002 by Vyborg shipbuilding, which is located in Vyborg, Russia (a city north of St. Petersburg, on the Gulf of Finland, that is near the Finnish border). Vyborg Shipbuilding's products include semi-submersible oil platforms. Moss sold the platform to Boeing. Boeing and a subcontractor, Vertex RSI (a part of General Dynamics), modified the platform at the Keppel AMFELS shipyard in Brownsville, TX. The platform was then moved to Kiewit Offshore Services of Corpus Christi, TX, where the radar was added by a combined team of Boeing, Raytheon, Vertex RSI, and Kiewit. ("MDA Completes Integration of X-Band Radar On Sea-Going Platform," Defense Daily, Apr. 5, 2005; and "Sea-Based X-band Radar," GlobalSecurity.org.)

(38) Jonathan Karp, "A Radar Unit's Journey Reflects Hopes, Snafus In Missile Defense," Wall Street Journal, Nov. 28, 2006: 1. See also Kirsten Scharnberg, "Radar Staying Longer Than Planned," Chicago Tribune, Sept. 3, 2006. The article was also published in the Honolulu Advertiser.

(39) SBX-1 Operational Suitability and Viability Assessment, An Independent Assessment. Arlington (VA), SYColeman, 2006, pp. i-ii. (Final Report, June 2, 2006, Submitted to: Director, Mission Readiness Task Force, Missile Defense Agency, Submitted by: Independent Assessment Team, Prepared by: SYColeman, A Wholly Owned Subsidiary of L-3 Communications). The report is available online at [<http://www.pogo.org/m/dp/dp-SBXOVA-06022006.pdf>]

(40) Associated Press, "Floating Missile Detector May Reach Alaska in January," ArmyTimes.com, Nov. 16, 2006.

⁴¹ "Radar Weapons," Aerospace Daily & Defense Report, Mar. 20, 2006.

A Radar Unit's Journey Reflects Hopes, Snafus In Missile Defense

After \$50 Billion Under Bush, Program Shows Successes, But Rig Is Stuck in Hawaii
By Jonathan Karp

PEARL HARBOR NAVAL STATION, Hawaii -- Towering over this historic site is a radar precise enough to track a baseball hurtling through space at 15,000 miles an hour. But the vessel carrying the radar has sprung leaks and blown out electrical circuits.

Such mundane problems have kept this vital part of the nation's defense against missile attacks stuck in the wrong harbor. If all had gone according to plan, the \$950 million radar rig, known as SBX, would be operating now off the Aleutian Islands in Alaska and ready to defend against threats from North Korea. Instead, after a three-year odyssey from Norway to Texas and around South America, the 28-story-high converted oil platform is in Hawaii, 2,000 miles and months away from its final destination.

The journey of SBX is a microcosm of the Defense Department's unfinished missile shield, a dream since Ronald Reagan's 1983 plan dubbed Star Wars. Under President Bush the U.S. has poured nearly \$50 billion into the program. The Pentagon says it has put the system on alert more than 10 times and the U.S. already has a "limited" ability to shoot down enemy warheads. Yet the program's high-tech breakthroughs are at times undermined by technical snafus, and real missile defense always seems off in the future.

One big step forward came in September, when U.S. military personnel using satellite sensors, radar and long-range interceptor missiles that are part of the real missile shield shot down a test warhead in space over the Pacific. The success went some way toward answering critics in Congress who have demanded tests that resemble real-world situations.

For defense contractors and the Pentagon, which is spending \$9.3 billion this year on missile defense, the September test was a vindication. "The last 10 months have been extraordinary in terms of accomplishment," says Patrick Shanahan, a vice president at Boeing Co., principal contractor on the system that includes SBX. "I think the program has reached its stride."

Mr. Shanahan was brought in to fix the system in early 2005 after interceptor missiles failed to leave their silos in two consecutive tests. The problems prompted the Pentagon to dock Boeing \$107 million in contract fees.

Critics nowadays generally concede the feasibility of knocking missiles out of the sky. But many believe the idea is either too expensive or too error-prone to make it worth rushing into operation.

North Korea's recent moves have lent urgency to the debate. The Communist state tested a long-range missile in July and exploded a nuclear device in October, although its tests showed it has yet to master the technology.

The original Star Wars concept conjured up images of space-based launchers blasting Soviet nuclear missiles out of the sky. Today, that idea is on hold, partly because of concerns about militarizing space. The Bush administration's main missile-defense system has ground sites in Alaska and California, where 13 interceptor missiles stand ready to be fired.

The Boeing system calls for early-warning radar to get a first glimpse of the enemy missile launch. An interceptor missile is then fired. As it flies, this missile is supposed to receive the exact coordinates of the enemy missile and, if all goes well, the two will collide in space. It's the equivalent of hitting a bullet with a bullet.

The system lives or dies on highly accurate radar to pinpoint the attacking missile's trajectory. That's where SBX, or sea based X-band radar, comes in. It's an advanced form of X-band radar, which emits a concentrated high-frequency beam to collect images.

Officials say SBX can not only produce detailed images of incoming warheads but also distinguish a decoy from the real McCoy. The Pentagon hopes to capitalize on SBX's mobility -- it sits on a self-propelled converted oil rig -- to deploy it closer to perceived threats and shave critical minutes off response time. At a top speed of 10 knots, though, SBX would take a while to reach a faraway global hot spot.

The Pentagon's Missile Defense Agency oversees several other missile-defense systems that complement the program led by Boeing. For defense against shorter-range threats, Lockheed Martin Corp. is directing the Aegis system, which fires interceptor missiles from ships. It has done well in tests. A separate Lockheed project to build improved satellites that detect enemy missile launches is emerging from years of performance problems and cost overruns.

The overall goal is "layered defense" -- getting several shots at the enemy projectile before it hits American soil. The Boeing system that was tested in September is the crucial middle layer. It has the broadest time window to succeed, but still only minutes. A missile could complete its journey from North Korea to the U.S. mainland in 20 minutes.

Shrouded in a 10-story-high dome, the SBX radar sits atop the semisubmersible oil rig like a giant golf ball on a tee. The Teflon-coated, Kevlar-like fabric of the inflated dome is designed to withstand winds up to 150 miles an hour. Inside, the radar soars toward the roof, its octagonal face covering 4,100 square feet. It swivels on a circular track and can tilt skyward.

The radar, built by Raytheon Co., contains 45,000 electronic modules that transmit and receive data. SBX's radar can send multiple beams in different directions, changing their aim in fractions of a second. That lets the radar track several objects at once and compensate for the rig's movement in ocean swells.

The Pentagon originally figured it would put X-band radar on land and picked out a site on Shemya Island, a speck of rock at the western tip of the Aleutians. But the radar program stalled during the Clinton administration, which feared that building elements of a national shield would breach the 1972 Anti-Ballistic Missile Treaty.

In 2001, President Bush pulled the U.S. out of the treaty, and the Pentagon soon began developing the X-band. The Pentagon, following an idea of Raytheon engineer David Greeley, at first chose to put X-band radar at sea merely to collect test data on missile trajectories from different angles. Officials liked the idea so much that they made sea-based radar a permanent part of the system.

Boeing bought a Russian-built rig in Norway in 2003 and towed it to Brownsville, Texas, to install engines and adapt the vessel for the 2,200-ton radar and a crew of 100. Around that time, the Pentagon announced it would base the radar in Adak, in the middle of the Aleutian chain, and set the end of 2005 as the target date for its arrival. SBX would be moored in a sheltered port that doesn't ice over and would be well-located for tracking Asian missile launches.

Republican Sen. Ted Stevens of Alaska, a staunch advocate of missile defense, nevertheless questioned the wisdom of having such a valuable sensor floating in the treacherous North Pacific. "I hope your people are nautical enough to know what you're doing," he told Air Force Lt. Gen. Ronald Kadish, then Missile Defense Agency director, at a Senate hearing. The general replied that he had reviewed a century's worth of local wave patterns and had confidence in SBX's naval architects and Boeing.

SBX progressed through the next two years despite mishaps in other parts of Boeing's program. In December 2004, a flawed line of software shut down the test launch of an interceptor missile. Two months later, a mechanical support arm failed to retract, again stranding the interceptor missile in its silo. "This was not rocket science," says Lt. Gen. Henry Obering, who had recently become director of the Missile Defense Agency. Dismayed by the mishaps, Gen. Obering toughened the testing plan and drove a shake-up in program leadership at the Pentagon and Boeing.

By late 2005, it looked as if SBX might come close to meeting its target for arriving in Alaska. After trials in the Gulf of Mexico, it was hauled 15,000 miles around South America -- the rig is too big for the Panama Canal -- and it arrived in Hawaii in January of this year. The trip to Alaska seemed around the corner, but in March, alarms went off in SBX's engine room. A leaky valve caused water to flood into SBX's pontoon. The rig had to return to Pearl Harbor for repairs to the flaw, which an independent panel later called a "major casualty."

Then in June, an electrical fault tripped circuit breakers, forcing SBX back into port for two more weeks of repairs. Such problems are typical during the initial "shakedown" phase of a new class of ship, says Tom Alexiou, Boeing's SBX program manager. Most important, adds Paul Smith, a Boeing radar manager, there haven't been major issues in the "far more complex" task of integrating the radar with other ship systems.

In fact, the radar was performing well enough that the Pentagon diverted SBX from its tests to free it up to monitor North Korea's missile launch in July. Then it delayed SBX's preparations for Alaska again so the radar could participate in a test on Sept. 1, the most important U.S. missile-shield trial to date. In the test, an "enemy" missile with a real warhead fired from Alaska was destroyed by an interceptor missile launched from California.

Floating off the California coast, SBX successfully tracked both missiles and their warheads as they collided, says Brig. Gen. Patrick O'Reilly, who oversees the ground-based missile-defense program. It was a "watershed event," he says, because it shows SBX could do its job once it's hooked up to the missile shield's command structure.

When SBX returned to Pearl Harbor in Hawaii last month after the test, the Missile Defense Agency and Boeing laid out a feast on board: a whole roast pig, Alaskan king crab and Hawaiian chicken lau lau. Outside, the rig and its white-domed radar dwarf the sunken battleship USS Arizona and the USS Missouri at the Pearl Harbor World War II memorial. Government tour guides there already are weaving SBX into the local heroic folklore, recounting feats of the radar's precision alongside older war tales.

SBX will participate in another test in December. Col. John Fellows, the Pentagon's manager for SBX, says staying near Hawaii makes it easier to iron out kinks and join the tests, although officials are eager for the radar's permanent deployment. "We're pressured on both sides," he says.

In any case, further issues must be sorted out before the trip to Alaska. The independent panel hired by the Pentagon concluded in June that while SBX "is an inherently rugged and suitable platform," the vessel needs 47 modifications before it goes into service. Among them: a better plan for operating in harsh winters and steps to ensure the rig is protected against being rammed by boats. Senior program officials call the modifications minor and say they have agreed to almost all of them.

The panel also noted that maintaining morale poses a challenge. SBX's crew is composed mostly of defense-industry employees and merchant mariners hired by Boeing subcontractors. Only a handful of shipmates are servicemen. Civilian mariners rotate only every 56 days, much longer than work cycles for comparable oil-industry jobs. Leisure consists of a gym, a basketball hoop on the deck and movies under the stars, though plasma TVs and more DVDs are on the way.

Funding for SBX's mooring in the Aleutians, previously cut in another headache for project managers, has been restored, but construction won't be finished until next August, says Col. Fellows. The latest projection for the trip to Alaska is sometime next year.

<http://www.kodiakdailymirror.com/?pid=19&id=4016>

Alaska's top general visits Kodiak

Article published on Wednesday, Nov 15th, 2006

By BRYAN MARTIN

Mirror Writer

[EXCERPTS]

Air Force Lt. Gen. Douglas Fraser, the top U.S. military officer in Alaska, touched base in Kodiak Tuesday describing what he says will be a "transformed" air command in Alaska over the next four years.

Fraser is the senior military officer in Alaska responsible for the integration of all military activities in the Alaska theater of operations, including approximately 21,000 active duty, guard and reserve members from all services in Alaska.

He said... the SBX floating radar unit, part of the Missile Defense Agency and KLC, should arrive in its homeport of Adak from Hawaii in January.

Fraser said there are to be more missiles deployed at Fort Greeley in Fairbanks, but most of the missile defense activity that is going to happen in Alaska is now in place.

<http://www.kodiakdailymirror.com/?pid=19&id=3892>

X-band radar to play integral role in controversial system

Article published on Thursday, Oct 26th, 2006

By BRYAN MARTIN

Mirror Writer

[EXCERPTS]

Eight months ago the monolithic radar that could pinpoint a ping-pong ball 3,000 miles away was to play a major role in the nation's comprehensive missile defense shield. It still may, although now it sits stalled in Hawaii instead of its homeport Adak.

Rick Lehner, spokesman for the Missile Defense Agency in Washington, D.C., said the SBX tracked data from the Sept. 1 launch, but is not yet playing a role in the actual guiding of missiles.

"The SBX is unique. We are learning the ropes. We are doing something that has never been done before, anywhere at any time," Lehner said.

Lehner said that while the SBX is anchored at historic Pearl Harbor in Honolulu, there is a possibility the floating radar will head for Adak after the next test missile launch from Kodiak, scheduled for late December or early January.

The SBX could then set sail for Adak in February or early spring, Lehner said.

He said, however, the SBX likely will do tracking from Hawaii, similar to the September test, and will not likely be involved in any guiding of the missile to its target.

<http://www.epa.gov/fedrgstr/EPA-IMPACT/2006/December/Day-01/i20355.htm>

Security Zone; Waters Surrounding U.S. Forces Vessel SBX-1, HI
[Federal Register: December 1, 2006 (Volume 71, Number 231)]
[Rules and Regulations]
[Page 69484-69486]

DEPARTMENT OF HOMELAND SECURITY
Coast Guard
33 CFR Part 165
[COTP Honolulu 06-008]
RIN 1625-AA87

Security Zone; Waters Surrounding U.S. Forces Vessel SBX-1, HI

AGENCY: Coast Guard, DHS.
ACTION: Temporary final rule.

[EXCERPTS]

SUMMARY: The Coast Guard is establishing a temporary 500-yard moving security zone around the U.S. Forces vessel SBX-1 during transit within the Honolulu Captain of the Port Zone. This security zone is necessary to protect the SBX-1 from hazards associated with vessels and persons approaching too close during transit. Entry of persons or vessels into this temporary security zone is prohibited unless authorized by the Captain of the Port (COTP).

DATES: This rule is effective from 12 a.m. (noon) (HST) on November 13, 2006, until 11:59 p.m. (HST) on December 3, 2006.

ADDRESSES: Documents indicated in this preamble as being available in the docket are part of docket COTP Honolulu 06-008 and are available for inspection or copying at Coast Guard Sector Honolulu between 7 a.m. and 3:30 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Lieutenant (Junior Grade) Quincey Adams, U.S. Coast Guard Sector Honolulu at (808) 842-2600.

SUPPLEMENTARY INFORMATION:

Regulatory Information

We did not publish a notice of proposed rulemaking (NPRM) for this regulation. Under 5 U.S.C. 553(b)(B), the Coast Guard finds that good cause exists for not publishing an NPRM. The Coast Guard was not given the final voyage plan in time to complete full notice-and-comment rulemaking procedures, rulemaking, and the need for this temporary security zone was not determined until less than 30 days before the SBX-1 will require the protection provided by this rule. Publishing an NPRM and delaying the effective date would be contrary to the public interest since the transit would occur before completion of the notice-and-comment rulemaking process, thereby jeopardizing the security of

the people and property associated with the operation. Under 5 U.S.C. 553(d)(3), the Coast Guard finds that good cause exists for making this rule effective less than 30 days after publication in the Federal Register. The COTP finds this good cause to be the immediate need for a security zone to allay the waterborne security threats surrounding the SBX-1's transit.

Background and Purpose

On October 6, 2006, the SBX-1 entered the Honolulu Captain of the Port Zone and transited to Pearl Harbor, HI for repairs. On October 5, 2006, the Coast Guard issued a temporary final rule (COTP Honolulu 06-006; Sec. 165.T14-148 Security zone; waters surrounding U.S. Forces vessel SBX-1, HI) to protect the vessel during transit. That rule expired at 6 p.m. on October 11, 2006, and is scheduled to be published with other temporary rules that expired before they could be published full-text in the Federal Register. Due to the unknown duration of repairs, the SBX-1's actual departure date and time will not be known in advance. The Coast Guard is establishing this security zone to ensure that the vessel is protected during its upcoming departure from Pearl Harbor with as much public notice as possible.

Discussion of Rule

This temporary security zone is effective from 12 a.m. (noon) (HST) on November 13, 2006, until 11:59 p.m. (HST) on December 3, 2006. It is located within the Honolulu Captain of the Port Zone (See 33 CFR 3.70-10) and covers all U.S. navigable waters extending 500 yards in all directions from the U.S. Forces vessel SBX-1, from the surface of the water to the ocean floor. The security zone moves with the SBX-1 while in transit. The security zone becomes fixed when the SBX-1 is anchored, position-keeping, or moored. The security zone will be activated and enforced for just a few days during its three-week effective period. A broadcast notice to mariners will be issued to notify the public of this activation and enforcement period as soon as possible. If the Coast Guard has at least 48 hours notice of the movement of the SBX-1, the broadcast notice to mariners will be published giving the public 48 hours notice of the enforcement period commencement. From the 1 and 2 buoy for Pearl Harbor until it departs the COTP zone, SBX-1 is expected to have a Coast Guard escort.

Dated: November 3, 2006.

V. B. Atkins,

Captain, U.S. Coast Guard, Captain of the Port, Honolulu.

[FR Doc. E6-20355 Filed 11-30-06; 8:45 am]

BILLING CODE 4910-15-P

<http://starbulletin.com/2006/10/08/news/military.html>

Star-Bulletin

Vol. 11, Issue 281 - Sunday, October 8, 2006

In the Military

Gregg K. Kakesako

The 25-story Sea-Based X-Band Radar, which left Pearl Harbor Aug. 7 for sea trials, is back in Hawaii for up to six weeks of maintenance work. The radar dome and platform spent July 23 through Aug. 7 at Pearl Harbor the last time it was here. The platform is supposed to be stationed in Alaska.

Seafarers Log
October 2006

Secret Mission, Open Kudos for SBX Crew

Twenty-six Seafarers recently were lauded for their contributions to the Department of Defense's Ground-Based Midcourse Defense (GMD) X-Band Radar (XBR) Project office while working aboard the Interocean American Shipping Corp.-operated SBX-1.

The SBX-1, during the period when the mariners earned the recognition, was involved in classified operations which had been mandated by the Department of Defense (DOD). The planning, training and execution of this mission ran from June 14 to July 5, 2006.

Army Col. John R. Fellows, of the DOD GMD Joint Program office, in a letter of appreciation to Interocean American Shipping which recognized the mariners, said in part: "I would like to commend and express my sincere appreciation to your team for their outstanding contributions to the Ground-Based Midcourse Defense X-Band Radar Project office and to our nation. The SBX was tasked to perform a classified special mission that was mandated by and in support of the Secretary of Defense... your team's assistance to this effort was superb. Their professionalism and dedication were evident throughout this critical event."

Receiving recognition were Bosuns James Crate and Wes Slattery; ABs John Ulstrom, Greg Overstreet, Mark Bolitho and Christopher Yohe; Ordinary Seamen Matt Jenness and Gene Hoehn; QMEDs David Spaulding, Joseph Benavente, Jordan Cuddy and Victor Bunghart; Electricians Kirk Benton and Frank Guenther; QEE Paul Mullersman and Wiper Bryan Fisher.

Also honored were Steward/ Baker Bill Bragg; Chief Cooks Larry Pugh and Nancy Vaupel; ACUs Larinda Sawyer and Elba Alfaro; and SAs Terry Lane, Francis Fiorella, Steve Concepcion, Cindy Galarza and W. Carnell Frink.

The SBX-1 is a unique combination of an advanced X-Band radar mounted aboard an oceangoing, semi-submersible platform. It provides the Ballistic Missile Defense System with a missile tracking and discrimination capability that can be positioned to cover any part of the globe to support both missile defense operations and testing. The platform is twin-hulled, self-propelled and very stable in rough seas and turbulent sea conditions. The platform's ocean-spanning mobility allows the radar to be repositioned as needed to support the various test scenarios envisioned for the Ballistic Missile Defense System or to provide radar coverage of possible threat missile launches from anywhere in the world.

The Sea-Based X-Band Radar is 240 feet wide and 390 feet long. It towers more than 280 feet from its keel to the top of the radome and displaces nearly 50,000 tons. Larger than a football field, the main deck houses living quarters, workspaces, storage, power generation, a bridge and control rooms while providing the floor space and infrastructure necessary to support the radar antenna array, command, control and communications suites and an in-flight interceptor communication system data terminal.

**Missile Defense Program Overview
For The Washington Roundtable
On Science And Public Policy**

29 JAN 07

**BG Patrick O'Reilly, USA
Deputy Director
Missile Defense Agency**

**Approved for Public Release
06-MDA-2194 (23 JAN 07)**

ms-109054 / 012907



Real World Events

- **On 4-5 JUL 06, North Korea conducted seven ballistic missile tests**
 - **The six short-range tests appeared successful, landing in Sea of Japan**
 - **The test of the long-range Taepo Dong-2 missile, of most interest to the U.S., failed shortly after launch**
- **BMDS handed over to the operators**
- **Aegis BMD radar surveillance ships were stationed east and west of Japan to track trajectory and identify either space or missile track**
- **Positioning of Forward-based X-band Radar in Japan was accelerated for data collection**
- **Sea-based X-band Radar off Hawaii was similarly standing by for data collection**

We are Confident The Ballistic Missile Defense System Would Have Operated As Designed Had The Taepo Dong-2 Threatened The U.S.



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 14

Week: 40/06

October 04, 2006
ISSUED BY:
Commander (dpw)
Fourteenth Coast Guard District
300 Ala Moana Boulevard Room 9-216
Honolulu, HI 96850-4982
Telephone: (808) 541-2316 Night: (808) 842-2600/2601 Fax: (808) 842-2624
Email: D14LNM@uscg.mil

[EXCERPT]

HI ISLANDS - OAHU - MILITARY OPERATIONS

SBX -1 will be conducting high power radar test operations from September 08, 2006, through October 05, 2006, within a test area approximately 75 NM SouthWest of Oahu having the following corner points:

20-14N, 158-44.5W

20-20N, 158-52.5W

20-12N, 158-59W

20-06N, 158-51W

Request all surface vessels maintain a 3 NM safety/security standoff from SBX -1 at all times. SBX -1 monitors *[sic]* VHF-CH 16.

Presenter: Missile Defense Agency director, Lt. Gen. Henry "Trey" Obering III September 01, 2006
3:15 PM EDT

DoD News Briefing with Lt. Gen. Obering from the Pentagon

[deletia]

Q One follow-up. What was the role of the Boeing golf ball on the ship, the XB -- the Sea-Based X-Band Radar. Did it play a role [in the 1 September 2006 missile interceptor test]? It's had some problems lately, apparently.

GEN. OBERING: What happened is, we have the Sea-Based X-Band Radar. It did participate in this test. It was off the coast of California. It did successfully track the target all the way through to intercept.

Some of what you saw in the press was also very misleading. I had actually chartered a team to independently assess the viability of the Sea-Based X-Band Radar before we actually moved it to its home in Alaska. I wanted to make one final check, because we often like to underpromise and overdeliver. And so the report that was referred to in the press talked about modifications and changes that were recommended by the independent review team. What they failed to announce is that the conclusion of that team was that the platform and the radar were very robust for the intended mission.

And so what we're doing is what I would call modifications to improve the winterization of the platform, those types of things. But it is fully operational in terms of the platform itself. We have calibrated the radar. We actually used it in this test, as I said. The only thing we have left to do is to do some minor mods before we move up to Alaska, and we have that scheduled for this fall. So we're not very far off track, considering how long -- you know, how massive a project that was and what time we actually rolled it out in.

Missile radar idling in Hawaii: Defense experts have concerns about design of X-Band vessel
(Chicago Tribune (KRT) Via Thomson Dialog NewsEdge)
[August 27, 2006]

Aug. 27--HONOLULU -- The giant radar, so powerful it can tell which way a baseball is spinning 3,000 miles away and so cutting edge it has been billed as the nation's best chance at comprehensive missile defense, came to the historic port of Pearl Harbor for what was advertised as a quick stopover for minor repairs and a paint job.

That was eight months ago.

Now, even as the weeks pass and the price tag creeps toward \$1 billion, the Sea-Based X-Band Radar shows little chance of actually making the voyage to its intended port in Alaska--considered the optimal location for monitoring potential North Korean missile launches--until at least later this fall.

Even more, a recent independent assessment [*] obtained by the Tribune lists dozens of concerns from naval and defense experts about the design and administration of the radar vessel, a cornerstone in the Bush administration's oft-criticized push to fast-track the development of a yet-unproven ballistic missile defense system.

Among the findings:

- The sensitive radar -- known as the SBX--is mounted atop a vessel that might need to be towed to safety in the event of rugged Alaskan seas, but its one towing bridle likely would be underwater and impossible for a rescue ship to use anytime waves reached more than 8 feet.
- Although the SBX may be hundreds of miles away from support ships, it lacks a quickly deployable rescue boat in the event of a man overboard, does not have a helicopter landing pad certified for landing the most common U.S. Coast Guard and Navy rescue helicopters, and its crews have not been trained "for heavy weather or cold-weather operations."
- And, ironically, the X-Band, considered one of the nation's foremost technologies in defending against foreign missiles, has minimal security itself. Many critics speculate that it is vulnerable to attack by enemy nations or terrorist groups.

The Missile Defense Agency, the arm of the Department of Defense that is responsible for the radar, has said it has addressed or is addressing the majority of concerns raised in the independent assessment. But the problems that have plagued the SBX since it was unveiled as part of the administration's nearly \$43 billion missile defense system have led critics to dub it "Son of Star Wars," a derisive moniker drawing on President Ronald Reagan's unrealized dream of developing a space shield that could stop incoming enemy missiles.

The Bush administration has faced significant skepticism about its missile defense goals. The president in 2002 ordered that a missile defense system be operational within two years, though the technology was considered shaky after tests showed the system often failed.

Those who had questioned whether it was wise to put a radar as intricate as the X-Band on a vessel bound for some of the world's roughest waters only had their arguments bolstered this year when the massive SBX sustained damage during its first long ocean voyage from the Gulf of Mexico to Hawaii.

"That radar is absolutely packed with sensitive electronics, and . . . salt water, wind and waves don't go well with sensitive electronics," said Philip Coyle, who as assistant secretary of defense from 1994 to 2001 was the Clinton administration's chief weapons evaluator.

He went on: "The bottom line is that the designers of this system didn't begin to contemplate the realistic conditions under which the X-Band would have to operate. When you look at all the facts, you really have to wonder what the people who designed this thing were thinking."

The SBX's radar sphere--a 27-story white globe that looks like a giant golf ball--is mounted atop a sea-based, partly submersible oil rig. Its powerful high-frequency radar, which makes detailed, long-range imagery possible, is intended to detect the launch of missiles from hostile nations and then guide U.S. missiles to intercept the threat.

Fears about violent weather

The SBX is to be based in the Aleutian Islands in Alaska, an ideal place from which to monitor the trajectory experts believe a North Korean missile would take en route to the U.S. This summer, North Korea did a test launch of its most advanced missiles and is feared to have missiles that could reach U.S. bases in Japan, the American territory of Guam and potentially Hawaii or Alaska.

But the Aleutians lie in an unforgiving portion of the Bering Sea where winter weather can be so violent that the islands have been nicknamed "the birthplace of winds." Therein lie many of the concerns associated with the SBX.

Although virtually all experts agree the SBX is a rugged vessel, many worry that some of its designs fail to fully take into account conditions routinely present around Adak Island, Alaska, the radar's destined home.

They raise a number of concerns: There is no refueling station for rescue or resupply aircraft, despite the fact the SBX routinely could be up to an 8-hour helicopter flight from a Coast Guard station; the emergency communication system depends on satellite communications that can occasionally fail; vital backup electrical systems on deck are not protected from water or cold; the propulsion system will not allow the vessel to move quickly.

An official said recently that the Missile Defense Agency was "taking to heart" the dozens of recommendations made in the independent assessment.

Chet DeCesaris, deputy program manager for the agency's ground-based missile defense program, said the vessel is getting certified for Coast Guard and Navy rescue helicopters to land on it, its crew has been extensively training in cold-weather operations and damage incurred during the voyage to Hawaii has been repaired

"The overriding thought in the assessment was that the SBX is a robust vessel," he said, adding that the

converted oil rig the radar is mounted on was designed for service in the harsh conditions of the North Sea.

He said the agency was studying whether to implement other major changes, such as adding a second bridle to increase odds that the SBX could be towed away from a violent storm. But he argued that a permanent mooring platform would be built for the SBX within about a year and there was a "low risk" that a storm would significantly damage the vessel before that.

"I don't think, I know, there is no risk going up there for the winter," DeCesaris said, adding that should a significant enough storm arise that it threatens the radar, the SBX would be "taken anywhere in the world" to ensure its safety.

Despite the setbacks, DeCesaris insisted the SBX would be in Alaska sometime in November. Previously the Missile Defense Agency had assured Congress that it would be in place by late summer, and some experts have said a move in late fall will be difficult because of the early arrival of winter in Alaska.

There are doubts that the SBX will ever make it to Alaska.

"I increasingly suspect it may not ever leave Hawaii," said Coyle, the former assistant secretary of defense.

Even if all the SBX's design challenges are addressed, there remains an overarching question: Can the radar actually detect a hostile missile in real time, under real-life circumstances? A number of defense experts have voiced skepticism, saying the preliminary testing done on missile defense radar systems is inherently flawed because the tests are so carefully scripted that radar operators often know beforehand what kind of missile to look for, where it will be flying and what kind of radar signature it gives off.

A scathing report by the Government Accountability Office this spring took the Missile Defense Agency to task for not yet proving its system works, even though the Pentagon plans to spend an additional \$58 billion, or 14 percent of its projected research budget, on missile defense in the coming six years.

Security issue

What most worries many observers is what happens the day the SBX is declared operational. The vessel now is protected by a security detail with a handful of small-arms weapons. DeCesaris deflected questions about the vessel's security by saying that the Missile Defense Agency leaves security issues to the armed forces; in reality, though, the vessel belongs to the agency and is not under the jurisdiction of any military branch.

"If North Korea or China actually believed this thing worked, one of the first things they would take out would be the X-Band if aggressions developed," Coyle said. "Those .50-cal [machine guns] they have on board aren't going to be able to do anything to protect them."

[] The assessment is provided in full in Appendix B of this sourcebook.*

<http://www.reflexmarine.com/index.cfm?uuid=59F4D036D8>

SBX Project Opt for Frog

The USA's SeaBorne X-Band radar project is based offshore Alaska on a semi-submersible CS-50 platform. This was converted by Amfels shipyard in Brownsville, Texas, for its client, Boeing.

It is necessary to be able to transfer personnel routinely as safely as possible in the offshore environment throughout the year as well as for transferring any medical emergencies. The CS-50 semi-sub will be based offshore for considerable periods of time and ship to platform transfers were the only practical means for the location.

After evaluating the various products on the market, the Frog was determined to be the only practical solution. It is even more suitable when it is realized that transfers will be taking place during the Arctic winter and exposure to the elements clinging to a rope basket would not be practical or safe. It is worth noting that during this evaluation/communication period, the value of the US\$ plummeted against the UK Pound, considerably raising the cost of the Frog but in spite of this, the clients deemed the Frog to be the only safe solution for routine transfers and medivacs.

The Frog supplied is an M40 unit, modified to perform in temperatures of $-40^{\circ}\text{C}/\text{F}$ with fitted strobe, stretcher frame and a wind/weather proof enclosure. A training programme will be carried out with the platform's crew and some potential users in late October/November 2004.

Although this particular sale is a one-off project, it should create an awareness of the Frog which could lead on to further related projects and also indicates that the Frog has been able to meet the stringent requirements for such applications.



SBX-1 Site Manager: Raytheon Company
Job ID: TSC106124HJO
Position Type: Full-Time Employee
Company Name: Raytheon Company
Location: Honolulu, HI
Salary: Unspecified
Date Posted: July 8, 2006
Experience: 5-10 Years Experience
Desired Education Level: Bachelor of Science

Raytheon Technical Services Company LLC (RTSC) provides technology solutions for defense, federal and commercial customers worldwide. We specialize in product support, customized engineering and on-site engineering solutions. With annual sales of \$2 billion and more than 11,000 employees, RTSC is headquartered in Reston, VA. RTSC operates in 38 states, 37 countries and all seven continents. The Sensors & Metrology business area within RTSC has a diversified portfolio of contracts to include Radar contracts.

Sensors & Metrology has a current opening on the Sea Based X-Band Radar contract (SBX).

Job Description: Provides operations and maintenance management as well as on-site engineering management for all installed subsystems and equipment in support of high-power X-Band radar systems. Manages a staff of approximately 12 exempt personnel. Serves as the senior on-site RTSC Representative for employee related matters as well as RTSC's direct customer interface for shipboard operations and maintenance issues. Directs the activities of subordinate personnel and implements Company policy. Provides direction to engineering, technical and support staff for proper system/equipment operation, maintenance and troubleshooting. Develops and updates system maintenance plans, preventive maintenance procedures, local operating procedures and Standard Operating Procedures as required. Additionally, provides management oversight and support for logistics, system upgrades, sustainment initiatives and general preventive maintenance conducted during shipyard periods. Prepares and presents status reports, failure reports and other programmatic technical data. Develops staffing plans, shift schedules and maintenance plans with emphasis on meeting mission and budgetary requirements. Communicates to Program Manager on system status, budgetary and personnel issues. Reports to Program Manager.

Required Skills: At least 8 years of related experience in phased array radar, communications, and data processing systems. At least 4 years of supervisory experience. Experience working in a cleared environment. Excellent computer skills to include operating Microsoft Word, Excel, and Powerpoint as well as email. Strong communication skills both oral and written. Ability to communicate to all levels within an organization. Strong organizational skills.

Desired Skills: Previous work on a government contract.

SBX-1 Site Manager job - Raytheon - Honolulu, Hawaii

Company Name Raytheon jobs

Job Location Honolulu, Hawaii HI

Job Posted June 23, 2006

Source jobsearch.monster.com

SBX-1 Site Manager

... Company LLC (RTSC) provides technology solutions for defense, federal and commercial customers worldwide. We specialize in product support, customized engineering and on-site engineering solutions. With annual sales of \$2 billion and more than 11,000 employees, RTSC is headquartered in Reston, VA. RTSC operates in 38 states, 37 countries and all seven continents. The Sensors & Metrology business area within RTSC has a diversified portfolio of contracts to include Radar contracts. Sensors & Metrology has a current opening on the Sea Based X-Band Radar contract

...

SBX-1 Sr Logistics Specialist - Anchorage, AK: Raytheon Company

Job ID TSC105796HJO
Position Type Full-Time Employee
Company Name Raytheon Company
Location Anchorage, AK
Salary Unspecified
Date Posted April 27, 2006
Experience 2-5 Years Experience
Desired Education Level Bachelor of Science

Job Description:

The primary focus of this individual is the on-board logistics posture of the Sea Based X-Band Radar (XBR) including status of spares quantities, unique XBR consumables, preventive maintenance schedule, and corrective maintenance actions. The Sea Based XBR On-Site Sustainment Lead serves as a key interface between the Platform, the Primary Support Base (PSB), and Raytheon Program Management Office (PMO) for XBR logistics matters. This individual is responsible for ensuring a proactive approach is taken in keeping Sea Based XBR in the most pristine operational condition and ready for deployment.

The Sea Based XBR On-Site Sustainment Logistician will report to the XBR Program Manager (or designee) and the OSS site manager at the Anchorage, AK office. Responsibilities include developing and reviewing documents and maintaining processes, methods, support equipment and tools required for the operation of the XBR logistics. Administers processes in such product support areas as system analysis and planning, estimating related to spares, repairs and supply chain management.

- * Performs maintenance planning for depot level repairs.
- * Interacts with the Boeing provided Computerized Inventory and Maintenance Management System (CIMMS)
- * Maintains routine communications with Sea Based XBR engineering functions on matters such as maintenance activities, parts availability, order status, and current schedules for delivery of products and services.
- * Ensures coordinated crew rotation and parts management between XBR and prime contractor.
- * Works according to and within established Raytheon guidelines.
- * Assists Sea Based XBR On-site manager in administrative matters .
- Applies experience gained, primarily on the job, to investigate and develop solutions to such problems of moderate scope and complexity as support planning and analysis; estimating; scheduling; and tracking repair, overhaul, lease and exchange activities.

* Participates in analysis, definition, and implementation of new and revised XBR support systems, processes, and policies

Required Skills:

- Four to six years experience with product support, logistics, or other technical administrative processes and procedures.
- Advanced computing skills, including specialized product support systems and applications.

<http://starbulletin.com/2006/05/06/news/story10.html>

Radar leaves Pearl Harbor for second time

By Audrey McAvoy

Honolulu Star Bulletin

Vol. 11, Issue 126 - Saturday, May 6, 2006

Associated Press

[EXCERPTS]

Oahu lost a giant landmark when the Missile Defense Agency's powerful floating radar sailed out of Pearl Harbor for its new home port in Alaska -- its second attempt to leave the islands in about one month.

The radar initially left Hawaii in late March but had to turn around four days later when sea water leaked through the ballast piping on its floating platform.

Missile Defense Agency spokeswoman Pam Rogers said yesterday that repairs to the piping have been completed, enabling the radar's vessel to attempt a second departure for an expected arrival in Alaska later this spring. The ship left Pearl Harbor Thursday morning *[2006-05-04]*.

The Sea-Based X-Band Radar first arrived in the islands in January en route to its new port in Adak, Alaska, from Texas where it was built. The giant radar dome dominated the skyline around Pearl Harbor, with residents growing to instantly recognize the King Kong-size golf ball-like shape from miles away.

The radar rises some 28 stories from its keel to the top of the radar dome.

Engineers could have repaired the radar platform at sea after it last left Pearl Harbor, but the Missile Defense Agency decided to bring the vessel back to port because it was still close enough to Hawaii.

The damages to the ballast piping affected the radar's ability to partially submerge and re-emerge from the water. The Missile Defense Agency has said the financial cost of the damage would be minimal.

**DEPARTMENT OF HOMELAND
SECURITY**

Coast Guard

33 CFR Part 165

[COTP Honolulu 06-005]

RIN 1625-AA87

Security Zone; Waters Surrounding

U.S. Forces Vessel SBX-1, HI

AGENCY: Coast Guard, DHS.

ACTION: Temporary final rule.

SUMMARY: The Coast Guard is establishing a temporary 500-yard moving security zone around the U.S. Forces vessel SBX-1 during transit and sea trials within the Honolulu Captain of the Port Zone. This zone is necessary to protect the SBX-1 from hazards associated with vessels and persons approaching too close during transit and sea trials. Entry of persons or vessels into this temporary security zone while it is activated and enforced is prohibited unless authorized by the Captain of the Port (COTP).

DATES: This rule is effective from 12 a.m. (HST) on April 14, 2006 to 11:59 p.m. (HST) on May 14, 2006.

ADDRESSES: Documents indicated in this preamble as being available in the docket are part of docket COTP Honolulu 06-005 and are available for inspection or copying at Coast Guard Sector Honolulu between 7 a.m. and 3:30 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT:

Lieutenant (Junior Grade) Quincey
Adams, U.S. Coast Guard Sector
Honolulu at (808) 842-2600.

SUPPLEMENTARY INFORMATION:

Regulatory Information

We did not publish a notice of proposed rulemaking (NPRM) for this regulation. Under 5 U.S.C. 553(b)(B), the Coast Guard finds that good cause exists for not publishing an NPRM. The Coast Guard was not given the final voyage plan in time to initiate full rulemaking, and the need for this temporary security zone was not determined until less than 30 days before the SBX-1 will require the zone's protection. Publishing an NPRM and delaying the effective date would be contrary to the public interest since the transit would occur before completion of the rulemaking process, thereby jeopardizing the security of the people and property associated with the operation. Under 5 U.S.C. 553(d)(3), the Coast Guard finds that good cause exists for making this rule effective less than 30 days after publication in the **Federal Register**. The COTP finds this good cause to be the immediate need for a security zone to allay the waterborne security threats surrounding the SBX-1's transit.

Background and Purpose

On March 30, 2006, the SBX-1 got underway in the Honolulu Captain of the Port Zone to conduct sea trials in preparation for departure from the zone. The Coast Guard approved and issued COTP Honolulu Order 06-004 (165.T14-141 Security Zone; Waters Surrounding U.S. Forces Vessel SBX-1, HI), which established a temporary security zone lasting from March 30, 2006 through April 05, 2006. During the sea trials, the SBX-1 suffered a casualty that prevented its timely departure from the Honolulu Captain of the Port Zone. The SBX-1 will get underway from Pearl Harbor, HI when repairs have been completed to conduct sea trials and transit out of the Honolulu Captain of the Port Zone. Due to the unknown duration of repairs, the final underway date for the SBX-1 will not be known in advance. Accordingly, the Coast Guard is establishing this security zone, which is necessary to ensure the SBX-1's protection for the entire operation while giving as much public notice as possible.

Discussion of Rule

This temporary security zone is effective from 12 a.m. (HST) on April 14, 2006 to 11:59 p.m. (HST) on May 14, 2006. It is located within the Honolulu Captain of the Port Zone (See 33 CFR 3.70-10) and covers all waters extending 500 yards in all directions from the U.S. Forces vessel SBX-1, from the surface of the water to the ocean floor. The security zone moves with the SBX-1 while in transit. The security zone becomes fixed when the SBX-1 is anchored, position-keeping, or moored. The security zone will be activated and enforced for just one week during its month-long effective period. A broadcast notice to mariners will be issued to notify the public of the activation and enforcement week as soon as possible.

The general regulations governing security zones contained in 33 CFR 165.33 apply. Entry into, transit through, or anchoring within this zone while it is activated and enforced is prohibited unless authorized by the Captain of the Port or a designated representative thereof. Any Coast Guard commissioned, warrant, or petty officer, and any other Captain of the Port representative permitted by law, may enforce the zone. The Captain of the Port may waive any of the requirements of this rule for any person, vessel, or class of vessel upon finding that application of the security zone is unnecessary or impractical for the purpose of maritime security. Vessels or persons violating this rule are subject to the penalties set forth in 33 U.S.C. 1232 and 50 U.S.C. 192.

[deletia]

PART 165—REGULATED NAVIGATION AREAS AND LIMITED ACCESS AREAS

1. The authority citation for part 165 continues to read as follows:

Authority: 33 U.S.C. 1226, 1231; 46 U.S.C. Chapter 701; 50 U.S.C. 191, 195; 33 CFR 1.05-1(g), 6.04-1, 6.04-6, and 160.5; Pub. L. 107-295, 116 Stat. 2064; Department of Homeland

Security Delegation No. 0170.1.

2. A new § 165.T14-142 is added to read as follows:

§ 165.T14–142 Security zone; waters surrounding U.S. Forces vessel SBX–1, HI.

(a) *Location.* The following area, in U.S. navigable waters within the Honolulu Captain of the Port Zone (See 33 CFR 3.70–10), from the surface of the water to the ocean floor, is a security zone: All waters extending 500 yards in all directions from U.S. Forces vessel SBX–1. The security zone moves with the SBX–1 while it is in transit and becomes fixed when the SBX–1 is anchored, position-keeping, or moored.

(b) *Effective dates.* This security zone is effective from 12 a.m. (HST) on April 14, 2006 to 11:59 p.m. (HST) on May 14, 2006.

(c) *Regulations.* The general regulations governing security zones contained in 33 CFR 165.33 apply. Entry into, transit through, or anchoring within this zone while it is activated and enforced is prohibited unless authorized by the Captain of the Port or a designated representative thereof.

(d) *Enforcement.* The Coast Guard will begin enforcement of the security zone described in this section upon the SBX–1's departure from Pearl Harbor, HI.

(e) *Informational notice.* The Captain of the Port of Honolulu will cause notice of the enforcement of the security zone described in this section to be made by broadcast notice to mariners.

(f) *Authority to enforce.* Any Coast Guard commissioned, warrant, or petty officer may enforce this temporary security zone.

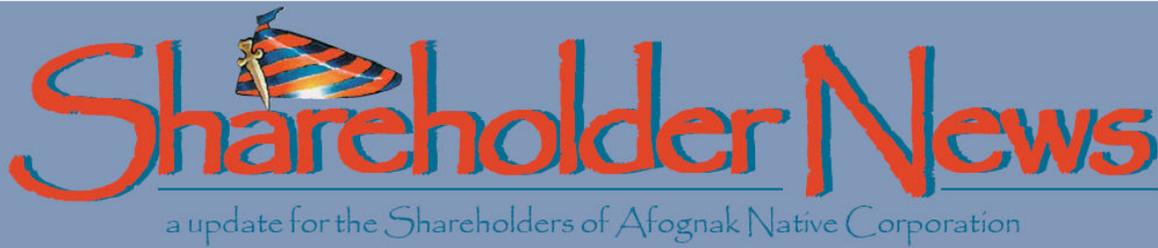
(g) *Waiver.* The Captain of the Port may waive any of the requirements of this rule for any person, vessel, or class of vessel upon finding that application of the security zone is unnecessary or impractical for the purpose of maritime security.

(h) *Penalties.* Vessels or persons violating this rule are subject to the penalties set forth in 33 U.S.C. 1232 and 50 U.S.C. 192.

Dated: April 14, 2006.

M.K. Brown,
Captain, U.S. Coast Guard, Captain of the Port, Honolulu.

[FR Doc. 06–4015 Filed 4–27–06; 8:45 am]



Shareholder News

a update for the Shareholders of Afognak Native Corporation

SEPTEMBER 2006

Alutiiq International Solutions awarded its Sea-Based X-Band Radar (SBX-1) Security Force Project

On April 7, 2006, the Missile Defense Agency (MDA) awarded its Sea-Based Xband Radar (SBX-1) Security Force Project to Alutiiq International Solutions (AIS). The SBX-1 is a government owned, contractor operated ship with a unique mission of providing a platform for an advanced technology X-Band radar system. The SBX-1 is an ocean-going, semi-submersible platform that provides the Ballistic Missile Defense System with a missile tracking and discrimination capability that can be positioned to cover any part of the globe to support both missile defense operations and testing. The platform is twin-hulled, selfpropelled and very stable in rough seas and turbulent sea conditions. Its oceanspanning mobility allows the radar to be repositioned as needed to support the various test scenarios envisioned for the Ballistic Missile Defense System or to provide radar coverage of possible threat missile launches from anywhere in the world. The SBX-1 will be based out of Adak, AK.

AIS is responsible for providing armed Maritime and Shore-based Security Officers for the protection of a dual work site operation. The first team of Security Officers will work onboard the ship providing security during transit and loiter operations. Another team of Security Officers will be permanently assigned to Adak Island to provide port security.

The total value of this contract is in excess of \$31M.

Alutiiq's Guard Services Division, based in Chesapeake, VA, who developed this program and will manage it. The team of Bruce Bell and Julie Sudlow were instrumental in their efforts during the contract proposal and development phases. Costing and technical writing support were provided by Cliff Vandersip, Walter Lisicki, and Leigh Anne Pope. Mr. John Hurst, a recently retired Coast Guard Commander, with extensive Alaska based experience, will serve as the Project Manager for this contract.





The Sea-Based X-Band Radar loom behind the USS Arizona.

MDA PHOTO

Bon voyage, indeed

SBX makes a stop in Hawaii en route to Alaska

BY LYNN FARROW

If they hurry, visitors to Pearl Harbor, Hawaii, can observe a marvel of modern technology—the Sea-Based X-Band Radar—while it is temporarily moored in the famous harbor undergoing refurbishment and a much-needed paint job.

Late last year, the 50,000-ton SBX, a modified oil-drilling vessel, made its way from Corpus Christi, Texas, around South America, and through the South Pacific Ocean to Hawaii. A component of the U.S. Missile Defense Agency's Ground-Based Midcourse Defense program, the SBX provides tracking, discrimination and hit-assessment functions. Its radar is so sensitive that "if a baseball were

launched on the West Coast, it could be detected on the East Coast by this radar," said Pam Rogers, spokeswoman for the Missile Defense Agency in Huntsville, Ala.



As prime contractor for the GMD program, Boeing is responsible for the development and integration of the GMD system components, including the SBX.



To save time and reduce wear and tear on the radar system, the SBX—which stands 28 stories above the ocean—was loaded onto a heavy transport vessel, the Motor Vessel Blue Marlin (top and above) in November 2005 to make the 16,000-mile journey. "Using the Blue Marlin made the most sense for our program and for our customer," said Pat Shanahan, Boeing Missile Defense vice president and general manager. "We saved a considerable amount of time and resources. The transit time required by the Blue Marlin was less than half what the SBX would require under its own power." The loading process to position the SBX on board the Blue Marlin and making the vessel ready for the voyage took several days. The Blue Marlin—owned and operated by Dockwise Shipping B.V. of Breda, The Netherlands, and under the command of Captain Jurijs Ivanovs (below)—is the world's largest heavy-transport vessel.

Too big for the Panama Canal, the radar platform was routed south through the Strait of Magellan, arriving in Hawaii in January for refurbishment.



DOCKWISE PHOTO

The SBX will head for its home port of Adak, Alaska, under its own power later this year. From Adak, the radar platform will move throughout the Pacific Ocean in support of advanced missile-defense testing and defensive operations. Over time, the SBX will help protect the United States, its deployed forces, allies and friends from potential missile attacks.

lynn.farrow@boeing.com

***[box]* On the fast track**

Glade Holyoak was the SBX construction manager for Boeing. Here, in his own words, he describes building the SBX system from the customer's request for proposal to the successful voyage to Pearl Harbor, Hawaii:

Five years ago a group was assembled to provide a professional opinion on the viability of deploying a large, sea-based radar that would be mounted on a floating platform. In September 2005, the SBX system, including personnel and equipment, successfully tracked satellites while operating in the Gulf of Mexico. To be a part of this "first-in-the-world" project has been a tremendous ride filled with many ups and a few downs.

I joined the project in November 2002 during the design phase and was instructed that this project was on a fast track and would be successful. The prime designer for modifications to the oilfield platform was The Glosten Associates of Seattle. Several Gulf of Mexico shipyards were requested to provide conversion proposals based on a 30 percent design package with the successful bidder to participate in final design. Keppel AmFELS of Brownsville, Texas, was the successful prime bidder.



HENRY NORTON/MDA PHOTO

SBX Construction Manager Glade Holyoak (right) and Lt. Gen. Trey Obering, director of the Missile Defense Agency (left), tour the SBX. Holyoak has been with the SBX project from design phase to its recent transit from the Gulf of Mexico to Hawaii. He called the experience a "tremendous ride filled with many ups and a few downs."

The first piece of steel for the conversion was cut on Sept. 25, 2003. After addition of about 5,000 tons of steel, all of the propulsion systems, living quarters, payload support infrastructure, and control equipment—and after completion of systems startup and operational testing—the SBX-1 departed Brownsville on builder's trials on March 13, 2005.

After successful sea trials, the ship arrived at Kiewit Offshore Services in Ingleside, Texas, to integrate the radar with the vessel and install the radar dome. Other work, including installation of new seawater service pumps and mooring winches, also was accomplished.

SBX-1 completed two additional sea trials in the Gulf of Mexico. The final sea trial culminated in achieving American Bureau of Shipping Class Certification—required for unrestricted operations of the ship in all open oceans—and in demonstrating the system was capable of tracking satellites.

The next great adventure included loading the SBX onto a heavy-lift vessel, the M.V. Blue Marlin, for transit from the Gulf of Mexico to Hawaii. The professionalism with which this complex procedure was carried out was tremendous.



DAVE MARTIN PHOTO

The SBX sails aboard the Blue Marlin during its historic journey from the Gulf of Mexico to Pearl Harbor. The voyage included traversing the Strait of Magellan and took more than 50 days to complete .

The success of a fast-track project depends on the expertise of the people involved. In my 30 years of management, I can sincerely say this project had the best of the best. It has been a real pleasure being associated with this team throughout the project.

http://www.news.navy.mil/view_photos.asp?page=3220&sort_type=0&sort_row=1



060331-N-9643K-008 Pearl Harbor, Hawaii (March 31, 2006) - The Sea Based X-Band Radar (SBX 1) departs Pearl Harbor, en route to its homeport in Adak, Alaska in the Aleutian Islands. SBX arrived in Hawaii in January to undergo minor modifications, post-transit maintenance and routine inspections. SBX will provide the nation with ballistic missile tracking and detection and the ability to distinguish a hostile warhead from decoys and countermeasures. U.S. Navy photo by Chief Journalist Joe Kane (RELEASED)



060331-N-9643K-005 Pearl Harbor, Hawaii (March 31, 2006) - The Sea Based X-Band Radar (SBX 1) departs Pearl Harbor, en route to its homeport in Adak, Alaska in the Aleutian Islands. SBX arrived in Hawaii in January to undergo minor modifications, post-transit maintenance and routine inspections. SBX will provide the nation with ballistic missile tracking and detection and the ability to distinguish a hostile warhead from decoys and countermeasures. U.S. Navy photo by Chief Journalist Joe Kane (RELEASED)

<http://www.missiledefenseadvocacy.org/alerts/20060217/hawaii05.htm>



MDAA Alert - Friday, February 17, 2006



Lt. Colonel Bush in charge of SBX with John Fox head coach, Carolina Panthers, Jonathan Vilma, All Pro Linebacker New York Jets, and Keith Brooking, All Pro outside linebacker, Atlanta Falcons.

Dear Members and Friends,

MDAA had the privilege of hosting the Honolulu Breakfast of Champions at the Royal Hawaiian Hotel in Waikiki, Hawaii. The featured speakers included; Captain Matawiz, the Captain of the CG-73 Port Royal Aegis cruiser, Dave Jensen, the CEO of Aleut Corporation and Mr. Richard Ritter, the Missile Defense Agency's deputy program director of the Command and Control, Battle Management and Communications program.

In addition, a few of the National Football League's All Pro Defensive players and John Fox, the head coach of the Carolina Panthers had the opportunity to tour, learn, interact and inspire the sailors and the users of the two sea based missile defense platforms anchored in Pearl Harbor, The Aegis Cruiser Port Royal (CG-73) and the Sea Based X Band Radar (SBX-1). Captain Matawiz of the Port Royal and

Lt. Colonel Bush of the SBX-1 welcomed the NFL to their respective vessels and crew as well as educated them on their capabilities.

[deletia]

<http://www.missiledefenseadvocacy.org/gallery/thumbnails.php?album=31&page=1&sort=ta>



<http://www.missiledefenseadvocacy.org/gallery/displayimage.php?album=31&pos=4>

LtCol Steve Busch is presented a Pro Bowl jersey by Coach John Fox with Falcons linebacker Keith Brooking and Jets linebacker Jonathan Vilma looking on.



<http://www.missiledefenseadvocacy.org/gallery/displayimage.php?album=31&pos=5>

Coach John Fox, LtCol Steve Busch, Falcons linebacker Keith Brooking and Jets linebacker Jonathan Vilma.



<http://www.missiledefenseadvocacy.org/gallery/displayimage.php?album=31&pos=6>

John Fox, Colonel Bush and Jonathan Vilma

The Maui News

Sunday, January 22, 2006 7:47 AM

On way to Alaska, X-Band radar makes stop off Maui

By AMANDA COWAN, Staff Writer

OLOWALU – Two elders of the Church of Jesus Christ of the Latter-day Saints said they just had to stop to look more closely themselves – along with several hundred other drivers who turned the Honoapiilani Highway at Olowalu into a near-parking lot on Saturday.

“We thought it looked like an alien ship or something,” said Elder Jordan McKee, joined by Elder Sekone Levu in gawking at the massive dome and semisubmersible platform of the Sea-Based X-Band Radar temporarily on display about a mile off Olowalu this weekend.

The SBX Radar, sitting 280 feet high, 390 feet long and 240 feet wide, is being offloaded from its transport vessel, MV Blue Marlin, which was slowly filling its ballast tanks to submerge its main deck so the radar platform can float free.

It will be towed back to Pearl Harbor once it’s off the Blue Marlin. But the maneuver needed the relatively calmer and deeper waters off West Maui, according to a spokeswoman with the U.S. Missile Defense Agency.

There were concerns about the operation in the waters of the Hawaiian Islands Humpback Whale National Marine Sanctuary during the peak of the whale breeding and birthing season.

But spokeswoman Pam Rogers said the Missile Defense Agency was working with the state Department of Land and Natural Resources in setting up the offloading procedure.

Officials with the sanctuary said they have been consulted but were not allowed to provide information about the procedure.

Whether the offloading was disturbing any whales in the water, it was drawing a lot of attention on land from anyone driving along the West Maui highway.

“We’ve never seen anything like this,” said Patrick Lahey, a Lahaina resident who was fishing at Olowalu on Saturday afternoon.

His fishing buddy, B.J. Schuller of Kula, said he was concerned about the safety of motorists on the highway, with so many drivers distracted by the ship and the radar dome.

“The traffic is so backed up, it’s crazy,” he said.

Rogers said the radar platform should be in sanctuary waters for only a short time once it’s off the Blue Marlin. It is scheduled to be taken to Pearl Harbor for additional work before being hauled up to Alaska, where it will become a part of the national Ballistic Missile

[deletia]

While it is in Maui County waters, the Coast Guard has established a 500-yard security zone around the SBX platform and the Blue Marlin. Coast Guard officials said any boaters needing to approach the security zone should request permission from the Coast Guard by calling on Marine Band Channel 16.

But viewers on land didn't need to get close to get a good view of the structure.

"I think it's pretty cool," said Brent Keigley, a visitor from Grand Forks, N.D., who stopped for a photograph Saturday.

City Editor Edwin Tanji contributed to this story.

Amanda Cowan can be reached at amanda@mauinews.com.

The Maui News
Saturday, January 21, 2006 11:11 AM

Radar system to be offloaded in Maui waters

By EDWIN TANJI, City Editor

LAHAINA – A massive, 13-story-high, floating radar system will be making an appearance probably today off West Maui to be offloaded from its transport ship, an official with the U.S. Missile Defense Agency said Friday.

The Sea-Based X-Band Radar is a key component in an American Ballistic Missile Defense System, scheduled for additional maintenance at Pearl Harbor on Oahu before it is moved to its primary station near Adak, Alaska.

But to get the SBX radar system off its transport ship, the MV Blue Marlin, it needs to be in a relatively calm, but deep ocean area – which is the reason it was headed for the Lahaina Roadstead on Friday. It will be an intriguing operation, visible from the shore, said Pam Rogers, a Missile Defense Agency spokeswoman. But she also cautioned that boaters should not approach the Blue Marlin or the SBX at any time while they are in Maui County waters.

Mounted on a platform similar to those used in oil drilling, the SBX and its platform are 390 feet long, 240 feet wide and 280 feet high from the keel to the top of the radar dome.

Brought to Pearl Harbor from Corpus Christi, Texas, the system will need to be offloaded from the Blue Marlin in a unique operation, Rogers said.

The Blue Marlin will need to be partially submerged while the SBX platform is floated off, a process that may take up to two days.

“It needs to be in calm waters, which is why it’s being taken to the area between Maui and Lanai,” Rogers said. “It will be there only for a short time. Once it’s offloaded, it will then be towed to Pearl Harbor.”

She said she was aware of concerns raised by the operation occurring in prime humpback whale breeding and calving grounds, but said her agency is working with the state Department of Land and Natural Resources in planning the maneuver.

In anticipation of the event, the Coast Guard on Friday issued a warning to boaters and anyone who may be in the area that the Coast Guard will maintain a 500-yard security zone around the SBX at all times.

[deletia]

<http://www.navcen.uscg.gov/lnm/d14/lnm1402.pdf>



U.S. Department
of Homeland Security
**United States
Coast Guard**

**LOCAL NOTICE TO MARINERS
WEEKLY EDITION**

District: 14

Week: 02/06

January 11, 2006
ISSUED BY:
Commander (dpw)
Fourteenth Coast Guard District
300 Ala Moana Boulevard Room 9-236
Honolulu, HI 96850-4982
Telephone: (808)541-2316 Night: (808) 842-2600/2601 Fax: (808)842-2624
Email: D14LNM@d14.uscg.mil

[EXCERPT]

HI ISLANDS - OAHU - PEARL HARBOR

The Coast Guard has established a moving security zone from January 09 - 14, 2006. This security zone will have a 500yd radius centered around U.S. Forces Vessel SBX-1 and the M/V Blue Marlin while transiting into Pearl Harbor, Oahu. Mariners are to remain 500yds from these vessels during transit and float off. Entry into these Zones are prohibited unless authorized by the Captain of the Port.

[Sourcebook note: The designation "U.S. Forces Vessel" is apparently unique to SBX.]



05-NEWS-0013

10 January 2006

Sea-Based X-Band Radar Arrives at Pearl Harbor

Air Force Lieutenant General Henry "Trey" Obering, Missile Defense Agency Director, announced that the Sea-Based X-Band Radar (SBX) arrived in Hawaii today after its 15,000 mile trip from Texas.

The SBX made the trip from Corpus Christi, Texas aboard the MV Blue Marlin, a semi-submersible heavy lift vessel. Although the SBX is self-propelled, it rode aboard the Blue Marlin in order to save time on the trip and to avoid wear and tear on the vessel. Later this week the SBX will be offloaded from the heavy lift vessel and will begin minor modifications, post-transit maintenance and routine inspections before completing its voyage to its home port of Adak, Alaska. Offloading and berthing operations are expected to take several days and during that time a safety perimeter will be maintained by the U.S. Coast Guard.

The SBX is compliant with existing national and state environmental regulations and laws and will pose no threat to people or wildlife in Hawaii. It has completed many major milestones in its development, the two most recent being tracking satellites and completing sea trials. Early on Oct. 12, 2005, the radar aboard the SBX successfully tracked several orbiting satellites over a three-hour period. The radar acquired each object and maintained tracks for several minutes, demonstrating this key functionality for the first time. Achieving this milestone demonstrates the radar software is able to control thousands of individual transmit and receive modules.

The SBX stands more than 280 feet tall and displaces more than 50,000 tons. It consists of a semi-submersible oil production platform, topped with an X-band radar array.

Although it will be homeported in Alaska, the SBX will be capable of moving throughout the Pacific Ocean to support both advanced missile defense testing as well as defensive operations. The SBX will provide missile tracking, discrimination and hit assessment functions to the Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System. It will support interceptor missiles located in Alaska and California if required to defend against a limited long-range missile attack on the United States. Over time, the SBX will be able to support defense from missiles that may be used against our homeland, deployed forces, allies and friends.



The Sea-Based X-Band radar arrives in Pearl Harbor, Hawaii, aboard the heavy lift vessel Blue Marlin on January 9, 2005, passing behind the U.S.S. ARIZONA Memorial.

Contact: Pam Rogers, at (256) 503-3726, or Rick Lehner, at (703) 697-8997.

<http://www.amo-union.org/newspaper/Morgue/10-2005/Sections/News/sbx.htm>

American Maritime Officer

October, 2005

AMO onboard as SBX radar platform gets underway

[EXCERPTS]

New jobs for union aboard key waterborne element of U.S. missile defense program

A new ocean-going platform carrying the powerful sea-based X-band radar (SBX) was dedicated in July and underwent sea trials in September. The vessel is operated for the U.S. Missile Defense Agency by Interocean American Shipping and manned in all licensed positions by members of American Maritime Officers.

[deletia]

"It's noteworthy that the Missile Defense Agency elected to man this vital asset with contract civilian merchant mariners represented by AMO," said AMO National Executive Vice President Tom Bethel. "The role of AMO members in this operation speaks volumes about the reputation of professionalism and reliability our membership has established.

"As the government brings new projects online, we will keep working to expand and diversify the AMO job base, as we have done with the SBX platform," Bethel said.

The dedication ceremony for the vessel was held in late July at Kiewit Offshore Services in Corpus Christi, Texas.

VRP vessel response plan **U.S. COAST GUARD**
VRP **IMO PLAN** SEARCH CONTACT US TUTORIALS
[view by name](#) | [view by VIN](#) | [view by plan holder](#) | [log in](#)

SOPEP Details for Vessel SBX-1

Status: **APPROVED**

VIN: **CG722205**

Vessel Type: Other

VRP Number:

[correspondence](#)

Owner
DEFENSE MISSILE AGENCY
Operator (Plan Holder)
INTEROCEAN AMERICAN SHIPPING CORPORATION
Plan Holder Information
P: Log in
F: Log in
Email: Log in

Approval Expires
1/21/2010
Plan Approved
2/8/2005
Received
1/21/2005
Past Due
Plan Preparer Information
CAPT HARRY ROGERS
TWO ECHELON PLAZA 221 LAUREL ROAD, SUITE 300 VOORHEES, NJ 08043-2349
P: Log in
F: Log in
Email: Log in

http://wwwxt.raytheon.com/technology_today/current/feature_5.html

Technology Today [a Raytheon corporate publication]
2005 Issue 3

Radome Successfully Installed on Sea-Based X-Band Radar

The Sea-Based X-Band (SBX) radar system incorporates the world's largest deployed and most survivable, air-supported radome. This unique structure was recently deployed at Kiewit Offshore Services near Corpus Christi, Texas on a semi-submersible platform, known as SBX-1. The deployment of X-Band Radar (XBR) radome completed the final major assembly of the Sea-Based X-Band radar that will allow the system to enter final integration and test phases prior to beginning its service in the Ballistic Missile Defense System. The home port of SBX-1 will be Adak, Alaska in the Aleutian Islands. The XBR radome measures 120 feet at the equator, is 103 feet tall and weighs approximately 18,000 pounds. XBR radome material is made with Vectran fiber and a customized polyurethane resin matrix system which when combined provides quasi-isotropic modulus characteristics and high strength, high reliability and the highest survivability rating for a radome of this size. Additionally, the Radome materials flexibility allows this structure to be completely air-supported.

The XBR radome requires long-term survivability in extreme environmental conditions. To develop the material to meet this requirement, fabric and seam strength and long term durability testing were developed and used to statistically determine the survivability for the as-built product when subject to these environmental conditions.

Using Design of Experiment techniques, high confidence levels for product seam producibility and reliability were mathematically developed and then used to maintain allowable seam heat seal conditions during production.

Approximately one year prior to the actual deployment, a "trial radome" was produced that represented the actual radome's weight and size. The trial radome, used to prove-out the actual deployment process, subsequently became the basis for the real deployment.



ILC DOVER
creating what's next »

ENCLOSURES



SBX-1 Platform during sea trials in the Gulf of Mexico

RADOME

- » **Challenge:** Design and fabrication of the largest Radome structure in the world
 - » Provides primary protection to the X-band radar
 - » Structure must be sufficient to withstand winds greater than 130 mph, without degradation of radar performance
- » **Radome Highlights:**
 - » 120 ft diameter, 130 ft tall, 18,000 lbs
 - » Air supported
 - » Required significant material and process development
 - » Constructed of novel material containing Vectran fiber and a customized polyurethane resin matrix system which provides:
 - › Quasi-isotropic modulus characteristics
 - › High strength
 - › High reliability
 - › Highest survivability rating for a Radome of this size.

<http://www.mda.mil/mdalink/pdf/05fyi0057.pdf>

05-FYI-0057

8 August 2005

Sea-Based X-Band Radar Completes First Phase of Sea Trials

Lieutenant General Henry “Trey” Obering, Missile Defense Agency Director, announced today that the Sea-Based X-Band Radar (SBX-1) has successfully completed 12 days of at-sea testing and returned to Kiewit Offshore Services in Corpus Christi, Texas, on July 21, 2005.

SBX-1 departed Corpus Christi on July 10 for a planned series of tests in the northern Gulf of Mexico. Hurricane Emily’s arrival in the Gulf allowed the crew and shore support team to exercise weather avoidance plans and extended the mission by two days. While at sea the crew successfully conducted several major tests, including speed, maneuverability, personnel and cargo transfer, and continuing performance testing and verification of several key mission payloads.

The Missile Defense Agency is developing SBX-1 to serve as a primary radar for the Ballistic Missile Defense System. It will track ballistic missiles for testing and defensive operations.

SBX-1 stands 282 feet high and displaces more than 50,000 tons. Its on-board propulsion system allows it to self-deploy throughout the world’s oceans. It will home-port at Adak Island in Alaska’s Aleutian Island chain, but it also will have the capability to support both testing and operations throughout the entire Pacific Ocean region.



The Sea-Based X-Band Radar (SBX-1) maneuvers in the Gulf of Mexico during initial at-sea testing in July, 2005.



**Ground-Based Midcourse Defense (GMD)
Sea-Based X-Band Radar (SBX)
Placement and Operation
Adak, Alaska**

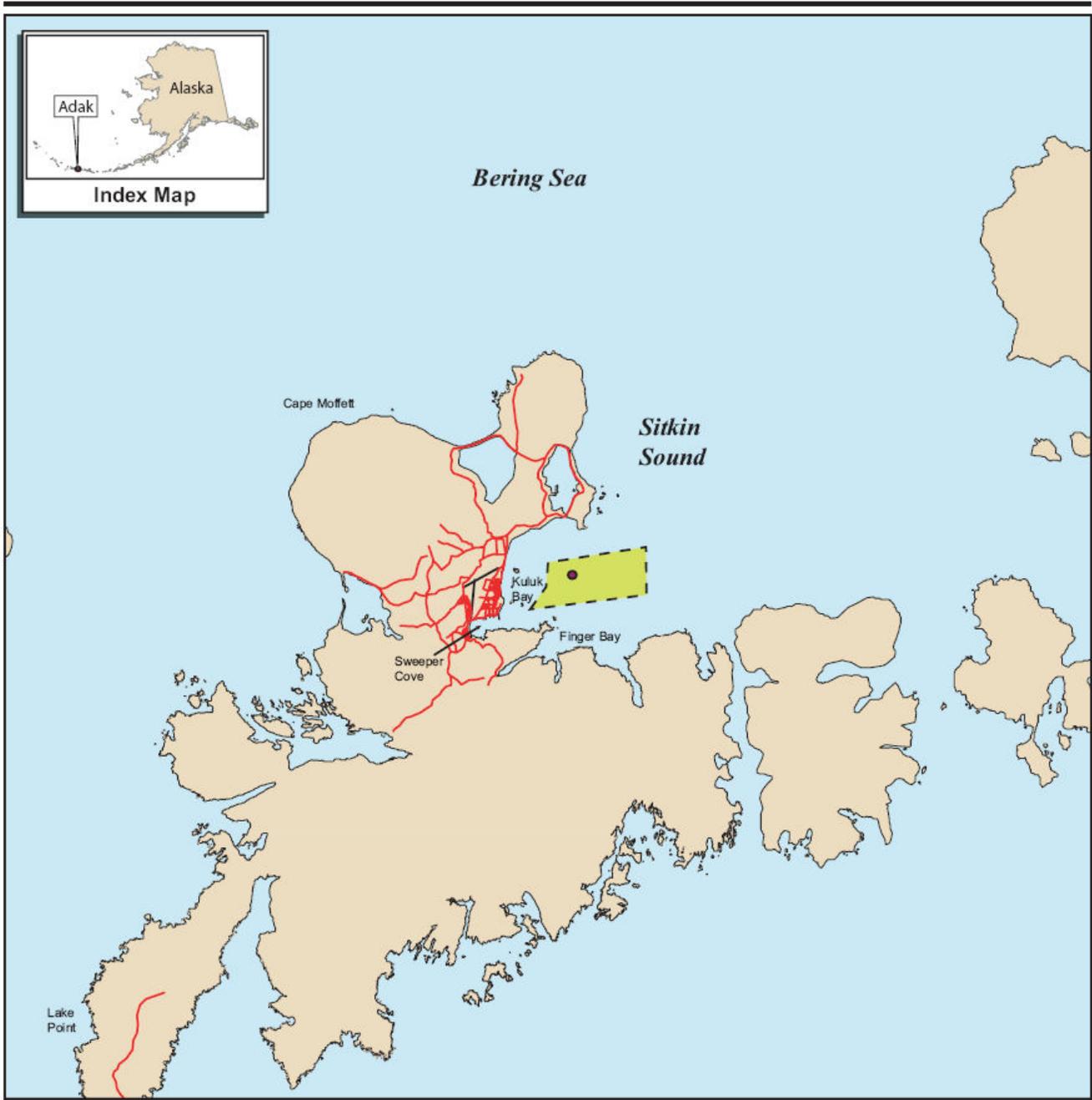


Environmental Assessment

3 August 2005

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited

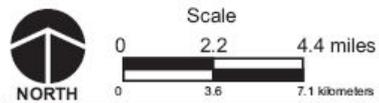
U.S. Army Space and Missile Defense Command
P.O. Box 1500
Huntsville, Alabama 35807-3801



EXPLANATION

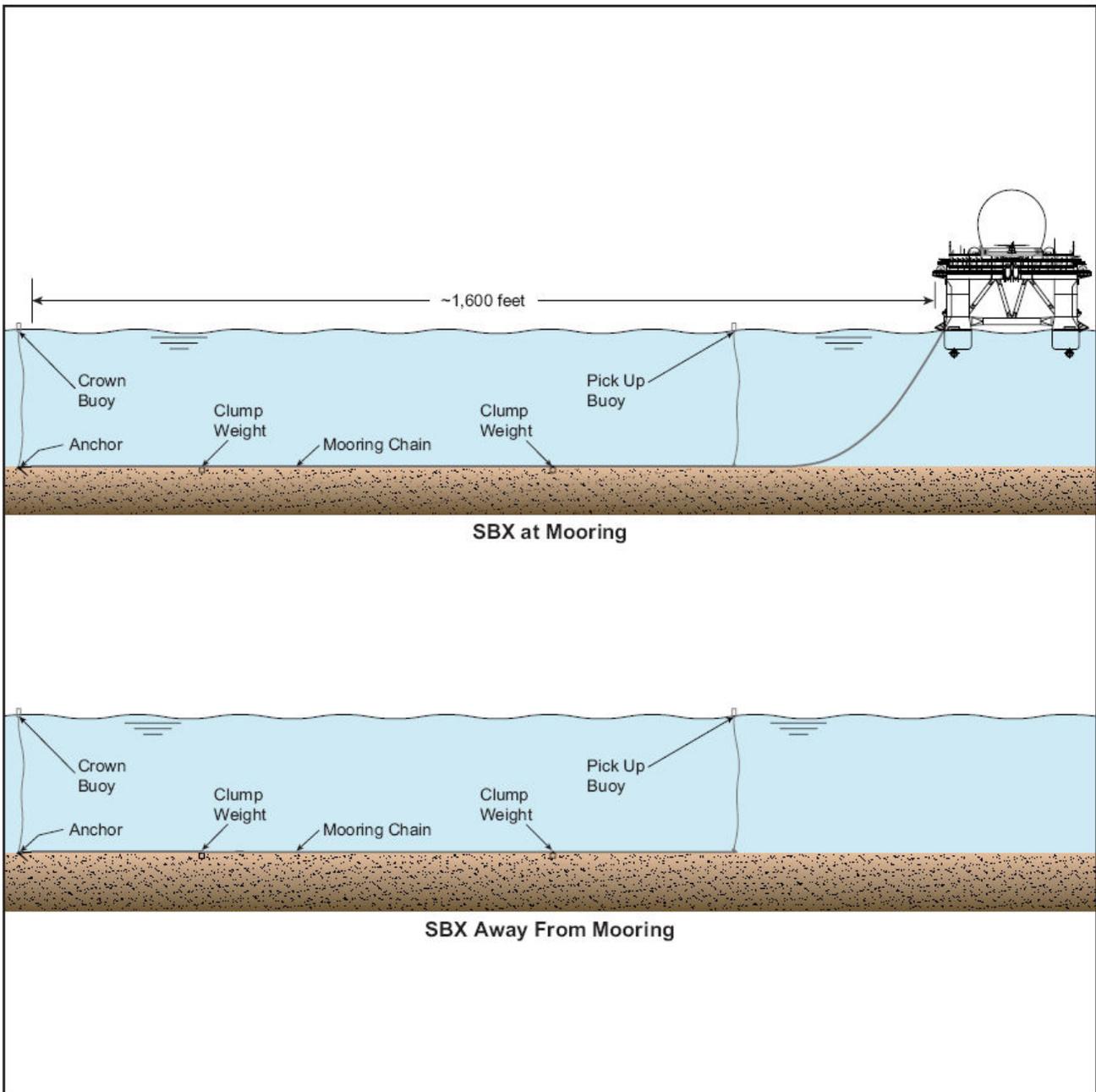
- Water
- Land
- Roads
- SBX Mooring Study Area
- Proposed SBX Mooring Site

SBX Mooring Study Area and Proposed Mooring Site



Adak, Alaska

Figure 2-1



EXPLANATION

Note: Each leg of the SBX mooring would consist of an anchor to hold the outer end of the leg and two clump weights that act as energy absorbers during severe weather.

SBX Platform Mooring

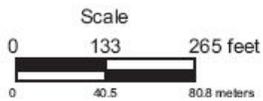


Figure 2-2

SBX Activities

The GMD Extended Test Range EIS included analysis of Adak as the PSB for the SBX, in which the SBX was to be in port at the Adak PSB for 9 months of the year. For the remaining 3 months of the year, the SBX was expected to be in transit or located at one of the SBX operating areas in the Pacific Ocean for participation in up to five GMD test events per year. Since that time, the mission of the SBX has been expanded to include LDO support.

Accordingly, the Proposed Action could, depending on threat conditions, include the SBX being located at the Adak PSB for up to 12 months per year. However, the SBX is likely to depart Adak several times per year to support GMD testing and operational readiness exercises. Current plans include up to 20 years of SBX operations for the Adak PSB.

The XBR transmit/receive radiofrequency (RF) emission pattern would be a narrow beam with most of the energy contained within the main beam. The SBX radar transmits a series of electromagnetic pulses via its main beam. The SBX radar would not point its main beam toward the ground or water surface and would be programmed to avoid illuminating ground obstructions such as the local terrain, buildings, and antenna towers. During calibration and maintenance testing, the XBR beam would normally be directed at least 10 degrees above horizontal. In the open ocean, the main beam would be directed at least 2 degrees above horizontal. Because the bottom of the XBR main beam will always be at least 100 feet above the water surface (height of the bottom of the XBR antenna to the water surface at submerged draft), neither a beam at 2 or 10 degrees elevation would illuminate the sea surface. Lesser amounts of energy would be emitted in the form of grating and side lobes in the area around the main beam; however, as shown in table 2-1 the energy level would not exceed permissible exposure limits. SBX RF transmissions could result in potential interference issues related to aircraft, electroexplosive devices (EEDs), communication and electronics equipment, and personnel safety. Table 2-1 lists the potential SBX RF interference distances.

Table 2-1: Radio Frequency Interference Distances for SBX

	Interference Distance (miles)
Main beam (average field intensity) on a civilian aircraft (air)	11.8
Main beam (average field intensity) on a military aircraft (air)	2.1
Main beam on an EED presence/shipping (ground and air) such as a missile mounted on an aircraft wing or an EED in a shipping container	4.7
Grating lobe on an EED handling (ground) where an EED is in an exposed position	1.4
Grating lobe on an EED presence/shipping (ground and air) such as a vehicle airbag or an EED in a shipping container	<33 feet
Military communications/electronics	4.4
Commercial communications/electronics	13.9
Grating or side lobe personnel hazard (exceeds Permissible Exposure Limit within)	493 feet ^a (0 feet ^b)

Source: Sages, 2003

Notes:

- a Personnel Hazard distance worst case—without software controls (SBX will not operate without software controls)
- b Personnel Hazard distance with software controls

EED = Electroexplosive Device—a device in which electrical energy is used to initiate an enclosed explosive, propellant, or pyrotechnic material

While located at the PSB, daily testing and calibration of the SBX’s radar system would be performed to maintain and optimize radar performance. During tests, the SBX XBR would transmit full-power RF for short periods several times a day, which could result in total full-power RF transmission time of up to an average of 5 hours per day. Satellites and calibration devices would be used as radar targets during testing. The calibration devices would be launched from the main deck of the SBX. There is a balloon storage room on the main deck of the SBX. SBX test schedules would be coordinated with Federal Aviation Administration (FAA) and/or military air traffic control personnel as appropriate. Low power, diagnostic testing would not result in potential interference issues.

The SBX vessel would be classed/certificated by the American Bureau of Shipping (ABS) and would have a Certificate of Inspection issued by the United States Coast Guard (USCG). All onboard systems and operations would meet all ABS and USCG attendant regulatory and environmental requirements.

[deletia]

2.1.3 LOITERING AND OPERATION IN THE BERING SEA OR SITKIN SOUND

Loitering and operation of the SBX in the Bering Sea or Sitkin Sound would include the SBX operating its engines to maintain position via the use of its own thrusters. The SBX would be underway, and would select a station-keeping point or would change position as conditions

dictate. The SBX would remain at operational draft for the majority of its time, limiting its speed. No mooring system would be required in order to secure the SBX in the Bering Sea. This alternative would not include a floating security boom/fence around the SBX and/or operation of a security patrol boat. However, a security zone could be established in accordance with 33 CFR Part 165, around the SBX if it is within U.S. territorial waters while loitering.

In this alternative, the SBX would use the same support vessel for transferring personnel, material, and fuel from the Port of Adak to the SBX. Procedures would be in place to minimize impacts of a potential fuel spill during fueling operations. Equipment would be in place onboard the SBX and support vessel in the event of a fuel spill, and a Shipboard Oil Pollution Emergency Plan would also be in place with the USCG. In addition, spill clean up resources are maintained in Sweeper Cove because of the refueling pier, and could be used for support in event of a spill. Replenishment would typically occur in the Bering Sea, but if inclement weather conditions exist then the SBX could move to the more protected waters of Kuluk Bay or Sitkin Sound when necessary.

Loitering and operation of the SBX in the Bering Sea would include greater watch standing requirements for the SBX crew since the vessel remains underway, but the overall number of crew required would not increase. Additional diesel generator operations would be required to provide power for thrusters to keep the SBX in position.

April 6, 2005

Missile defense gets a lift at Kiewit Offshore

Two Texas shipyards have been playing a key role in support of the Missile Defense Agency's Ballistic Missile Defense System (BMDS).

A major milestone in the BMDS program has just been completed at the Kiewit Offshore Services yard near Corpus Christi with the lifting of Raytheon's XBR radar and its placement aboard its host sea-based platform, the SBX-1.

SBX-1 is based on a Moss 5 semisubmersible platform, prepared at the Keppel Amfels yard in Brownsville under a contract from Boeing Integrated Defense Systems.

The XBR is intended to track ballistic missiles and, says Raytheon, "will help identify the hostile warhead from the decoys and countermeasures, providing additional capability for interceptor missiles to protect the U.S."

Aboard the relocatable SBX-1, says Raytheon, the XBR can be positioned in the ocean to support both testing and actual defensive operations.

The XBR was built over a period of 21 months in the Kiewit Offshore Services yard. It was placed on the SBX-1 using Kiewit's Heavy Lift Device, which is capable of lifting more than 16 million pounds.

The radar will soon complete integration into the SBX-1 system, and depart for verification testing in the Gulf of Mexico. Following testing, the vessel will set sail around Cape Horn for its primary base at Adak Island in Alaska's Aleutian Islands.

The SBX-1 measures 240 feet wide and 390 feet long. It includes a power plant, bridge and control rooms, living quarters, storage areas and the infrastructure necessary to support the massive X-band radar.

The overall SBX assembly involved moving the modified SBX platform from Keppel Amfels to the Kiewit yard in Corpus Christi for installation of the radar onto the sea-going platform.

Prior to arrival, the SBX platform was modified to accept the radar Drive Platform and Control System (DPCS) with the array antenna and electronics installed.

The Kiewit heavy lift device (HLD), lifted the SBX DPCS high enough so when the barge was moved away the SBX platform was positioned directly below the DPCS.

The HLD lifted the DPCS vertical, held the load until the sea-going platform was in position and then lowered the load onto the platform





05-FYI-0047

4 April 2005

Missile Defense Agency Completes Sea-Based Radar "Big Lift"

Air Force Lt. General Henry "Trey" Obering, Missile Defense Agency director, announced today the successful completion of lifting and attaching a 4.6 million pound X-band radar to its sea-going platform. The 17-hour operation was completed April 3 at approximately 10:45 p.m. CDT at Kiewit Offshore Services, Corpus Christi, Texas, by a combined Boeing, Raytheon, Vertex RSI and Kiewit team.

Over the next several months the Sea-Based X-band Radar will undergo integration and a wide range of sea trials and exercises prior to beginning its journey this summer to its new home port of Adak, Alaska, in the Aleutian Islands. It is expected to arrive at Adak by the end of this year. Although homeported in Adak, it will be capable of moving throughout the Pacific Ocean to support both missile defense advanced testing and defensive operations. Initially, it will provide the Ground-based Midcourse Defense element of the Ballistic Missile Defense System with an advanced tracking and decoy discrimination capability that will help interceptor missiles located in Alaska and California to provide a defense against a limited long-range missile attack aimed at any of our 50 states. Over time it will be able to support other missile defense elements designed to intercept and destroy short, medium and intermediate range ballistic missiles that may be used against our homeland, our deployed forces and our allies and friends.

The Sea-based X-band radar and its platform stand more than 250 feet above the waterline, and displaces more than 50,000 tons. The Boeing Company is the prime contractor for the Ground-based Midcourse Defense element. Boeing subcontractor Raytheon manufactured the X-band radar. The platform was purchased from Moss Maritime, and was modified by Boeing and subcontractor Vertex RSI at the Keppel AMFELS shipyard in Brownsville, Texas.



The 2,000-ton radar is lowered aboard the converted oil rig in what will become the Sea-Based X-band Radar for the Missile Defense Agency. The assembly took place at the Kiewit Offshore Services in Corpus Christi, Texas on April 3, 2005. The Sea-Based X-Band Radar, a unique combination of an advanced-radar with a mobile, ocean-going, semi-submersible platform, will provide the nation with highly advanced ballistic missile detection and will also have the capability to discriminate hostile missile warheads from decoys or countermeasures. Its mobility gives it the capability to be positioned on the ocean to support Missile Defense Agency tests and also operationally support defense of our homeland, deployed forces and allies and friends.

Contact: Rick Lehner, Missile Defense Agency – 703-697-8997



The SBX platform sets sail for Corpus Christi, TX
*[SBX is entering the Gulf of Mexico through the Brazos Santiago Pass.
Brazos Island is in the foreground; South Padre Island is in the background]*

The Aleut Current
The Aleut Corporation Newsletter
Volume 34, Issue 2
April, 2005

Aleut Technologies Lands Support Role In SBX Radar Project

By Dave Jensen, CEO

I am happy to announce that a TAC subsidiary has been awarded a contract to support the SBX Radar that will be located off Adak. Aleut Technologies, LLC. was recently selected by Boeing Corporation to oversee the operation of a huge tugboat that will act as a support vessel to the SBX Radar platform moving everything from people to fuel to supplies on a year-round basis. The boat itself is among the finest in its class. With the capacity to carry 600,000 gallons of fuel and powered by 4,500 horsepower, the tug is well equipped to withstand the weather in the North Pacific. I refer to the vessel as a “tug boat on steroids.” She is called the M/V Dove.

Securing this contract was a huge win for TAC. Many months ago we pitched Aleut Technologies, LLC. to Boeing as a solution for a “one-button” operation. As many of you can imagine, the contract Boeing has with the Department of Defense to administer the development of the Ground

Based Missile Defense System is very complex. Anything we can do to streamline that process and make it less complex only adds value to our growing role in the overall SBX operation.

Out to Sea

Until recently, the only pictures most Alaskans have seen of the SBX Radar platform were courtesy of an artist's rendition. Now that pictures are available, the sheer magnitude of this structure is becoming clear. The platform itself is now complete and stands an impressive 40 stories high (that's taller by far than any building in Anchorage). The platform is now on it's way to Corpus Christi, Texas where it will be fitted with radar and run through a complete systems check. If all goes according to plan, the complete SBX Radar System will be christened in early June. After that, the platform will begin its long journey around the southern tip of South America escorted by the M/V Dove and then to Hawaii for a month of more testing. With an average speed of 5 knots, the trip should take roughly three months. That leaves plenty of time for the platform and the M/V Dove to arrive in Adak by December of this year.

Three years ago TAC began aggressively pursuing the Ground Based Missile Defense Project. We won the pursuit when Adak was named home port to the SBX. The benefits of that effort surface in new ways almost every day. Over time, TAC and its subsidiaries will prove to be an excellent partner for Boeing as well as other potential partners who might one day look to TAC to fill a role of support, or to take a project lead. Either way, the added value that comes with these additional subcontracts translates to new opportunities and a healthier bottom line – this new work is integral to meeting the board of directors' vision for TAC in the coming year.



[M/V Dove]



[M/V Dove]



[SBX en route to Corpus Christi, TX]

NAVY NEWS

Raytheon's BMDS X-Band Radar Successfully Lifted Aboard the SBX-1 Platform



Raytheon Company's phased array X-Band Radar (XBR) has been successfully lifted and placed aboard its host Sea-Based XBR platform, the SBX-1, marking the completion of a major milestone in support of the Missile Defense Agency's Ballistic Missile Defense System (BMDS). Raytheon Integrated Defense Systems designed and built the XBR for the BMDS, drawing on extensive sensor knowledge from its long heritage of radar programs. The nine-story-high XBR is the world's largest X-Band Radar, weighing four million pounds. Raytheon's XBR is the primary payload on the Moss 5 semi-submersible platform, which was prepared by Boeing Integrated Defense Systems, the prime contractor for the Ground-Based Midcourse Defense phase of BMDS.

As a primary sensor for the BMDS, the XBR will track ballistic missiles and provide the critical discrimination of target complexes. The radar will help identify the hostile warhead from the decoys and countermeasures, providing additional capability for interceptor missiles to protect the U.S. from ballistic missile attacks. Aboard the relocatable SBX-1, the XBR can be positioned in the ocean to support both testing and actual defensive operations. "The Sea-Based XBR is a significant addition to the midcourse phase of the Missile Defense Agency's layered Ballistic Missile Defense System," said Rick Yuse, vice president of Raytheon Integrated Defense Systems Missile Defense Business Area.



04-FYI-0045

24 March 2005

Sea-Based X-Band Radar Platform Completes Initial At-Sea Testing

Air Force Lt. General Henry "Trey" Obering, Missile Defense Agency director, announced today that the Sea-Based X-Band Radar platform vessel has successfully completed five days of initial at-sea testing, and arrived at Kiewit Offshore Services in Corpus Christi, Texas, on March 17.

The Sea-based X-band Radar departed the Keppel/AMFELS shipyard in Brownsville, Texas on March 13 to conduct "builder's trials." During builder's trials, the radar platform vessel completed a series of tests intended to verify the performance and safety of propulsion, ballasting, power generation, and auxiliary systems.

While at Kiewit Offshore Services the 2,000 tons (4 million pounds) X-band radar will be installed and integrated. Following radar integration, the Sea-Based X-Band Radar will depart for an extended test and verification program in the Gulf of Mexico.

The Sea-Based X-Band Radar is being developed by the Missile Defense Agency to serve as a primary radar for the Ballistic Missile Defense System, and will be used to track ballistic missiles for both testing and actual defensive operations. The powerful X-band radar will also provide advanced discrimination of decoys and countermeasures that could be used by a hostile ballistic missile during an actual missile attack on the United States. When completed, the radar and platform will be 282 feet high and displace nearly 50,000 tons when at operating draft. Its on-board propulsion system will allow it to operate throughout the world's oceans if necessary. Near-term plans call for it to be home-ported at Adak Island in the Aleutian Island chain, but it will also have the capability to support both testing and operations throughout the entire Pacific Ocean missile defense testbed. Boeing Integrated Defense Systems is the prime contractor, and Raytheon Integrated Defense Systems is responsible for development and manufacturing of the X-band radar that will be installed aboard the platform.



The Sea-Based X-Band Radar platform arrives at Kiewit Offshore Services in Corpus Christi, Texas on March 17, 2005. While at Kiewit, the 2,000 ton X-Band Radar (seen directly behind the platform) will be lifted onto the platform later this spring.

Contact: Chris Taylor, Missile Defense Agency – 703-697-8001

http://www.mysanantonio.com/news/metro/stories/MYSA032005.1A.star_wars.155959f04.html

Defense shield built in Texas

Web Posted: 03/20/2005 12:00 AM CST

George Zarazua

[San Antonio]Express-News Staff Writer

[EXCERPTS]

In secluded shipyards near Corpus Christi and Brownsville, government contractors quietly are finishing work on a mammoth piece of space-age weaponry.

The floating radar platform, the only one of its kind in the country, will stand 25 stories and weigh 4 million pounds. It will track incoming warheads so that remote rockets might destroy them.

[deletia]

The government is, however, proposing to reduce spending on missile defense for fiscal year 2006, as well as in subsequent years. On the chopping block is a second SBX radar.

<http://abcnews.go.com/Politics/wireStory?id=626854>

U.S. to Float Giant Missile-Defense Radar to Alaska

Reuters

Mar. 30, 2005

[EXCERPTS]

The 2,000-ton Sea-Based X-Band Radar is to be hoisted aboard a platform as large as two football fields this week or next, depending on wind and weather in Corpus Christi, Texas, where it has been under initial sea trials.

After being assembled and tested extensively in the Gulf of Mexico, the entire structure will set sail on a five- to seven- month trip around Cape Horn at the tip of Latin America and into the Pacific bound for Alaska's Aleutian islands.

"It will likely leave for its long journey some time between June and August," said Richard Lehner of the Pentagon's Missile Defense Agency, which is developing a multilayered shield against warheads that could carry chemical, germ or nuclear weapons.

The rig, capable of making 7 knots under its own power, should putter in to its primary base at Adak Island, in the Aleutians, by the end of the year, Lehner said. Details of its route and its escorts are not being disclosed publicly for security reasons, he said.

The platform's on-board propulsion system makes it possible to operate it in oceans around the world, the Missile Defense Agency said in a statement last week. It said the Sea-Based X-Band Radar platform vessel had arrived in Corpus Christi on March 17 from a shipyard in Brownsville, Texas.

<http://www.washtimes.com/commentary/20040322-082828-1000r.htm>

Missile defense milestone

The Washington Times

March 22, 2004

By James T. Hackett

[EXCERPT]

Next year, the big ABM radar now being installed on a seagoing platform on the Texas Gulf coast will sail around Cape Horn to the North Pacific, where it will operate near Adak Island, Alaska. Such a floating radar can go where the threat is greatest and avoids the need for another country to approve a radar base. A second sea-based radar is to be added later, probably in the North Atlantic.

<http://www.dod.mil/pubs/foi/logs/>

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- [Fiscal Year 2006 - Updated June 25, 2007](#)

NOTE: Some information has been redacted from these documents to protect individuals' personal privacy.

http://www.dod.mil/pubs/foi/logs/FOIALog_FY04.pdf

CASE #	REQUESTOR	LETTERHEAD	RECEIVED	COMPLETED	SUBJECT
04-F-0037	COPP, TARA L.		10/8/03		COPIES OF THE BUDGET FOR THE PROCUREMENT AND CONVERSION OF THE MOSS SIRIUS PLATFORM, PART OF THE SBX RADAR SYSTEM

[Sourcebook note: As of the date of this sourcebook, no response to this Freedom Of Information Act (FOIA) case has been located. A FOIA request for information relating to the case was submitted to the Department of Defense on 2007-07-14.]

Alaska's new radar being assembled in Texas

SBX: Giant globe on movable oil rig conversion, due in 2005, will detect incoming missiles.

By TARA COPP

Scripps Howard News Service

(Published: September 13, 2003)

A 25-story globe-shaped radar is scheduled to cruise away from the Texas coastline in 2005 en route to Alaska, marking another milestone in the nation's missile defense system.

The Navy's Sea-Based X-band, or SBX, radar is a floating, self-propelled system that will scan for missiles from its base in Alaska. The radar is just one part of the national missile defense system that President Bush has pledged to have operational by 2005.

SBX, named for the type of radar bandwidth it uses, "helps discriminate a warhead from decoys that might be traveling along with a warhead on a long-range ballistic missile aimed at the United States," Missile Defense Agency spokesman Rick Lehner said.

SBX would work with ground- and sea-based missiles that also are being developed.

"It's connected to a command-and-control network that will have interceptor missiles in Alaska and California that use the information provided by the radar to help track and destroy an incoming missile," Lehner said.

While SBX is worked on at Kiewit Offshore Services in Corpus Christi, Texas, in 2005, it will be hard to miss. The 25-story structure looks like Disney's Epcot Center sphere, is 390 feet long and 250 feet high, and weighs 50,000 tons.

"We took this oil rig built in Norway and towed it to Brownsville (Texas). We have to modify it with a host of things, like crews' quarters, the engines. It has small maneuvering motors that can actually propel it," Lehner said.

When it arrives in Corpus Christi, Kiewit will attach the globe-shaped radar system to the platform.

After the system is mounted on top of the rig, the whole structure will begin a journey away from the Texas coast, around South America and on to Adak, Lehner said.

Several cities across the United States competed to house the SBX, but other cities also had significant environmental concerns about what effect the radar's emissions and size would have on their communities. So Corpus Christi ended up housing the system.

The platform is not slated to begin operations until it leaves Corpus Christi on its way to Alaska, Lehner said. The platform arrived at the Amfels shipyard in Brownsville in June. Boeing Co. is the primary contractor for the \$747 million platform system, and Raytheon Corp. is building the globe-shaped radar, which will be added to the platform in Corpus Christi in 2005.

A Kiewit spokesman said he could not comment on any part of his company's role in the SBX assembly. A call to Boeing was not returned.

The contract for platform modifications at Amfels is worth \$80 million to \$100 million, Lehner said.

"Hopefully, it will be operational for the missile defense program by the end of 2005," he said.

Anti-Missile Radar Platform Raises Doubts In Everett Area

POSTED: 8:59 a.m. PDT July 10, 2003

EVERETT, Wash. (AP) -- A Defense Department proposal to dock a ship-sized platform with an anti-missile radar system in Port Gardner Bay has been greeted with frowns and questions in Snohomish County.

Everett's Navy base is one of six locations being considered for the experimental, high frequency sea-based radar system known as SBX, for Sea-Based Test X-band Radar. The \$900 million radar uses a finely focused beam to track an incoming ballistic missile in space during the 20 minutes it spends outside the Earth's atmosphere.

In Langley on Whidbey Island, a community forum Thursday night will focus on potential adverse effects of electromagnetic radiation on health and safety.

The suburban Mukilteo City Council voted 5-2 Monday to prepare a resolution opposing the SBX. The huge platform would be big enough to be seen from Old Town Mukilteo, The Herald of Everett reported.

"I just don't think it's appropriate to place an object of that nature so close to so many people," Councilwoman Cathy Reese said.

The city staff will draw up a resolution opposing the project that will be up for a vote in two weeks.

"The council is certainly supportive of the United States of America and its military endeavors, but there's an awful lot of questions that are unanswered," Reese said. She said Department of Defense officials were invited to attend the council's meeting but declined.

Everett, which warmly welcomed home the aircraft carrier USS Abraham Lincoln in May, had already turned a cold shoulder to the radar plan.

The City Council voted unanimously in April to ask the military to put the facility elsewhere. The council listed several concerns including unknown health risks, environmental impacts, and the "negative visual impact to Everett's waterfront."

"As supportive as we are of the military in this city, especially of the Navy, we could not accept this," Mayor Frank Anderson said. "It just doesn't fit in our port."

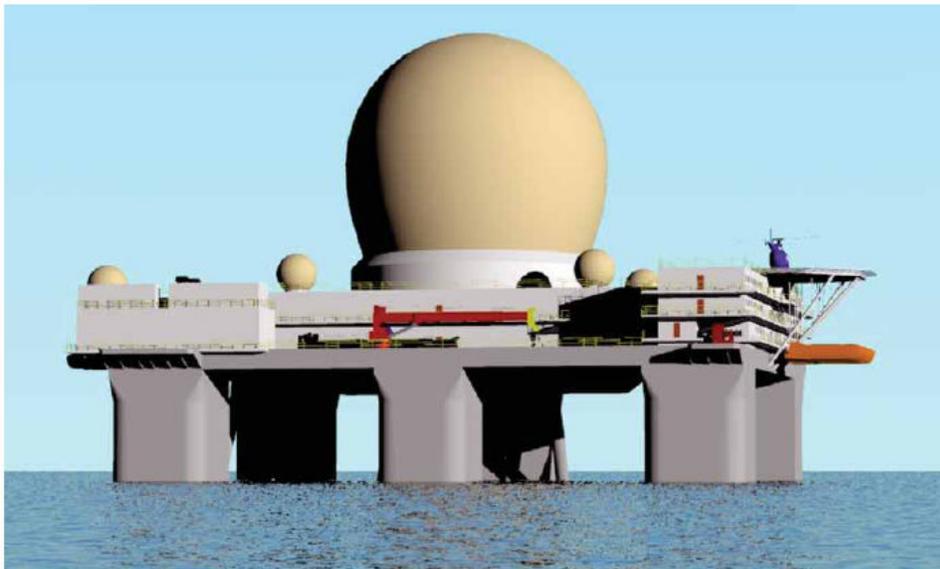
Anderson visited the Pentagon last month to personally register his community's concerns.

Everett officials have expressed concern that the system could zap hospital equipment, emergency radio communications and radio, TV and aviation signals, and that it could harm the bay's environment and the economy by creating a waterfront eyesore.

The forum in Langley will stress arguments that consistent safety standards have not been set for human exposure to the high-frequency non-ionizing *[sic]* electromagnetic radiation employed by the SBX system.

Rick Lehner, spokesman for the U.S. Missile Defense Agency, said the SBX would not cause any

Sea-Based X-Band Radar (SBX) for Missile Defense



Midcourse sensor for ground-based missile defense.

Features

- State-of-the-art technology makes this the most capable X-Band Radar in the world.
- Aperture size when fully populated is 384m².
- XBR fire control capability includes search, acquisition, track, discrimination, and kill assessment.

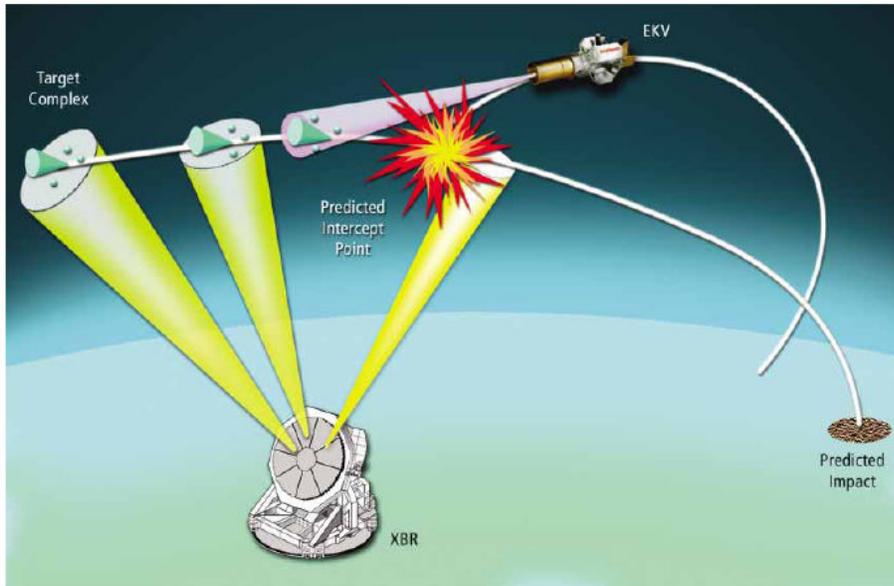
The X-Band Radar (XBR) is an integral component of the U.S. Missile Defense Program, providing the midcourse solution to precision discrimination and interceptor support necessary for testing and proving defense against intercontinental ballistic missiles. The radar is a mechanically slewed phased array fire control sensor using the most advanced electronic components and software.

The XBR is being built on a 5th generation semi-submersible platform prepared by the Boeing Company. Repositioning of the SBX asset at sea contributes to a more robust Ballistic Missile Defense System (BMDS) test architecture which also provides operational utility.

The X-Band Radar's 384m² aperture will be 65% populated with Raytheon state-of-the-art Transmit/Receive (T/R) modules, providing full fire control sensor functions for the Missile Defense system including search, acquisition, track, discrimination, and kill assessment. These functions allow the BMDS Test Bed to engage incoming reentry vehicles with an extraordinarily high degree of effectiveness, directly contributing to a more robust operational missile defense system against intercontinental ballistic missile threats.

This radar system design has leveraged heavily from Raytheon's successful THAAD Radar and from the current GMD test radar, the Ground Based Radar - Prototype (GBR-P), which has proven itself during live fire integrated system testing at Kwajalein. The XBR can evolve to an even greater capability by fully populating the array face with T/R modules and augmenting its software algorithms.

Sea-Based X-Band Radar (SBX) for Missile Defense



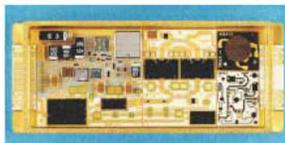
The XBR is the largest, most sophisticated phased array, electro-mechanically steered X-Band radar in the world. Its development is managed to meet complex architectural scenarios of the GMD Program. Raytheon's innovative, experienced engineers and program management team have met the developmental challenges on schedule and under budget, and are now manufacturing the SBX for integration by the end of 2005.

Experience from Live Testing and Manufacturing Development

The GBR-P was completed in 1998 at the Kwajalein Missile Range, and has provided real-time operation data as the in-line fire control radar for missile defense integrated flight tests since 1999. Its performance during flight tests and resolving technology long poles (discrimination, electro-mechanical scan, target-object-map, and hit/kill assessment) has been superb.

Lessons learned from constructing and operating GBR-P, sharing technology among common Raytheon radar programs, and making producibility improvements in radar components, has resulted in significant risk reduction and cost savings to Raytheon radar customers.

XBR employs the latest generation designs that are at the leading edge of radar technology, such as the Best of Breed T/R Module, shown here.



These T/R modules, along with the latest COTS signal & data processing equipment and advanced discrimination algorithms, bring to the missile defense community the world's most capable fire control sensors.



GBR-P at Kwajalein

Capabilities

- XBR provides search, detection, acquisition, tracking, and discrimination.
- All functions can occur simultaneously.
- The mechanical slewing and electronic scanning capability provides a broad field of regard.
- Highly accurate discrimination data from the XBR to the Battle Manager provides the Kill Vehicle with required target-object-map information for on-board seeker homing and end-game intercept.
- Kill assessment is accomplished at intercept point..

Media Contact

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http://www.govcomm.harris.com/solutions/marketindex/product.asp?source=alpha&product_id=381

Sea-Based X-band Radar (SBX) SATCOM

Harris is providing The Boeing Company with systems engineering, integration services, and satellite communications equipment for the U.S. Missile Defense Agency's (MDA) Sea-Based X-band (SBX) Radar program. X-Band Radar (XBR) is the tracking and discrimination radar used for the Ground-based Midcourse Defense (GMD) system.

The SBX SATCOM provides reliable, expandable, high-data-rate communications services to the SBX platform. The service provides dual marine stabilized terminals along with satellite and CONUS teleport services. Each Harris provided terminal is equipped with dual 4.5-meter antennas operating over commercial C-band satellites. The dual antenna terminals provide 360° azimuth coverage around the X-band radar located in the center of the platform. The dual terminals operate over separate satellites to provide redundant SATCOM service between the platform and CONUS Ground-Based Midcourse Defense Communications Network (GCN).

The SBX radar system will be deployed on a mobile, floating platform. Continuous communications between the platform and shore facilities will be provided via a commercial C-band satellite, using a unique redundant dual-antenna system designed and furnished by Harris Maritime Communication Services (MCS) subsidiary. Harris MCS provides satellite communications services to cruise ships, remote land-based locations around the world, and to data collection sites thousands of meters below the ocean's surface.

[REDACTED]
July 2, 2003

The Honorable Solomon Ortiz
U.S. House of Representatives
2470 Rayburn House Office Building
Washington, D.C. 20515

Dear Representative Ortiz:

As one of your constituents and supporters, I am writing to inquire about the monies used for the acquisition and conversion of the "Moss Sirius" semisubmersible platform which is to carry the Sea-based X-band Radar (SBX) the Missile Defense Agency is procuring for use in developing defenses against intercontinental ballistic missiles aimed against the US.

In particular, I have become concerned that the purchase of the Moss Sirius and, possibly, its conversion may have involved improprieties in the use of tax funds. To the extent I understand such matters, the Antideficiency Act and other laws governing expenditures of public monies may have been violated.

As you undoubtedly know, the overall SBX program is funded at approximately the \$1 billion level, of which about a quarter, or \$250 million, is for the purchase and conversion of the Moss Sirius sea-going platform. The remainder is for the radar equipment that the platform will carry.

The trade press reports \$63 million was spent to buy the Norwegian owned, Russian built Moss Sirius platform, and that another estimated \$200 million will be used to convert it to SBX at the AMFELS shipyard in Brownsville, Texas, in your Congressional district. Moss Sirius arrived at the Port of Brownsville on May 30.

While the money for the radar equipment has been reported in DOD contract announcements, I can find nothing in the official record concerning the origin of the monies being used for the procurement and conversion of the Moss Sirius platform. Indeed, in a DOD announcement of November 21, 2002, it was specifically stated that, of some \$30 million for acquisition of long-leadtime SBX radar items: "None of these funds will be used to acquire the sea-based platform, in accordance with direction contained in the Joint Explanatory Statement accompanying the conference report for H.R. 5010 (P.L. 107-248), the fiscal year 2003 Department of Defense Appropriations Act."

I would be grateful if you were to make inquiries of the Missile Defense Agency concerning the source of the funding used for the purchase and conversion of the SBX platform Moss Sirius and, hopefully, be able to assure yourself -- and me -- that no violations of federal law or Congressional direction were involved.

I appreciate your attention to this matter and await your reply.

Yours truly,

[REDACTED]
Allen Thomson

[No reply has been received as of the date of this sourcebook.]

GOVEXEC.COM

DAILY BRIEFING

March 2, 2007

Senators explore federal finances at sparsely attended hearing

By Jenny Mandel

jmandel@govexec.com

Lawmakers at a Thursday hearing on federal financial management engaged in thoughtful discussion with top administration and accountability officials, but poor turnout -- with only two senators present -- suggests grim prospects for advancement on long-standing issues.

Sen. Tom Carper, D-Del., chaired the hearing and traded time with freshman Sen. Claire McCaskill, D-Mo., an auditor by training who has shown a strong interest in federal accountability issues.

[deletia]

[Sen. McCaskill] also expressed outrage at the lack of consequences when agencies violate the Anti-Deficiency Act, which prohibits spending in excess of appropriations, saying her office had not found a single instance in which a violation has led to someone being fired or fined. "It seems to me we haven't deterred much," she said.

Walker agreed that agencies' failure to enforce the act is a problem, but laid part of the blame at lawmakers' feet. He said effective financial management must include incentives for officials to "do the right thing," transparency to verify that they do, and accountability in case they don't. "One of the reasons that DoD has had the problems it has, is that Congress hasn't held them accountable," Walker told the senators.

[deletia]

THE KWAJALEIN HOURGLASS

Volume 43, Number 24

Friday, March 28, 2003

U.S. Army Kwajalein Atoll, Republic of the Marshall Islands

SBX takes close scan of Reagan Test Site

By KW Hillis

Associate Editor

Kwajalein's lagoon skyline may change in 2005 to include a radome 250 feet above the water's surface.

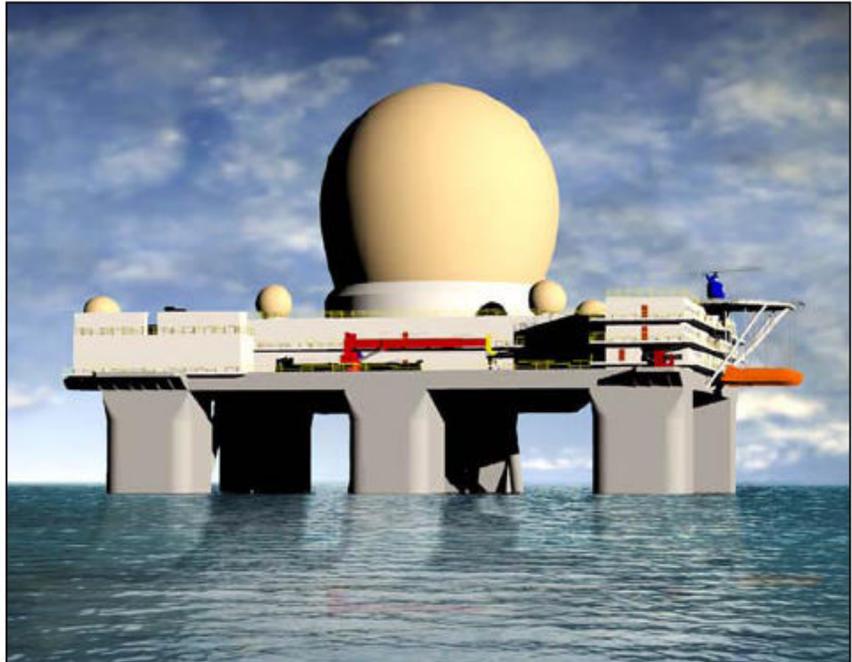
And if the Sea-based X-Band radar does moor in the lagoon it will be thanks to last week's community effort to show USAKA/RTS off as the perfect home base for the radar.

"The whole community came together on both sides in putting this project together," said Lt. Col. Clarence Johnson, RTS commander. "I think they didn't know what to expect, and we took the lead ... You don't want people to ask you questions, you want to give them the answers before they ask you."

The key was to distinguish USAKA/RTS from the other sites, said Dr. Jay Donnelly, of the MIT/LL Technical staff.

The X-Band radar, part of the Ground-Based Midcourse Defense test program, is designed to track, discriminate and assess incoming target missiles. The SBX is designed to put the X-Band capabilities on a mobile platform.

(See USAKA/RTS, page 5)



(Photo courtesy of GMD)

An artist's rendering shows the mobile X-band radar that could come to Kwajalein by 2005. The platform is 390 feet long by 238 feet wide and weighs 30,000 tons. It would moor in the lagoon because it is too big to tie up to Echo Pier.

USAKA/RTS community unites for SBX proposal ...

(From page 1)

GMD officials chose six locations to compete to become the primary support base, or home port. Besides Kwajalein, the sites include Naval Base Ventura/San Nicolas Island, Calif.; Naval Station Everett, Washington; Port of Valdez and Adak, Alaska; and Pearl Harbor, Hawaii, the last site which the team is currently visiting.

The nine-member SBX site selection team visited Kwajalein last week to assess all factors including the local environmental considerations, infrastructure, cost, security and the local community's reaction to the SBX.

The mobile platform will "let us put the X-Band in an optimum location to get the best test data in our test bed," said Navy Cmdr. Robert Dees, SBX Technical advisor and spokesperson for the team. The team is looking for the best fit for the unique attributes of SBX which is not built yet, but is slated to be finished by January 2005.



Cmdr. Robert Dees

During their visit, the team received a complete and comprehensive tour of all testing and support facilities and departments on Kwajalein, Meck and Roi including Marine, Aviation, Kwajalein Hospital and Supply.

The community team knew what they wanted, Donnelly said.

"They gave us a priority list of questions before they arrived," he said. "The community here was not only able to answer the questions ... but also raise questions and concerns, that I feel they will go back and try to answer at the other sites. I think it was a learning experience for them beyond what they expected."

All of the six sites do have infrastructure to supply and support the SBX, Donnelly said.

"However what sets USAKA/RTS apart is the fact that they get a primary support base that is also a world-class test facility that includes integrated range support and

workforce," Donnelly said. "By virtue of the fact that we are an integrate range and test facility, there are always unique testing opportunities that they won't get anywhere else in the world."

Dees agreed, "One very unique aspect is the ballistic missile testing that goes on here. Many times during the year we would get a target we could observe that we wouldn't get anywhere else."

The team's big concerns include the environment, the community impact and security, Donnelly and Dees said.

"One of the advantages here is that the community is used to working with high-powered radar and there is a very controlled environment, which is good," Dees said. "The only place we've looked that has that; we would be mooring by San Nicolas Island."

Dees said both RTS and San Nicolas have more and controls, "and we're separated from the population. And we have control of the electromagnetic and airspace."

Each location offers unique issues. "At [Everett, Wash. and Pearl Harbor] locations we're looking at mooring close to the civilian population which is not used to high-powered radars," he said. "We also have a lot of air traffic we have to coordinate. Locations in Alaska are both small populations, but have some challenging weather and Adak is distant."

The one disadvantage for Kwajalein, Dees said, is distance.

"It is fairly far from the test locations and we're also at the end of long supply pipeline," he said. "So it is harder than other places to get people and parts."

Donnelly and radar evaluator Doug Hoskins both thought that the distance concern may have been resolved.

"By the time they left, I think, they realized that that is a benefit ... we can fulfill all their supply and logistic needs," Donnelly said.

Hoskins added, "On the one hand you use an interstate highway somewhere ... Then on the other hand, being out here we still get things delivered and it's a safe and secure location as you can get."

If it comes to Kwajalein, the radar must moor in the lagoon, which requires shuttling people and supplies. The size of the vessel and strength of

Echo Pier precludes tying up dockside, Dees said. Now, part of the team's bid for Kwajalein includes a mooring 1½ miles from the pier.

The RTS proposal team pointed out to the Site Selection Team that the infrastructure on Kwajalein already includes shipping people and supplies back and forth from island to island everyday.

The team will make the final site decision this summer.

Meanwhile, the platform, built in Norway, for the oil industry, "is equipped with a semi-submersible oil platform which would have a payload of 20,000 tons," Dees said. The total weight of the platform and radar will be 30,000 tons.

"The Aegis cruisers that you get in port here are under 10,000 tons," he said.

Bought by the program in February, the platform will move to the Gulf Coast from Norway starting in April, he said. Modifications include personnel accommodation modules, thrusters for mobility, diesels for power and, of course, the X-Band radar itself.

The platform is 390 feet long by 238 feet wide and semi-submersible, he said. The platform can be raised and lowered by taking in or pumping out about 15,000 tons of water used as ballast.

The site team was impressed with the schools, hospital and with the community and thought it would be a help in attracting the less than 75 people required to support the SBX.

"This is a unique community in that the level of understanding of ballistic defense is probably higher than any place in the world," Dees said. "Also, the common approach of the people to work and towards family life is pretty nice."

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**Annual Investor Conference
March 6, 2003
Missile Defense SBA**

**Ed Franklin
President
Integrated Defense Systems**

Mission Value Chain





Raytheon's MD Portfolio

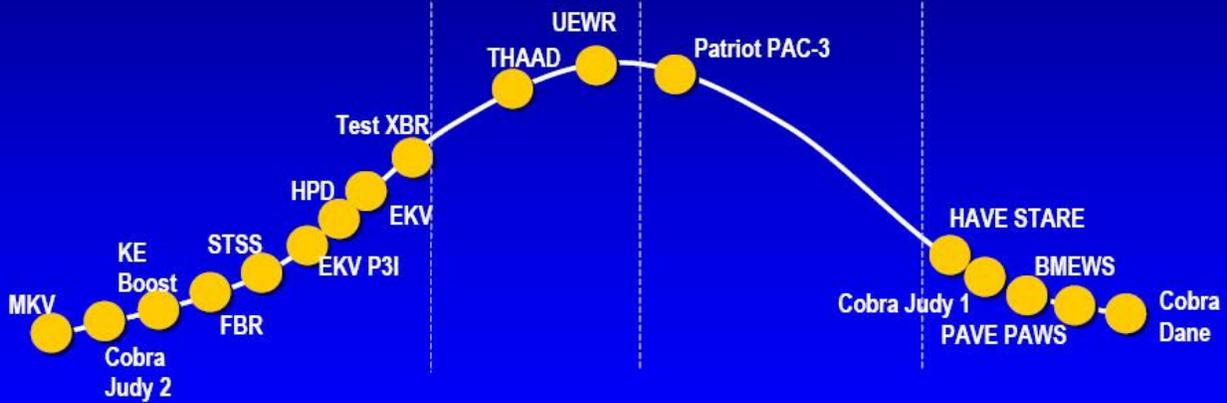
Program Portfolio*

R&D

EMD/
LRIP

Full-Rate
Production

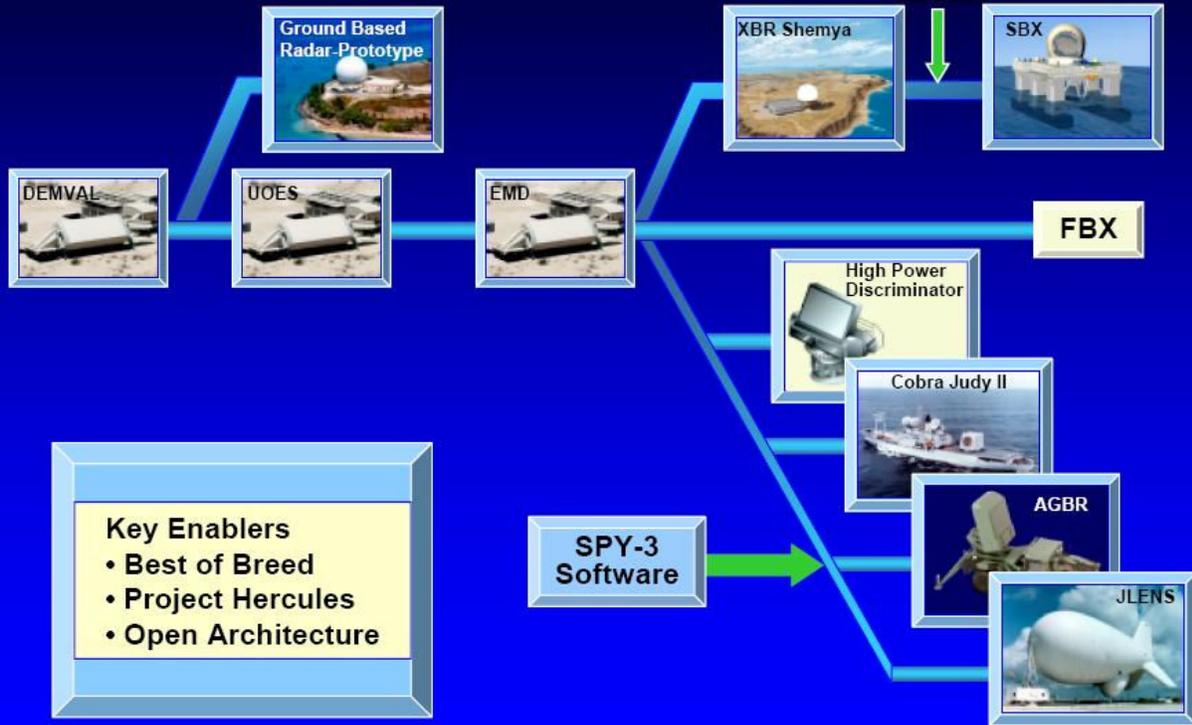
Sustainment



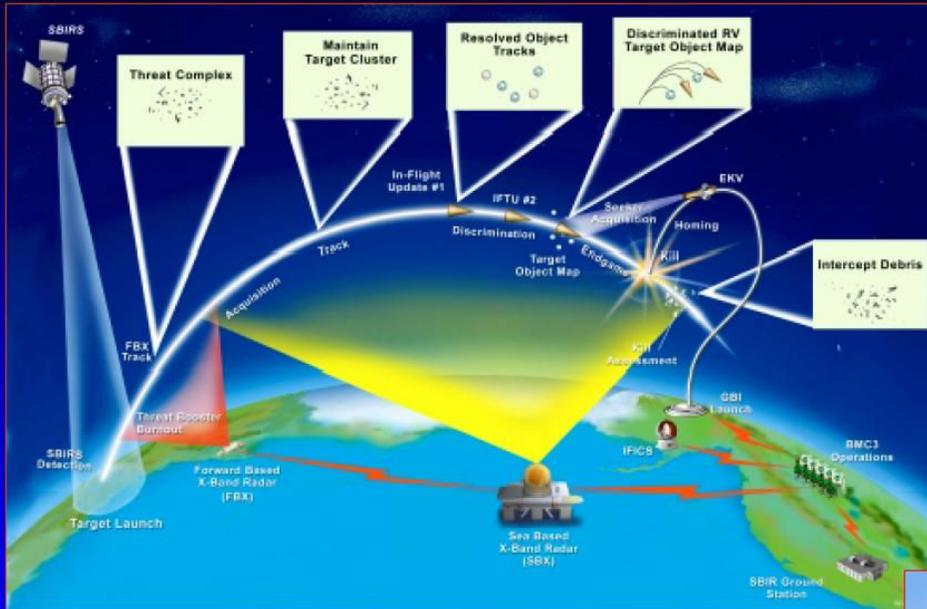
*Selected programs only



Radar System Evolution Fuels Growth



Sea Based Test X-Band Radar



<http://www.reitenco.no/items/57.pdf>

Buyer found for baredeck [Moss Sirius]
14.02.2003

A Group of Norwegian investors has succeeded in selling the giant CS-50 design baredeck semi-submersible that was built on speculation at the Vyborg shipyard in Russia, writes Knut Evensen.

Insiders confirmed that a deal has been closed and ownership of the rig has been transferred. The identity of the buyer is being kept under wraps but it was revealed the semisub is no longer intended for use in the oil and gas industry, and that conversion for drilling or production purposes is not on the cards.

One source listed US aviation giant Boeing as the likely buyer, hinting the unit could be converted into a rocket launch platform similar to the one rebuilt a few years ago for the troubled Sea Launch project, which generated heavy losses for the Oslo-based Kvaerner group. Boeing holds a 40% stake in Sea Launch.

A single-purpose company set up by Norwegian financial advisors Reiten & Co ordered the CS-50 from Vyborg in 2001. The baredeck unit was delivered last May and has since been up for sale, lying idle in the Norwegian town of Sandefjord. "We can confirm that the unit has been sold," Reiten advisor Baard Ingero said, but he declined to reveal the buyer or the price.

Other sources said the rig was sold for around \$63 million -- deemed a handsome price by market observers. Total construction costs are estimated at just beyond \$40 million, suggesting a healthy return on investment.

Source: upstreamonline.com

Offshore export success for Vyborg Shipyard

VYBORG Shipyard justifiably claims to be Russia's leading - and only - expert on the construction of offshore platforms, with quite a number of projects successfully completed in recent years for both domestic and foreign owners. Since 2000, this enterprising company has been a member of the Russian AKO BARSS group, whose activities are principally focused on the offshore industry and shipbuilding/repairing.

Readers may recall that this yard achieved wide international recognition in 1997/98, when as a then member of the Kvaerner group, it was involved with conversion of the semi-submersible platform *Odyssey* into a rocket launch pad for the European Sea Launch space project. The design has now been involved in nine successful launches. However, even prior to this, Vyborg had built Russia's first semi-submersibles - six Shelf-type drilling platforms, followed by the country's first jack-up (two now completed), also well as three semi-submersible upgrade projects. Last year, 98% of contracts were for export.

In May this year, the shipyard completed another successful milestone: delivery - on time and within budget - of the 50,000tonne displacement bare-deck platform *Moss Sirius* (118.60m length, 70.43m breadth, and 40.65m depth) to the Norwegian investment company Moss Arctic Production, with Det Norske Veritas classification. This CS-50 design was created by Moss Maritime (today a member of the Saipem group) for either drilling, production, or workshop operation in harsh environments and water depths down to 2500m. Production versions are capable of up to 150,000barrels daily, and finished platforms may be moored by anchors or use dynamic positioning. The pontoons and deck were joined afloat.

Moss Sirius was the first offshore contract under ownership of the AKO BARSS group. The success of the project has resulted in a contract, signed in June, for a sister unit. Construction is expected to start in November or December this year, with completion in a shorter time (15 months) than the prototype.

A further new contract is that to build another Moss Maritime design - an Octabuoy. This is a



A major success in May this year was completion at Vyborg - on time and to budget - of the CS-50 bare-deck platform *Moss Sirius* for Moss Arctic Production. An order for a second unit has now been secured, together with that for another Norwegian design, an Octabuoy.

new four-column semi-submersible from the Norwegian consultancy, claimed to have superb motion characteristics and mainly planned as a production unit but also able to accommodate a drilling derrick, and suitable for working with wet and or dry wellheads. A special feature is that the deck and topsides can be built elsewhere and installed by submerging the pontoons and columns, or by floating crane, thus speeding up installation and commissioning times. Model testing for this interesting concept has been carried out at the Krylov Institute, in St Petersburg.

Vyborg has typical annual steel throughputs of 22,000tonnes (in 2001), and 15,000tonnes were processed in 17 months for the first CS-50 platform (steel cutting for this unit started in November 2000). Last year, the yard added a hot galvanising workshop.

Parent company AKO BARSS has almost 10 years experience in aluminium construction, and in 2000 a special new workshop was opened at Vyborg for aluminium work. The yard has already been involved in superstructures for trawlers - fishing hulls have been a successful recent enterprise. This was started two years ago using combined seiner/trawler designs from Vik-Sandvik, mainly for outfitting by Fitjar Mek

Verksted in Norway, whose holding company is DOF Industri. To date, four hulls have been completed, a further two are due for delivery during September, and three more are on order.

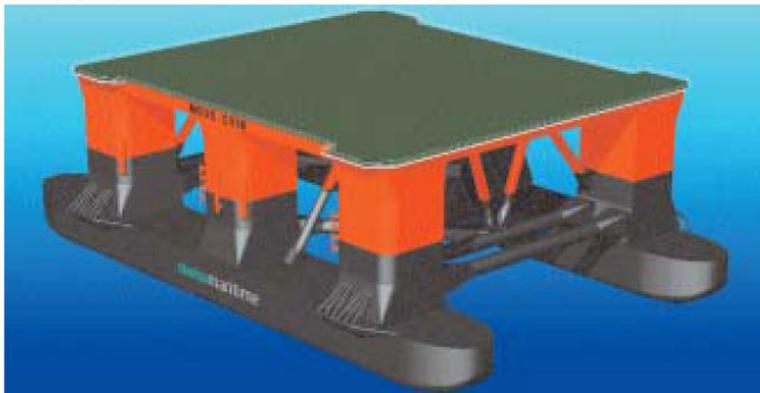
Vyborg has also been fabricating subcontract steel and aluminium sections for Royal Caribbean's Eagle class cruise liners under construction at Kvaerner Masa-Yards, and for Aker Finnyards (now part of the combined Aker/Kvaerner group). For the latter yard, Vyborg has recently delivered sections for the new cruise ferry *Romantika* (see page 139 in this issue). A large team is permanently stationed in Finland.

At the time of *The Naval Architect's* visit to Vyborg's office in St Petersburg, this interesting yard was involved in a number of tenders, including anchor-handling tugs for Iran's Khazar project in the Caspian Sea (Vyborg was also in serious running for a semi-submersible platform for this venture but lost finally to an Iranian yard). Together with the Norwegian arm of ABB, the yard also hopes to win a West African drill barge contract, and is tendering, on its own, for an Arctic offshore support ship for the Russian Sakhalin-1 project (one of a number of projects for various shipowners currently circulating, as discussed in other articles in this feature).

One small matter may need some technical attention in the near future: the maximum hull width that can currently be launched from the yard's special system is approximately 18m. Plans are already in hand to adopt one of three expansion proposals - using a barge as an lengthwise extension of the dock, using a barge alongside a quay in conjunction with a floating crane, or assembling steelwork on a submersible barge, which can then be towed to the outfitting quay. The yard also has experience of assembling hulls afloat - in such a manner the 2000tonne capacity floating crane *Noble Lifter* was completed in 1993.

At the time of writing, the second option appears most practical. Meanwhile, with its successful business and technical links in both Finland and Norway - plus current optimism in the Russian domestic market, Vyborg is looking forward with confidence to the future. □

A computer-generated impression of the CS-50 bare-deck platform that has recently been handed over by Vyborg. Work is now starting on a second similar unit.



FBO DAILY ISSUE OF JUNE 06, 2002 FBO #0186
SOLICITATION NOTICE

14 -- Ground-Based Midcourse Defense Sea-Based Test X-Band Radar Capability

Notice Date

6/4/2002

Notice Type

Solicitation Notice

Contracting Office

Other Defense Agencies, Missile Defense Agency, MDA Deputy for Contracting
(MDA/CT), 7100 Defense Pentagon, Washington, DC, 20301-7100

ZIP Code

20301-7100

Solicitation Number

HQ0006-01-C-0001

Response Due

6/20/2002

Archive Date

7/5/2002

Point of Contact

Ann Terry, Contracting Officer, Phone 703-604-4459, Fax 703-604-2557,

E-Mail Address

anne.terry@mda.osd.mil

Description

The Missile Defense Agency (MDA) intends to modify, on a sole source basis, Contract HQ0006-01-C-0001 with The Boeing Company, to develop a Sea-Based Test X-band Radar (XBR) capability in support of the Ground-Based Midcourse Defense (GMD) Program. This action will provide for the Sea-Based Test XBR capability design, development, acquisition of a sea-based platform, and modification of the platform and existing XBR to meet design requirements, integration and operational check-out, and radar test operations. Currently, Boeing is providing development of initial components of the GMD system (interceptor, XBR, and upgrades to the Early Warning Radars) under this contract. A sea-based platform for the Test XBR is required to support the expanded test operations of the GMD component of the Ballistic Missile Defense System Test Bed. The effort necessary to satisfy this Sea-Based Test XBR capability is highly specialized and tightly interwoven with the on-going GMD development efforts being provided by Boeing. No other source can meet this requirement without the intimate knowledge of, and the ability to provide the currently planned XBR element for installation on the sea-based platform and integration into the GMD system under this contract. See numbered note 22.

Place of Performance

Address: Various Within and Outside Continental United States

Record

SN00087860-W 20020606/020604214103 (fbodaily.com)

RIGZONE.com

Vyborg Shipyard Delivers CS50 Baredeck Platform

Vyborg Shipyard Wednesday, May 08, 2002



A ceremony was held earlier this week for the delivery of the multi-purpose semisubmersible platform project CS50 to Moss Arctic Production Inc., Norway. The platform has been constructed in full conformity with the production schedule and the terms and provisions of the contract.

The multi-purpose bare-deck platform CS50 represents the 5th generation of semisubmersible platforms designed by Moss Maritime AS (Norway). The platform is of a catamaran type with two pontoons and six stabilizing columns supporting the upper structure. Main dimensions: 118.6 x 70.4 x 40.6 meters, hull weight is about 15,000 tons.

The platform has an upper deck capable to carry the top structure weighing 20,000 tons, and is adapted for installation of the both systems of dynamic positioning and passive positioning by means of anchors, and combined system of stabilization of the platform. Depending on the equipment to be installed on board the platform, it will be possible to operate CS50 at the sea depths from 80 to 2,500 meters.

Vyborg Shipyard JSC specializes in the construction of technical facilities for development of deposits on the continental shelf, including semisubmersible platforms, jackups, topsides of the production complexes and also the building of vessels for servicing drilling operations in the sea.

Air Force Civil Engineer
April, 2002

Bedding Down the X-Band Radar:
A New Mission Proposed for Eareckson Air Station
by Col Patrick M. Coullahan
Eleventh Air Force Civil Engineer



A conceptual drawing of the proposed X-Band Radar at Eareckson Air Station.

A Brief Military History of Shemya Island

Eareckson Air Station is located on Shemya Island, a diminutive piece of real estate near the tip of the windswept Aleutian Islands in Alaska. At 1,500 air miles from Anchorage, the island is actually closer to Russia and Japan than to Alaska's largest city. It is Shemya's location that makes the island so important in the National Missile Defense (NMD) strategy.

The NMD system is intended to protect all 50 states from an incoming missile. While the primary threat to the United States no longer comes from a calculated strategic nuclear attack by the Soviet Union, our major concerns are accidental or unauthorized missile attacks by established powers and calculated strikes by "rogue nations" such as Iran, Iraq and North Korea.

The need for and timing of an NMD system has been the subject of much debate and intense scrutiny. Even so, many people in the United States believe we have a missile defense system already in place. Nothing could be further from the truth. In fact, putting such a system in place will require five years of construction and the efforts of several military and contract organizations.

A New Mission

Components of the NMD system include: ground based interceptors (GBI), battle management command and control (BMC2), an in-flight interceptor communications system (IFICS) data terminal, upgraded early warning radars (UEWR) and an X-band radar (XBR).

The GBI is the weapon of the system. It is designed to intercept incoming ballistic missile warheads outside the earth's atmosphere and destroy them on impact. The GBIs would remain in underground silos. Launches would occur only in defense of the United States from a ballistic missile attack — there would be no flight-testing of the missiles at the NMD

deployment site. The GBI site would contain launch silos and related support facilities. Up to 100 GBI silos could be deployed. GBIs are not planned for basing at Shemya, but could be based at Fort Greeley, near Delta Junction, Alaska, or in northeastern North Dakota.

The BMC2 is the “brains” of the NMD system, and the IFICS Data Terminal ground stations provide communications links between the in-flight GBI and the BMC2.

The NMD system will require an upgrade to existing early warning radars at Clear AS, Alaska, Beale Air Force Base, Calif., and Cape Cod AS, Mass. These early warning radars, also referred to as “PAVE PAWS,” are phased-array surveillance radars currently used to detect, track and provide early warning of sea-launched ballistic missiles. They also track satellites and space debris. Hardware and software modifications are planned for these existing radars, in conjunction

with the NMD system, to allow the acquisition, tracking and classification of small objects near the horizon and provide data to other NMD elements using improved communications.

The NMD system’s XBR will be a ground-based, multi-function radar capable of performing tracking, discrimination and kill assessments of incoming ballistic missile warheads. The XBR site at Eareckson will include a radar and associated support facilities.

Any deployment may require elements of the system to use existing fiber optic lines, power lines and other utilities, so modifications may be required. Some locations may require the acquisition of new rights-of-way and installation of new utility and fiber optic cable. Potential new land fiber optic cable line locations include those along the Aleutian Islands to Eareckson. In addition, redundant fiber optic cable lines may be required in some locations for security purposes.

The 611th Air Support Group is deeply involved in preplanning activities for this new and important mission, which will require several million dollars in military construction (MILCON) facilities at Shemya Island alone.

The National Missile Defense construction and beddown at Eareckson has generated much high-level interest, leading to briefings to the Vice Chairman of the Joint Chiefs of Staff and Deputy Secretary of State. The Chairman, Senate Appropriations Committee; the Deputy Secretary of Defense; and the NASA Administrator on National Missile Defense have visited Eareckson and been briefed by the 611th Air Support Group. National news media interest in the island and the unique support role it may have in this program has increased as well.

Challenges Ahead

The island of Shemya may be a perfect location for the antiballistic missile radar, but it is a terrible place to try to build anything. But once the President says “go,” the Pentagon plans to build the new 10 story-high radar there. The plan is to have the whole system up and running in less than five years, which, on this remote island, translates to a war against the elements and a logistical nightmare.

The weather on Shemya poses quite a challenge as it is very unpredictable — changing by the hour, and sometimes by the minute. Although average precipitation is only 2 to 4 inches per month, some form of precipitation occurs on a nearly daily basis.

The average low temperature during Shemya’s coldest month (February) is a relatively mild 28 degrees Fahrenheit, but it is not unusual to witness hurricane force winds, enormous waves from the meeting of the Bering Sea and Pacific Ocean, and blizzards throughout the long winter months.

With construction on Shemya, we face monumental logistics issues such as barge sailings and unloading in rough seas. Equipment and supplies for the project, nearly all of the construction materials and heavy equipment, are not found on the island and will have to be hauled from Seattle — 3,000 miles away. This means hiring enormous barges to make the trip, then lining them up at Shemya’s one dock to unload.

Erecting a 108-foot-high inflatable radar dome in an area with almost no respite from high winds poses a tremendous engineering challenge. In addition, Shemya has been rocked repeatedly by earthquakes over the years, requiring significant seismic design efforts to overcome the forces of Mother Nature and to prevent or keep damage to a minimum.

A 1965 earthquake in the nearby Rat Islands measuring 8.7 on the Richter scale caused cracks in Shemya's asphalt runway and created crevasses with as much as 16.5 meters of vertical displacement. Landslides occurred, water tanks twisted and underground water pipes broke. Many aftershocks were felt during the following weeks, and the quake generated a tsunami on Shemya reported to be about 10.7 meters high.

To counteract the effects of another earthquake of that magnitude there, the foundation planned for the radar alone will be over 25 feet thick and require more than 9,000 cubic yards of reinforced concrete to construct.

Reliable and cost effective primary power is another challenge in a place as remote as Shemya. To ensure continued mission success, a dedicated diesel generator power plant with high energy magnetic pulse (HEMP) shielding will be constructed to provide mission-critical power to the NMD system.

While construction of the NMD facilities on Shemya is very feasible, the effort will not be successful without a great degree of coordination and preparation. The many facilities now standing at Eareckson are a testament to DoD's ability to marshal the resources and talent needed to effectively build in the Aleutians.

If We Build It, They Will Come

The latest in living amenities for assigned NMD personnel will be included in the package. Even though Shemya is sometimes referred to as the "Black Pearl of the Pacific," one could say it is not exactly a Pacific island paradise. Attracting and keeping quality people with the talent and savvy needed to run a complex that provides for our first measure of defense from rogue nations will certainly be impacted by the quality of life found at Shemya.

General Ronald R. Fogleman, former U.S. Air Force chief of staff, said at the Defense Forum Foundation in Washington D.C. on Jan. 24, 1997, that Shemya was "a God-forsaken place if you want to know the truth." However, despite that assessment and knowing the formidable challenges we face, we believe we can go a long way toward enhancing quality of life on Shemya with the advent of this new and important mission.

Col Coullahan is the Eleventh Air Force Civil Engineer and the 611th Air Support Group Deputy Commander, Eleventh Air Force, Elmendorf AFB, Alaska. As 11 AF Civil Engineer, Colonel Coullahan provides policy, oversight and advocacy for Air Force installations throughout the state of Alaska for civil engineering and develops long-range facility plans for the MILCON program to fulfill requirements for mission beddowns, base infrastructure, community support and family housing.

http://www.defenselink.mil/news/Jul2001/t07142001_t0713mda.html

Special DoD Briefing on Missile Defense Program and Testing

Presenter: Lt. Gen. Ronald T. Kadish, Director, BMDO

Friday, July 13, 2001 - 1:30 p.m. EDT

[EXCERPT]

Q: X-band radar on Shemya, what's the schedule, what's the criteria now for going ahead and doing that?

Kadish: The X-band radar on Shemya is still in the planning stages, and we will review -- my intention, subject to the secretary's approval, is to provide a decision point at every opportunity to do the radar at Shemya.

And that's all a part of the architectural discussions.

Q: It's not a cost issue? Because --

Kadish: It's always a cost issue --

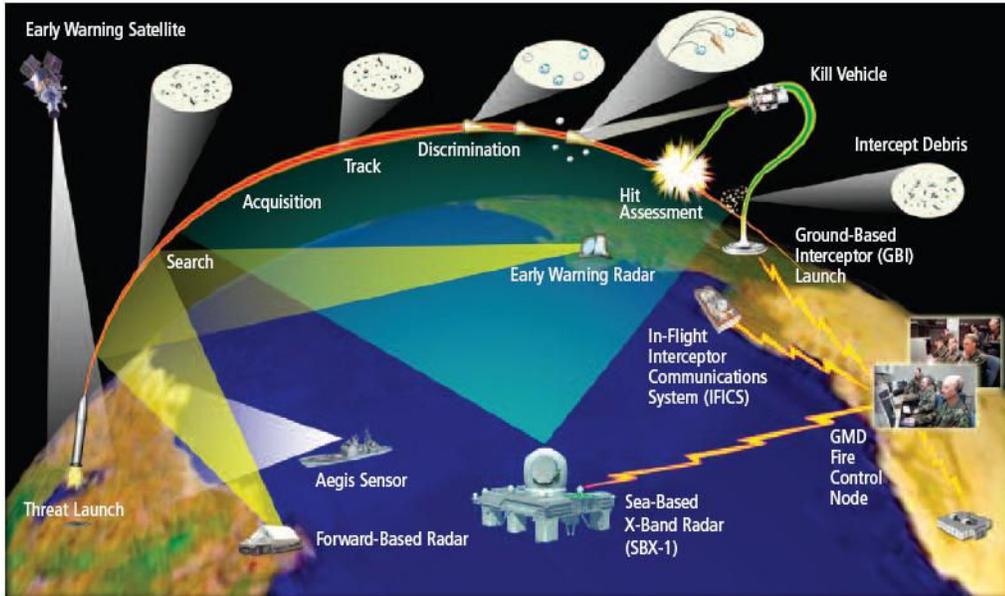
Q: -- you know you're going to need it, right? Or do you not know you're going to need it?

Kadish: We know we need X-band radars, and we have to go through confidence-building in our test program as well as the architectural discussions of where we want to put these things, because one of the things we're looking at, as outlandish as it might seem, is putting that very large radar on a mobile sea platform. And we've got to look at whether or not that makes any sense.

So that -- the best way to answer that is that that will be a decision that will continually be reevaluated and made when it's ready to be made.

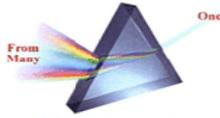
APPENDIX A

IMAGES



- SBX-1 will support midcourse acquisition, track, discrimination and hit assessment
- Performs precision track and midcourse discrimination
- Provides discriminated reentry vehicle to GMD Fire Control (GFC)
- Provides data on all target complexes
- Can be optimally positioned to maximize threat coverage

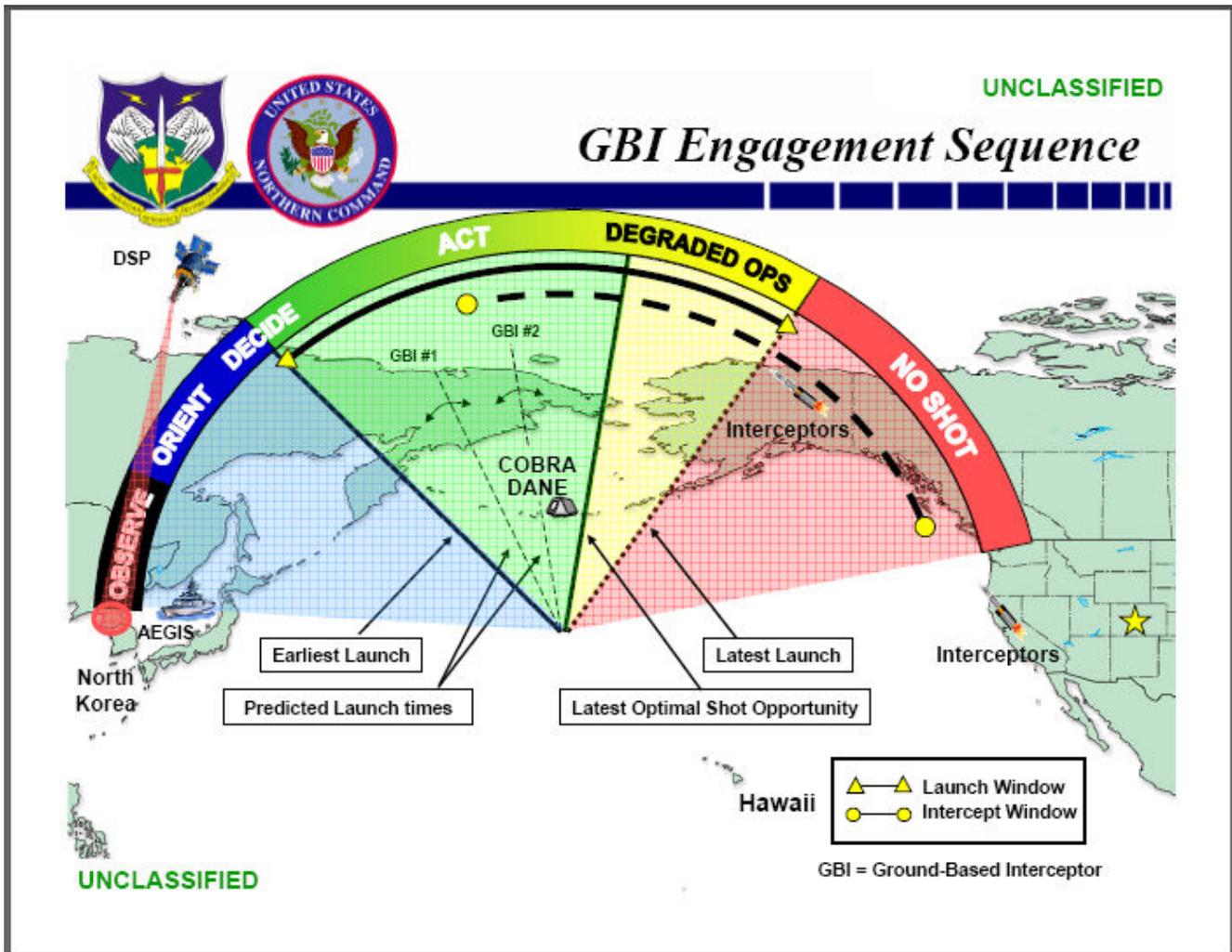
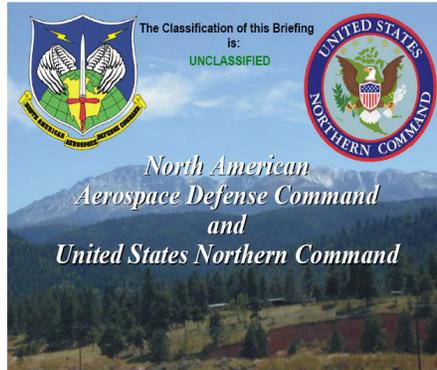
[Notional Engagement]



Joint Integrated Air & Missile Defense (JIAMD) Summit

"Addressing JIAMD Issues - Uniting the JIAMD Team"

March 5-8, 2007, Huntsville, AL, by Invitation Only!



http://www.cbsnews.com/stories/2006/12/20/cbsnews_investigates/main2286618.shtml

CBS NEWS INVESTIGATES
Special Report with Armen Keteyian
Can Costly Radar Survive In Alaska?
System would Warn If Missile Was Launched At U.S.,
But Can It Cope With Alaska's Harsh Weather?
Dec. 20, 2006



*[SBX-1 at Pearl Harbor,
Possibly late 2006]*

<http://starbulletin.com/2006/07/23/news/art12.jpg>
[Larger version of the image shown here:
<http://starbulletin.com/2007/06/10/news/art9x.jpg>*]*



SBX Returning to Hawaii, 22 July 2006
[M/V Dove is presumably the heavy tug to the right]

http://www.defense-update.com/images/X-Band_radar.jpg



http://www.offshore-mag.com/display_article/130786/9/ARCHI/none/none/SUBSEA-TECHONOLGY:-Mooring-drilling-and-production-units-without-conventional-winches,-fairleads/



**The Anchor Handling Vessel (AHV) M/V Dove
ca. 2001**



The Sea-Based X-Band Radar (SBX) departs Pearl Harbor, Hawaii, March 31, 2006, after a three-month port visit to undergo minor modifications, post-transit maintenance, and routine inspections. The SBX will now transit to its home port in Adak, Alaska, where it will provide highly advanced ballistic missile detection.

DoD photo by

Photographer's Mate Airman John T. Jackson, U.S. Navy. (Released)

Photo by: PHAN JOHN T. JACKSON, Record ID No. (VIRIN): 060331-N-1027J-008



[SBX at Pearl Harbor, Hawaii. February, 2006]

<http://www.defenselink.mil/photos/newsphoto.aspx?newsphotoid=7527>



<http://www.defenselink.mil/dodcmshare/newsphoto/2006-01/060109-N-3019M-012.jpg>

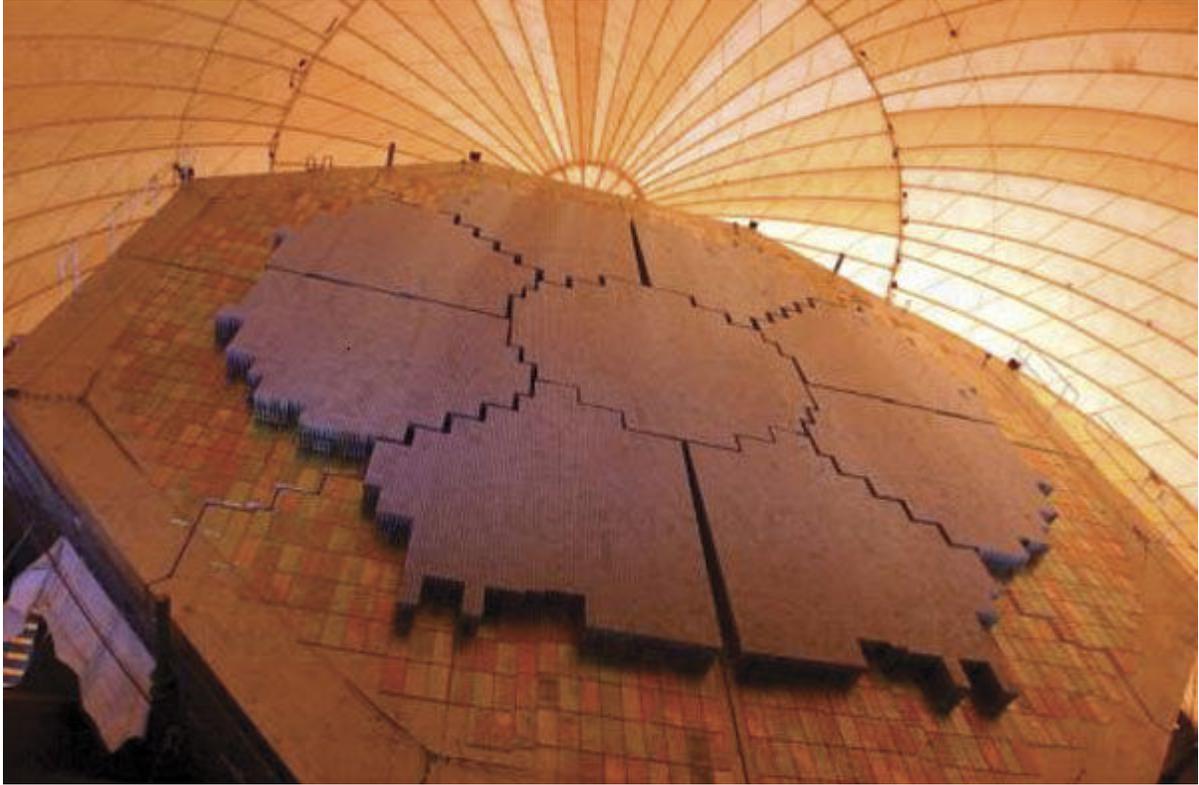
The heavy lift vessel MV Blue Marlin with its deck cargo of the Sea Based X-Band Radar enters Pearl Harbor, Hawaii, after completing a 15,000-mile journey from Corpus Christi, Texas, on Jan. 9, 2006. The Sea Based X-Band Radar is a combination of the world's largest phased array X-band radar carried aboard a mobile, ocean-going semi-submersible oil platform. The radar is capable of highly advanced, ballistic missile detection while discriminating a hostile warhead from decoys and countermeasures. The platform, larger than a football field, will undergo minor modifications, maintenance and routine inspections in Pearl Harbor before completing its voyage to its homeport of Adak, Alaska, in the Aleutian Islands. DoD photo by Petty Officer 2nd Class Ryan C. McGinley, U.S. Navy. (Released)

[Sourcebook note: Scale is indicated by two people standing to the right of the bridge of Blue Marlin and three standing on the left rear corner of SBX-1]



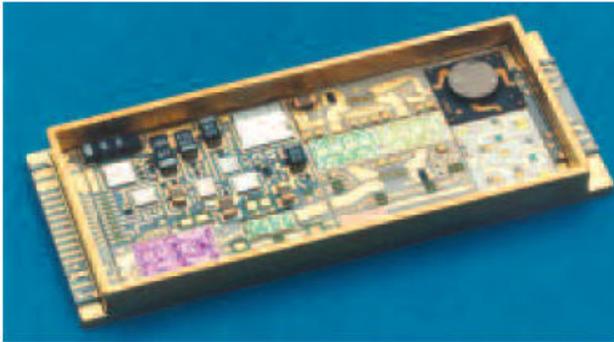
The Sea-Based X-Band Radar made its trip through the Strait of Magellan to arrive in Pearl Harbor, Hawaii on January 10, 2006.



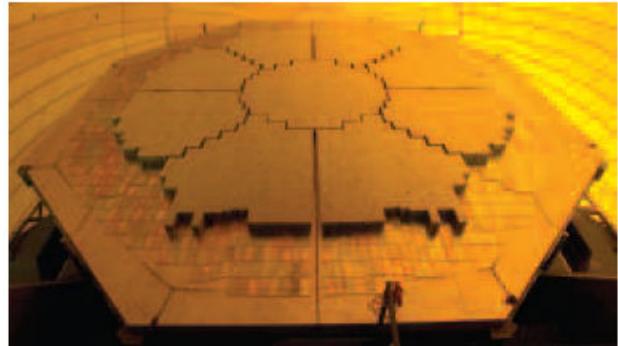


[Partially Populated SBX Antenna in Radome]

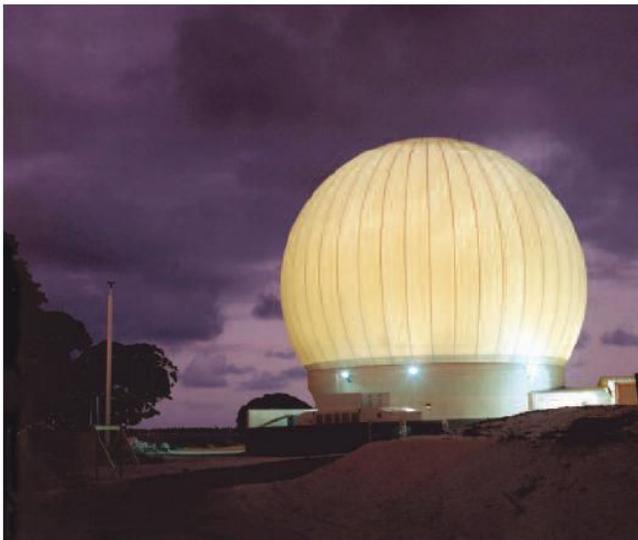
http://www.raytheon.com/products/stellent/groups/public/documents/content/cms04_018670.pdf



Best of Breed T/R Module



XBR Array Face Inside of Radome



GBR-P at Reagan Test Site

Specifications

Physical Aperture	384 m ²
Active Aperture	248 m ²
GaAs Transmit/Receive Modules	>45,000
Phase/Mechanical Beam Steering	
Azimuth Coverage	±270°
Elevation Coverage	2°-90°
Rotating Weight	2,400 Tons
Software Lines of Code	652,000



*SBX-1 aboard Blue Marlin, Kiewit Shipyard,
Ingleside, Texas*

ELEC_Radar_SBX_ABM_Radar_Pearl_Harbour_Ig.jpg



http://www.dockwise.com/files/dockwise_fleet.pdf



http://www.heerema.com/content/hegroup/pressroom/2005/img051125/Float-on_SBX.jpg



SBX loading on Blue Marlin

http://www.dockwise.com/downloads/images/hi_res/SBX_positioned.jpg



SBX loading on Blue Marlin

http://www.heerema.com/content/hegroup/pressroom/2005/img051125/Deballasting_completed.jpg



SBX loaded on Blue Marlin

http://www.heerema.com/content/hegroup/pressroom/2005/img051125/Sail-away_18Nov05.jpg



SBX on Blue Marlin leaving Ingleside, Texas



SBX Aboard Blue Marlin At Ingleside, Texas, 2005



SBX-1 at sea



SBX departing Brownsville en route to Ingleside



*Moss Sirius at Kiewit Yard, Brownsville, TX
Estimated date of imagery:
Early 2004, possibly mid-morning 2004-02-17*



*Closer view of Moss Sirius at Kiewit Yard, Brownsville, TX
Estimated date of imagery:
Early 2004, possibly mid-morning 2004-02-17*

http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0061_JPG.jpg



Moss Sirius at Brownsville

http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0085_JPG.jpg



Moss Sirius at Brownsville

http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0063_JPG.jpg



Moss Sirius at Brownsville

http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0064_JPG.jpg



Moss Sirius at Brownsville

http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0074_JPG.jpg



Moss Sirius at Brownsville

http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0075_JPG.jpg



Moss Sirius at Brownsville

http://bmdside.mda.mil/MDA_Photo_Library/sbx/images/100_0076_JPG.jpg



Moss Sirius at Brownsville

Following three images of the SBX radar mount under construction at Ingleside are from http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0095_JPG.jpg and http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0103_JPG.jpg and http://bmdsidc.mda.mil/MDA_Photo_Library/sbx/images/100_0097_JPG.jpg



SBX radar mount at Ingleside



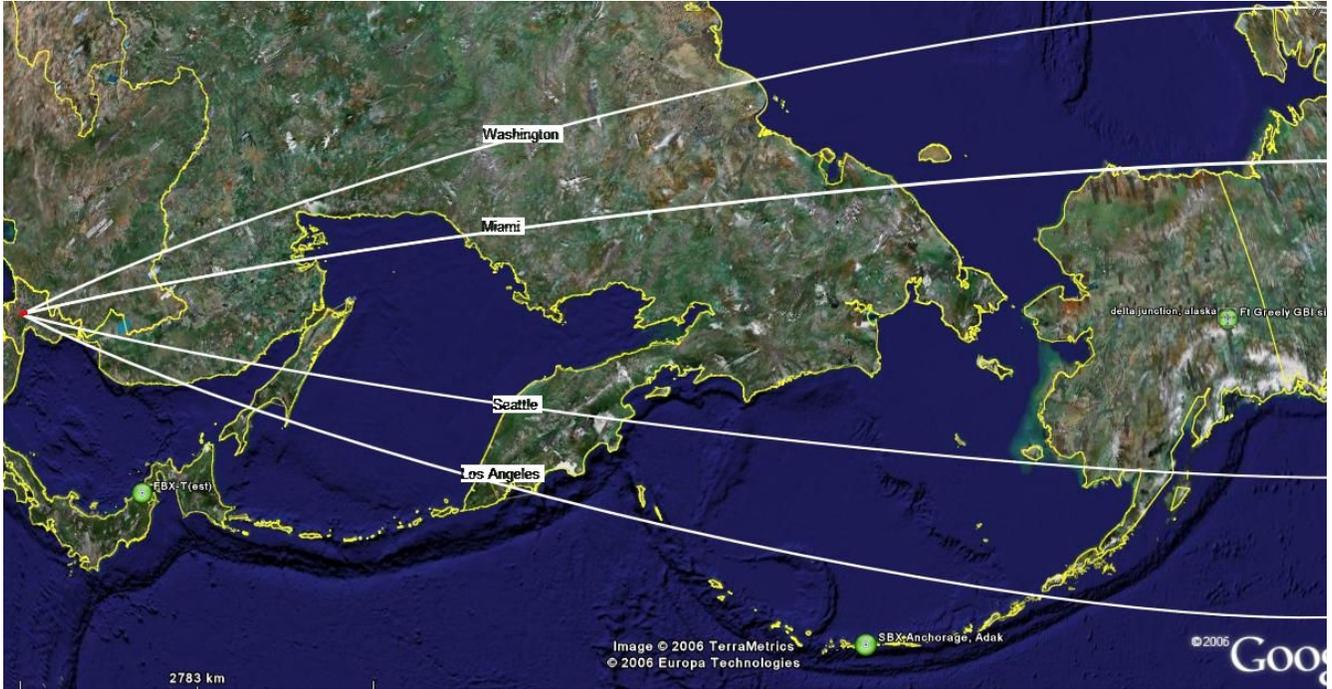
SBX radar mount at Ingleside



SBX radar mount at Ingleside



Moss Sirius Under Construction at Vyborg, Russia



*Approximate trajectories of ICBMs launched from North Korea
to Washington, D.C, Miami, Seattle, and Los Angeles*

*Positions of the FBX-T (AN/TPY-2) radar at Tsugaru, Japan, SBX at Adak,
and the Fort Greely interceptor site are shown.*

APPENDIX B

FOR OFFICIAL USE ONLY
PRE-DECISIONAL MATERIAL – NOT FOR RELEASE

SBX-1 Operational Suitability and Viability Assessment

An Independent Assessment

FINAL REPORT
June 2, 2006

Submitted to:

**Director
Mission Readiness Task Force
Missile Defense Agency**

Submitted by:

Independent Assessment Team

Prepared by:

**SYColeman, A Wholly Owned Subsidiary of L-3 Communications
241 18th Street S., Crystal Square 4, Suite 900
Arlington, VA 22202**

The Missile Defense Agency under Contract No. HQ 0006-03-C-0003 sponsored the assessment described in this report. The views, opinions, and findings contained in this report are those of the author(s) and should not be construed to reflect an official Missile Defense Agency position, policy, or decision, unless so designated by other official documentation.

PRE-DECISIONAL MATERIAL – NOT FOR RELEASE
FOR OFFICIAL USE ONLY

**FOR OFFICIAL USE ONLY
PRE-DECISIONAL MATERIAL – NOT FOR RELEASE**

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which require resolution prior to departure from Hawaii and operations at the Adak winter MODLOC in the Bering Sea.

The conclusions are focused on ensuring and improving the total platform mission readiness and survivability of this unique National Defense asset and are supported by the panel issue Description, Findings and Recommendations contained in the report.

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INTRODUCTION

Background: In preparation for deploying SBX-1, with XBR, from the Hawaiian operating areas to the northern Pacific and the MODLOC area in the Bering Sea north of Adak, the Director, Mission Readiness Task Force in MDA requested an independent assessment of the operational suitability and viability of the SBX-1 platform. The Terms of Reference (Annex B) directed an assessment of the operational suitability, planning and viability of SBX-1 to effectively operate in the environment of the western Bering Sea with a focus on the seaworthiness, operating procedures and structural, mechanical and electrical considerations for SBX-1 in those environments. In addition, the assessment was to include the areas of maritime and sustainment operations while moored in Kuluk Bay off of Adak and while loitering in the open sea. Functions to be assessed included sea-keeping, refueling/reprovisioning, personnel transfer and severe weather operations. Note: the TOR and the panel did not include the XBR GMD mission capability. SBX-1 is built on a commercial semi-submersible platform and operates under a Certificate of Inspection (COI) issued by the US Coast Guard. The vessel is also classed by the American Bureau of Shipping (ABS), who performed the design review and initial inspection on behalf of the US Coast Guard under the Alternate Compliance Program. The vessel has a merchant marine operating crew via a sub-contract from Boeing. The vessel's manning level complies with the minimum level specified on the COI, and all vessel operating crew members have a security clearance and hold licenses and merchant mariner documents issued by the US Coast Guard.

Panel Composition: The panel consisted of retired Navy and Coast Guard Flag officers, retired SES Naval Architects and an off shore semi-submersible industry expert. The experience of the panel covered at sea operation of ships, propulsion examining board experience, vessel safety and regulatory body experience, naval architects with both design and production experience and semi- submersible experience with platforms in a wide range of operating environments. Panel membership and qualifications are located in Annex C.

Assessment: The panel visited the SBX-1 prime contractor, The Boeing Company, and The Glostén Associates – the Naval Architects under contract to Boeing. The panel

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received presentations from the SBX Program office and from the American Bureau of Shipping, the classification society for the platform. These meetings were also attended by representatives from the Naval Sea Systems Command, the Military Sealift Command and the US Coast Guard (Anchorage). Four members of the panel traveled to Hawaii and transited in the support ship DOVE from Pearl Harbor out to SBX-1 in the Hawaiian operating areas. Embarkation/debarkation at SBX-1 was conducted at sea (Sea State 4) between the support ship DOVE and the SBX-1, using a crane lift with the “Billy Pugh” multi-person lifting ring/net rig. Time on board SBX-1 was spent in conducting a thorough walk-through of the platform, and detailed discussions with the senior members of the operating crew and Boeing personnel. In reviewing the data and the information obtained from the meetings and the SBX-1 and DOVE visits/discussions, the panel focused the observations and recommendations into three categories: Crew Readiness, Materiel Readiness and Operational Considerations. In addition, within each of these areas, the panel assessed the issues identified against three time frames: Address before leaving Hawaii; Address before winter operations off of Adak/in the Bering Sea; and Long Term Mission Readiness. Following each recommendation there is a letter with the panel suggested time frame for addressing the recommendations:

H – Address before leaving Hawaii

A – Address before winter operations off of Adak/in the Bering Sea

L – Long Term Mission Readiness

Annex D provides a matrix listing of the panel’s recommendations and the suggested time frames to address the issue.

Conclusions: The OAV panel concluded SBX-1 is an inherently rugged and suitable platform for the intended mission, however the panel found that at the current time:

1. Crew Readiness and Materiel Readiness issues indicate that SBX-1 needs additional underway shakedown time and in-port time to address crew and material issues in the Hawaiian area, and
2. Operational Considerations issues identify areas where operational commanders and developing commands need a full understanding of the associated implications, and which require resolution prior to departure from Hawaii for operations at the Adak winter MODLOC in the Bering Sea.

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The conclusions are supported by the panel issue description, findings and recommendations contained in the following detailed Crew Readiness, Material Readiness and Operational Considerations sections. Annex E provides a copy of the 5 June 2006 briefing for the Director, MRTF, MDA.

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SECTION 1. CREW READINESS

I. ADDITIONAL SHAKEDOWN TIME

Description: New ships are put through a shakedown phase after delivery to get the crew working together as a team with maximum effectiveness before being placed on-line performing real missions. Shakedown training provides a structured method for the crew to attain proficiency in routine operations and in casualty control response. This shakedown period helps to form critical team work, improves crew morale and mission effectiveness while reducing often costly operator errors. The more complex a new ship is and the more important and difficult its mission, the more important adequate shakedown training becomes. The SBX is a perfect example - a unique ship with a complex, developmental payload. SBX is scheduled to operate in a harsh and unforgiving environment performing a critically important national defense mission.

Findings: The SBX is now in its shakedown period but, to date, shakedown training has been limited by interruptions such as casualties, extended shipyard availabilities, and the dry transit from the Gulf of Mexico to Hawaii aboard the Blue Marlin. SBX is scheduled to move north in June. The harsh Arctic winter sets in by late October. Only four months remain available for shakedown training before winter.

Recommendations:

1. Do not rush SBX into service performing real missions before adequate shakedown training has been done. **(H)**
2. Establish operations, casualty control and damage control training criteria and metrics which must be met and maintained to forward deploy SBX. **(H)**
3. Conduct initial shakedown in good weather and good support areas followed by focused shakedown training in preparation for heavy weather and cold weather operations. **(H)**

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II. SYSTEMS OPERATIONAL AND CASUALTY CONTROL TRAINING

Description: For critical systems, the operator must not only be trained how to operate the system in normal situations, but also be provided training in how to respond properly when casualties occur. The lack of such training can result in operator errors in the time of crisis immediately after a casualty. Operator errors in casualty situations can compound problems and lead to catastrophe. Computer simulations of complex systems are an ideal training tool. Simulations installed on-board SBX could be used “off-line” for training without interfering with the operations of the real systems. A wide variety of casualties can readily be introduced into a simulated system. The operator actions in response and their effects on the system behavior can be observed and evaluated. The feedback to the operator from such exercises is invaluable for its training benefits.

Findings: It is not apparent that the crew members of SBX who operate critical systems have received adequate training in casualty control. The drills and evaluations conducted to date have generally been concerned with routine operational scenarios. There has not been time for the system operators to use the real systems for training in casualty control. System simulations have not been made available to the operators for training. Additionally, comprehensive operational procedures and detailed casualty control procedures did not appear to be in place.

Recommendations:

1. Develop realistic computer simulations for critical SBX systems. The Ballast Control System, electrical and saltwater systems are noteworthy examples. Ensure that the simulations provide appropriate feedback to the user for training benefits. **(L)**
2. Install the simulations on-board SBX and provide time and incentives for the SBX operators to use the simulations for basic, advanced and refresher training. **(L)**
3. Develop detailed equipment lightoff and securing procedures and detailed equipment casualty control procedures similar to USN Engineering Operational

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Sequencing Systems (EOSS) to include Engineering Operating Procedures (EOP) and Engineering Operational Casualty Control (EOCC). **(A)**

4. Ensure the operating crew has up-to-date technical documentation and is provided with job performance aids. **(H)**
5. Convert to Interactive Electronic Technical Manuals (IETM) to improve responsive and correct troubleshooting of equipment casualties. **(L)**

III. CREW QUALIFICATIONS

Description: SBX-1 is a critical national asset, embodied within a complex maritime platform. Sustainment of SBX-1 operations and maintenance is dependent upon the ability to recruit and retain a well-trained, experienced crew of licensed and unlicensed commercial mariners, i.e., better than the “hiring hall” minimum standard of performance and qualification.

Findings:

Crew qualifications should include:

- Basic Coast Guard licensing and documentation requirements
- Excellent character references
- Clean background investigation (security clearance)
- Offshore operations experience
- Journeyman-level skills in assigned position (presumes clear roles and responsibilities)
- Pipeline training for special assignments
- SBX-1-specific on-the-job training in assigned position
- Orientation training for newly assigned personnel.

While the Panel found evidence that crew screening was ongoing, a comprehensive formalized program incorporating all of the above elements for crew qualification did not exist.

There are commercially available training programs for offshore platform personnel readily available.

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Recommendations:

1. Develop a SBX-1 crew qualification program which incorporates clear requirements for roles, responsibilities, experience, skills, and training. **(H)**
2. Adequate onboard turnover time must be provided for crew attrition replacements. **(A)**
3. Provide the operating crew with training capability ashore and afloat. **(L)**

IV. MEDICAL PERSON IN CHARGE (MPIC)

Description: SBX-1, with the XBR, is designed to operate at sea for long periods as an independent unit. SBX-1 total embarked crew can be up to 100 men and women. The support ship (DOVE) performs shuttle resupply missions and may or may not be in company with SBX-1. The current MPIC is the Chief Mate who has the most basic medical training and access to “tele-medicine” reach back for advice.

Findings: The MPIC has the qualifications required by the USCG and the embarked crew is medically screened for duty in SBX-1. While SBX-1 is designed to be safe, duty in a seagoing platform with all the systems of SBX-1 has inherent risks and dangers, in addition to the normal illnesses which may occur within the crew. The totally independent nature of SBX-1 operations means that there are long periods when SBX-1 may be out of range of helicopter support for medical evacuation. The support ship does not have better medical support, and may not be in the area. The support ship, which is relatively slow (about 12 kts.) is the alternate means of medical evacuation and embarking a patient is by crane hoist. Initial triage and treatment of injuries or illness will be by the onboard MPIC, with the support and advice of the doctor on the land end of the “tele-medicine” system. The skill level of the MPIC is not sufficient to provide sufficient support to the crew for life threatening illness or injury or to manage the injuries from a major on board casualty.

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Recommendations:

1. The MPIC should be upgraded to an individual who has the level of qualifications of a US Navy Independent Duty Corpsman or a licensed Physician's Assistant. **(H)**

V. HELICOPTER SUPPORT

Description: Helicopters provide a valuable capability to SBX, especially before the ship is permanently moored at Adak. Helos can be employed for routine personnel transfers, logistics support, and perhaps most importantly, MEDEVAC.

Findings: The SBX is fitted with a commercial helicopter landing platform, approved by ABS. It is similar to helo decks used on semi-submersibles in the oil industry world-wide. It is suitable only for daylight use in good visibility. There is no refueling capability. The SBX helicopter deck is designed for use by a 12-passenger European EH101 model helicopter, weighing about 32,000 lbs. The USCG HH-60 is significantly lighter than the EH101. The SBX helo deck has not been certified by NAVAIR. Thus Navy helos will not land on the deck; nor will the USCG. A USCG helo could execute a MEDEVAC from SBX by hovering over the deck and hoisting the injured or ill patient up to the helo. The helicopter provides greater operational capability in higher wind and sea states than does the crane/support vessel. There is currently no plan in place to provide commercial helo service to support SBX on call or on station from Adak. Personnel transfers and replenishment are currently planned to be done by ship's single crane and DOVE. The USCG has helos at Kodiak that could be used for emergency MEDEVAC. However, the minimum transit time to Adak is eight (8) hours in good weather, including time for a re-fueling stop. The USCG also has cutters on patrol in the Bering Sea but they could be hundreds of miles away from Adak when a helo is needed. To date, no helo has landed on the SBX helo deck.

Recommendations:

1. Obtain Navy (NAVAIR) and USCG (AS KODIAK) certification of the SBX helo deck. **(H)**

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2. Conduct Helo refueling and night operations capability trade-off study. **(L)**
3. Contract with a commercial helo operator to rotate SBX personnel and provide other support, at least during the next 16 months (prior to completion of the SBX mooring off of Adak). **(A)**

VI. CREW ROTATION CYCLE

Description: The SBX and its support ship, DOVE, both have two full crews. The crews alternate on a regular cycle with half of each crew being switched at the mid-point of the cycle. The current cycle is 56 days long with one half of the crew being changed every 28 days. After a crew change, half of the crew has been aboard for 28+ days, while the other half has been ashore and must be brought up to speed. By this means, continuity is preserved and lessons learned effectively transferred between crews.

Findings: The length of the crew rotation cycle is a major factor in crew morale. The SBX and DOVE crews are expected to serve in a very harsh climate and to work long hours each day without days off during the work period to provide breaks in the tedium. The current plan is to use the DOVE and the ship's crane for personnel transfers. This will mean that bad weather will sometimes delay transfers and further extend the crew's work period. Crew rotation is further exacerbated by the extended travel time required for the crew to come from their home to Adak. Morale will be hard to maintain. The SBX and DOVE will be competing with the oil industry for mariners. The oil industry is currently in a boom time and is paying top dollar for crew members on semi-submersibles. In the Gulf of Mexico, the standard rotation cycle is 7 days, in the North Sea it is 14 days and in other areas, e.g., Africa and the Far East, it is no more than 28 days. Considering pay rates, weather, and the planned method of personnel transfer (the oil industry uses helicopters almost exclusively), the 56-day rotation cycle will be one more reason that the SBX and DOVE will likely find it hard to attract and keep top quality crew members.

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Recommendations:

1. Consider a 28-day rotation cycle for SBX and DOVE crew members, at least prior to going on the Adak moor. Because of contract modification implications, this issue needs consideration before departing Hawaii. **(H)**

VII. CREW SIZE AND MIX

Description: SBX-1 is a large vessel with an important mission. It's very design, systems, and roles require assurance that operations can be carried out properly, safely, on a 24/7 basis for long periods of time, in a harsh weather environment, at sea or in a remote moored site. There is a substantial preventive and corrective maintenance workload that must be addressed on a continuing basis. Damage control and fire fighting can require substantial amounts of trained manpower at any moment. This vessel has numerous display and automated control stations for operating vital systems such as the electrical plant, ballast system, and propulsion which will require trouble shooting and maintenance. In addition, the vessel has the usual numerous auxiliary systems found on a sea going vessel that require attention such as heating and ventilation, water making, refrigeration, galley equipment, fuel, saltwater service, and drainage systems.

Findings: SBX-1 is certified as a "vessel" and is manned in accordance with USCG requirements. Based on systems and apparent workload there may be selected shortfalls in the manning. Skills in the electronics and general electrical areas seem to be inadequate, for example. It is unlikely that the operating crew will be able to stay abreast of the hull, machinery, and electrical maintenance requirements. While some corrective maintenance is to be accomplished with LRUs, there is not a comprehensive workload evaluated maintenance philosophy. As a national defense asset, damage control of onboard emergencies takes on additional importance, and requires more manpower than minimal manning.

Recommendations:

1. Add an additional general electrician and an electronics technician. **(H)**

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2. Monitor the maintenance workload with further experience and adjust the crew size and skill sets as appropriate. **(L)**
3. Review damage control functions against onboard manning and train mission crew in basic damage control and firefighting functions to augment core teams. **(L)**

VIII. GALLEY AND SCULLERY

Description: Galley and scullery are essentially collocated off the mess deck. Galley food preparation is in close proximity to scullery and garbage handling.

Findings: The close proximity of food preparation to scullery and garbage presents a potential health hazard. Additionally the macerator is reported not to have adequate capacity. There is no provision for a trash compactor to facilitate onboard storage of retrograde trash.

Recommendation:

1. Have independent review of galley operations by Navy food service team. **(H)**

IX. PERSONAL COMMUNICATIONS AND ENTERTAINMENT

Description: Personal communications and entertainment systems provide increased morale and personal real time communications with family and friends while off duty or in times of family emergencies or need. These systems can also be used for crew educational uses. The platform and the mission crews will expect to be provided commercial communications and entertainment systems that they most frequently use when ashore.

Findings: The current recreational room with a combined use as a site for movies and a library does not provide adequate environment for personal communications. Staterooms are not equipped with personal entertainment and communication drops.

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Recommendations:

1. Provide individual stateroom drops for a TV with DVD/VHS player, and an internet access drop. **(L)**
2. Provide a private location on board where the crew can call into the commercial phone system for personal communications ashore. **(L)**

X. ACCOMMODATIONS

Description: SBX-1 is provided with accommodations for 100 people. The accommodations consist of a mix of single and two person staterooms. The crew is comprised of merchant mariners and high tech mission systems personnel.

Findings: Stateroom arrangements on SBX-1 required two person assignments in most cases for the mission crew and the platform crew. The highly technical personnel for the mission crew may not be accustomed to sharing accommodations. Spare staterooms for increased or surge manning requirements are minimal (current manning is 86 and this report recommends adding 6 billets to the onboard count, reducing onboard excess berthing to 8). In many ships with commercial crews, single staterooms are the norm – a morale and recruiting issue. Many operational spaces seem to have excessive volume assigned. Modular staterooms that are pre-fabricated and outfitted are commonly installed on vessels in the commercial world and might be a way to improve the quality of life on SBX.

Recommendations:

1. Review the allocation of space on SBX-1 and determine if additional staterooms could be installed without impacting key mission or platform functions. **(L)**

SECTION 2. MATERIEL READINESS

I. BALLAST SYSTEM

Description: Ballast control is a critical function on any semi-submersible platform. Control system malfunction or operator error can quickly lead to dangerous trim or list with possibly catastrophic results. Highly trained and experienced operators on watch at all times are required in order to respond to casualties or adverse weather in a speedy and correct manner. Industry practice is to have the ballast control position manned 24/7 by a dedicated person.

Findings: The SBX Ballast System is critical for both platform survivability and operations. There is no dedicated system manager or operator. The system is monitored and centrally controlled by the mate on watch on the bridge, who has other duties assigned. The secondary centralized Ballast Control station is located in the Engineering Control Station (ECS). There are local Ballast Control Stations at the top of each SBX corner column. The ballast system in the corresponding quadrant of the ship can be controlled from these control stations but not the entire system. Effective and timely communications and coordination between the actions of the four stations is critical. In case of a bridge casualty, system control would pass to the ECS. There is no on-board simulation of the ballast control system to enable the necessary ballast control expertise to be developed and sustained. There is no evidence that numerous ballast control drills have been performed to date where casualties are simulated and operator responses evaluated. We find it to be critical that control for the ballast system be exercised from only one watch station at a time. The “LODIC” stability model does not reflect actual vessel trim and list. Ballast system has recently incurred a major casualty and needle valves were installed to control valve opening times. The panel believes an independent analysis of the ballast system and recent casualty root cause is required to ensure reliable system functioning.

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Recommendations:

1. Conduct an independent engineering analysis of the whole ballast system to include a focus on the root cause of the recent casualty and validity of the implemented fix. Analysis should take advantage of current offshore industry standards and previous industrial ballast system casualty investigations. Include in the analysis of the Ballast System consideration of thermal expansion of piping runs and the need to accommodate expansion and contraction. **(H)**
2. Identify, train, certify and assign dedicated Ballast Control System operators to provide continuous watch-standing. Only certified individuals operating under the direction of licensed officers should operate the system. Ensure operating procedures provide for ballast system control authority and shifting of control to alternate sites. **(H)**
3. Exercise alternate and remote ballast control stations periodically. **(H)**
4. Install a commercially available Ballast Control System simulator that can be used on-board SBX for operator training in both routine and casualty response scenarios to include stability considerations and limitations. Until simulators are on-board, consider utilizing off-shore industry training facilities. **(A)**
5. Make Ballast Team Operations a mandatory drill as part of crew rotations. **(H)**
6. Resolve “LODIC” Ballast model problems in reflecting actual SBX-1 condition. **(H)**

II. RESCUE BOAT

Description: A rescue boat is a small, light, fast boat capable of being launched quickly to rescue personnel in the water. Many commercial ships of various types and services are routinely fitted with a rescue boat, usually launched from its own davits. SBX will operate independently in harsh environments.

Findings: SBX is currently deployed without a rescue boat. The CONOPS for man overboard is to use a 50-person lifeboat. The current lifeboats are large, slow, and cumbersome. The lifeboat configuration does not lend itself to recovery of a survivor from the water. Recovery of the 50-person lifeboat is a cumbersome and

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potentially dangerous operation. Crews will be rotated at sea using transfer methods that have some risk of man overboard.

Recommendations:

1. Provide a dedicated, quick-launch rescue boat suitable for service in the Northern Pacific and Bering Sea. Consider the crew's recommendations in assessing the best boat type/model and location on SBX. **(H)**

III. SHIP'S CRANE

Description: The SBX is fitted with a single hydraulically-operated crane on the starboard side. It is not a typical, proven semi-submersible ship crane. The ship's crane is used for transferring personnel, provisions, repair parts, and other material. It is also used for refueling from the support ship DOVE.

Findings: The current crane is critical to sustaining SBX at sea for long periods of time and has generally served well to date. The crane lacks the quick response to match Dove deck motions. SBX does not have spares onboard for all the necessary crane computer circuit boards. The SBX crane is a single point of failure and could adversely impact operations. If the crane fails and cannot be repaired in situ by the ship's force, crew rotations and MEDEVACS may be delayed along with planned replenishment evolutions. Winds impact crane effectiveness and it is standard practice to use the SBX topsides to provide a lee when the crane is in use. When SBX is loitering, a lee behind the topsides can readily be created by changing the SBX heading as necessary. When SBX is permanently moored the crane must be positioned on the lee side from predicted winds. Strong winds on the SBX starboard side will effectively prevent crane use. Alternatives considered include:

- A duplicate of the existing crane to gain the advantages of standardization.
- A more responsive crane to avoid the deck strikes that often occur with the current crane as an object is being lifted off the DOVE's deck.

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- A smaller, less capable man-rated portable/mobile backup crane that could be permanently mounted or bolted/strapped down and used, should the current crane be out of commission or unusable.

Recommendations:

1. Provide a quick response, man rated second deck crane for SBX. **(H)**
2. Ensure electronic circuit board spares for existing crane are procured and placed on-board at the earliest opportunity. **(H)**

IV. ELECTRICAL POWER AND MAIN PROPULSION

Description: SBX is outfitted with six of the eight possible SSDGs (split three in each engine room) and four thrusters capable of providing about 10 knots at transit draft and about 4 knots at operational/survivability draft in calm water.

Findings: When operating the currently populated radar at full power and supporting the rest of the SBX electrical requirements, thrusters cannot meet 95% Maximum Continuous Rating (MCR). In this situation, with all six generators on line, SBX can reach 91% MCR. With five generators on the line, MCR drops to 64% and with four generators to only 37%. In excess of 50+ knots of wind SBX will not be able to make headway, even if at 95% MCR. The loss of an engine room or more than one generator places SBX in electrical extremis. SBX operates with four azimuthing thrusters which are always immersed in salt water. The loss of a thruster reduces already minimal propulsion capability (refer to Glosten Associates P6-01-003 of 30 May 2006). Thruster repair can only be accomplished with the installation of large cofferdams or a dry docking.

Recommendations:

1. Add two additional SSDGs. **(L)**
2. Add two additional thrusters. Consider fixed axial thrusters on inboard side of pontoons. **(L)**

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V. ONBOARD LOGISTICS

Description: SBX-1 is a relatively new, complex vessel which has major dependency on automated systems. The current operating history of the vessel has not developed reliable parts usage range and depth data. The general repair philosophy is to repair failed systems with a Line Replaceable Unit (LRU), vice component trouble shooting.

Findings: There is a backlog of spare parts (approximately \$350k+) that has not been ordered or placed on board SBX-1. As systems age, the use of mechanical and electronics parts will increase. There are systems, which while basically adequate for the envisioned service, do not have a total margin that supports components being out of commission for a long time. Routine resupply is by the support vessel, with a potential for a helicopter lift of high priority parts, if within range of available helicopter support. The nature of SBX-1 is to operate independently at sea for long periods supporting the national defense mission of the XBR.

Recommendations:

1. Immediately order and place on board the parts identified and not ordered. **(H)**
2. Ensure that four cylinder heads for the Ships Service Diesel Generators (SSDGs) are on board SBX to support timely crew casualty repair of these vital units. **(H)**
3. Ensure that full electronics spares are included onboard to support the maintenance of the single installed crane and other electronic control systems. **(H)**
4. Ensure highly accurate inventory control of onboard spares. **(H)**
5. Consider onboard 2M repair capability. **(H)**

VI. TEMPORARY EMERGENCY RADOME PRESSURIZATION SYSTEM (TERPS)

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Description: The TERPS system is designed to provide an emergency electrical power source to the radar dome pressurization system, and is in addition to the vessel main and emergency diesel generator electrical power systems.

Findings: The existing TERPS system is a bolted down generator, installed on the weather deck, outside the radar base ring. The TERPS is manually started on the loss of vessel electrical power. The generator is not rigged or protected for operations at sea or for automatic start. The harsh operating environment that will be experienced in the area where SBX-1 is likely to operate will rapidly degrade the reliability of this vital backup system.

Recommendations:

1. Prior to leaving the Hawaiian area and encountering the harsher climates of the Adak MODLOC area, the TERPS systems should be made a permanent installation, protected from the weather. **(H)**
2. The TERPS system should be equipped with an automatic starting system in order to ensure the minimal loss of time and dome pressure in the event of a loss of the vessel main electrical power. **(H)**

VII. ONBOARD MAINTENANCE MANAGEMENT SYSTEM

Description: SBX and DOVE require a sailor friendly onboard maintenance management system suited for minimum manning concept.

Findings: The SBX maintenance recording, scheduling, and planning system (Boeing CIMMS) is not currently populated or effective. The system proposed was not primarily designed for shipboard maintenance. ABS and Merchant Mariners are experienced in numerous onboard maintenance management systems at sea which are designed for a maritime environment. DOVE has an effective maintenance management system provided by the owner. Pace of DOVE operations may be building a maintenance backlog.

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Recommendations:

1. Choose a straightforward maintenance management system. The system should be proven in maritime applications, record maintenance, manpower, and parts usage. In addition the system should schedule and predict future maintenance. Install in SBX at the earliest time. **(H)**
2. Ensure adequate maintenance time for DOVE. **(H)**

VIII. DEPOT LEVEL LIFE CYCLE MAINTENANCE AND REACH BACK SUPPORT

Description: Complex platforms such as SBX require depot maintenance and modernization in order to obtain a 20 year life cycle. Reliable and viable operations of complex systems require access to a wide range of technical talent. In addition there needs to be a long term technical support base that provides in-depth engineering and modernization and depot availability planning.

Findings: At present, despite the intention of providing some Alaskan support and port engineer(s), there is no “planning yard” with in depth staff, documentation, and plans for upkeep and upgrades of the vessel. ABS has identified several structural joints that will fatigue in less than 20 years and require more frequent structural surveys. While there are some indications of the use of technical reach back, there was no evidence of a detailed support plan.

Recommendations:

1. Establish relationship with a commercial shipyard to track SBX configuration, plan depot maintenance, do advance design/prefabrication, and facilitate subcontract for availabilities. **(L)**
2. Document and exercise technical reach back plan for key systems. **(H)**
3. Task the depot planning yard to track structural joint fatigue inspections and status. **(L)**

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IX. TOWING CAPABILITY

Description: SBX is configured with a single towing bridle forward for deployment to DOVE or a towing vessel. The bridle is attached to the forward end of the pontoons which in wave heights in excess of 2.4m (Sea State 4) will be well underwater. SBX is anticipated to operate in a harsh environment.

Findings: SBX will have limited ability to make headway in high winds and seas. Due to electrical power and propulsion limitations, it is essential that SBX can be taken in tow expeditiously when adverse weather and position near land dictates. Deployment of the towing bridle to the towing vessel is a complex operation requiring careful coordination. Hooking up for tow is a critical capability and, in higher sea states (above Sea State 4), will be problematic. TAGOS hulls (similar to the DOVE) were frequently relieved in Northern Pacific missions based on sea conditions.

Recommendations:

1. Include in the CONOPS the concept of early tow to avoid hooking up in bad weather. **(H)**
2. Exercise towing capability at sea periodically. **(H)**
3. Consider second towing bridle on aft end of SBX. **(H)**
4. Consider viability of DOVE sea keeping in heavy weather. **(A)**

X. AS-DESIGNED/AS-BUILT AND DETECTION OF SINGLE POINT FAILURES

Description: Any conversion of an existing vessel is a complex undertaking which includes modifying numerous systems and the associated technical documentation. Design specifications and drawings must translate into production and installation of systems by different activities. The resulting as-built configuration must be checked against the as-designed documentation to ensure compliance, particularly concerning the survivability of the vessel.

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Findings: Recent experience with the SBX ballast system indicates that critical needle valves were not installed and were not identified as missing by at least three activities (shipyard, ABS/USCG and owner). In addition to the ballast system, SBX is highly dependent upon electrical power generation and distribution, fuel, propulsion and saltwater systems. The unfunded requirements/gaps list contains additional items.

Recommendations:

1. Conduct as-designed/as-built validation as soon as possible of primary SBX systems, such as the electrical generation and distribution to major systems, fuel, propulsion, saltwater and ballast systems, to include a failure mode analysis of these primary systems in order to identify any possible single-point failures. **(A)**
2. Conduct a similar ADAB validation and single-point failure analysis of secondary systems over the long term maintenance and repair of the SBX. **(L)**

XI. SBX IS A NATIONAL DEFENSE VESSEL

Description:

- SBX started as a test platform.
- The operating areas were defined and acquisition strategy was established
- SBX is a converted commercial offshore semi-submersible platform certified by ABS and the USCG to commercial design and construction standards.
- SBX is a vital National defense vessel with a critical defense mission.

Findings:

- The USCG documented and certificated SBX as a cargo and miscellaneous vessel. ABS classed SBX as a MODU, and employed equivalent compliance in many areas. The vessel is certified under the Alternate Compliance Program (ACP) of the USCG.
- SBX is transitioning to a fully operational and test asset.

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- This new mission and its corresponding operational requirements increase the importance of risk mitigation and the need to determine specifically where military standards should be applied to reduce operational risks.

Recommendations:

1. Conduct an operational requirements review between the COCOM and the developing agent to ensure a documented agreement on the SBX capabilities and limitations. **(A)**
2. Identify, prioritize, and fund gaps or shortfalls to ensure platform reliability and survivability as a National defense operational vessel. **(L)**

XII. SBX ADAK MOORING PLAN

Description: SBX is planned to operate for significant periods from a fixed mooring site off of Adak. Throughout the year, SBX will be required to get underway. Weather in Adak can be severe and can increase quickly in intensity. The mooring system must be able to maintain SBX in position through a wide range of weather conditions, adjust on short notice and be designed to facilitate periodic underway operations.

Findings: The Adak mooring system envisioned for SBX is currently in design and procurement. Consulting with offshore design experts indicates an active tensioning capability may be a significant feature in order to ensure a safe moor of SBX throughout a range of weather conditions. The envisioned system does not appear to provide for balancing the load on various mooring legs as the weather changes. Installation of windlasses for active tensioning will require major shipyard support. Hookup and unhooking may be unnecessarily time consuming with the currently envisioned system.

Recommendations:

1. Engage a company experienced in designing and installing turnkey mooring systems for semi-submersible platforms offshore to conduct an independent

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analysis of the current design to include a specific look at the requirement for active tensioning. **(H)**

2. Ensure final mooring design is ABS classed. **(L)**

XIII. EMERGENCY HF COMMUNICATIONS

Description: SBX-1 depends on satellite communications for long haul mission and administrative communications requirements.

Findings: While satellite communications are capable of reliable and high data rate communications, they depend on a system of systems to ensure their reliability. The SBX-1 operating profile will have the vessel at sea operating independently for long periods. HF communications has the ability to provide emergency long haul communications capability and is independent of satellite support requirements.

Recommendation:

1. Equip SBX-1 with a basic emergency HF communications transceiver capability before beginning operations in the Adak MODLOC area. **(A)**

XIV. SHIP SERVICE LOW PRESSURE AIR COMPRESSOR (LPAC)

Description: Low pressure air is provided from a single compressor to various services throughout SBX-1. The back up for the single LPAC is the air compressors designed and dedicated to supplying the air pressure required to start the SSDGs.

Findings: The low pressure air system is an important secondary vessel operating system. The single LPAC will require routine down time for maintenance and may suffer a casualty. Loss of low pressure air would mandate the use of the back up systems – the SSDG starting air compressors. Use of the SSDG starting air compressors for other than the intended services in a short term may not be harmful, but in the long term will degrade this primary capability to start additional

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SSDGs. SBX-1 will operate at sea independently for long periods and quick supply support/repair support for the LPAC can not be assured.

Recommendation:

1. Provide a second Ship Service LPAC to allow for routine maintenance and back up to the existing LPAC. **(L)**

XV. WEATHER DECK COATING

Description: The weather decks on SBX-1 are coated with an epoxy system to ensure preservation of the base metal of the deck and to provide a non-skid surface for personnel safety.

Finding: The installed epoxy deck coating system is beginning to fail. This failing condition will only accelerate as the sea conditions and winter weather environment worsens. High traffic areas will see accelerated wear of the system. The failed system will increase the hazard to personal safety for crew members working topside in worsening conditions and will also contribute to accelerated deterioration of SBX-1 topside decks. The more advanced the corrosion and system failure, the more expensive the restoration costs.

Recommendations:

1. Provide SBX-1 with a vacuum grit blast machine and the supplies to enable the crew to undertake some limited weather deck preservation. **(A)**

XVI. COMMERCIAL GPS RELIABILITY AND PRECISION

Description: The SBX-1, with XBR embarked, is a national defense asset and is outfitted with commercial GPS to support vessel safe navigation and position keeping when operating at sea.

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Findings: The commercial GPS does not have the reliable accuracy required for SBX operations and in times of emergency, the access to commercial GPS could be denied. As a key national defense asset and part of the national missile defense capability, SBX-1 should be outfitted with the military defense GPS capability to ensure reliability and improved accuracy. In order to ensure long term reliability and in the event of a loss of satellite link for GPS, SBX-1 should have some reliable back up to ensure safe navigation and adequate position keeping capability. Inertial Measurement Units (IMU) are available in Navy systems and are also available in the commercial market.

Recommendations:

1. Shift SBX-1 GPS from the commercial capability to the military defense GPS system. **(L)**
2. Research the required accuracy and life cycle support provided by a USN IMU or a commercial IMU and provide SBX-1 with an IMU. **(L)**

SECTION 3. OPERATIONAL CONSIDERATIONS

I. COMMAND AND CONTROL

Description: The onboard presence of a licensed Master, a Mission Director, and a Security Officer, coupled with the multiple “owners” or operators of SBX-1 (e.g., MDA, COCOM, Boeing), creates an operating environment ripe for confusion about “who’s in charge”. This situation is compounded by the legal and regulatory framework which governs a documented and certificated vessel with licensed merchant marine operators. This governance includes federal laws and regulations enforced by the USCG and other federal agencies as well as state laws and regulations enforced by the various state agencies. When adding the limitations in electrical power and propulsion, this potential source of command and control confusion may manifest itself when balancing platform operations (such as heavy weather operations, training and maintenance) with externally directed mission payload operations.

Findings: By law, the Master is legally responsible for the operation and navigation of his vessel. The Master is licensed by the USCG and subject to a system of criminal and administrative sanctions which may be applied to his actions in command. The Mission Director is the Combatant Commander’s (COCOM’s) representative onboard and, as such, will be focused on mission performance. The Security Officer is responsible for the protection of this national asset and its personnel. It would not be difficult to envision situations where all three of these leaders may have differing opinions about the appropriate course of action, e.g., during mission operations in degrading weather conditions. A similar situation may exist among the “owners” and operators of the SBX-1 ashore. By experience, the optimal manner to handle these situations is to play them out ahead of time, through tabletop exercises or joint working groups, and document them in a clear, concise manner. A common understanding of the associated roles, responsibilities, and standard operating procedures/rules of engagement is critical for all key onboard leaders.

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Recommendations:

1. Deconflict and document onboard authorities among the licensed Master, Mission Director, and Security Officer, and their relationships to off-board authorities in order to ensure clarity of command and courses of action. **(H)**

II. LIMITING SEA STATE FOR TRANSIT DRAFT OPERATIONS

Description: SBX operations at the transit draft (not ballasted) are limited to significant wave heights less than 2.4 meters (near the top of sea state 4). If the SBX is in transit or loitering in the open ocean and severe weather threatens, the first line of defense is its inherent platform seaworthiness and systems reliability and second, its somewhat limited mobility. While every effort must be made to avoid the storm by transiting out of the area at the best possible speed, this may not be sufficient or possible given SBX mission requirements, existing power limitations, and large sail area/wind resistance. At the transit draft, SBX can make about 10 knots in calm water while at the Operational Draft, SBX top speed is reduced to about 4 knots at best. It should be noted that the transition from transit draft to Operational Draft requires 12+ hours. The limiting wave height for the transit mode is a critical SBX constraint.

Three criteria impose sea state restrictions on transit draft operations. Two are regulatory body (ABS) criteria:

- Slamming on lower cross braces between P/S columns (braces 4m above calm water surface at transit draft - limiting significant wave ht. about 4.1m, i.e., low end of sea state 6)
- Structural fatigue at critical pontoon-column brackets (limiting significant wave ht. about 3.3m, i.e., mid-sea state 5)

The third criterion is set by the XBR design which is susceptible to damage from two failure modes induced by platform motions. They are: (1) acceleration-induced structural damage to the array elements (horizontal and vertical acceleration limits), and (2) corner lift-off (lift-off from the track of the pairs of wheels at a corner of the DPCS). The horizontal-plane acceleration component is significantly more limiting

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than the vertical component and slightly more limiting than the corner lift-off limits. The limiting significant wave height varies with ship heading; the limit is 2.4m in beam seas and rises to greater than 5m in head and bow seas (also in stern and stern quartering seas). However, with no means provided to directly measure the XBR accelerations, wave period, or relative wave heading, the decision was made to write the Operations Manual to instruct the ship's Master to ballast down when the significant wave height (estimated by the Master from the bridge) exceeds 2.4m, regardless of heading. The 2.4m sig. wave height is close to the top end of sea state 4.

The following table summarizes the limiting sea states detailed above:

Limiting Sea States for Transit Draft Operations

Criterion	Limiting Sig. Wave Ht.	Equivalent Sea State
XBR Structural Design	2.4m	Near top of Sea State 4
Structural fatigue at critical pontoon-column brackets	3.3m	Mid-Sea State 5
Slamming on lower cross braces	4.1m	Low end of Sea State 6

Findings:

- Anything that can be done to increase the 2.4m limit, however slightly, will improve the SBX transit operability, including its ability to escape a serious storm.
- It is not practical to try to improve SBX operability at the transit draft by:
 - Radar re-design to raise the sea state limits imposed by platform motions effects on XBR accelerations and corner lift-off.
 - Platform structural modifications to raise the ABS sea state limits,
- The sea state limits for SBX operations at transit draft are specified as simple wave height limits for all vessel speeds and headings. This form of specification requires the operator to estimate by "eye-ball" the wave height of the prevailing ocean waves. Eye-ball estimates combined with absolute wave height limitations do not provide the operator with the intelligence needed to maximize the transit

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operations heading-sea state envelope while avoiding the specific conditions that could cause damage to the platform and/or payload. Safe Operating Envelopes (SOEs) can provide this intelligence to the operator to avoid specific unsafe conditions.

- Operability of the platform at transit draft would be improved significantly by installing wave and acceleration monitoring systems. A wave monitoring system would provide accurate wave height, period and heading information to the Master to allow operations in sea states above 2.4m sig. wave height at headings away from beam seas. In head to bow seas and in stern to stern quartering seas, the ABS structural fatigue limit of 3.3m sig. wave height would then become governing.
- An acceleration monitoring system would be used to directly measure the critical XBR acceleration limits and would likely increase the 2.4m wave height limit in beam seas that is influenced by necessarily conservative assumptions made in the Glosten analysis.
- The significant wave height is less than the 2.4m limit about 61% of the time in the Adak Loiter Area (year-round avg.) and about 48% of the time (year-round avg.) in the transit region (central and eastern Pacific Ocean north of Hawaii). If the significant wave height limit could be raised to 3.3m, the corresponding percentages increased to about 88% and 72%, respectively. Thus, significant gains in transit operability can be achieved by modest gains in the limiting wave height.
- The Operations Manual does not state what draft the SBX should be ballasted to when the limiting sea state for transit draft operations is exceeded (operational, survival, other draft?).

Recommendations:

1. Provide enhanced operator guidance to optimize the SBX-1 transit envelope. Develop and provide an on-board simulator integrating weather forecasts, wave and acceleration monitoring devices, and simulations of the SBX seakeeping performance as a function of draft, heading, speed, and sea state. Present

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results as Safe Operating Envelopes (SOEs) for the platform and payload. Also, use the simulations for crew training both ashore and aboard ship. **(A)**

2. Install wave height sensors so that the ship's Master has firmer knowledge of the actual sea state being experienced at any time (wave height, period and heading). **(H)**
3. Install an acceleration monitoring system to directly measure XBR acceleration limits. This will likely increase the 2.4m significant wave height limit based on the XBR design. **(H)**
4. Determine the effects of exceeding the 3.3m ABS structural fatigue limit. If the consequence is a somewhat reduced fatigue life rather than catastrophic failure, this might be an acceptable course of action for a limited amount of time in order to escape a major storm at transit draft speed. **(A)**

III. SURVIVAL DRAFT OPERATIONS IN EXTREME SEAS

Description: If the SBX is underway at the transit draft or is loitering in the open ocean at the operations draft when a severe storm threatens, an attempt will likely be made to avoid the storm by making the best possible speed at the transit draft away from the storm's track. When the storm cannot be avoided, SBX will ballast to the survival draft and use its excellent seaworthiness to weather the storm.

The SBX Platform will spend the majority of its operating life at the 23.5m Operations Draft, where the platform motions, accelerations, wind loads, and wave loads are minimized. However, at the Operations Draft, the air gap (clearance between the waterline and the wet deck - underside of the cross structure) is also at a minimum (14.65m, 48.1 ft). In waves of the sizes expected in the severest weather conditions, semi-submersibles de-ballast to a Survival Draft (for SBX 2.5 hours from Operations Draft to Survival Draft) to increase the air gap and reduce the occurrence of wet deck slamming. Deck clearance in severe seas is a critical design driver for semi-submersible platforms.

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At the Survival Draft (21.5m), the SBX structural integrity and inherent stability are more than adequate to withstand any conceivable storms in the open ocean and the propulsors can be used to select a favorable orientation to the wind and seas. However, in a severe storm, it is possible that the SBX will not be able to maintain station over the ground, i.e., she will drift slowly downwind, influenced as well by the local seaway and currents. Available propulsion power can be used to minimize the drift rate.

Given the Adak Bering Sea MODLOC, if all or significant thruster power is lost, the drift rate would then be significantly greater and, depending on the directions of the wind, seas, and local current, as well as distance to the lee shore, drifting far enough to reach land becomes a possibility unless taken in tow.

Taking SBX-1 in tow in sea states greater than about Sea State 4 is a risky evolution.

Findings:

- For varying wind and sea conditions, Glostén (as provided in Glostén Report P6-01-003 dated 30 May 2006) has estimated SBX capability to make headway and hold position while performing a mission in December in the Adak loiter area at operations draft with 6, 5 and 4 SSDG sets in operation. The XBR is radiating and there is a full hotel load. An example of the results follows for a 50 knot wind and 10m significant wave height in head seas:

Number of Generators On-line	Approximate Speed Made Good*
6 (91% MCR)	0.5 knots
5 (64% MCR)	0.2 knots
4 (37% MCR)	Drifting downwind

**the above results do not include current effect*

- In the same Glostén Report an estimate was made for SBX-1 free drift rate without propulsion power at the operations draft for a range of wind and wave conditions in December in the Adak Loiter Area. The estimates assume the

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platform is oriented to head seas and wind. As an example of the results, for a 50 knot wind and 10m significant wave height a drift rate of about 3.4 knots is estimated. This estimate does not include current effect which could be additive.

- In the above Glosten Report, an estimate was also made of DOVE's ability to hold SBX-1 in position against a range of wind and wave forces. Assuming that:
 - i. SBX-1 loses all propulsion power at Operations Draft
 - ii. SBX-1 is oriented to head seas and wind
 - iii. DOVE can operate in the full range of wind and wave conditions
 - iv. Tow gear can be connected,the report conclusion is that DOVE has sufficient thrust to hold SBX-1 in position in winds up to 55-60 knots.

- The DOVE may not be able to take the SBX under tow in sea states above Sea State 4 and the two anchors on-board SBX are not designed to hold the SBX in the open ocean against the forces of a severe storm. The SBX anchors could be used to reduce the drift rate of SBX once she got into waters shallow enough for anchoring.

- Definitive guidance to the operator as to when to de-ballast from the operations draft up to the Survival Draft could not be found. In addition, the expected Propulsion and Station-keeping performance characteristics at Survival Draft in the severest weather conditions could not be found.

- Section 3, Issue II identifies the need for comprehensive Safe Operating Envelopes (SOEs) at the Transit Draft to assist the operator. Similar definitive operator guidance in the form of SOEs for the worst-case extreme survival conditions would also be worthwhile.

Recommendations:

1. Provide the operational commanders, ship's master and deck officers with more definitive ship propulsive performance predictions for worst-case extreme survival conditions:
 - Characterize propulsive performance at the Survival and Operations Drafts with full, partial and no propulsion power for a range of wind velocities, wave

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heights and relative headings for the most severe weather conditions; where power is insufficient to maintain headway, estimate drift rates for these conditions. **(A)**

2. Include a section on loss of propulsion power in the SBX Heavy Weather Plan, to include training and exercises. **(H)**
3. With the aid of tests and trials, explore means to enable the DOVE to take SBX under tow in sea states above Sea State 4, and characterize the expected performance of the OSV in these extreme survival weather conditions. **(L)**
4. Identify alternative towing resources and put contracts in place. **(A)**
5. Review the recent offshore industry significant change to use survival conditions with a 1000 year return period as a design check. **(A)**
6. Provide guidance on when to de-ballast from the Operations Draft to Survival Draft. Review new offshore design criteria for air gap as an information source. **(A)**

IV. HEAVY WEATHER / COLD WEATHER PLAN

Description: SBX-1 is a critical national asset, which was originally conceived as a test platform in benign ocean service. The SBX Concept has evolved to include operations in the unforgiving waters of the Northern Pacific Ocean and the Bering Sea in all seasons. While SBX-1's structure is designed to sustain the associated loads at various operating drafts, its propulsion and electrical power distribution systems limit its mobility and seakeeping ability, particularly in heavy weather. For instance, SBX-1, with its significant sail area, has limited ability to make way in high headwinds (50+ knots), normally encountered in this operating area for a significant portion of the year. High winds, heavy seas, low temperatures, fog, snow, hail, and icing conditions are routinely encountered. The Aleutian Islands and Alaska Coast are both rocky and pristine, unforgiving and environmentally sensitive. Consequently, weather forecasts are vital to SBX-1 and mission system performance and operations. It is prudent for any vessel operating in these conditions to have a Heavy Weather/Cold Weather Plan both for vessel and personnel safety, as well as mission effectiveness. This Plan must address all

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anticipated and worst case scenarios (e.g., loss of propulsion, need for additional towing capability) and include clear advice to the Master and crew on expectations and alternatives, to enable them to make timely decisions and take expeditious actions.

Findings:

- No adequate Heavy Weather/Cold Weather Plan or CONOPS guidance currently exists.
- The Heavy Weather Cold Weather Plan should consider de-icing measures (sea chests, top-side, etc...), additional sounding and security watches, provisions of an emergency sea-going tug, and top-side controls must be operable with cold weather clothing on. The plan should be written in sailor language.
- There is no evidence that the crew has trained and exercised for heavy weather or cold weather operations, to include testing of de-icing capabilities and heating system.
- Given the environmental sensitivities and prevailing weather conditions in this region, the Coast Guard 17th District Commander has expressed concerns about SBX-1 operations in the vicinity of the Aleutian Islands.
- There are several authoritative sources of regional weather forecasting; however, there does not appear to be a consistent, directed weather information resource used by the SBX Team.

Recommendations:

1. Develop a credible, stand alone Heavy Weather/Cold Weather Plan, which includes the full range of weather and other elements identified above. **(H)**
2. Train and exercise the SBX-1 and M/V DOVE crews on implementing the Heavy Weather/Cold Weather Plan to include evaluating the inventory of required cold weather clothing. **(H)**
3. Maintain planning and communications with the Coast Guard. **(H)**

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4. The entire SBX Team should utilize a consistent, directed weather forecasting service (COCOM-accepted). Weather information should include current speed and direction, if available for the operating area. **(H)**

V. DAMAGE STABILITY

Description: When SBX is operating at the transit draft, her pontoons are vulnerable to damage by accidental or deliberate collisions or other threat events. Damage of more than one adjacent compartment might result in the damage stability criteria being exceeded and, depending on the extent of flooding, possible platform capsize or foundering. The ship has a longitudinal bulkhead on centerline running the length of each pontoon. Damage is more likely on the outboard side of this bulkhead. Pre-damage liquid loading instructions might be used to reduce the effects of flooding after damage, especially for the outboard compartments in the pontoon. After damage, the ship's officers need guidance on the preferred ballast control measures for restoring ship stability.

Findings:

- The SBX meets the commercial USCG stability standards which call for the ship to withstand the flooding of any single compartment.
- The only multiple compartment damage cases evaluated were cases where the single compartment dimensions were smaller than the specified damage extents noted above, i.e., small tanks. There are five such cases.
- Damage stability with larger damage extents has not been analyzed because the USCG regulations do not require it. Nor have cases where a small penetration occurs directly on a bulkhead between two large tanks, again because the rules do not require it.
- While the USCG damage stability standards are acceptable for commercial vessels, they are not typically acceptable for national defense assets.

Recommendations:

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1. Expand the existing SBX damage stability analysis to consider damage cases that go well beyond the USCG requirements. Evaluate the effects of greater damage lengths at all points along the pontoon (up to 12% of the pontoon length). Consider damage penetrations that flood the long tunnel connecting the forward and after columns. Focus primarily on the transit draft cases, since this is probably where the SBX is most vulnerable to damage effects, but also examine damage of a single corner column at the operating draft. Give primary attention to damage cases outboard in the pontoons, since this is where damage is most likely and the flooding moments are greatest. Specifically, all the combinations of adjacent flooded compartments that cause the stability criteria to be exceeded should be identified. **(H)**
2. Examine in greater detail those flooding cases that exceed to meet the USCG damage stability criteria, but do not cause immediate capsize, to determine whether cost effective physical changes could be made to improve SBX damage stability. **(H)**
3. Review guidance on pre-damage liquid loadings of pontoon tanks to minimize damage effects and incorporate in onboard ship documentation. **(H)**
4. Review guidance on post-damage ballast control measures such as counter-flooding to restore stability to the ship and incorporate in onboard ship documentation. **(H)**
5. Summarize the findings of the expanded damage stability investigation in a form readily understood and usable by the ship's master and deck officers. It is essential that they be fully informed of SBX vulnerabilities and be provided with the best possible guidance regarding pre- and post-damage measures to improve the odds of ship survival in case of damage. **(H)**
6. Make structural subdivision and other ship modifications identified by the studies/analyses of Recommendation 2 in this Section, to improve SBX damage stability. **(L)**

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VI. SBX PHYSICAL SECURITY

Description: SBX ability to defend against off board threat (ramming, vessel borne improvised explosive device, boarding) is limited to .50 caliber machine guns and small arms. There is no provision for defense against a surface to surface missile aimed at the Radome or the superstructure. There is a dedicated security force of 16 personnel onboard at all times.

Findings: The present SBX security systems have no effective stopping capability against a motor vessel such as a large fishing trawler which would have the capability to inflict physical damage in an intentional collision.

Recommendations:

1. Operational Commanders review SBX onboard security ATFP capability against current and future potential threats in the Adak Bering Sea area. **(H)**
2. Consider provision of non-lethal technologies to enhance SBX ATFP. **(L)**
3. Consider a longer range stand-off weapon (2000 yards). **(L)**

VII. SUPPORT VESSEL CONOPS

Description: SBX-1 is supported by a single Offshore Supply Vessel (OSV), currently DOVE. The OSV performs a vital role in transferring personnel / MEDEVAC, replenishing stores and fuel, and retrograding material.

Findings: The OSV DOVE is a single point of failure in the SBX system. If DOVE goes down hard, a backup OSV must be available and brought on-site in time to avoid negative impacts on SBX mission capability and survivability. Offshore commercial industry in general ensures that an OSV is always located in the immediate vicinity of the supported platform.

Recommendations:

1. Investigate the timeliness of backup OSV support in the event of DOVE failure.
(H)

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2. Perform a realistic test to assess the contractual commitments made to provide a timely DOVE backup. **(A)**
3. Consider appropriateness of providing a second OSV so as to ensure support ship is in company with SBX at all times. **(L)**

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ANNEX A. GLOSSARY.

ABS	American Bureau of Shipping
ADAB	As Designed/As Built (drawings)
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AESS	Antenna Equipment Support Structure
BAFO	Best And Final Offer (contracts)
BMDs	Ballistic Missile Defense System
BOE	Basis of Estimate
BOS	BMDs Operations Schedule
BSG	Beam Steering Generator
CEPOA	Corps of Engineers Pacific Ocean Alaska District
CFR	Code of Federal Regulations
CIMMS	Computerized or Contractor Inventory Maintenance Management System
CM	Corrective Maintenance, Configuration Management
COCOM	Combatant Commander
COE	Corps of Engineers
COI	Certificate of Inspection
CONOPS	Concept of Operations
CONUS	Continental United States
CSDU	Column Stabilized Drilling Unit
DNV	Det Norske Veritas
DPCS	Drive Platform Control System
DPS	Dynamic Positioning System
E ³	Electromagnetic Environmental Effects
EIS	Environmental Impact Statement
EMI	Electromagnetic Interference
EMS	Effective Material Strength
ETR	Extended Test Range
FBX	Forward Based X-Band Radar
FBX-T	Forward Based X-Band – Transportable
FOD	Foreign Object Debris/Damage
FONSI	Finding of No Significant Impact
FPCON	Force Protection Condition
GCN	GMD Communications Network
GECIC	GMD Element Coordination Information Center
GFC/C	GMD Fire Control/Communications
GMD	Ground-Based Midcourse Defense
GOM	Gulf of Mexico
HERP	Hazards of Radiation (RADHAZ) to Personnel
HME	Hull, Mechanical, Electrical
IETMs	Inter Active Electronic Technical Manuals
IDT	IFICS Data Terminal
IFICS	In-Flight Interceptor Communications System
ILS	Instrument Landing System
IMO	International Maritime Organization
IMU	Inertial Measurement Unit
INS	Inertial Navigation System
ISM	International Safety Management
MARPOL	International Convention of the Prevention of Pollution from ships
MCR	Maximum Continuous Rating (Thruster Rating)
MEC	Maintenance Execution Center (Formerly MMC)
MMA	Maritime Medical Access

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MMC	Maintenance Management Center (Renamed to MEC on May 12, 2006)
MODU	Mobile Offshore Drilling Unit
MSO	Marine Safety Office (e.g. MSO Anchorage)
NAVSTA	Naval Station
NDT	Non Destructive Test(ing)
NEPA	National Environmental Policy Act
NFESC	Navy Facilities Engineering Services Center
NTE	Not To Exceed
NVIC	Navigation Vessel Inspection Circulars
OFSC	Off-Site Support Center
OPLANS	Operational/Operations Plans
Orange Sheets	SEE "PAC" – Boeing's method of controlling work orders
OSSC	On-Site Support Center
OSV	Offshore Support Vessel
PAC	Positive Access Control (replaced Boeing "Orange Sheets" on May 12, 2006)
PCSS	Prime Contractor Support System
PERPS	Permanent Emergency Radar Pressurization System
PHNSY	Pearl Harbor Naval Ship Yard
PIDS	Prime Item Design Specification
PLI	Pounds per Linear Inch
PM	Preventive Maintenance, Program Manager
PSB	Primary Support Base
PSI	Pounds per Square Inch
QOL	Quality of Life
RADHAZ	Hazard of Radiation
REC	Record of Environmental Consideration
REDCON	Readiness Condition
REX	Receiver Exciter
ROD	Record of Decision
ROE	Rules of Engagement
RSS	Radar Support Structure
SBX	Sea Based X-Band Radar
SBX-1	Column Stabilized Semi Submersible Platform for SBX and Support Systems
SDPE	Signal/Data Processor Equipment
SICO	System Integration and Checkout
SOLAS	International Convention for the Safety of Life at Sea
SOP	Standard Operating Procedure
SSCO	Sub System Checkout
STCW	Standards of Training Certification and Watchkeeping for Seafarers
SUP SHIPS	U.S. Navy Superintendent of Ship Building
TERPS	Temporary Emergency Radar Pressurization System
TIM	Technical Interchange Meeting
UFR	Unfunded Requirement
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
WAM	Weekly Activity Message
WSOPS	Weapon Systems Operations & Support (Boeing Organization)
XBR	X-Band Radar

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ANNEX B. TERMS OF REFERENCE

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ANNEX C. INDEPENDENT ASSESSMENT PANEL MEMBERS

RADM (Ret) Huchting USN (Team Lead)	<i>Former Commander Destroyer & Cruiser, Navy PEO</i>
VADM (Ret) Bien USN	<i>Former Battle Group CDR; DCINCSpace</i>
RADM (Ret) Pluta USCG	<i>Former Coast Guard Safety Engineer & Operations Expert</i>
RADM (Ret) Wyatt USN	<i>Former Navy Engineering Duty Officer & Naval Architect</i>
Mr. Gale SES (Ret) USN	<i>Naval Architect & Ship Design Expert</i>
Mr. Keane SES (Ret) USN	<i>Naval Architect & Ship Design Expert</i>
Mr. James Moorehead	<i>Semi-Submersible Engineer & Platform Operations Expert</i>

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ANNEX D. RECOMMENDATION MATRIX.

Issue No.	Issue Title	Brief Description	Rec No.	Address before leaving Hawaii (H)	Address before Adak Winter (A)	Long Term Mission(L) Readiness
SECTION 1. CREW READINESS						
I	Add'l Shakedown Time	Adequate Shakedown Time	1	X		
		Training Criteria & Metrics	2	X		
		Initial and focused shakedown in good/bad weather	3	X		
II	Systems Ops & Casualty Ctrl Train.	Computer Simulation	1			X
		Time & Incentives for simulation onboard use	2			X
		Equip. lightoff & Casualty Ctrl. Procedures	3		X	
		Up-to-date Tech. Docs.	4	X		
		Improvement of IETM	5			X
III	Crew Qual.	Crew Qual. Program	1	X		
		Onboard Crew Turnover Time	2		X	
		Training onshore capability	3			X
IV	Medical Person (MPIC)	Upgrade and Licensed	1	X		
V	Helicopter Support	Obtain Navy & USCG Helo deck certification	1	X		
		Helo refuel. & night tradeoff study	2			X

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Issue No.	Issue Title	Brief Description	Rec. No.	Address before leaving Hawaii (H)	Address before Adak Winter (A)	Long Term Mission(L) Readiness
SECTION I (Cont.)						
V (cont.)		Contract with Commercial Helo Operator	3		X	
VI	Crew Rot. Cycle	28 Day Rotation Cycle	1	X		
VII	Crew Size & Mix	Addition of gen. Elec. and Elect. Tech.	1	X		
		Adjust. of Crew Size and Skill Set	2			X
		Review Damage Ctrl. & Train Crew in Basic Damage Ctrl.	3			X
VIII	Galley & Scullery	Indep. Review of Galley ops. by Navy Food Svc. Team	1	X		
IX	Personal Comm. & Entertain.	Individual Staterooms	1			X
		Private Location Onboard for Commercial Phone Sys.	2			X
X	Accommodations	Feasibility of Addition of Add'l Staterooms	1			X
SECTION 2. MATERIEL READINESS						
I	Ballast Sys.	Indep. Engineering Analysis	1	X		
		Identify, Train, Certify Ballast Ctrl. Sys. Operators	2	X		
		Exercise Alt. & Remote Ballast Ctrl. Stations	3	X		
		Install Commercial Ballast Ctrl. Sys.	4		X	

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Issue No.	Issue Title	Brief Description	Rec No.	Address before leaving Hawaii (H)	Address before Adak Winter (A)	Long Term Mission(L) Readiness
		Simulator				
SECTION 2. (Cont.)						
I (cont.)		Drill	5	X		
		LODIC Ballast Model Problems	6	X		
II	Rescue Boat	Quick Launch Rescue Boat	1	X		
III	Ship's Crane	Second Deck Crane	1	X		
		Electronic Circuit Board Spares	2	X		
IV	Elec. Power & Main Propulsion	Generators	1			X
		Thrusters	2			X
V.	Onboard Spare Parts	Identify Parts	1	X		
		Four Heads for Generators	2	X		
		Full Elec. Spares	3	X		
		Inventory Control	4	X		
		Onboard 2M Repair Capability	5	X		
VI	TERPS	Perm. Install TERPS	1	X		
		Equip TERPS w/Auto. Start Sys.	2	X		
VII	Onboard Maint. Mgmt. Sys.	Maint. Mgmt Program	1	X		
		Maint. Time	2	X		
VIII	Depot Lvl Life Cycle Maint. & Reach Back Support	Commercial Shipyard	1			X
		Doc. & Exercise Tech. Reach Back Plans	2	X		

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		Track Structural Joint Fatigue Inspections	3			X
Issue No.	Issue Title	Brief Description	Rec No.	Address before leaving Hawaii (H)	Address before Adak Winter (A)	Long Term Mission(L) Readiness
SECTION 2. (Cont.)						
IX	Towing Capability	CONOPS	1	X		
		Exercise Towing Capability	2	X		
		Second Towing Bridle	3	X		
		DOVE Sea Keeping	4		X	
X	ADAB & Detection of Single Pt. of Failure	Validations	1		X	
		ADAB Validation & Single Point of Failure Analysis	2			X
XI	SBX is a Nat'l Vessel	Ops Reqs Review	1		X	
		Gaps & Shortfalls	2			X
XII	SBX Adak Mooring Plan	Company to Design & Install Turnkey Mooring Sys.	1	X		
		ABS Class Final Mooring Sys.	2			X
XIII	Emergency HF Comms.	Basic Emergency Trans.	1		X	
XIV	Ship Svc. (LPAC)	Second Ship Svc. LPAC	1			X
XV	Weather Deck Coating	Vacuum Grit Blast Machine	1		X	
XVI	Commercial GPS Reliability & Precision	Shift GPS from Commercial to Military	1			X
		Provide SBX-1	2			X

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Issue No.	Issue Title	Brief Description	Rec. No.	Address before leaving Hawaii (H)	Address before Adak Winter (A)	Long Term Mission(L) Readiness
		with IMU and Life Cycle Support by USN IMU or Commercial IMU				
SECTION 3. OPERATIONAL CONSIDERATIONS						
I	C2	COCOM	1	X		
II	Limiting Sea State for Transit Draft Ops.	SOEs	1		X	
		Wave Sensors	2	X		
		Accelerations Monitoring Sys.	3	X		
		ABS Structural Fatigue Limit	4		X	
III	Survival Draft Ops. in Extreme Seas	Ship Propulsion Performance Predictions	1		X	
		Loss of Power	2	X		
		Tow	3			X
		Alternate Towing Resource	4		X	
		Survival Conditions	5		X	
		De-ballast Guidance	6		X	
IV	Heavy Weather/Cold Weather Plan	Heavy Weather/Cold Weather Plan	1	X		
		Train	2	X		
		Plan & Comms with USCG	3	X		
		Weather Forecasting Svc.	4	X		
V	Damage Stability	Expand Damage Stability Analysis	1	X		
		Flooding Cases	2	X		
		Pre-Damage Liquid Loading of Pontoon Tanks	3	X		

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Issue No.	Issue Title	Brief Description	Rec. No.	Address before leaving Hawaii (H)	Address before Adak Winter (A)	Long Term Mission(L) Readiness
		Post-Damage Ballast Ctrl. Measures	4	X		
SECTION 3. (Cont.)						
V (cont.)		Damage Stability Investigation	5	X		
		Structural Subdivisions & Ship Modifications	6			X
VI	Physical Security	Ops Cmdr. Review	1	X		
		Non-Lethal Tech.	2			X
		Long Range Stand-off Weapon	3			X
VII	Support Vessel CONOPS	Backup OSV	1	X		
		Test DOVE Timely Backup	2		X	
		Second OSV	3			X

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ANNEX E. BRIEFING

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APPENDIX C



**DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100**

TR

MEMORANDUM FOR COMMANDER, COAST GUARD PACIFIC AREA

SUBJECT: SBX-1 Operations Concept

In response to your letter of March 13, 2006, the SBX Program Manager has prepared the attached response that I believe addresses your concerns. We appreciate your concerns with regard to operating the SBX-1 and support vessels in the vicinity of Adak, Alaska. Your staff has been very cooperative and helpful working with us in multiple venues. Moreover, your assistance has been of great value, bringing local knowledge and maritime experience to support preparations for the SBX-1 arrival in Adak.

To continue our close cooperation, we would like to invite you to participate in a flag officer video teleconference to take place during the SBX FOGO Review in the May 23-25, 2006 timeframe. A close relationship between the Missile Defense Agency SBX team and the U.S. Coast Guard in District 17 is essential and will be key to the success of the SBX-1's national defense mission. We sincerely appreciate and welcome your continued involvement and input.

HENRY A. OBERING III
Lieutenant General, USAF
Director

Attachment:
SBX-1 Operations Concept

cc:
USPACOM J3
USSTRATCOM J3
USNORTHCOM J3
ALCOM J3
JFCC-IMD
CG, 17th District
OPNAV/N86
MSO Anchorage
COMDT (G-PC, G-PR, G-PCV, G-RC, G-RP, G-RPC)

SBX-1 Operations Concept

SBX-1 is a unique and innovative solution to the mid-course radar requirements of the Ballistic Missile Defense System (BMDS). SBX-1 includes a large X-band radar and mission communications equipment placed on a new semi-submersible platform originally intended for the offshore oil industry, but which was modified for SBX-1. The SBX-1 is a self-propelled vessel that will cruise to appropriate areas in the Pacific to support the BMDS flight test program, and will support BMDS defensive operations from the vicinity of Adak (or other open-ocean locations). The key aspects of SBX-1 that assure its seaworthiness are:

- Compliance with all applicable regulations and certifications pertaining to Commercial Cargo Vessels under 46 CFR Subchapter I
- Classed as A1, Column Stabilized Unit for unrestricted ocean service by American Bureau of Shipping, who oversaw the platform modification
- Lessons learned from the 35-year history of platforms in the harsh North Sea
- The inherent stability, safety, and durability of large 5th generation semi-submersible platforms
- Extensive analysis of worse case ocean conditions coupled with scale-model testing, built-in design margins, operational planning, and weather avoidance

Based upon environmentally severe SBX design requirements, acceptable site-specific availability analysis results and associated stability margins indicate the SBX is expected to perform well in the broad Pacific environment. The SBX Platform is designed to survive high (100 year) sea conditions based on entire operating region, including the Aleutian Chain, North Pacific, and Bering Sea.

Adak was chosen as the operating location based on the geometry of the threat ballistic missiles, the defending interceptors, and the desire for the greatest contribution to the defense of the United States. For the Western Aleutians, Adak has outstanding facilities – a protected ice-free harbor with pier space, fuel storage, housing and a large airport. As you are well aware, some of the major drawbacks to the area are its remoteness and the extreme weather. The following information is intended to provide you with background and status of issues you raised in your recent memorandum, reference (a).

- a. Extreme weather. Boeing teamed with the well-respected Naval Architecture Firm, Glostén Associates, to determine whether the Moss CS50 bare-deck platform would support the radar mission. Together they have performed a variety of analyses and tests to examine the structural integrity of the systems and its response to various forces and loads. The results of these analyses were reviewed by the American Bureau of Shipping, US Coast Guard and Oceaneering International, Inc., all with extensive semi-submersible experience. Scale model tank tests were conducted at the Offshore Model Basin, Escondido, CA, and boundary layer wind tunnel tests at

Cermak Peterka Petersen, Inc, Fort Collins, CO to demonstrate the actual platform motions induced by waves and wind. The stability analyses considered weather conditions with wind speeds of up to 55 m/sec (123 mph) and wave heights of up to 32 meters (105 feet). The platform motion studies were based on North Pacific (Climatology Buoy 44011 and 46003) and Bering Sea (Climatology Buoy 46035) using Navy Analytical Surface Ocean Wave Model correlation. The 100-year return wave heights for the North Pacific were greatest at a grid point at 40°N 180°W, 16.88 meters significant wave height or an individual wave height up to 36.2 meters, higher than has been observed at the Adak Loiter position. Test data derived from platform finite element modeling, testing at the model basin and testing in the wind tunnel, confirmed the stability and performance predictions of the platform, both at transit and operational depth. This extensive industry analysis and sea trials in the Gulf of Mexico provide confidence that the SBX-1 operations will be safe in the North Pacific and Bering Sea operating areas.

- b. Replenishment by Offshore Support Vessel. Motor Vessel Dove is on charter to support SBX-1 while operating offshore of Adak. M/V Dove is a large support vessel, 279 feet in length and 3,500 tons, and is equipped with dynamic positioning to aid in safe replenishment. Personnel and cargo transfers are expected in sea states up to sea state 4, and refueling to sea state 5, but the utmost priority is on personnel safety. The platform maintains 60-days of supplies and fuel. Forecast based planning will help to mitigate delays, but conditions at the vessel will dictate whether the transfer is safe, and cancellation of a transfer for safety reasons is always accepted. Extensive SBX-1 at-sea operational testing in the Gulf of Mexico was supported by M/V Dove with routine cargo, personnel and fuel transfers. The SBX-1 operations including hurricane avoidance (40 knot winds) and sea swell to 16 feet – providing confidence in Dove’s capability. Replenishment was carried out in a variety of conditions through sea state 3, building experience and confidence in the crew and equipment. It is worth noting that the M/V Dove has 12,000 horsepower propulsion – about 2/3 the propulsion capacity of SBX-1. An emergency towing bridle is rigged aboard SBX-1 for use if propulsion is lost, and at-sea towing by M/V Dove will be demonstrated.
- c. Station Keeping. An eight-point mooring is planned for installation in Kuluk Bay during the summer of 2007. Until the mooring is ready, SBX-1 will remain underway using its four 4,560 horsepower thrusters to maintain station. SBX-1 will ballast down to a keel draft of 77 feet when on station, reducing its wind area and increasing stability. In this condition, analysis based on the wind tunnel and wave tank testing as well as thruster performance predicts that the SBX-1 cannot make headway when winds reach sustained speeds of 50-55 knots using 95% of the thruster’s maximum continuous rating. Sustained winds are a 10-minute average that corresponds to 65-knot one minute speed and gusts to 80 knots. Higher sustained wind speeds will begin to push SBX-1 downwind, though SBX-1 will be capable of movement at an angle across the wind. Sustained wind speeds will exceed this limit periodically in Adak, so a loiter position was selected 50 nautical miles north of Adak to provide adequate sea room to maneuver during storms. Navy Climatology data for the loiter

area indicates winds from the east or west are more common than winds from the north (north winds would push SBX-1 toward shore). Weather forecasts from Weathernews Inc. and from the Naval Maritime Forecast Center at Pearl Harbor will be reviewed daily to determine if maneuvering for weather avoidance is prudent. Precision Station-keeping is not a requirement for operations.

- d. Medical Evacuation. SBX-1 carries medical personnel, equipment and medicines that meet the requirements of the International Maritime Organization. No less than 4 licensed deck officers are trained as Medical Care Providers and no less than 2 personnel qualified as Medical Person in Charge (MPICs). The personnel are responsible for administering well care, first aid and trauma intervention for all personnel aboard SBX-1. The remote location and these times for medevac prompted an MDA reassessment of on-board medical support required. The decision was made on 30 March to add an additional crew member with the level of competency of a Navy Independent Duty Corpsman. This change will be made as soon as practical. SBX-1 medical personnel are supported by Maritime Medical Access (MMA). MMA provides twenty-four hour/day access to board-certified emergency physicians through association with the George Washington University Medical Center. Upon direction by the physician or when conditions warrant a decision on SBX-1, a person may be medevaced to provide better care at another location. Time to get to shore from the loiter position depends on the available transportation.
- 1) Near the loiter location in the vicinity of Adak, helicopters are not usually available, but might be available aboard a USCG cutter that happened to be nearby. If available, arrival might require 1.5 hours, followed by a 0.5 hour flight into Adak. Note that USCG helicopters will hoist from SBX-1 while underway, not use the flight deck because dynamic analysis for certification is currently not a requirement.
 - 2) Helicopters are stationed at the USCG station at Kodiak (~8 hours in good weather including time for refueling).
 - 3) The dedicated offshore support vessel (OSV) can transport personnel, and SBX-1 has a Reflex Marine FROG for personnel transfer by crane, including personnel in a stretcher. Transportation by OSV will usually require 4 hours transit out to 50 miles, transfer personnel, then 4 hours transit back to Adak.
 - 4) Care at Adak is limited, but there is a clinic and usually a nurse practitioner or physician's assistant on island.
 - 5) Medevac from Adak will be by commercial flight or by air ambulance provided by LifeFlight from Alaska Regional Hospital in Anchorage AK. Choice depends on circumstances and schedule. LifeFlight is expected to arrive at Adak about 5 hours after call, and require about 5 hours to load the patient and return.

Decision to medevac will be made in conjunction with SBX-1's chain of command and USCG District 17. The decision will consider the weather conditions, the support available, and the expected time required for

transporting the patient to better care. USCG situational awareness for vessels transiting near SBX-1 and location of helicopters is critical to the decision process.

- e. SBX-1 Underway Operations. Coordination between MDA, Boeing, Glosten, the Coast Guard and the American Bureau of Shipping on the classification of SBX-1 included the relatively high percentage of time to be spent underway compared to most semi-submersible platforms. As a result of this coordination, SBX-1 is considered an industrial vessel under 46 CFR Subchapter I and specified a regulatory standard that included requirements for cargo ships and for Mobile Offshore Drilling Units (MODUs). Acceptance of this classification is documented by USCG (G-MSE-2) letter dated 11 February 2004. Considerations for cargo ships resulted in such features as the two bow 15-ton anchors which can be used in shallow fair-weather anchorages, something not seen on most MODUs. These anchors are self-deployed and were tested during Builder's Trials. These anchors are not meant to augment the mooring (eight 38 ton anchors) or to be used for loitering in the deep waters north of Adak. The bow anchors can be used in an emergency to help stop SBX-1 in relatively shallow water.
 - f. SBX-1 and M/V Dove Non-Tank Vessel Response Plans (NTVRP). The SBX-1 NTVRP is under development and is now being reviewed by the SBX-1 prime contractor and is expected to be submitted to the Coast Guard next month. M/V Dove NTVRP has been submitted and under review. Review and incorporation of recommended changes are planned to be complete before 1 May 2006.
 - g. M/V Dove Alaska Oil Discharge Prevention and Contingency Plan. M/V Dove's operating company, the SBX-1 prime contractor and MDA have been meeting with the Alaska Department of Environmental Conservation on the oil spill plan for Dove. M/V Dove is currently planned for incorporation into the Adak fuel facility plan, and will use similar preparations and contingency planning as used by tankers bringing fuel to Adak. This plan requires a tug or other workboat to standby to assist Dove or to respond with containment and collection equipment in the case of a spill. Arrangements to hire the support vessel before SBX-1 and Dove arrive at Adak are in progress.
 - h. SBX Antiterrorism/Force Protection (AT/FP) Plan. The SBX ATFP Plan and the SBX-1 Vessel Security Plan includes the use of an armed contract security force. Rules for the use of force are derived from CJCS Instruction 3121.01B and will be the subject of careful training for the security force. The Statement of Work for the contractor Security Force was coordinated with General Counsels for PACAF (for ALCOM), NORTHCOM, MDA, GMD, STRATCOM and PACOM, with all comments incorporated or adjudicated by GMD General Counsel. The plan and procedures will include the notification of key decision-makers aboard the SBX-1 as
-

- i. Loiter position Notice to Mariners. The position north of Adak was selected to provide adequate sea room (as described above), to take advantage of somewhat better sea conditions than south of Adak, and to minimize the transit distance and complexity for M/V Dove. SBX-1 will be operating near the Great Circle Route north of Adak and will have ships passing within surface radar range daily. The candidate operating location south of Adak was near other Great Circle Routes that pass south of the Aleutians and would have had approximately the same number of ships passing. The SBX-1 Deck Watch Officer will maintain a lookout aided by radar and the Automatic Identification System, and will request ships whose closest point of approach is less than a mile to pass clear via bridge-to-bridge radio. The added warning of a Notice to Mariners is welcomed. The loiter location is in international waters and MDA concurs that no exclusion or security zone can be established to bar vessels from safely passing SBX-1 at a fixed distance.
- j. Adak Facility Security Plan. The update for the Adak Facility Security Plan extends the fuel pier plan to piers 3 and 5. The plan incorporates additional contract security guards provided by the Missile Defense Agency. The use of additional guards is the same solution other ships in Alaska use to augment pier security at ports where facilities are not sufficient. The Adak Facility Security Plan and Addendum are planned to be submitted to MSO Anchorage by early May 2006. The contract security guards will be in place before M/V Dove arrives in Adak.
- k. Automatic Identification System (AIS) sites. The situational awareness provided by additional remote AIS sites in the western Aleutians would provide many benefits to the Coast Guard in addition to providing a watch on SBX-1 and M/V Dove. Funding for establishing these sites will be discussed within the Missile Defense Agency's Program Protection and other Directorates.

The Missile Defense Agency will be operating SBX-1 and support vessels in the Coast Guard District 17 area of responsibility while stationed near Adak. While operating from homeport in Adak, the Marine Safety Office in Anchorage will be responsible for inspections and surveys of material condition, management programs, security, crew training and proficiency, and environmental compliance. The Missile Defense Agency is funding one full time position at the Marine Safety Office for administering the SBX-1 voluntary compliance with regulations and Coast Guard inspections to retain a valid Certificate of Inspection for the vessel. This voluntary compliance takes advantage of Coast Guard expertise in these matters for the safe and sustainable operation of SBX-1.

U.S. Department of
Homeland Security

United States
Coast Guard

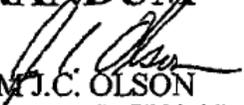


Commander
Seventeenth Coast Guard District

P.O. Box 25517
Juneau, AK 99802-5517
Staff Symbol: d
Phone: (907)463-2025

16000
13 March 2006

MEMORANDUM

From: 
RADM J.C. OLSON
CGD SEVENTEEN (d)

Reply to dre
Attn of: CDR Woodring
(907) 463-2283

To: Brigadier General Marvin K. McNamara
Deputy Director, Missile Defense Agency

Thru: PACAREA (P)

Subj: COAST GUARD INPUT TO CONCEPT OF OPERATIONS FOR SBX-1

1. I recently met with Lieutenant General Fraser of Alaska Command to discuss defense operations in Alaska, including your work with the SBX-1 in Adak, Alaska. I appreciated the opportunity to review the progress that your organization is making on the radar project. My staff has also been actively engaged in many facets of the maritime nexus to SBX-1, including two joint agency working group meetings in Colorado Springs. In an effort to continue our cooperative efforts for the collective good of this project, I offer the following comments and concerns.

2. Operations in the Bering Sea are inherently dangerous as the weather is extreme. In just the past month, two storms with winds of 80 knots, with gusts to over 120 knots, have passed through the Adak region. As a frame of reference, the sea state offshore, in the vicinity of proposed SBX-1 loitering operations, exceeded 30 feet for many days. During the warmer season, fog becomes prevalent in the Bering Sea and along the Aleutian Islands. I urge you to consider safety as your first priority in this hostile environment. This emphasis must be an overarching consideration regarding all operations in the remote and hostile, yet resource rich, environment of the Aleutian Islands.

- a. It is my understanding, based on ship characteristics, that the SBX-1 is not capable of maintaining station, nor will the DOVE be capable of providing support, under these somewhat routine inclement weather conditions. Based on the proximity of the SBX-1 operating area to the Aleutian Island chain, this lack of station keeping ability presents an imminent safety threat to the platform, her crew, and the pristine environment of the Aleutian Islands. My concern is whether or not SBX-1's dynamic positioning capabilities are robust enough for the current operational plans. Having pre-determined storm avoidance plans, and well tested oil spill response plans in place for a worst case scenario, will be critical.
- b. Reprovisioning, transferring personnel, and refueling the SBX-1 in this area of operations will present many safety challenges. Your contractors report the capability of reprovisioning in up to Sea State 4 (approximately 8 foot seas), which will cancel many regularly scheduled operations in the winter months as seas often run in excess of 20 feet for long periods of time. A careful risk analysis of the sea condition before any transfer operations would be prudent as I consider safety of life at sea my highest priority.
- c. The remoteness of Adak also precludes any quick Coast Guard response to medical or other urgent situations: the response time of a helicopter from Coast Guard Air Station

Kodiak is approximately eight hours. While a cutter is always on patrol in the Bering Sea, it may be several days before it could arrive on scene to render aid.

- d. Lastly, my staff is consulting with the American Bureau of Shipping (ABS) classification society which has had significant involvement with SBX-1 regarding plan review and vessel inspection. I understand that the ABS evaluation and approval for many facets of its operation were done under the premise that SBX-1 was to operate in the moored mode. With the current shift to operations under the loitering mode, some of the approvals need to be revisited. For example, the anchor configuration onboard SBX-1 was designed to augment the fixed eight-point mooring system being permanently installed in Adak harbor. The onboard anchors are insufficient for offshore loitering operations and will probably not stop the vessel's movement by themselves.
3. Alaska's pristine environment is second to none when it comes to clean wilderness lands and productive sea waters. To help protect that environmental legacy, we maintain a prevention based focus on environmental response to pollution incidents in Alaska.
 - a. Based on a waiver from Coast Guard Headquarters, DOVE is considered a non-tank vessel despite carrying 600,000 gallons of fuel. Federal legislation was passed in 2004 requiring Vessel Response Plans for non-tank vessels, but regulations have not yet been published. Until regulations are in effect, the Coast Guard can issue interim authorization letters to operate if the owner or operator of a non-tank vessel submits a plan proving the availability of the necessary means to respond to a worst case discharge from their vessel. These requirements apply to the contract vessel DOVE. Since Coast Guard inspection of the government owned SBX-1 has been requested, it is expected that SBX-1 will also comply with this law. I am pleased to note your voluntary compliance in drafting an oil spill response plan for the SBX-1, and as required by law, for the contractor operated supply vessel DOVE.
 - b. The State of Alaska passed laws governing carriage of oil spill response equipment on non-tank vessels in 2001. It is my understanding that you have been in contact with the State of Alaska and are discussing State of Alaska contingency planning requirements for the DOVE. I note here for your awareness, that existing State plans do have requirements for tug availability in Adak. The fact that there currently are no tugs permanently present at Adak might have negative impacts on vessel operations subject to these requirements.
 4. The Anti-Terrorism Force Protection (ATFP) plan for the SBX-1 and the ship's own regulatory required Vessel Security Plan are integral parts of the asset protection. These plans are related but separate in nature.
 - a. The ATFP plan addresses the self-defense of the SBX-1. My staff informs me that a contract security force will be utilized for ATFP and I strongly urge you to very carefully outline the legal authorities for use of force associated with ATFP of a government owned vessel by contract security personnel and corresponding rules of engagement. Of particular concern is that one of the proposed area of operations for the SBX-1 will be within the Great Circle Route (GCR) for commercial vessels transiting to and from Pacific Rim nations. Many of these vessels will be transiting within close proximity of the SBX-1 when operating in the GCR. Fail safe ATFP procedures and in-depth training of this security team will be vital.
 - b. The Vessel Security Plan is regulated by federal law, and is required for the security of the ship. My inspectors from Marine Safety Office Anchorage will exercise this plan with the

vessel crew during their inspections of SBX-1. At the proposed loitering position of SBX-1, it is not possible for the Coast Guard to establish a Security Zone or "exclusion zone" for other vessels. My staff can issue a Broadcast Notice to Mariners warning shipping in the region of the presence of the SBX-1 and requesting they remain well clear of that position.

5. The shore-side facilities in Adak will require new Facility Security Plans under the Maritime Transportation Security Act (MTSA). The facility in Adak has been operating under a waiver due to its low security risk and consequence factor, as it relates to the impact on critical infrastructure. With the addition of the DOVE to the local community, the facility will no longer be allowed to operate under this waiver. Your staff and mine are working on this issue, and a new Facility Security Plan has been promised to Marine Safety Office Anchorage by 20 March 2006. As with the seaborne plans, the shore-side ATFP plan for the DOVE is a separate entity. Your staff has recently visited Adak and is developing tactics and procedures for shore-side security of DOVE.

6. The ability of the Coast Guard in District Seventeen to monitor the status and location of SBX-1 is crucial to our situational awareness and ability to respond. My staff advises me that we will be able to monitor the current location of SBX-1 via intelligence tools that we currently use. In addition to monitoring the position of SBX-1, it would benefit all parties to have the ability to monitor the DOVE and any other vessel traffic in the area that might pose a threat to SBX-1.

7. District Seventeen currently has Automatic Identification System (AIS) sites established in Unimak Pass. The addition of AIS sites in Adak and Attu would provide all parties with an awareness of commercial vessel traffic over 300 GTs in the region of SBX-1, which will be very near the heavily traveled Great Circle Route. Funding of these two new AIS sites is not currently available to the Coast Guard. I hope you will give serious consideration to funding for these additional AIS detection and monitoring sensors in the Aleutian Islands. District Seventeen would be willing to monitor any information provided by sites in these locations and input it to national sensor systems as we do currently with data from our AIS sites in Unimak Pass.

8. District Seventeen stands ready to support this National Defense project. With the shift from moored operations to loitering operations, there are some serious maritime and vessel related issues to be pursued which will ultimately ensure successful SBX-1 operations. Do not hesitate to call my point of contact, Commander Marcus Woodring at 907-463-2283, who can direct specific questions to subject matter experts under my command.

#

Copy: NORTHCOM J3
ALCOM J3
PacArea (Pr, Pp, Px)
MSO Anchorage
COMDT (G-PC, G-PR, G-PCV, G-RC, G-RP, G-RPC)

Appendix D

The Usenet SBX Chronicle

Shemya?

From: Allen Thomson

Date: Thurs, Nov 22 2001 2:24 pm

Email: thoms...@flash.net (Allen Thomson)

Groups: rec.aviation.military, alt.war.nuclear

Is anything happening wrt construction of the NMD X-band radar on Shemya? It seems to have disappeared from the news early in the summer.

Reply

From: flamebow

Date: Thurs, Nov 22 2001 9:28 pm

Email: "flamebow" <TomFlammi...@aol.com>

Groups: rec.aviation.military, alt.war.nuclear

I think the lawyers decided that it was OK to start moving Dirt, expectd that they would pour some concrete for footers before it got too cold.

Allen Thomson wrote in message

<501f9880.0111221124.22186...@posting.google.com>...

>Is anything happening wrt construction of the NMD X-band radar on
>Shemya? It seems to have disappeared from the news early in the
>summer.

X-band radars, Shemya, Cobra Gemini
All 15 messages in topic - view as tree
From: Allen Thomson
Date: Sun, Mar 17 2002 5:39 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: alt.war.nuclear, sci.military.naval

The X-band ABM tracking and discrimination radar that was supposed to be built on Shemya seems to have disappeared from the news and any official documentation -- budgets, CBDs, etc. that I can find. The latest non-appearance is in the Ground-Based Midcourse environmental impact statement, available at <http://www.acq.osd.mil/bmdo/bmdolink/html/newrel.html#envir.ANC> .

This has sections on Shemya, but only the L-band Cobra Dane seems to be mentioned.

So. Is there something out there I've missed (it's happened many times before) that indicates the X-band radar is still intended to be built on Shemya in the next few years?

And, if not, (this gets to the s.m.naval part) what's Cobra Gemini doing these days?

X-band radars, Shemya, Cobra Gemini
From: Allen Thomson
Date: Mon, Mar 18 2002 3:45 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: alt.war.nuclear, sci.military.naval

> So. Is there something out there I've missed (it's happened
> many times before) that indicates the X-band radar is still
> intended to be built on Shemya in the next few years?

Aha. Persistence, though it's a drag, sometimes pays:

<http://www.senate.gov/~stevens/legspeech012202.htm>
Senator Ted Stevens'
Address to the
Alaska State Legislature
Juneau, Alaska
January 22, 2002

[snipissimo]

The X-band radar at Shemya and the deployment of 100 defensive missiles at Fort Greeley will be delayed until the integration of this defensive system is tested. The Hawaiian X-band radar, previously scheduled for use with the Navy system which has been canceled, will be used along with a few test defense missiles fired from Fort Greeley or Kodiak.

Full scale deployment will not occur until the research and development phase has validated the system as a whole.

I'm getting the impression that the Administration has pushed the "reset" button on ABM. Which is probably the right thing to do at this point. It inherited a mess, and a clean sheet approach is indicated.

X-band radars, Shemya, Cobra Gemini
From: Allen Thomson
Date: Mon, Mar 18 2002 5:17 pm
Email: thoms...@flash.net (Allen Thomson)

Even more aha! I'm not sure where all this is going, but it appears as there have been various stirrings beneath the surface for the past year or so concerning Shemya and how it plays in future ABM questions.

From <http://www.clw.org/coalition/nmdnews031301.htm>

Lawmakers Urge Comprehensive Approach On Missile Defense"
Aerospace Daily - March 13, 2001
Marc Selinger

Two leading missile defense advocates in Congress are urging the Bush Administration to avoid moving ahead with construction of a land-based system until it assesses other options, including sea and space-based systems.

In a March 7 letter to Defense Secretary Donald Rumsfeld, Sen. Jon Kyl (R-Ariz.), a senior member of the Senate Select Committee on Intelligence, and Rep. Curt Weldon (R-Pa.), a senior member of the House Armed Services Committee, wrote that building a radar site on Shemya Island, Alaska, for a land-based system without an announcement on other systems could be "exploited" by National Missile Defense opponents to head off other options.

"Russia might utilize the opportunity to agree to the single site and only the single site if public perception was that the Alaska complex represents the extent of our efforts," the lawmakers wrote. "Similarly, allied nations opposed to NMD could be expected to seek to freeze the U.S. program if it appears that the Alaska site has priority" in the Defense Dept.

Sen. Thad Cochran (R-Miss.), chairman of the Senate Governmental Affairs international security subcommittee, said in a Senate floor speech last month that construction of the Shemya radar should begin immediately because the radar will take longer to build than other parts of a land-based system (DAILY, Feb. 23).

Kyl and Weldon said the Shemya radar is necessary for a single-site, land-based system, "even as we remain concerned about its eventual vulnerability," and that Navy studies on a sea-based NMD have assumed that the Shemya radar would be built. But they argued that "a case can also be made" for early deployment of a sea-based system using radars on ships. They said the U.S. could build upon the experience gained from operating the Cobra Judy radar, a ship-borne missile tracking radar used to verify compliance with arms control agreements.

"We ask only that you make any decisions about Shemya Island within the context of a far broader program, and that, if there is a Shemya component, it be clear that it cannot be disaggregated from the other system components," the lawmakers wrote.

DOD is reviewing missile defense as part of its force structure review, according to Deputy Defense Secretary Paul Wolfowitz (DAILY, Feb. 28). Pentagon spokesman Rear Adm. Craig Quigley said late last month that no decision had been made on the Alaskan radar DAILY, Feb. 23).

Missile defense developments in Alaska

From: Allen Thomson

Date: Tues, Apr 1 2003 1:53 pm

Email: thoms...@flash.net (Allen Thomson)

Groups: sci.military.moderated

http://www.alaskajournal.com/stories/032403/loc_20030324002.shtml

New brigade brings in \$1.2 billion

By Tim Bradner

Alaska Journal of Commerce

Web posted Monday, March 24, 2003

[EXCERPTS]

Deployment of one of the Army's new mobile Stryker brigades in Alaska will bring 2,430 new military personnel to the state and require \$1.2 billion in new construction to support the brigade, Lt. Gen. Howie Chandler told the state Legislature's Joint Armed Services Committee in Juneau March 11.

Chandler is the senior military officer in Alaska and is in charge of the Alaska Command, which encompasses Air Force, Army, Coast Guard, National Guard and reserve units in the state.

[deletia]

Chandler discussed other Alaska-related military and defense issues. Missile defense facilities at Fort Greely, at Delta east of Fairbanks, will include 16 interceptor missile launch silos instead of five planned originally, he said.

The X-Band missile defense radar originally planned at Shemya, in the Aleutians, has been moved to a "sea-based platform" on Navy ships, he said. The Navy is still considering where to home port some of the vessels involved, and is considering Valdez and Adak, Chandler said.

X-band radars, Shemya, Cobra Gemini
From: Allen Thomson
Date: Mon, Apr 1 2002 12:36 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: alt.war.nuclear, sci.military.naval

Another perhaps indicative exchange happened last July, during a Pentagon press conference:

http://www.defenselink.mil/news/Jul2001/t07142001_t0713mda.html
Special DoD Briefing on Missile Defense Program and Testing
Presenter: Lt. Gen. Ronald T. Kadish, Director, BMDO
Friday, July 13, 2001 - 1:30 p.m. EDT
[EXCERPT]

Q: X-band radar on Shemya, what's the schedule, what's the criteria now for going ahead and doing that?

Kadish: The X-band radar on Shemya is still in the planning stages, and we will review -- my intention, subject to the secretary's approval, is to provide a decision point at every opportunity to do the radar at Shemya.

And that's all a part of the architectural discussions.

Q: It's not a cost issue? Because --

Kadish: It's always a cost issue --

Q: -- you know you're going to need it, right? Or do you not know you're going to need it?

Kadish: We know we need X-band radars, and we have to go through confidence-building in our test program as well as the architectural discussions of where we want to put these things, because one of the things we're looking at, as outlandish as it might seem, is putting that very large radar on a mobile sea platform. And we've got to look at whether or not that makes any sense.

So that -- the best way to answer that is that that will be a decision that will continually be reevaluated and made when it's ready to be made.

Random thought: It would be interesting to get the Cobra Judy replacement schedule. Also find out where the ship/platform is going to be built.

Sea-based X-band Radar

From: Allen Thomson

Date: Sat, Jan 11 2003 1:49 pm

Email: thoms...@flash.net (Allen Thomson)

Groups: sci.military.naval

There's an artist's concept of the MDA sea-based X-band radar that's supplanted, at least for now, the one previously planned for Shemya at <http://raytheonmissiledefense.com/matrix/pdfs/dis/sbx.pdf>

Sea-based X-band Radar

2 From: Jack Linthicum

Date: Sat, Jan 11 2003 6:10 pm

Email: jacklinthi...@earthlink.net (Jack Linthicum)

Groups: sci.military.naval

thoms...@flash.net (Allen Thomson) wrote in message

<news:501f9880.0301111049.5c775ed2@posting.google.com>...

> There's an artist's concept of the MDA sea-based X-band radar

> that's supplanted, at least for now, the one previously planned

> for Shemya at <http://raytheonmissiledefense.com/matrix/pdfs/dis/sbx.pdf>

Is that thing on some sort of built-up platform? Is it located in the same general area as Shemya?

Sea-based X-band Radar

3 From: Tom Schoene

Date: Sun, Jan 12 2003 9:06 am

Email: "Tom Schoene" <tascho...@starpower.invalid>

Groups: sci.military.naval

"Jack Linthicum" <jacklinthi...@earthlink.net> wrote

> Is that thing on some sort of built-up platform? Is it located in the same general area as Shemya?

It's on an oil production platform. I believe the rig shown is actually Moss Sirius, an unfinished semi-submersible floating production platform that Boeing is converting for an unspecified purpose for the US Government.

See Tim Colton's 4 December report here:

<http://www.coltoncompany.com/comment/comment2002q4.htm>

and a picture of the rig here:

http://www.rigzone.com/data/rig_detail.asp?RIGID=1707 (you'll have to register)

It's intended to be mobile (with tugs), which is what makes it more attractive than building a fixed-base radar on Shemya.

Sea-based X-band Radar

4 From: Andrew Toppan
Date: Sun, Jan 12 2003 12:41 pm
Email: Andrew Toppan <actop...@gwi.net>
Groups: sci.military.naval

On Sun, 12 Jan 2003 09:06:10 -0500, "Tom Schoene"
<tascho...@starpower.invalid> wrote:

>It's on an oil production platform. I believe the rig shown is actually
>Moss Sirius, an unfinished semi-submersible floating production platform
>that Boeing is converting for an unspecified purpose for the US Government.

Odd. Is this supposed to be part of a mobile ballistic-missile defense system, or a convenient way of avoiding treaties, or a way to build a radar without getting the environmentalists cranked up? Or something else entirely?

I never would have believed a US government conversion of a Russian-built rig....but then again, who would believe oil rigs being assembled in Maine for Brazilian owners?

Sea-based X-band Radar

17 From: Allen Thomson
Date: Sun, Jan 12 2003 4:29 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

"Tom Schoene" <tascho...@starpower.invalid> wrote

> It's on an oil production platform. I believe the rig shown is actually
> Moss Sirius, an unfinished semi-submersible floating production platform
> that Boeing is converting for an unspecified purpose for the US Government.

A very interesting discovery indeed. The thing was built in Russia, is currently parked in Norway; a second such CS-50 platform appears to be ready to be launched this year. See <http://www.vyborgshipyard.ru/news.shtml> for some additional pictures and specs.

Random question: if this is in fact the SBX platform and will need to be fitted out in the US, can it then go through the Panama Canal to get to the Pacific test range, or will it have to go the long way around (east or west)?

Sea-based X-band Radar

18 From: Andrew Toppan

Date: Sun, Jan 12 2003 4:53 pm

Email: Andrew Toppan <actop...@gwi.net>

Groups: sci.military.naval

On 12 Jan 2003 13:29:46 -0800, thoms...@flash.net (Allen Thomson) wrote:

>Random question: if this is in fact the SBX platform and will need

>to be fitted out in the US, can it then go through the Panama

>Canal to get to the Pacific test range, or will it have to go the

>long way around (east or west)?

Way too big for Panama. The site you mentioned gives an overall width of around 70 meters = 225 feet. (that's the deck width, not the pontoons, but clearly more than double the width of the canal.)

Things like this usually move on the largest deckships - towing is too slow and risky, except for the bare hull.

Sea-based X-band radar

5 From: Allen Thomson
Date: Tues, Apr 1 2003 1:35 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

The map shows the six sites labeled as Adak [AK]; Naval Station, Everett [WA]; Naval Base, Ventura County [CA]; Pearl Harbor [HI]; Reagan Test Site [Marshall Islands]; Valdez [AK].

<http://the.honoluluadvertiser.com/article/2003/Mar/09/ln/ln04a.html>

Hawai'i could get missile-tracking radar

By William Cole

Advertiser Military Writer

Posted on: Sunday, March 9, 2003

[EXCERPTS]

- *Map: X-band radar sites*

[http://the.honoluluadvertiser.com/dailypix/2003/Mar/09/ln04a_b.gif]

Hawai'i could be home to a powerful missile-tracking radar built on a floating platform as part of the nation's missile-defense program.

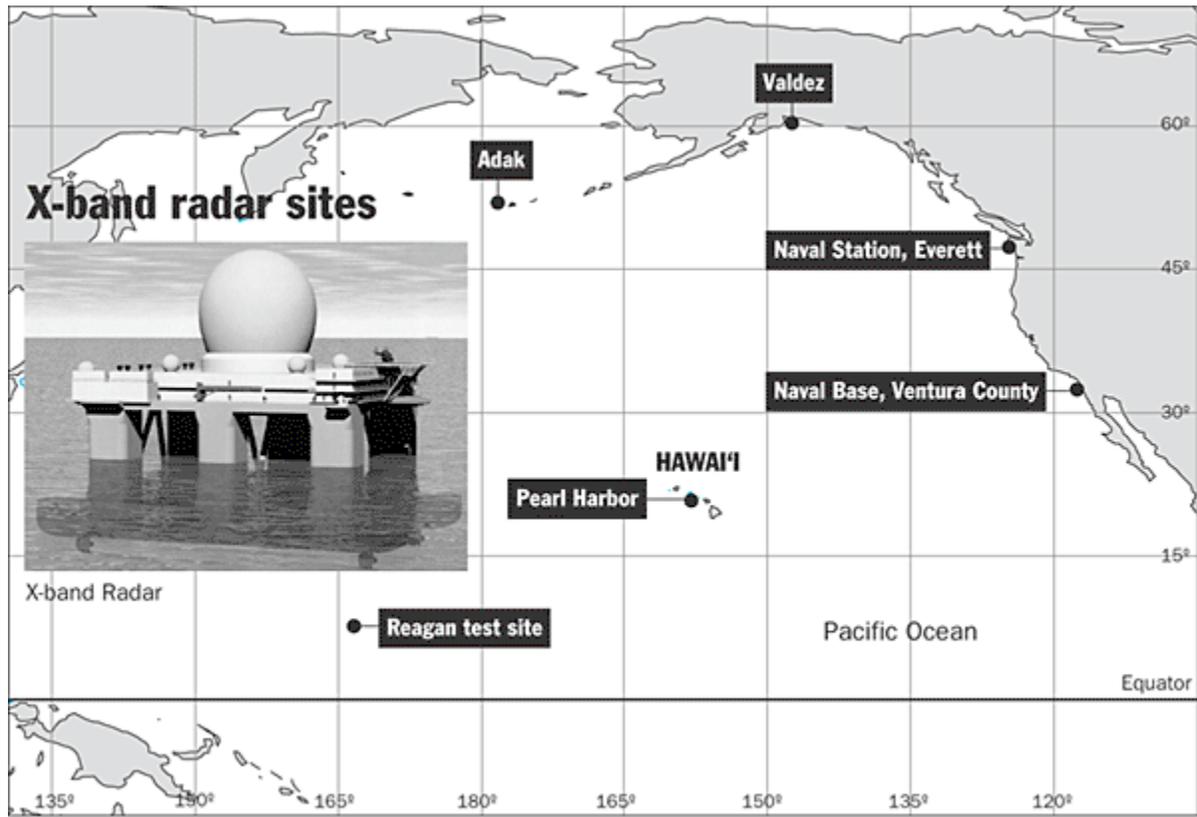
The radar is part of a project from the Missile Defense Agency to target and intercept ballistic missiles in flight as a ship- and ground-based defensive shield.

The Sea-Based Test X-Band (SBX) radar platform, about the length of a Navy frigate, would spend up to nine months moored either in the Pearl Harbor area or three miles off the old Barbers Point naval base at Kalaheo, and would be moved to one of three operational areas in the northern Pacific. It would have a crew of 50 and about another dozen shore-based personnel.

Five other locations for the radar platform are being considered, including California, Washington state, the Marshall Islands, and two sites in Alaska...

[Navy officials] said the radar would be tested 20 times a month for 10 to 20 minutes at a time while in mooring.

[Deletia]



Sea-based X-band radar

6 From: Allen Thomson

Date: Sun, Apr 6 2003 12:12 pm

Email: thoms...@flash.net (Allen Thomson)

Groups: sci.military.naval

<http://www.heraldnet.com/Stories/03/4/6/16768255.cfm>

Published on HeraldNet on Sunday, April 6, 2003

Crowds question SBX plan

300 seek answers on radar's home port

By Scott Morris

Herald Writer

[EXCERPTS, much deletia]

EVERETT -- Defense officials had to parry an array of incoming questions from a turnout crowd of about 300 regarding recent notification that Naval Station Everett is one of six possible locations for a new ship-sized missile defense radar platform.

Three officials from the Defense Department answered questions from residents in two 90-minute sessions Saturday about the new Sea-based Test X-band Radar, or SBX, which is being developed to help detect and target incoming intercontinental ballistic missiles.

Among the many concerns, the crowd seemed most rankled by the fact that the first public meeting in the region for an environmental impact statement was in Seattle, not Everett, in October.

David Hasley of the U.S. Army Space and Missile Defense Command in Huntsville, Ala., said the meeting was held in Seattle because, at the time, a few other local sites, including Bremerton, were still being considered and Seattle seemed the most central location.

Now, the sites have been narrowed to Everett, two in Alaska, and one each in California, the Marshall Islands and Pearl Harbor.

Hasley said the SBX was not being considered when the process started in March 2002. But months later, "high-level decisions" were made that the SBX be brought in quickly.

Navy Comdr. Robert Dees said the report primarily focuses on environmental impacts, and because the crew is only going to bring 80 new workers to the area, the socioeconomic impact associated with growth on a city of 90,000 people would be minimal.

Dees indicated that Everett still had some advantages for the military.

"It's a tossup whether here or Pearl Harbor is the most financially feasible," Dees said.

But Pearl Harbor's drawback, he said, is that it is close enough to Honolulu International Airport that the radar might interfere with aviation operations.

Richard Jones of Mukilteo worried that the SBX's powerful radar might interfere with local aviation, but Dees said the radar equipment falls within federal specifications.

Others raised health concerns associated with electromagnetic radiation similar to that of power lines. Halsey said research is inconclusive, and the concerns are being minimized because the SBX radar will not be on full power when it is in port.

A decision on the project is expected by this summer. Dees said the SBX could be built and ready to arrive in whichever port is chosen as early as April or May 2005.

Sea-based X-band radar

7 From: Allen Thomson

Date: Thurs, Apr 10 2003 11:32 am

Email: thoms...@flash.net (Allen Thomson)

Groups: sci.military.naval

> *A decision on the project is expected by this summer. Dees said the*
> *SBX could be built and ready to arrive in whichever port is chosen*
> *as early as April or May 2005.*

Or later:

<http://usinfo.state.gov/cgi-bin/washfile/display.pl?p=/products/washf...>

09 April 2003

U.S. Missile Defense Program "On Track," Agency Director Says

General Ronald Kadish testifies before Senate panel April 9)

(9160)

Distributed by the Office of International Information Programs,

U.S. Department of State. Web site: <http://usinfo.state.gov>)

The U.S. missile defense program "is on track" and "we have the confidence to proceed with plans for an initial defense capability," says Lieutenant General Ronald Kadish, director of the Missile Defense Agency.

In testimony April 9 before the Senate Appropriations Committee's Defense Subcommittee, Kadish said...

[megasnip]

An important element in this effort is the mobile Sea-Based X-Band radar (SBX), which we plan to build by September 2005 to greatly improve both testing and our initial defense capability.

[repeated somewhat later as]

We also plan to build by September 30, 2005 a Sea-Based X-Band Radar(SBX) to improve the testing regime and enhance initial missile defense system performance.

1 From: Allen Thomson
Date: Thurs, May 22 2003 12:55 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

I'll be darned. Apparently the SBX conversion of the Moss Sirius is going to be done here in Way South Texas, just down the road from where I live. We'll have to go there next week and watch the arrival.

<http://www.portofbrownsville.com/Maritime/ArrivalDetail.asp?id=716>
<http://www.coltoncompany.com/shipbldg/contracts/orderscommercial.htm>

For SBX, see
http://raytheonmissiledefense.com/matrix/pdfs/broc/md_broc.pdf
<http://raytheonmissiledefense.com/matrix/pdfs/dis/sbx.pdf>

The international aspect of this, BTW, continues;

http://www.oilpubs.com/oso/yard/yard_162.htm
Texas-based AMFELS is part of the Keppel Offshore & Marine group headquartered in Singapore.

2 From: Allen Thomson
Date: Sat, May 24 2003 11:15 am
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

In writing up a note to a local TV station to try to stimulate them to cover the arrival of the Moss Sirius at the AMFELS dock next Thursday, I found something that is a bit puzzling. Maybe contract-savy folks here can comment.

The initial contract for SBX to Boeing was announced on 21 November 2002:

http://www.dod.gov/news/Nov2002/c11212002_ct592-02.html

*CONTRACTS
MISSILE DEFENSE AGENCY*

The Boeing Co., Anaheim, Calif., is being awarded a cost-plus-award-fee modification to contract HQ0006-01-C-0001 in the amount of \$30,000,000 for acquisition of long-lead items associated with the radar, as well as associated labor costs. The Boeing Co. will continue to develop a Test X-Band Radar (XBR) capability in support of the Ground-Based Midcourse Defense Program as a multi-phased acquisition. Subject to completion of environmental analysis, this modification is necessary to ensure that a Test XBR is ready to be integrated into the Ballistic Missile Defense System Test Bed in the fourth quarter of fiscal year 2005. Raytheon Electronic Systems, a major subcontractor, in Bedford, Mass., will primarily perform the effort. Phase one of the Sea-Based Test XBR effort was awarded during the fourth quarter of fiscal year 2002.

*****None of these funds will be used to acquire the sea-based platform,***** in accordance with direction contained in the Joint Explanatory Statement accompanying the conference report for H.R. 5010 (P.L. 107-248), the fiscal year 2003 Department of Defense Appropriations Act. The Missile Defense Agency is the contracting activity (HQ0006-01-C-0001).

*****Emphasis***** added)

But just a couple of weeks later, we have

<http://www.coltoncompany.com/comment/comment2002q4.htm>

"WHO'S GOING TO DO THE MOSS SIRIUS CONVERSION? Boeing is planning the conversion of an incomplete semi-submersible floating production unit (FPU) for use by the U.S. Government in some unspecified role. Glostén Associates are the naval architects on the project. The vessel is the bare-deck hull Moss Sirius, which was built in Vyborg, in Russia, and is currently laid up in Sandefjord, in Norway: it was designed by Moss Maritime and built by them on spec. This will obviously be a major project, with a total value not unadjacent to \$200 million, and will be a real plum for someone. And if it's for the USG, it's got to be done in a U.S. shipyard."

So who can handle it, given that the Moss Sirius is 389 feet long by 231 feet wide by 133 feet deep? See details of the design at the Moss Maritime web site and see a picture of the actual rig at the RigZone web site.

Tim Colton, December 4, 2002.

Then on 27 January 2003, serious money got added to the Boeing contract:

http://www.defenselink.mil/news/Jan2003/c01272003_ct037-03.html

CONTRACTS MISSILE DEFENSE AGENCY

The Boeing Co., Anaheim, Calif., is being awarded a cost-plus-award-fee modification to contract HQ0006-01-C-0001 in the amount of \$747,540,194 for completion of the development of Sea-Based Test X-Band Radar (SBX) capability. The Boeing Co. will continue to develop a Test X-Band Radar (XBR) capability in support of the Ground-Based Midcourse Defense Program as a multi-phased acquisition. This modification is necessary to ensure that a Test XBR is ready to be integrated into the Ballistic Missile Defense System Test Bed in the fourth quarter of fiscal year 2005. Raytheon Electronic Systems, a major subcontractor, in Bedford, Mass., will primarily perform the effort. Phase one of the SBX effort was awarded during the fourth quarter of fiscal year 2002, and an effort was announced in November 2002 for acquisition of radar long-lead items and associated labor costs. The Missile Defense Agency is the contracting activity (HQ0006-01-C-0001).

Notice there is no explicit mention of the platform.

Now, the Moss Sirius is a CS-50 barebones platform, which apparently costs in the \$30-\$40 million range, <http://www.therussiajournal.com/index.htm?obj=4113> , and it was built on spec for Moss

Maritime, which one may presume made a profit in selling it to Boeing. Say Boeing paid \$40-\$50 million. (Would that be a reasonable profit for Moss???)

OK, getting toward the end of this, the initial MDA estimates were that the entire SBX project would cost about \$900 million:

http://www.armscontrol.org/act/2002_09/sea_sept02.asp

MDA estimates that completing the project will total \$900 million.

Now, adding up the numbers, we have, in millions,

21Nov2002 \$30 -- long lead radar items *not* including platform
04Dec2002 \$200 -- platform modification amount reported
27Jan2003 \$748 -- to complete radar, no specific mention of platform
????????? \$50 -- estimated cost to buy Moss Sirius
29May2003 ? -- Moss Sirius arrives in Brownsville (How much does
it cost to tow such a platform from Norway to
Texas?)

Anyone care to parse this in terms of budget and schedule?

3 From: Tom Schoene
Date: Sun, May 25 2003 7:27 am
Email: "Tom Schoene" <tascho...@earthlink.invalid>
Groups: sci.military.naval

"Allen Thomson" <thoms...@flash.net> wrote in message
news:501f9880.0305240815.31b3adb9@posting.google.com

> In writing up a note to a local TV station to try to stimulate them
> to cover the arrival of the Moss Sirius at the AMFELS dock next
> Thursday, I found something that is a bit puzzling. Maybe contract-
> savvy folks here can comment.
> Anyone care to parse this in terms of budget and schedule?

I'll have to check the specific timing, but I believe the provision in the FY 03 appropriation said funds could not be expended on a sea-based radar platform until some time after DoD delivered to Congress a report on the comparative merits of sea and land basing. Presumably the first award came before that report.

4 From: Allen Thomson
Date: Sun, May 25 2003 8:25 am
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

> MDA estimates that completing the project will total \$900
> million.

> Now, adding up the numbers, we have, in millions,

> 21Nov2002 \$30 -- long lead radar items *not* including platform
> 04Dec2002 \$200 -- platform modification amount reported
> 27Jan2003 \$748 -- to complete radar, no specific mention of platform
> ????????? \$50 -- estimated cost to buy Moss Sirius
> 29May2003 ? -- Moss Sirius arrives in Brownsville (How much does
> it cost to tow such a platform from Norway to
> Texas?)

Thinking about this small puzzle further -- where did the money for buying and modifying Moss Sirius come from? -- it occurs to me that another slightly odd thing about the platform procurement may be related.

That is, nobody that I know of has officially said that the Moss Sirius is going to be used for the SBX; not MDA, not Boeing, not AMFELS, not Gloston Associates. The 12 Dec news item said, "Boeing is planning the conversion of an incomplete semi-submersible floating production unit (FPU) for use by the U.S. Government in some unspecified role." The Port of Brownsville arrival announcement just says that the Moss Sirius is coming to AMFELS for "repairs."

This is uncharacteristic -- the procurement is worth at least \$200 million, is going to be a major part of the ballistic missile defense test system and will support an emergency operational capability. Surely the instinct of companies getting part of such an award would be to issue press releases, put stuff on their Web pages to advertise their success. Indeed, as far as the radar part of SBX goes, that's exactly what Raytheon has done. It seems that the parties involved with the Moss Sirius conversion have been told, presumably by MDA, to keep quiet about it.

Why the coyness about the platform and its funding?

I have a suspicion(*) what the answer might involve, but would welcome comments from the readership.

(*) 31 USC 1341, maybe 41 USC 10a

5 From: Allen Thomson
Date: Thurs, May 29 2003 1:25 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

I notice in the Port of Brownsville arrival information that the Moss Sirius is arriving under US flag. I'm profoundly ignorant of the arcana of flagging, but would guess that the MS acquired US flag status (whatever that actually means) sometime in the past several months.

Is there anywhere one could find out just when that was done, perhaps other associated information?

6 From: Allen Thomson
Date: Tues, Jun 10 2003 1:02 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

> Now, the Moss Sirius is a CS-50 barebones platform, which apparently
> costs in the \$30-\$40 million range,
> <http://www.therussiajournal.com/index.htm?obj=4113> , and it was built
> on spec for Moss Maritime, which one may presume made a profit in
> selling it to Boeing. Say Boeing paid \$40-\$50 million. (Would that
> be a reasonable profit for Moss???)

Thanks to the kindness of a virtual friend, the following is provided, apparently from some sort of investment newsletter dated 1 April 2003:

A submersible hull is to be used as a radar installation, and other future military possibilities are being considered. Moss Arctic Production's newbuild 5th-generation semi hull Moss Sirius has been sold to the US government for about \$ 63 million. The rig had been stacked at Sandnesfjord, Norway, following hull construction. The hull, capable of supporting 20,000 t, has been constructed to bare-deck level and had been marketed as either a drilling or production unit. The vessel now will likely be outfitted and used as a radar installation according to the Offshore International Newsletter

On the Usenet scale of accuracies, I'll say \$63M is indistinguishable from \$50M.

7 From: Allen Thomson
Date: Fri, May 30 2003 1:13 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

FWIW and for the record, I just called the Port of Brownsville harbormaster's office about Moss Sirius; it arrived an hour ago, at 12:15 CDT 30 May 2003.

8 From: Allen Thomson
Date: Sat, May 31 2003 2:23 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

Aha. It turns out there is a fair amount of information on SBX in <http://www.acq.osd.mil/bmdo/bmdolink/pdf/etr3.pdf> , PDF pages 95-105. These are pages 2-17 through 2-27 of the original, which is

Ground-Based Midcourse Defense(GMD)
Extended Test Range (ETR)
Draft Environmental Impact Statement
Volume 1 of 2: Chapters 1-3
January 2003
U.S. Army Space and Missile Defense Command
Missile Defense Agency

Various factoids in it, some confirmatory of what has been surmised, some new:

"The sea-based platform would be an existing commercial platform manufactured [sic] by Moss Maritime of Oslo, Norway."

"The sea-based platform would be retrofitted at an existing shipyard on the U.S. Gulf Coast. It is possible that some retrofit operations could be completed at a shipyard on the U.S. west coast following transit from the Gulf Coast shipyard. These shipyards have not yet [as of Jan 2003, presumably] been determined, but they would be facilities that are already familiar with large-vessel activities."

"After arrival at the shipyard, the platform would be fitted out with a variety of subelements that would allow it to function as a self-propelled seagoing radar. [Subelements listed in table]

"The Radar Support Structure (RSS) and Drive Platform Control System (DPCS) would be assembled at the shipyard with its materials being transported either by truck or barge... At the fabrication site, low power calibration of single elements and subarrays plus low power radiation for systems checkout before integration on the platform would be performed. Full power emissions are defined as emissions from all elements in the array and occur during all other calibration, tracking and mission tasks."

"The initial sea trials would take place in the Gulf of Mexico. These tests are designed to ensure maneuverability and control of the vessel... During the integrated platform testing, full power radiation for satellite and calibration tracking would be performed."

"The SBX would be self-powered, with a nominal cruising speed of approximately 11 to 13 kilometers per hour (6 to 7 knots) with two 3.5 MW thrusters. Due to the large "sail area" created by the XBR radome, actual cruising speeds would be affected by prevailing wind conditions. A 7-month test period

would begin with the trip around South America to the Pacific Ocean. The Panama Canal cannot accommodate the width of the completed SBX platform. The transit time would create opportunities for testing...

"Periodic test emissions for satellite and calibration device tracking would occur. In transit, the SBX would stop at predetermined locations, the FAA would provide notice to affected airports and aircraft through a NOTAM, marine traffic would be notified through a Notice to Mariners (NOTMAR), and then the SBX would conduct the test.

"More than one escort ship may accompany the SBX during transit around South America and during testing."

"In between GMD test missions the SBX would return to a Primary Support Base (PSB) for crew rotations, resupply, and maintenance activities... It is expected that the SBX would continue to operate the XBR while near or at the PSB. The operation would include system testing, calibration and tracking of satellites. Radar emissions would occur in 15- to 20- minute periods totaling approximately 1 hour per day."

[Map shows three areas where SBX would operate during GMD tests: west of Vandenberg, south of Kodiak, northeast of Kwajalein.]

SBX CONOPS, FBX

1 From: Allen Thomson
Date: Tues, Jun 17 2003 3:16 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval, sci.military.moderated

Contrary to what I'd thought, MDA's Sea-Based X-band radar (SBX) does seem to be only/primarily for mid-course tracking and discrimination. What's also interesting is that the picture shown on p.8 of <http://www.raytheon.com/finance/docs/03aic/franklin.pdf> indicates that the crucial post-boost decoy/RV dispensing phase is to be observed by a "Forward-based X-band Radar" (FBX) which, if the cartoon is to be believed, looks like a version of the THAAD radar(*). It also means that the SBX could be parked much farther from the ICBM launch point than I'd supposed, which is undoubtedly a good thing for SBX.

Still early days and much could change, but this is an interesting snapshot of missile defense thinking.

(*) I'd think COBRA JUDY II or COBRA GEMINI might also be candidates, depending on the circumstances and geography.

[Sourcebook note: This concept of operations bears on reports of a Caucasus-based missile defense radar that emerged in 2005.]

Corpus Christi for SBX outfitting

1 From: Allen Thomson
Date: Sat, Jul 19 2003 1:10 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

I see in the MDA Final EIS for the GMD Extended Test Range that, after being mechanically upgraded in Brownsville, the Moss Sirius SBX platform is going to Corpus Christi to have the Raytheon radar installed and to do preliminary radar tests in the Gulf of Mexico.

A little googling suggests that the shipyard in/near Corpus likely to do the work is Aker Gulf Marine in Ingleside. I am, however, not at all clear on just what other facilities exist in that area that might be suitable. Information about others would be appreciated.

<http://www.acq.osd.mil/bmdo/bmdolink/pdf/covch2.pdf>

page 2-23

The platform would initially be moored at a shipyard in Brownsville, Texas. After arrival at the shipyard, the platform would be fitted with a variety of subelements that would allow it to function as a self-propelled seagoing platform. These modifications would include installation of the thrusters and preparation for the radar assembly installation. Upon completion of the ship modifications, the vessel would sail to Corpus Christi, Texas, for installation of the radar assembly

SBX conversion cost at AMFELS

1 From: Allen Thomson - view profile
Date: Thurs, Oct 23 2003 9:35 pm
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

<http://www.e4engineering.com/item.asp?id=50330&type=news>

From The Engineer, 23 October 2003
Floating platform tracks incoming missiles
[EXCERPTS]

AMFELS, a member of Singapore-based Keppel Offshore & Marine, has clinched a \$73 million contract from Boeing to outfit a semi-submersible platform [Moss Sirius] being developed for US military use.

The modified oil-drilling platform is being built to support the US Government's Sea-Based Test X-Band Radar (SBX) - part of the Ground-Based Midcourse Defense (GMD) element of the United States' Ballistic Missile Defense System (BMDS) - which will track, discriminate, and assess 'incoming' target missiles.

[snip]

Boeing is the primary contractor for the \$747 million platform system and Raytheon is building the globe-shaped radar, which will be incorporated with the platform in Corpus Christi in 2005.

[mas snip]

For it's part, AMFELS will outfit the bare hull of the platform, construct and assemble the living quarters, and perform electrical, networking and mechanical work and the commissioning of the vessel.

Continuous communications between the platform and shore will be provided via a commercial C-band satellite, using a redundant dual-antenna system designed and furnished by Harris Corporation's Maritime Communication Services (MCS) subsidiary. In September, Harris was awarded a \$7.7 million contract by Boeing to provide systems engineering, integration services, and satellite communications equipment for the SBX program.

SBX conversion cost at AMFELS

2 From: Allen Thomson - view profile

Date: Mon, Oct 27 2003 10:13 am

Email: thoms...@flash.net (Allen Thomson)

Groups: sci.military.naval

Apparently the Boeing/MDA contract with AMFELS really wasn't signed until a week or so ago. Which seems to mean that Moss Sirius has just been parked at the Brownsville shipyard since the end of May. (Anybody know what reasonable-and-customary mooring fees would be for something that size?)

<http://www.spacewar.com/2003/031007045504.svs0v6vj.html>

Keppel Corp. unit in final stages of talks for US defence contract

SINGAPORE (AFP) Oct 07, 2003

Singapore conglomerate Keppel Corp. said Tuesday its US subsidiary, Amfels, is nearing the end of talks to secure a potentially lucrative defence contract with the United States.

"Amfels is in the final stages of negotiations with Boeing," a Keppel spokeswoman told AFP, declining to disclose more details.

The spokeswoman was asked about a report in the online oil and gas publication Upstream saying that Amfels had been awarded a contract to outfit a baredeck semi-submersible hull that will be used as a radar outpost for the US government's missile defence system.

<http://news.keppelfels.com.sg/article.asp?id=696&q=4&y=2003>

22 October 2003

Boeing awards US\$73 million platform contract

to Keppel yard
[EXCERPT]

AMFELS Inc, a member of Keppel Offshore & Marine Ltd (Keppel O&M), has clinched a US\$73 million firm-fixed-price contract for the modification of a platform from The Boeing Company.

The SBX Platform is a self-propelled semi-submersible modified oil-drilling platform developed for the US Government's Sea-Based Test X-Band Radar (SBX) in support of its ground-based midcourse missile defense system.

Mr Tong Chong Heong, Chairman of AMFELS and Managing Director and Chief Operating Officer of Keppel O&M, said, "We are proud that Boeing Company has entrusted us with this project on account of our commitment to and reputation of on-time and on-budget delivery of superior quality projects without compromising health, safety and environment standards."

SBX-II ?

From: Allen Thomson
Date: Tues, Mar 23 2004 9:37 am
Email: thoms...@flash.net (Allen Thomson)
Groups: sci.military.naval

It appears as if Moss Sirius, the Sea-based X-Band Radar platform for MDA, may not be the only such Russian contribution:

<http://www.washtimes.com/commentary/20040322-082828-1000r.htm>

Missile defense milestone
The Washington Times
March 22, 2004
By James T. Hackett
[EXCERPT]

Next year, the big ABM radar now being installed on a seagoing platform on the Texas Gulf coast will sail around Cape Horn to the North Pacific, where it will operate near Adak Island, Alaska. Such a floating radar can go where the threat is greatest and avoids the need for another country to approve a radar base. A second sea-based radar is to be added later, probably in the North Atlantic.

<http://www.upstreamonline.com/news/stats/mkt?section=rigs&page=newbui...>

*Upstream by the Numbers
Tuesday 23.3.2004
[Rigs under construction]
last update: 17 oct updated every quarter*

<i>Owner</i>	<i>Name</i>	<i>Design</i>	<i>Water depth</i>	<i>Year ordered</i>	<i>Yard</i>	<i>Contract/ Price</i>	<i>Ready</i>
<i>Moss</i>	<i>Moss</i>	<i>CS-50</i>	<i>deep</i>	<i>2003</i>	<i>Vyborg, Russia</i>	<i>baredeck 50</i>	<i>Q1 2005</i>

This looks to be a repeat of the Moss Sirius construction, which was begun in early 2001 and delivered to Norway in May 2002.

First light for SBX radar
1 From: Allen Thomson - view profile
Date: Tues, Sep 27 2005 12:28 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval

Note that the testing and deployment scheme for SBX described in the EIS has it doing a set of radar tests in the Gulf of Mexico before setting out for Adak.

+++++

<http://www.mda.mil/mdalink/pdf/05fyi0062.pdf>

05-FYI-0062
13 September 2005
Sea-Based X-Band Radar Transmits First Radar Beam

Air Force Lieutenant General Henry "Trey" Obering, Missile Defense Agency director, announced today that the Sea-Based X-Band (SBX) Radar successfully transmitted a radar beam for the first time on September 11, 2005. Much like an aircraft's first flight, initial radar operation demonstrates that the radar's critical hardware and software components are working together as intended by the design team.

[deletia]

2 From: Allen Thomson - view profile
Date: Tues, Sep 27 2005 3:48 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval

> Note that the testing and deployment scheme for SBX
> described in the EIS has it doing a set of radar tests
> in the Gulf of Mexico before setting out for Adak.

<http://www.news-miner.com/Stories/0,1413,113~7244~3072091,00.html>

Shemya Radar Tracks Missile in Test of Missile
Defense System
By SAM BISHOP News-Miner Washington Bureau
Article Published: Tuesday, September 27, 2005
[EXCERPTS]

A movable X-band radar mounted on a oil drilling platform is undergoing seaworthiness trials in the Gulf of Mexico, [MDA spokesman]Lehner said. It will soon begin a long journey around South America to its home port at Adak Island, 400 miles east of Shemya in the Aleutians. The radar should arrive in early 2006, Lehner said.

3 From: Allen Thomson - view profile
Date: Fri, Oct 21 2005 5:02 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval, sci.space.policy

[s.s.p added because of the satellite bit]

<http://www.mda.mil/mdalink/pdf/05fyi0066.pdf>

05-FYI-0066
14 October 2005
Sea-Based X-Band Radar Achieves Major Milestones

Air Force Lieutenant General Henry "Trey" Obering, Missile Defense Agency Director, announced today that the Sea-Based X-Band Radar (SBX) has completed two major milestones on the path toward integration with the Ballistic Missile Defense System.

Early on October 12, 2005, the X-band radar aboard SBX successfully tracked several orbiting satellites over a 3-hour period. The radar acquired each object and maintained tracks for several minutes, demonstrating this key functionality for the first time.

Achieving this milestone demonstrates the radar software is able to control thousands of individual transmit and receive modules. It represents a significant accomplishment on the part of the SBX team.

On October 14, SBX returned from a successful 52-day deployment in the Gulf of Mexico. While in the Gulf, SBX completed more than 100 major test activities, demonstrating the ability to achieve most major sustainment and operational capabilities including transferring personnel, supplies, and fuel; at-sea maintenance; and the ability to operate at sea for extended periods.

The SBX team maintained a constant watch during the busy hurricane season, and the vessel took evasive action in response to hurricanes Katrina and Rita. The vessel avoided both storms without incident, which serves to further demonstrate SBX's mobility and the team's ability to operate in dynamic circumstances.

SBX is in Corpus Christi, Texas, preparing to depart for the Pacific Ocean and make the long journey around South America to its future homeport in Adak, Alaska in the Aleutian Island chain.

Constructon of 2nd CS-50 begun
From: Allen Thomson - view profile
Date: Mon, Feb 27 2006 12:22 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval

For future reference in case SBX-1 is followed by SBX-2

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<http://www.barentsobserver.com/index.php?id=307243&cat=16149&xforcere...>

Sevmash started construction of Norwegian platform 2006-02-24

The Sevmash construction plant in Severodvinsk (Arkhangelsk Oblast) yesterday officially started construction of a "Moss CS-50" platform for the Norwegian company Moss Mosvold Platforms AS. Sevmash in June 2005 signed a contract on the construction of three platforms. Estimated construction time is 18 months.

The multi-purpose platforms belong to the fifth generation of semi-submersible platforms developed by Moss Maritime. The weight of the platform is 15,000 tons. The size 118x70x40 meters. The platform can be used together with various types of equipment.

Present at the official opening ceremony was head of Sevmash, Vladimir Pastukhov, and his deputy Valerii Boridin, as well as president of Moss Mosvold Platforms, Roy Mosvold, and president of Moss Maritime, Per Herbert Kristensen.

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<http://www.offshore.no/nyheter/sak.asp?Id=11386>

Bestilte rigg i Russland
Publisert: 05.09.2005
Av Bjørn Tore Bjørsvik - offshore.no

Moss Mosvold Platform (MMP) har bestilt et understell til en halvt nedsenkbar rigg ved Russiske Sevmash. Selskapet, som består av en rekke norske og utenlandske investorer, ledet av Mosvold-familien, har så langt bestilt et såkalt baredeck (rent understell, uustrustet), med levering i fjerde kvartal neste år, skriver Dagens Næringslivs papirutgave. MMP har opsjon på to andre understell også, med frist for å erklære den første før nyttår og den andre før neste sommer.

Understellene er tegnet av Moss Maritime og har typebetegnelsen CS 50 MK II. Det koster mellom 50 og 60 millioner dollar per stykk å bygge understellene ved det tidligere marineverftet i Severodvinsk, som også bygde Prirazlomnaya-plattformern. Planen er å videreselge baredeckene for klargjøring til boring eller andre formål, sier avisen.

ABS Class Certification?

1 From: Allen Thomson - view profile
Date: Sat, Jul 8 2006 11:49 am
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval

There's a Boeing pub about the SBX radar platform at
http://www.boeing.com/news/frontiers/archive/2006/april/i_ids2.html

One of the things it says is,

"SBX-1 completed two additional sea trials in the Gulf of Mexico [in mid-2005]. The final sea trial culminated in achieving American Bureau of Shipping Class Certification-required for unrestricted operations of the ship in all open oceans..."

I am totally ignorant of matters concerning class certification, but wonder if this says anything about the civilian vs military status of SBX. Do US warships or other ships dedicated to military purposes receive class certification from ABS?

ABS Class Certification?

2 From: Allen Thomson - view profile
Date: Sat, Jul 8 2006 12:50 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval

> about the civilian vs military status of
> SBX. Do US warships or other ships dedicated to military purposes
> receive class certification from ABS?

FWIW, the Coast Guard, in establishing a security zone for SBX-1 at Pearl Harbor, referred to it as "US Forces Vessel SBX-1" (*). Googling, however, it appears as if the designation "US Forces Vessel" is unique to SBX-1.

The term "Armed Forces Vessel" does appear, often in a regulatory context, so perhaps USFV is an alternate terminology. One definition (**) of AFV is

*"*Armed Forces vessel* means a vessel owned or operated by the United States Department of Defense or the United States Coast Guard, other than vessels that are time or voyage chartered by the Armed Forces, vessels of the U.S. Army Corps of Engineers, or vessels that are memorials or museums."*

(*) See, e.g., <http://www.navcen.uscg.gov/lnm/d14/lnm1402.pdf>

(**)

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div6&view=te...>

ABS Class Certification?

3 From: scott s. - view profile

Date: Sat, Jul 8 2006 8:10 pm

Email: "scott s." <75270_37...@csi.xcom>

Groups: sci.military.naval

"Allen Thomson" <thoms...@flash.net> wrote in news:1152377345.985145.152650@m73g2000cww.googlegroups.com:

> I am totally ignorant of matters concerning class certification, but
> wonder if this says anything about the civilian vs military status of
> SBX. Do US warships or other ships dedicated to military purposes
> receive class certification from ABS?

US Navy ships do not use classification society / ABS certs. They have their own standards, GenSpecs, and the Bureau of Inspection and Survey. USNS ships I believe do follow ABS specs. I think maybe Military Sealift Command uses their own surveyors.

ABS Class Certification?

4 From: Allen Thomson - view profile

Date: Thurs, Jul 13 2006 10:16 am

Email: "Allen Thomson" <thoms...@flash.net>

Groups: sci.military.naval

> about the civilian vs military status of SBX.

<http://www.amo-union.org/newspaper/Morgue/10-2005/Sections/News/sbx.htm>

American Maritime Officer

October, 2005

AMO onboard as SBX radar platform gets underway

[EXCERPTS]

New jobs for union aboard key waterborne element of U.S. missile defense program

A new ocean-going platform carrying the powerful sea-based X-band radar (SBX) was dedicated in July and underwent sea trials in September. The vessel is operated for the U.S. Missile Defense Agency by Interocean American Shipping and manned in all licensed positions by members of American Maritime Officers.

[snip]

"It's noteworthy that the Missile Defense Agency elected to man this vital asset with contract civilian merchant mariners represented by AMO," said AMO National Executive Vice President Tom Bethel. "The role of AMO members in this operation speaks volumes about the reputation of professionalism and reliability our membership has established.

"As the government brings new projects online, we will keep working to expand and diversify the AMO job base, as we have done with the SBX platform," Bethel said.

The dedication ceremony for the vessel was held in late July at Kiewit Offshore Services in Corpus Christi, Texas.

[snip]

The vessel was undergoing sea trials in September and will continue with further trials and exercises before cruising to its homeport of Adak, Alaska.

[snip]

ABS Class Certification?

5 From: Allen Thomson - view profile

Date: Thurs, Jul 13 2006 10:33 am

Email: "Allen Thomson" <thoms...@flash.net>

Groups: sci.military.naval

<http://www.e-vrp.com/sopepvin.asp?DispMode=&Useletter=1&Letter=S&Orde...>

<i>VIN</i>	<i>NAME</i>	<i>PLAN HOLDER</i>
<i>CG722205</i>	<i>SBX-1</i>	<i>INTEROCEAN AMERICAN SHIPPING CORPORATION</i>

SOPEP Details for Vessel SBX-1

Status: APPROVED

VIN: CG722205

Vessel Type: Other

VRP Number:

Owner: DEFENSE MISSILE AGENCY

Operator (Plan Holder) INTEROCEAN AMERICAN SHIPPING CORPORATION

Plan Holder Information INTEROCEAN AMERICAN SHIPPING CORPORATION

Approval Expires 1/21/2010

Plan Approved 2/8/2005

Received 1/21/2005

Plan Preparer Information

CAPT HARRY ROGERS

TWO ECHELON PLAZA

221 LAUREL ROAD, SUITE 300

VOORHEES, NJ 08043-2349

SBX-1 back in Hawaii
From: Allen Thomson
Date: Mon, Jul 24 2006 3:41 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval, alt.war.nuclear

<http://starbulletin.com/2006/07/23/news/story12.html>

Navy's \$815M radar returns
Vol. 11, Issue 204 - Sunday, July 23, 2006
The giant platform will be repaired at Pearl Harbor
Star-Bulletin staff
cityd...@starbulletin.com

<http://starbulletin.com/2006/07/23/news/art12.jpg>

[Picture caption]: FL MORRIS / FMOR...@STARBULLETIN.COM

The Sea-Based X-Band Radar platform is back in Pearl Harbor. It was seen offshore of Keehi Lagoon during the mid-afternoon yesterday.

An \$815 million Sea-Based X-Band Radar returned to Pearl Harbor yesterday for repairs.

The distinctive radar platform, which looks like a golf ball on top of a coffee table, is 28-stories high -- 10 stories taller than Aloha Tower, and is mounted on a self-propelled semi-submersible platform.

A Navy spokesperson said the ship has been in island waters since January undergoing sea trials.

The Navy did not say how long the radar platform, which weighs 50,000 tons, will be at Pearl Harbor.

The apparatus is part of a missile defense network and is advanced enough to identify baseball-size objects thousands of miles away.

It's designed to travel by sea to any location where the military needs to track missiles.

The radar platform first arrived in Pearl Harbor in January for repairs before heading to Alaska. In late March, the ship left Pearl Harbor, but had to return four days later to fix a leak.

The ship left again in May. At the time, the Navy said it was headed to Alaska.

SBX-1 back in Hawaii

All 9 messages in topic - view as tree

From: Allen Thomson - view profile

Date: Mon, Jul 24 2006 3:41 pm

Email: "Allen Thomson" <thoms...@flash.net>

<http://starbulletin.com/2006/07/23/news/story12.html>

Navy's \$815M radar returns

Vol. 11, Issue 204 - Sunday, July 23, 2006

The giant platform will be repaired at Pearl Harbor

Star-Bulletin staff

cityd...@starbulletin.com

[deletia]

SBX-1 back in Hawaii

From: Henry J Cobb - view profile

Date: Mon, Jul 24 2006 5:22 pm

Email: Henry J Cobb <h...@io.com>

Groups: sci.military.naval, alt.war.nuclear

Allen Thomson wrote:

> <http://starbulletin.com/2006/07/23/news/story12.html>

> An \$815 million Sea-Based X-Band Radar returned to Pearl Harbor

> yesterday for repairs.

Again?

How many of these gizmos do we have to buy so that we can keep one on station at all times?

SBX-1 back in Hawaii

From: Andrew C. Toppan - view profile

Date: Tues, Jul 25 2006 5:27 am

Email: Andrew C. Toppan <actoppan@nospam>

Groups: sci.military.naval, alt.war.nuclear

On Tue, 25 Jul 2006 03:52:02 +0530, Henry J Cobb <h...@io.com> wrote:

>How many of these gizmos do we have to buy so that we can keep one on

>station at all times?

The normal rule of thumb says it takes 4 ships to keep one on station.

With innovative crewing and by avoiding lengthy overhaul periods, it can be done with 3 ships.

2 is the bare minimum, since it's physically impossible for one ship to be 100% available. (even with oil rigs, there is downtime, although the rig remains "on station")

SBX-1 back in Hawaii

From: John Schilling - view profile
Date: Tues, Jul 25 2006 8:12 am
Email: John Schilling <schil...@spock.usc.edu>
Groups: sci.military.naval, alt.war.nuclear

On Tue, 25 Jul 2006 03:52:02 +0530, Henry J Cobb <h...@io.com> wrote:

>Allen Thomson wrote:

>> <http://starbulletin.com/2006/07/23/news/story12.html>
>> An \$815 million Sea-Based X-Band Radar returned to Pearl Harbor
>> yesterday for repairs.

>Again?

>How many of these gizmos do we have to buy so that we can keep one on
>station at all times?

The general rule of thumb is that it takes three warships in the fleet to keep one permanently on station, and even that is pushing it a bit. If you push it a *lot*, you can get that down to maybe 2:1, but it's usually better to just buy the third ship.

SBX-1 back in Hawaii

From: Allen Thomson - view profile
Date: Tues, Jul 25 2006 9:42 am
Email: "Allen Thomson" <thoms...@flash.net>
Groups: sci.military.naval, alt.war.nuclear

Andrew C. Toppan wrote:

> The normal rule of thumb says it takes 4 ships to keep one on station.
> With innovative crewing and by avoiding lengthy overhaul periods, it
> can be done with 3 ships.

> 2 is the bare minimum, since it's physically impossible for one ship
> to be 100% available. (even with oil rigs, there is downtime, although
> the rig remains "on station")

Very interesting -- I'd vaguely wondered about availability, but it's nice to have some concrete numbers to think about.

With regard to SBX being on station, I would think that the Adak anchorage would qualify for NK to West Coast shots; it's not obvious that Hawaii would be close enough to the trajectory. Ideally, SBX should take handoff from FBX (the one at Tsugaru, Japan) as soon after final stage burnout as possible and maintain track up through a minute or two before intercept, when the final IFTU (*) is sent.

Some trajectory modeling to see if and when SBX at Pearl Harbor would see a shot from NK to Seattle or LA might be in order.

(*) In-Flight Target Update message to the kill vehicle

SBX-1 back in Hawaii

From: Allen Thomson - [view profile](#)
Date: Tues, Jul 25 2006 12:33 pm
Email: "Allen Thomson" <thoms...@flash.net>
Groups: [sci.military.naval](#), [alt.war.nuclear](#)

John Schilling wrote:

> The general rule of thumb is that it takes three warships in the fleet
> to keep one permanently on station, and even that is pushing it a bit.
> If you push it a *lot*, you can get that down to maybe 2:1, but it's
> usually better to just buy the third ship.

It will be interesting to see what happens. On one hand, Moss has contracted with the Severodvinsk shipyard for at least one more CS-50 platform. OTOH, it was originally planned to place the X-band radar at a fixed site on Shemya, just down the road from Cobra Dane. If sea-basing the radar turns out to be too troublesome to be worthwhile, I suppose reverting to land-basing might be a possibility. Or, if the MKV project or something like it succeeds, the requirement for mid-course discrimination might diminish to the point large x-band radars aren't needed.

SBX-1 back in Hawaii

From: Derek Lyons - [view profile](#)
Date: Thurs, Jul 27 2006 1:23 pm
Email: fairwa...@gmail.com (Derek Lyons)
Groups: [sci.military.naval](#), [alt.war.nuclear](#)

[deletia]

Much depends on how many stations and how much downtime, etc...

If something like SBX can have it's engines or other components overhauled in situ, you can push the numbers down some. As Andrew said, the trick is to minimize time away from station.

Newsgroups: sci.military.naval
From: eugene@dynagen..co.za (Eugene Griessel)
Date: Fri, 30 Mar 2007 15:02:27 GMT
Local: Fri, Mar 30 2007 10:02 am
Subject: Re: Keeping a station occupied

"Allen Thomson" <thoms...@flash.net> wrote:

>Some time ago the question came up of how many SBX radar platforms
>would be needed to keep one on station over a period of many years. At
>the time, knowledgeable s.m.n. folk said that the rule of thumb in the
>Navy is that three ships need to be available to meet such a
>requirement, two if some risk of nonavailability is acceptable.

>The recent HASC hearings provided an infobit that seems to support
>that, at least in the context of keeping Aegis ships on station:

> ><http://sev.prnewswire.com/aerospace-defense/20070328/DCW15128032007-1...>

> >WASHINGTON, March 28 [2007] /PRNewswire-USNewswire/ -- The House
> >Armed Services Committee Subcommittee on Strategic Forces met last Tuesday,
> >March 27.

> >"The practicality of the third [missile defense] site in Europe was
> >revealed by [MDA director Gen.] Obering as a cost-effective solution
> >as well as offering more coverage capability. According to Obering, to
> >provide mobile coverage of Europe would entail 4 to 5 Aegis ballistic
> >missile capable ships permanently on site and at least the same number
> >of THAAD batteries. To do so, the Navy would have to have a rotation
> >of between 12 and 15 ships in play. The cost for this would be
> >considerably more than the construction and maintenance of the third
> >European site."

It is usually the case, as a rule of thumb, to have three ships to have one permanently on station - but that is a tight fit that allows for no accidents, disasters etc. Three ships usually means one in refit, one in maintenance/leave/training and one on station. Suppose the one on station strikes an underwater object and sinks - it might be possible to get the one undergoing routine maintenance out there within a week or two. Depending at what stage the maintenance is. If you have to guarantee a ship on station at all times then the rule of thumbs was 5 ships needed. Of which, basically, two are hanging around in case something happens to one of the others. You might get away with 4 - but once again you are cutting things fine. We used to run on a refit/drydocking every 18 months with four - to- six week maintenance/training periods at six monthly intervals. Sometimes one could get away with less than the four to six weeks allocated depending on the state of equipment on board but that four to six weeks also meant crew leave. And crew leave is important when you are sitting out there for months at a time seeing buggerall but a replenishment vessel every other week.

There are ultimately no hard and fast rules - all these rules apply differently to each situation.
Depending on what needs covering.

Eugene L Griessel

Appendix E

Construction of Additional CS-50 Platforms and the Possibility of Additional SBX Radars

<http://www.washtimes.com/commentary/20040322-082828-1000r.htm>

Missile defense milestone

The Washington Times

March 22, 2004

By James T. Hackett

[EXCERPT]

Next year, the big ABM radar now being installed on a seagoing platform on the Texas Gulf coast will sail around Cape Horn to the North Pacific, where it will operate near Adak Island, Alaska. Such a floating radar can go where the threat is greatest and avoids the need for another country to approve a radar base. A second sea-based radar is to be added later, probably in the North Atlantic.

http://www.mysanantonio.com/news/metro/stories/MYSA032005.1A.star_wars.155959f04.html

Defense shield built in Texas

Web Posted: 03/20/2005 12:00 AM CST

George Zarazua

[San Antonio]Express-News Staff Writer

[EXCERPTS]

In secluded shipyards near Corpus Christi and Brownsville, government contractors quietly are finishing work on a mammoth piece of space-age weaponry.

The floating radar platform, the only one of its kind in the country, will stand 25 stories and weigh 4 million pounds. It will track incoming warheads so that remote rockets might destroy them.

[deletia]

The government is, however, proposing to reduce spending on missile defense for fiscal year 2006, as well as in subsequent years. On the chopping block is a second SBX radar.

Newsgroups: sci.military.naval
From: eugene@dynagen.co.za (Eugene Griessel)
Date: Fri, 30 Mar 2007 15:02:27 GMT
Local: Fri, Mar 30 2007 10:02 am
Subject: Re: Keeping a station occupied

"Allen Thomson" <thoms...@flash.net> wrote:

>Some time ago the question came up of how many SBX radar platforms would be needed to keep one
>on station over a period of many years. At the time, knowledgeable s.m.n. folk said that the rule of
>thumb in the Navy is that three ships need to be available to meet such a requirement, two if some risk
>of nonavailability is acceptable.

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>keeping Aegis ships on station:

> ><http://sev.prnewswire.com/aerospace-defense/20070328/DCW15128032007-1...>

> >WASHINGTON, March 28 [2007] /PRNewswire-USNewswire/ -- The House Armed Services
> >Committee Subcommittee on Strategic Forces met last Tuesday, March 27.

> >"The practicality of the third [missile defense] site in Europe was revealed by [MDA director Gen.]
> >Obering as a cost-effective solution as well as offering more coverage capability. According to
> >Obering, to provide mobile coverage of Europe would entail 4 to 5 Aegis ballistic missile capable
> >ships permanently on site and at least the same number of THAAD batteries. To do so, the Navy
> >would have to have a rotation of between 12 and 15 ships in play. The cost for this would be
> >considerably more than the construction and maintenance of the third European site."

It is usually the case, as a rule of thumb, to have three ships to have one permanently on station - but that is a tight fit that allows for no accidents, disasters etc. Three ships usually means one in refit, one in maintenance/leave/training and one on station. Suppose the one on station strikes an underwater object and sinks - it might be possible to get the one undergoing routine maintenance out there within a week or two. Depending at what stage the maintenance is. If you have to guarantee a ship on station at all times then the rule of thumbs was 5 ships needed. Of which, basically, two are hanging around in case something happens to one of the others. You might get away with 4 - but once again you are cutting things fine. We used to run on a refit/drydocking every 18 months with four - to- six week maintenance/training periods at six monthly intervals. Sometimes one could get away with less than the four to six weeks allocated depending on the state of equipment on board but that four to six weeks also meant crew leave. And crew leave is important when you are sitting out there for months at a time seeing buggerall but a replenishment vessel every other week.

There are ultimately no hard and fast rules - all these rules apply differently to each situation. Depending on what needs covering.

Eugene L Griessel

<http://www.sevmash.ru/?id=1855&lg=en>



2006-04-11 11:38:38

THE SECOND PLATFORM TYPE CS-50

The agreement with foreign Customer is achieved regarding the building of the second marine semisubmerged platform type MOSS CS-50 on Sevmash. The Contract will be signed in the nearest future.

The first platform for «Moss Mosvold Platforms AS» company (Norway) is laid down on the shipway on the 22nd of February 2006. When the Contract for its building was made in summer 2005, an option for two more platforms was signed. This option proposes the location of such orders on Sevmash half a year apart.

Marine platforms mass production is an ideal variant of conversion for the greatest navy yard, and also a brilliant opportunity to declare about oneself on the world market of oil and gas industry equipment with confidence. At present time Sevmash finishes the building of the first Russian marine offshore ice resistant platform «Prirazlomnaya». Now there is everything for great marine constructions mass production: prepared production basis, proven technologies, trained personnel. The development of marine technics prospective direction on Sevmash is under the leadership of the Deputy General Director Valery Borodin. In his opinion, the building of marine platforms for foreign customers allows us to prepare for participation in the first-rate Russian project – the establishment of units for Shtokmanovskoye gascondensate field development in the Barents Sea.

Michail STAROZHILOV,
Press-cutting service of FSUE «PO «Sevmash».

_The multifunctional platform Moss CS-50 with free deck belongs to the 5th generation of the semisubmerged platforms, established by «Moss Maritime AS» (Norway). The platform of catamaran type is located on two pontoons; the hull is supported by 6 stabilizing columns. The main dimensions are as follows: 118x215;70x215; 40 m, weight is nearly 15 thousand tons. The platform deck can carry the superstructure construction of 20 thousand tons. Any equipment can be placed on the deck – extractive, drilling, craneage, living, depending on the platform destination.

http://www.accessmylibrary.com/coms2/summary_0286-15396144_ITM

Interfax Russia & CIS Metals and Mining Weekly.

Source: Mining & Metals Report

Publication Date: 28-APR-06

SEVERSTAL GETS DET NORSKE VERITAS CERTIFICATE FOR SHIP STEEL. Severstal has received a certificate valid until 2010 from Norway's Det Norske Veritas for its ship-building steel, the Russian steel major said in an April 21 press release.

Severstal rolled a first commercial consignment of the steel out at its Izhora plant near St. Petersburg in December 2005. It shipped a first 1,000 tonnes of sheet to its main customer, Sevmash, which is building a semi-submersible Moss CS-50 MkII drilling platform for Norway's Moss Mosvold Platforms AS, in March.

<http://shipbuilding.ru/rus/news/press/2006/06/19/sevmash/>

Пресс-релиз ФГУП "ПО "Севмаш"
19.06.2006 14:55

С норвежской компанией «Moss Mosvold Platforms AS» заключен контракт на строительство второй полупогружной платформы типа «MOSS CS-50».

[Sourcebook translation: A contract has been signed with the Norwegian company "Moss Mosvold Platforms AS" for the construction of a second semisubmersible platform of the MOSS CS-50 type.]

По договору норвежцы через определенные промежутки времени планировали разместить на предприятии заказы на строительство трех подобных сооружений. Контракт на строительство третьей платформы будет подписан в сентябре.

Контракт на первую платформу был заключен в июне прошлого года, в феврале 2006 года состоялась ее закладка в стапельном цехе. К июлю 2006 года должен быть окончательно определен объем работ, который предстоит выполнить Севмашу по формированию верхнего функционального строения первой платформы. Завершить ее строительство планируется в марте 2007 года.

Для справки: Многоцелевая платформа со свободной палубой Moss CS-50 относится к 5-му поколению полупогружных платформ, спроектированных компанией «Moss Maritime AS» (Норвегия). Платформа катамаранного типа размещена на двух понтонах, корпус поддерживают шесть стабилизирующих колонн. Основные размеры: 118×70×40 м, вес около 15 тыс. тонн. Палуба платформы способна нести конструкцию верхнего строения массой 20 тыс. тонн. В зависимости от назначения платформы на палубе можно разместить любое оборудование – добывающее, буровое, крановое, жилое.

Источник новости: ShipBuilding.ru



Abstracts of newspaper articles from the north-western part of Russia

3. September – 9. September 2005

Novosti Rosii, 2005-09-07

“Sevmash”: New Contract with Norwegian Company

“Sevmash” state enterprise has signed a contract with the Norwegian "Moss Maritime AS" on construction of a semisubmersible platform “Moss CS-50”. The option on construction of two more such platforms was also signed. The first of the three platforms the Severodvinsk enterprise has to build within 18 months, contracts for the second and the third one are due to be signed in 6 months’ intervals, in a 6 months time from the works starting. “Moss CS-50” is a universal platform, it can be used for stationing of various kinds of equipment – mining, drilling, crane or living quarters. Norwegian orders – platforms “Moss CS-50” and tankers for “Odfjell ASA” would full out with work the “Sevmash” capacities for several years, after the “Prirazlomnaya” platform is ready.

http://www.innovasjon Norge.no/TP_fs/Maritim%20utvikling/Maritime%20Newsletter,%20Russia,%20september%202006.pdf



Russian Maritime Newsletter September 2006

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Vladimir Shagun, Market Assistant
Nikolay Shavrov, Station Manager

SAIPEM at SEVMASH 07.08.2006

Delegation from company SAIPEM (Italy) has got acquainted with work progress of semi submerged platforms of MOSS CS-50 type on Sevmash.

SAIPEM (subdivision of transnational power corporation ENI SPA) is one of the small number of world companies, which covers all stages of field operation: drilling, oil and gas production, raw materials transportation, both on the land and on the water. It is well-known as creator of unique submarine gas pipeline "Goluboy potok", which has connected Russia with Turkey.

Multipurpose marine platforms are being built on Sevmash for SAIPEM. Norwegian companies MOSS MARITIME AS and MOSS MOSVOLD PLATFORMS AS are responsible for design and project management.

Contract for building the first platform was signed in June, 2005, the second – in June, 2006. In autumn of 2006 it is planned to conclude contract for the third platform building.

The first MOSS CS-50 was laid down in stockpile workshop in February, 2006, by March of the following year Sevmash plans to complete its building.

The second platform laying down is next in turn.

Monday 6th November 2006

SEADRAGON OFFSHORE GALVANISES UK OFFSHORE INDUSTRY WITH HISTORIC CONSTRUCTION CONTRACT

US\$ 1.5 billion project to address chronic global shortage of deep-water, harsh environment exploration rigs

SeaDragon Offshore (“SeaDragon”), a new owner of semi-submersible rigs, today announced that it has reached agreement with Tees Alliance Group to build the biggest drilling rig construction project to be undertaken in the UK for more than a generation.

Highlights:

- SeaDragon will build one of the world’s largest semi-submersible rigs with an option for two further rigs (“the Project”), with a combined value of circa \$1.5 billion
- The Project will combine the project management skills of the SeaDragon management team, KCA DEUTAG (international drilling contractor and part of The Abbot Group plc), Moss Maritime (leading naval architects), and will utilize the Tees Alliance Group’s construction capacity. The project is backed by debt financing arranged by Lloyds TSB plc
- The rigs will be constructed in Teesside, UK, with the hulls to be purchased from the Sevmarsh shipyard, Russia
- SeaDragon intends to IPO its business in 2007

Commenting on the project, Stephen Baird, Chairman of SeaDragon, said:

“With the significant issue of rig availability in the global E&P industry today SeaDragon will provide three deep water harsh environment semi-submersible rigs in what will be the largest rig construction programme to take place in the UK for a generation.

“SeaDragon Offshore recognised that Teesside through its offshore construction experience can offer the skills to create a world class vessel. Our challenge was to organise and market this capability and simultaneously create sophisticated risk mitigation policies that would make the project feasible and attractive to the banks, investors and charter clients.

We like to think we have been innovative in meeting these challenges and believe this will give SeaDragon the competitive advantage moving forward. SeaDragon Offshore’s strategy is to become a listed oil services company during 2007.”

Background information:

SeaDragon Offshore (“SeaDragon”) today announced that it has reached agreement to build the biggest

drilling rig construction project to be undertaken in the UK for more than a generation.

The newly established company proposes to commission the development of three semi-submersible drilling rigs – built at a total cost of more than US\$ 1.5 billion – with the first rig set to be delivered in 2009.

The SeaDragon project will help to meet increasing global demand for high specification drilling vessels, while marking a hugely significant boost to jobs in the Teesside region of the UK.

The project brings together a highly experienced and innovative management team, working in partnership with the Tees Alliance Group, international drilling contractor KCA DEUTAG (part of The Abbot Group plc), and financial institutions including Lloyds TSB plc.

Designed by world-class naval architect Moss Maritime, the rig hulls will be purchased from the Sevmash shipyard in Russia, and delivered to the Tees Alliance Group, based at Haverton Hill shipyard in Teesside for the fitting out of the topside.

The first hull has already been bought and is due to arrive in the second half of 2007. SeaDragon Offshore is now in the process of securing options on two further Russian hulls and has agreed upon fit out times for two additional vessels from the Tees Alliance Group.

George Sutherland, Chief Executive of SeaDragon Technical Services said: "We are entering a very robust marketplace with our product and are confident that we will secure a number of long-term contracts for high-quality newbuilds in the coming months, a confidence supported by our association with the experience and skilled management team of the people at Teesside Alliance Group."

David Eason CEO of Tees Alliance Group said: "Our locally based group is absolutely delighted with the award of this major Project. Our members, which include Cleveland Bridge and Sarens Cranes, have worked tirelessly to bring this contract to Teesside along with the local MP, Frank Cook. It will secure major employment for locally skilled people in a field of work that has been in recession in this area during the last 8 years. There will be a significant number of new jobs created from both a direct and indirect perspective for the area which must be good news for everybody in Teesside."

Frank Cook MP for Stockton North said: "For over 40 years I have used every possible opportunity to tell anyone who would listen about the superb industrial skills and facilities here on Teesside—and the opportunities available for those with right managerial attitudes and outlook.

"So when SeaDragon and the Teesside Alliance Group asked for my endorsement in the discussions on their plans, I was more than happy to explain my past experience—both during my career within construction project management and subsequently as one of the area's MPs--of how Teesside's talents had been put to use to the benefit of many companies.

Ian Lane, KCA DEUTAG Director, said: "We have been working with SeaDragon for many months in support of this exciting opportunity, and we are delighted to carry out the engineering for these rigs via our RDS Division, and look forward to operating them in the future."

Andy Longhurst of Lloyds TSB Bank said: "Lloyds TSB is delighted to be associated with SeaDragon

and to have closed the financing of their first hull. Our discussions with the management of SeaDragon commenced some 18 months ago. Since then, as we have been working together, we have been very impressed by the energy and drive of the management team. They have persevered on this project and during that time recruited some important industry professionals as well as partnered with key parties in the UK and Norway. We look forward to a long, strategic and mutually beneficial relationship with SeaDragon and wish them continued success.”

David Allison, Director of Business and Industry One North East said: “Today’s announcement is really fantastic news. For the region to have secured such a massive contract, which has the potential to create hundreds of jobs, shows we are a real force to be reckoned with. This is the culmination of over 12 months of effort from the people at the heart of the consortium, and they are to be commended for their determination to bring the project to Teesside. This project aligns closely with the Regional Economic Strategy, which focuses on key areas including the marine sector, where we see, and are pursuing, a number of options.”

Notes to editors:

1. SeaDragon Offshore – factual background to company
2. Tees Alliance Group – factual background on TAG companies
3. KCA DEUTAG, a wholly-owned subsidiary of Abbot Group plc, is a world leader in offshore platform drilling, providing drilling rig design, engineering, construction and operational services, as well as offering jack-up rigs and drilling tenders. KCA DEUTAG also operates a fleet of more than 60 modern land rigs worldwide. KCA DEUTAG employs over 6,000 people and operates in over 20 countries.
4. One North East – background on company
5. Lloyds TSB – background on corporate markets
6. Sevmash – background of company
7. Moss Maritime – background of company and hull design



SeaDragon

SeaDragon Project Overview

Mission:	To create a world class three-rig drilling contractor with leading harsh environment/ultra deep water rigs
Partnerships:	Rig Engineers and Managers <i>KCA DEUTAG (Abbot Group Plc)</i> Senior Bank <i>Lloyds TSB Bank Plc</i> Brokers <i>Pareto Securities (Norway)</i>
Status:	Takes delivery of completed Moss CS50 6G semi-submersible rig hull, October 2007, fit out on Teesside for 2009 "sailaway"
Technical Focus:	Rig construction minimizes financial, construction, delivery, productivity and HSE risk
Commercial Focus:	Rig specification to create maximum flexibility at lowest possible cost
SeaDragon I:	Hull Build Commence: 2006
SeaDragon II:	Hull Build Commence: 2007
SeaDragon III:	Hull Build Commence: 2008

<http://www.seadragonoffshore.com/projects.htm>

SeaDragon Offshore

SeaDragon Offshore is a Cayman Island company, founded in early 2006 as a Special Purpose Vehicle to address the chronic global shortage of deep-water harsh environment exploration rigs.

SeaDragon will build one of the world's largest semi-submersible rigs, with an option for two further rigs, with a combined value of circa US\$1.8 billion.



Model of a semi-submersible using a Moss CS50MKII hull

http://www.akm.ru/jsp/frames.jsp?left=rus/news/news_contents.stm&right=rus/news/2007/february/26/ns1880367.htm

26/02/2007

13:14 Севмашпредприятие заключило контракт на строительство третьей морской платформы Moss CS-50.

[Sourcebook translation: Sevmashpredpriyatiye has signed a contract for the construction of the third Moss CS-50 sea platform.]

[Sourcebook note: This is the third CS-50 to be built at Sevmashpredpriyatiye, the fourth counting the initial unit built at Vyborg and now used for SBX-1.]

ФГУП "ПО "Севмашпредприятие" (Северодвинск, Архангельская область) и норвежские компании Moss Maritime AS и Moss Mosvold Platforms AS заключили контракт на строительство третьей морской многоцелевой платформы Moss CS-50. Об этом говорится в сообщении российской компании.

Контракт на строительство первой платформы стороны подписали в июне 2005 года, второй - в июне 2006 года. Норвежские компании выполняют проектирование платформ и ведут управление проектом, а сами многоцелевые морские платформы строятся для различных нефтегазовых компаний.

Первая Moss CS-50 была заложена на Севмаше в феврале 2006 года. В марте 2007 года понтоны платформы с установленными частями колонн планируется вывести из стапельного цеха. Целиком конструкция будет собрана уже на плаву. К началу навигации предстоит завершить все работы и передать первую платформу заказчику. В ближайшее время будет заложена вторая платформа.

[deletia]

"АК&М" от 26.02.2007

<http://mynews-in.net/news/economy/2007/02/26/1122128.html>

"Севмаш" заключил договор на строительство третьей морской платформы (Архангельская область)

26.02.2007 10:39

Прометалл

Северодвинское оборонное предприятие "Севмаш" и норвежские компании MOSS MARITIME AS и MOSS MOSVOLD PLATFORMS AS заключили контракт на строительство третьей морской многоцелевой платформы MOSS CS-50. Как сообщил корреспонденту ИА REGNUM руководитель пресс-службы предприятия "Севмаш" Михаил Старожилов, в официальной церемонии в Осло приняли участие генеральный директор "Севмаша" Владимир Пастухов, его заместитель по производству морской техники и гражданскому судостроению Валерий Бородин, президент компании MOSS MARITIME AS Пер Кристенсен и председатель правления MOSS MOSVOLD PLATFORMS AS Рой Мосволд. Контракт на строительство первой платформы стороны подписали в июне 2005 года, второй - в июне 2006 года. Норвежские компании выполняют проектирование платформ и ведут управление проектом, а сами многоцелевые морские платформы строятся для различных нефтегазовых компаний. Первая MOSS CS-50 была заложена на Севмаше в феврале 2006 года. В марте 2007 года понтоны платформы с установленными частями колонн планируется вывести из стапельного цеха. Целиком конструкция будет собрана уже на плаву. К началу навигации предстоит завершить все работы и передать первую платформу заказчику. В ближайшее время на "Севмаше" будет заложена вторая платформа MOSS CS-50. Напомним, что северодвинское предприятие "Севмаш" также завершает строительство первой российской морской ледостойкой платформы "Приразломная". Сейчас предприятие готовится к участию в крупнейшем российском проекте - создании объектов для разработки шельфового Штокмановского газоконденсатного месторождения. Справка ИА REGNUM: Многоцелевая платформа со свободной палубой Moss CS-50 относится к 5-му поколению полупогружных платформ, спроектированных компанией "Moss Maritime AS" (Норвегия). Платформа катамаранного типа размещена на двух понтонах, корпус поддерживают шесть стабилизирующих колонн. Основные размерения: 118 70 40 м, вес около 15 тыс. тонн. В зависимости от назначения платформы на палубе можно разместить любое оборудование - добывающее, буровое, крановое, жилое.

http://www.rigzone.com/news/article.asp?a_id=42073

SeaDragon Offshore to Outfit Oban B with Equipment from Rolls Royce
Friday, March 02, 2007

SeaDragon Offshore, currently building the first of a number of planned 6th Generation (Deep Water/Harsh Environment semi-submersible rigs) has placed a significant order with Rolls-Royce for vital capital equipment for its first vessel the Moss CS50 MkII the "Oban B".

Highlights:

- SeaDragon Offshore is currently building one of the world's largest semisubmersible rigs with an option for two further rigs, with a combined value of circa US\$1.8 billion

Highlights:

- Securing timely capital equipment is vital to the Mid 2009 launch date.
- The order comprises:
 - 8 * Rolls-Royce Bergen Engines
 - 8* Rolls-Royce UCC Azimuth Thrusters
 - 8 * Rolls-Royce Double Electric Windlass/Mooring Winches
- SeaDragon has separate options to repeat the order for a second vessel that would allow delivery of a second unit early 2010

Commenting on the order, Stephen Baird, Chairman of SeaDragon, said: "This is a major positive step for the project. We are delighted to have finalized a deal with such a capable partner and this order and the details therein are clear evidence that SeaDragon Offshore is meeting, without slippage or variation, the milestones required."

Halvard Hauso VP Offshore Rolls-Royce

"We are delighted to have signed an agreement with SeaDragon Offshore. We would like to pay tribute to the team at SeaDragon whose level of technical and commercial professionalism has impressed us greatly and has made this process go extremely smoothly. We very much look forward to working with them to deliver what we believe will be a highly successful project."

George Sutherland CEO of SeaDragon Technical Services

"I am delighted to be working with Rolls-Royce. I would also like to thank the other manufacturers for their committed and professional approach to our procurement process, ultimately however, the technical specification, delivery dates, commercial terms and the support package secured from Rolls Royce was by some margin the optimum choice for SeaDragon".

SeaDragon's rigs will be constructed in Teesside, UK, with the hulls to be purchased from the Sevmash shipyard, Russia.

KCA DEUTAG (international drilling contractor and part of The Abbot Group plc) will operate the vessel. The project is backed by debt financing arranged by Lloyds TSB Bank plc.

The SeaDragon project will help to meet increasing global demand for high specification drilling vessels, while marking a hugely significant boost to jobs in the Teesside region of the UK.

The project brings together a highly experienced and innovative management team, working in partnership with the Tees Alliance Group, international drilling contractor KCA DEUTAG (part of The Abbot Group plc), and financial institutions including Lloyds TSB Bank plc.

Designed by world-class naval architect Moss Maritime, the rig hulls will be purchased from the Sevmash shipyard in Russia, and delivered to the Tees Alliance Group, based at Haverton Hill shipyard in Teesside, for the fitting out of the topside.

The first hull has already been bought and is due to arrive in the second half of 2007. SeaDragon Offshore is now in the process of securing options on two further Russian hulls and has agreed fit out times for two additional vessels from the Tees Alliance Group.

http://www.setcorp.ru/main/pressrelease.phtml?news_id=14315&language=english

Platform pontoons Moving Out
2007-03-20

Both pontoons of multipurpose platform MOSS CS-50 have been moved out of FSUE «PO «Sevmash» ship way workshop. Length of each structure is 118 meters, width -15 meters, height – 10 meters.

The first pontoon with installed parts of supporting columns was moved out from workshop a week ago and is already launched. Yesterday the second pontoon was moved from ship way in floating dock. Platform will be assembled completely afloat. All works are planned to be finished by the beginning of navigation.

Three such platforms are being built on Sevmash. Designing and control of project are being carried out by Norwegian companies MOSS MARITIME AS and MOSS MOSVOLD PLATFORMS AS, and platforms are meant for different oil and gas companies. The first MOSS CS-50 was laid down at Sevmash in February 2006, in the nearest future the second platform will be laid down.

Multifunctional platform with free deck Moss CS-50 relates to the 5th generation of semisubmerged platforms, designed by «Moss Maritime AS» (Norway). Platform of catamaran type is placed on two pontoons; body is supported by six stabilizing columns. Main dimensions: 118×70×40m, weight nearly 15 thousand tons. Depending on platform purpose any equipment can be placed on deck – extractive, drilling, crane, living.

- Platform MOSS CS-50
- Platform pontoon in ship way workshop
- Platform pontoon near outfitting quay

Photo by Maxim Vorkunkov

Michail Starozhilov,
Head of FSUE «PO «Sevmash» Press-cutting service
Tel. +7 (8184) 50-59-56
pressa@sevmash.ru



<http://www.vdvsn.ru/papers/vs/2007/03/22/55665/>



Норвежская платформа на плаву
2007 г. / Март / 22 /

Выведены из стапельного цеха Севмаша и спущены на воду оба понтона морской многоцелевой платформы «Moss CS-50».

Целиком платформа будет собрана на плаву. К началу навигации предстоит завершить все работы. Всего Севмашу заказаны три подобные платформы. Проектирование и управление проектом ведут норвежские компании «Moss Maritime AS» и «Moss Mosvold Platforms AS», а сами платформы предназначены для различных нефтегазовых компаний. Длина каждой конструкции - 118 метров, ширина - 15 метров, высота - 10 метров. Первая «MOSS CS-50» была заложена на Севмаше в феврале 2006 года, в ближайшее время на Севмаше будет заложена вторая платформа.

Михаил СТАРОЖИЛОВ, руководитель пресс-службы Севмаша

http://www.rigzone.com/news/article.asp?a_id=43873

SeaDragon Secures Integrated Drilling Package
SeaDragon Offshore
Friday, April 13, 2007

SeaDragon Offshore, currently building the first of a number of planned 6th Generation (Deep Water/Harsh Environment semi-submersible) rigs, has placed a significant order with National Oilwell Varco (NOV) for Drilling Equipment Package, Subsea BOP Stack and Marine Riser equipment for its first vessel the Moss CS50 MkII--the "Oban B."

Highlights:

SeaDragon is currently building one of the world's largest semi-submersible rigs with an option for two further rigs ("the Project"), with a combined value of circa US\$1.8 billion. Securing timely capital equipment is vital to the mid-2009 launch date. The order comprises:

- Drilling Equipment Package
- Subsea BOP Stack
- Marine Riser

SeaDragon has separate options to repeat the order for a second vessel that would allow delivery of a second unit in early 2010.

Stephen Baird, Chairman of SeaDragon, said:

"We are delighted to be working with NOV on this deal. We are 100% confident that this drilling package will meet the requirements of our charter customers."

Kevin Neveu, President of National Oilwell Varco, Rig Solution Group, added:

"NOV is pleased to be selected by SeaDragon for the drilling, marine riser and pressure control equipment. This is an important milestone for both SeaDragon and NOV and we are looking forward to helping successfully deliver this rig within budget and on time for mid 2009."

George Sutherland, CEO of SeaDragon Technical Services, noted:

"SeaDragon are delighted to have finalized the order with NOV for the Drilling Equipment, Subsea BOP and Marine Riser and look forward to working with the NOV throughout all phases of the project."

Background information:

- + SeaDragon's rigs will be constructed in Teesside, UK, with the first hull to be purchased from the Sevmash shipyard, Russia.
- + KCA DEUTAG (international drilling contractor and part of The Abbot Group plc), SeaDragon are working with KCA DEUTAG toward an agreement to operate the vessel.
- + The project is backed by debt financing arranged by Lloyds TSB Bank plc.

The SeaDragon project will help to meet increasing global demand for high specification drilling vessels, while marking a hugely significant boost to jobs in the Teesside region of the UK.

The project brings together a highly experienced and innovative management team, working in partnership with the Tees Alliance Group, international drilling contractor KCA DEUTAG (part of The Abbot Group plc), and financial institutions including Lloyds TSB Bank plc.

Designed by world-class naval architect Moss Maritime, the rig hulls will be purchased from the Sevmash shipyard in Russia, and delivered to the Tees Alliance Group, based at Haverton Hill shipyard in Teesside, for the fitting out of the topside.

The first hull has already been bought and is due to arrive in the second half of 2007. SeaDragon Offshore is now in the process of securing options on two further Russian hulls and has agreed fit out times for two additional vessels from the Tees Alliance Group.

» Seymash, Severodvinsk

Platform CS-50 for Moss Maritime AS

Contract signed June.05 (1+2 option). Delivery – beginning 2007



mossmaritime

Appendix F

Presence of M/V Dove in San Francisco Harbor April-May 2007

Images obtained from

http://www.boatingsf.com/ais_map.php?region=sf

Times shown in figures are CDT, UT - 5



City and County of San Francisco
Port of San Francisco



Vessel Schedule

Updated: March 30, 2007

PIER	DATE	VESSEL	LINE AGENT	TRIP #	REMARKS
50D	03/31-05/01/07	Dove	Pac. Coast Maritime Agcy		Ops Base

City and County of San Francisco
Port of San Francisco



Vessel Schedule

Updated 4/30/2007

PIER	DATE	VESSEL	LINE AGENT	TRIP #	REMARKS
50D	03/31-07/01/07	Dove	Pac. Coast Maritime Agcy		Ops Base

City and County of San Francisco
Port of San Francisco



Vessel Schedule

Updated 5/11/2007

PIER	DATE	VESSEL	LINE AGENT	TRIP #	REMARKS
50D	03/31-07/01/07	Dove	Pac. Coast Maritime Agcy		Ops Base

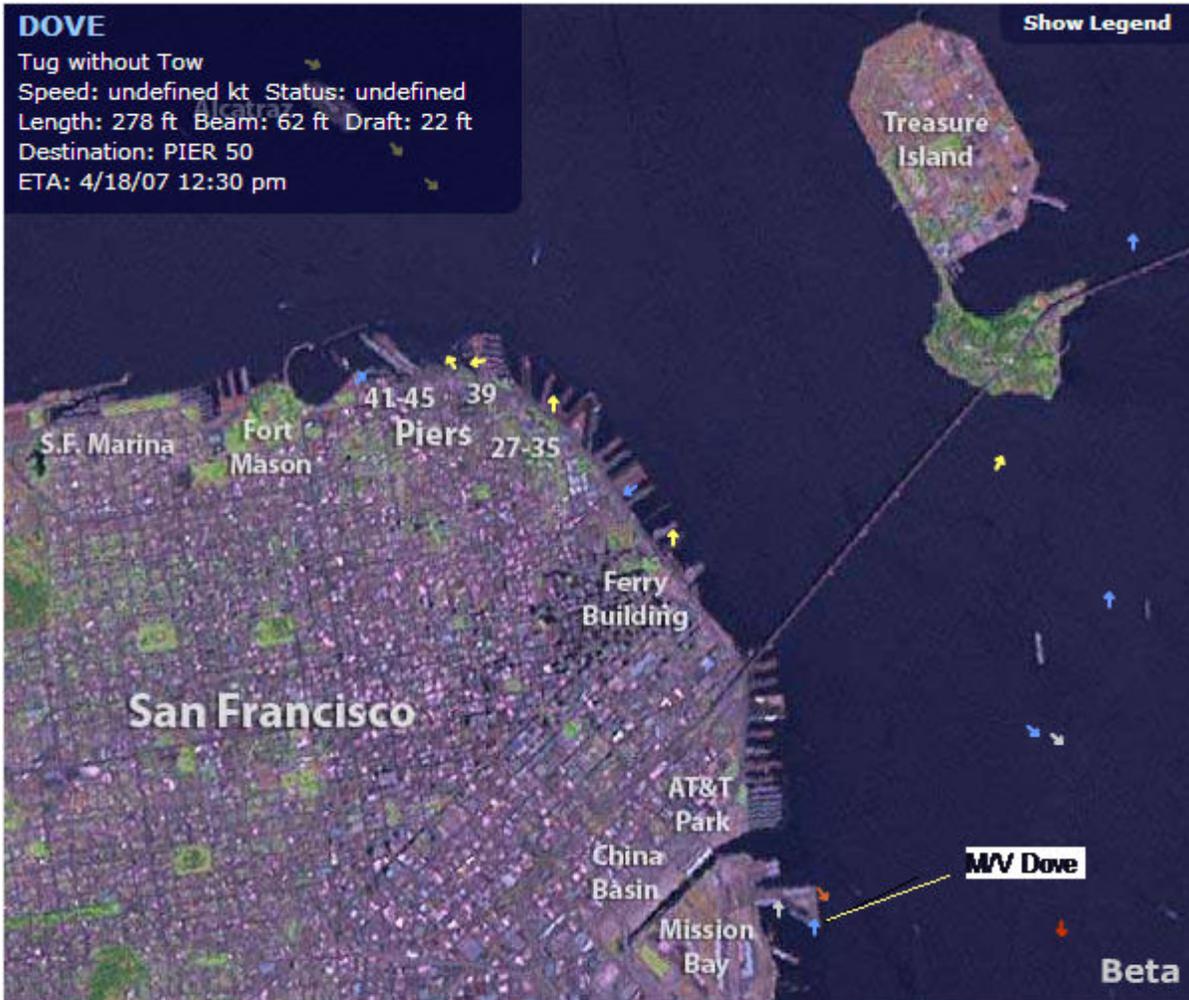
Updated 5/25/07

PIER	DATE	VESSEL	LINE AGENT	TRIP #	REMARKS
50D	03/31-05/31/07	Dove	Pac. Coast Maritime Agcy		Ops Base
	05/31/07-01/30/08	Horizon Commerce	BAE		Layberth

DOVE

Tug without Tow
Speed: undefined kt Status: undefined
Length: 278 ft Beam: 62 ft Draft: 22 ft
Destination: PIER 50
ETA: 4/18/07 12:30 pm

Show Legend



Time-Lapse

Real-Time Display
(2-3 minute delay)

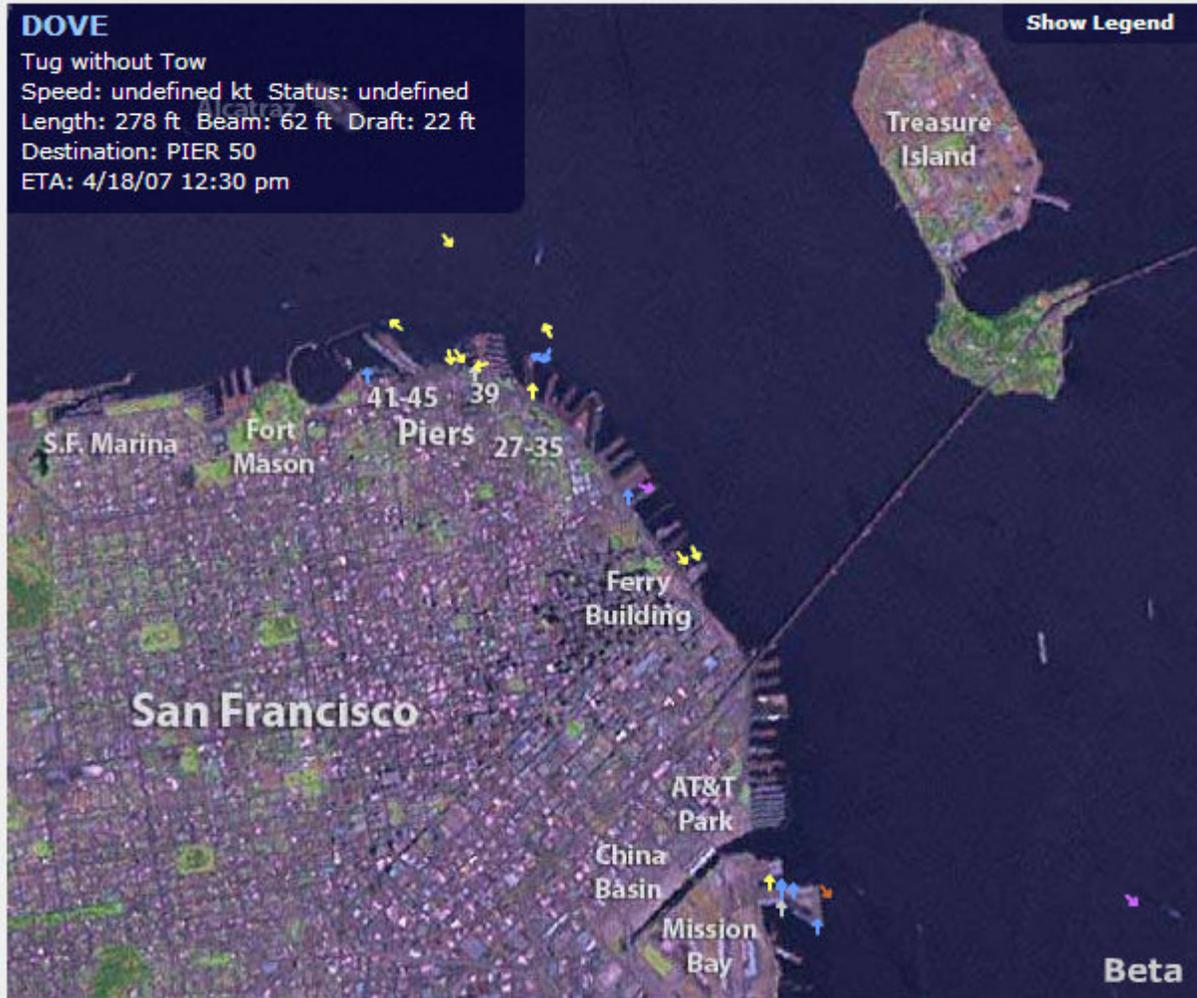
4/21
1:30 pm

Choose Ship

DOVE

Tug without Tow
Speed: undefined kt Status: undefined
Length: 278 ft Beam: 62 ft Draft: 22 ft
Destination: PIER 50
ETA: 4/18/07 12:30 pm

Show Legend



Time-Lapse

Real-Time Display
(2-3 minute delay)

4/23
12:04 pm

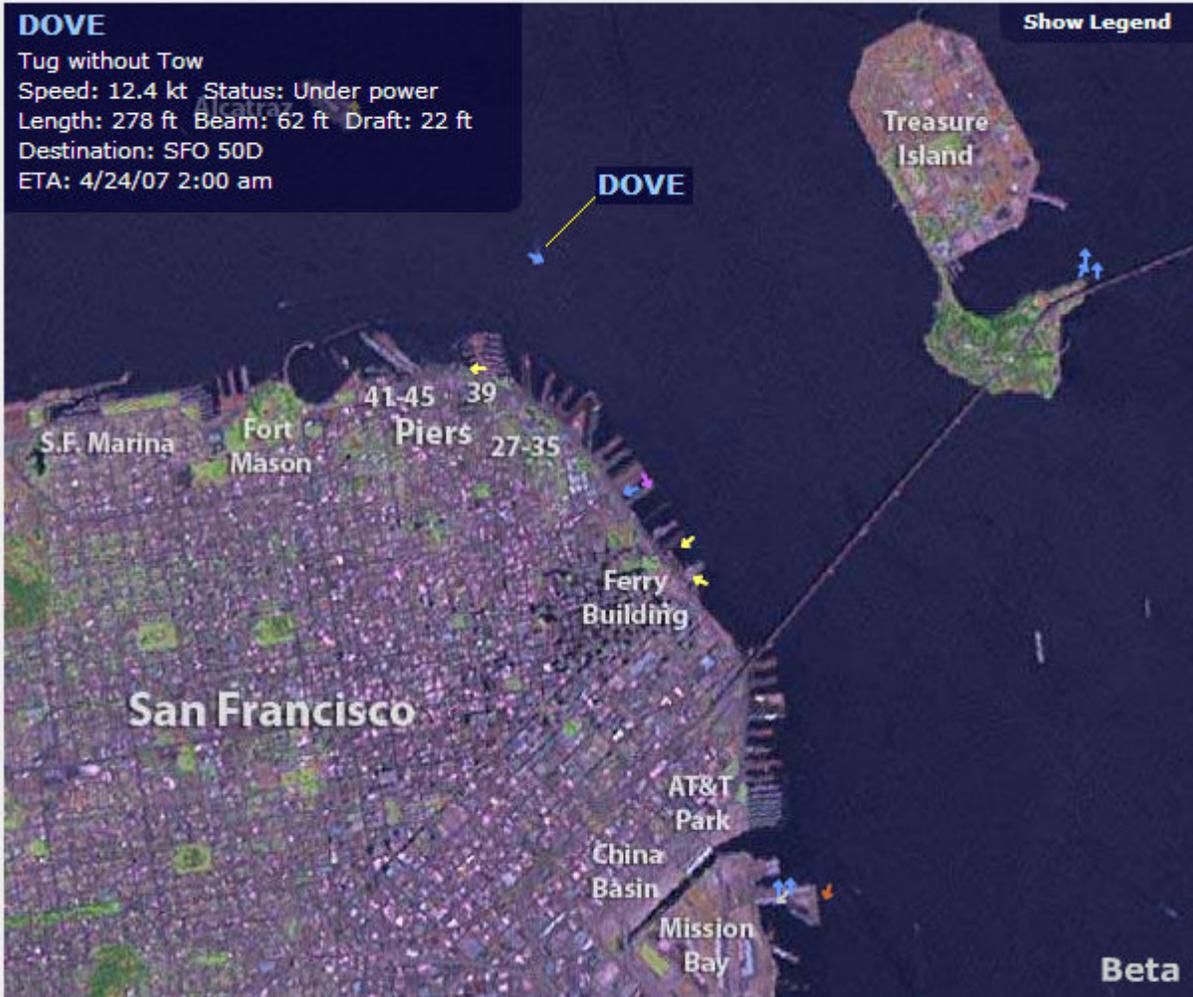
Choose Ship

San Francisco Bay Ship Activity

DOVE

Tug without Tow
Speed: 12.4 kt Status: Under power
Length: 278 ft Beam: 62 ft Draft: 22 ft
Destination: SFO 50D
ETA: 4/24/07 2:00 am

Show Legend



Time-Lapse

Real-Time Display
(2-3 minute delay)

4/25
9:55 am

Choose Ship

San Francisco Bay Ship Activity

DOVE
Tug without Tow
Speed: 0 kt Status: Under power
Length: 278 ft Beam: 62 ft Draft: 22 ft
Destination: SFO 50D
ETA: 4/24/07 2:00 am

Show Legend

San Francisco

Beta

Real-Time

◀ ▶

SLOW FAST

4/25
10:59 am

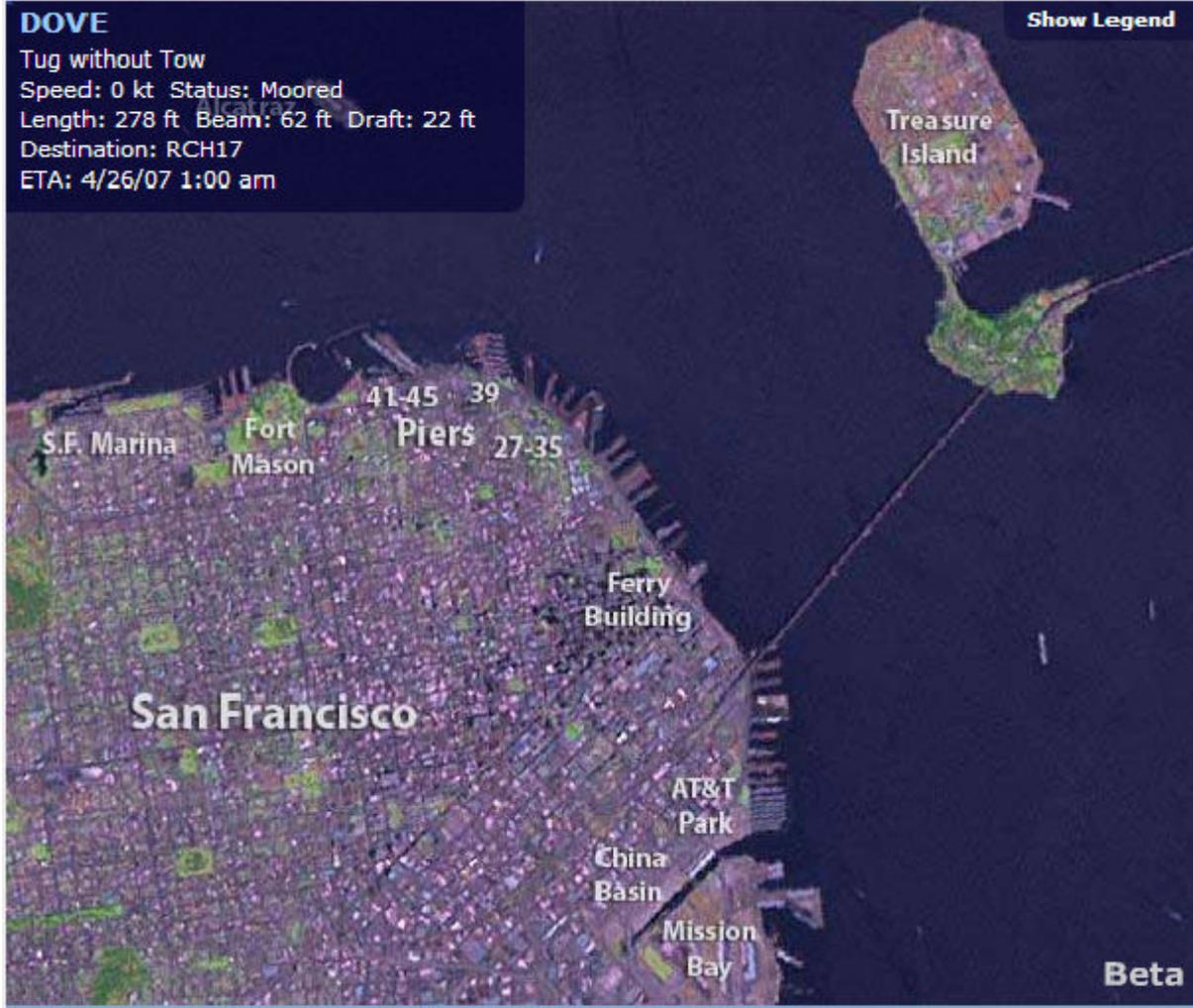
Choose Ship

San Francisco Bay Ship Activity

DOVE

Tug without Tow
Speed: 0 kt Status: Moored
Length: 278 ft Beam: 62 ft Draft: 22 ft
Destination: RCH17
ETA: 4/26/07 1:00 am

Show Legend



Beta

Real-Time Choose Ship DOVE

SLOW FAST 4/26 3:19 pm

San Francisco Bay Ship Activity

DOVE

Tug without Tow

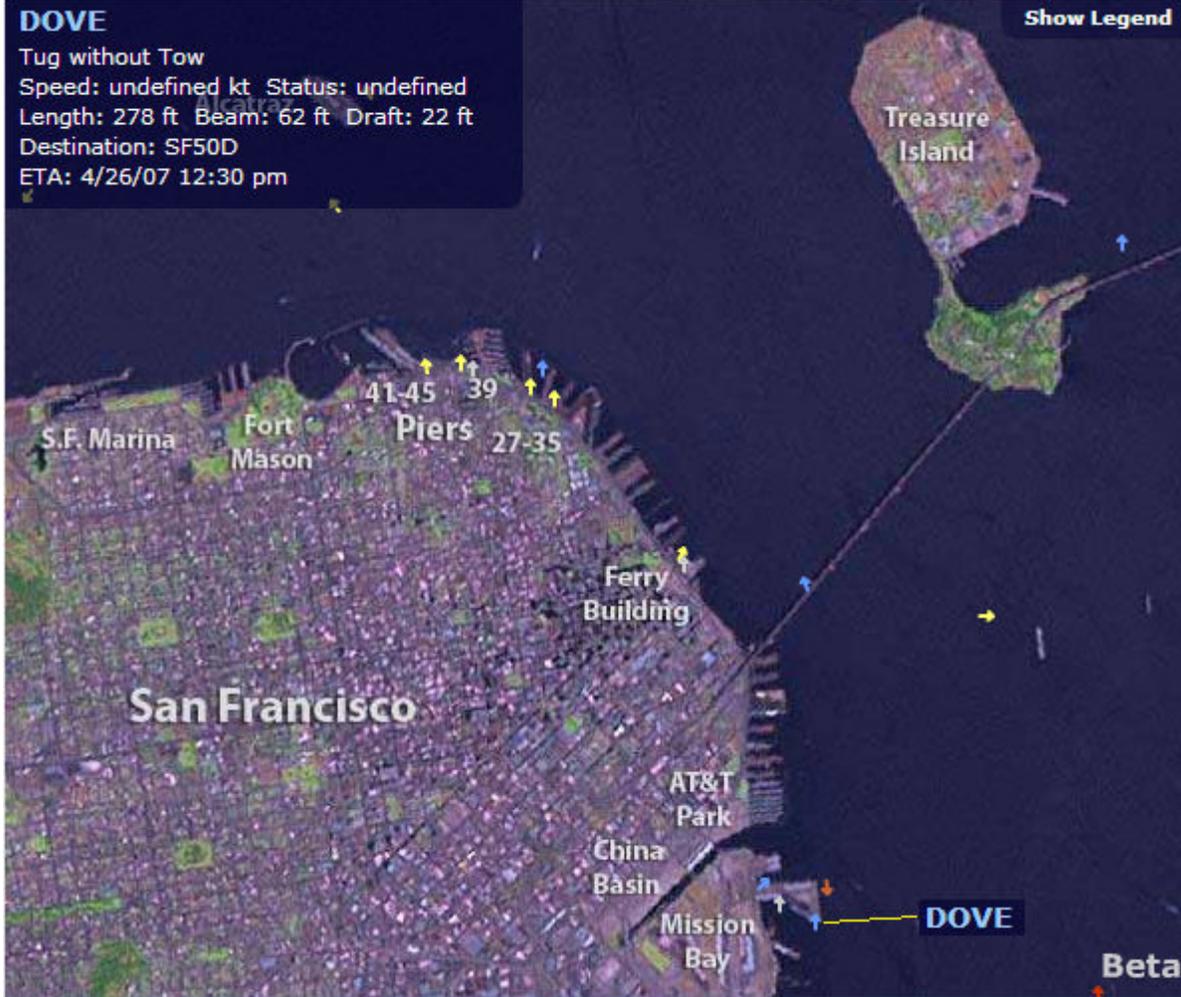
Speed: undefined kt Status: undefined

Length: 278 ft Beam: 62 ft Draft: 22 ft

Destination: SF50D

ETA: 4/26/07 12:30 pm

Show Legend



Time-Lapse

Real-Time Display
(2-3 minute delay)

4/27
2:24 pm

Choose Ship

San Francisco Bay Ship Activity

Complete List

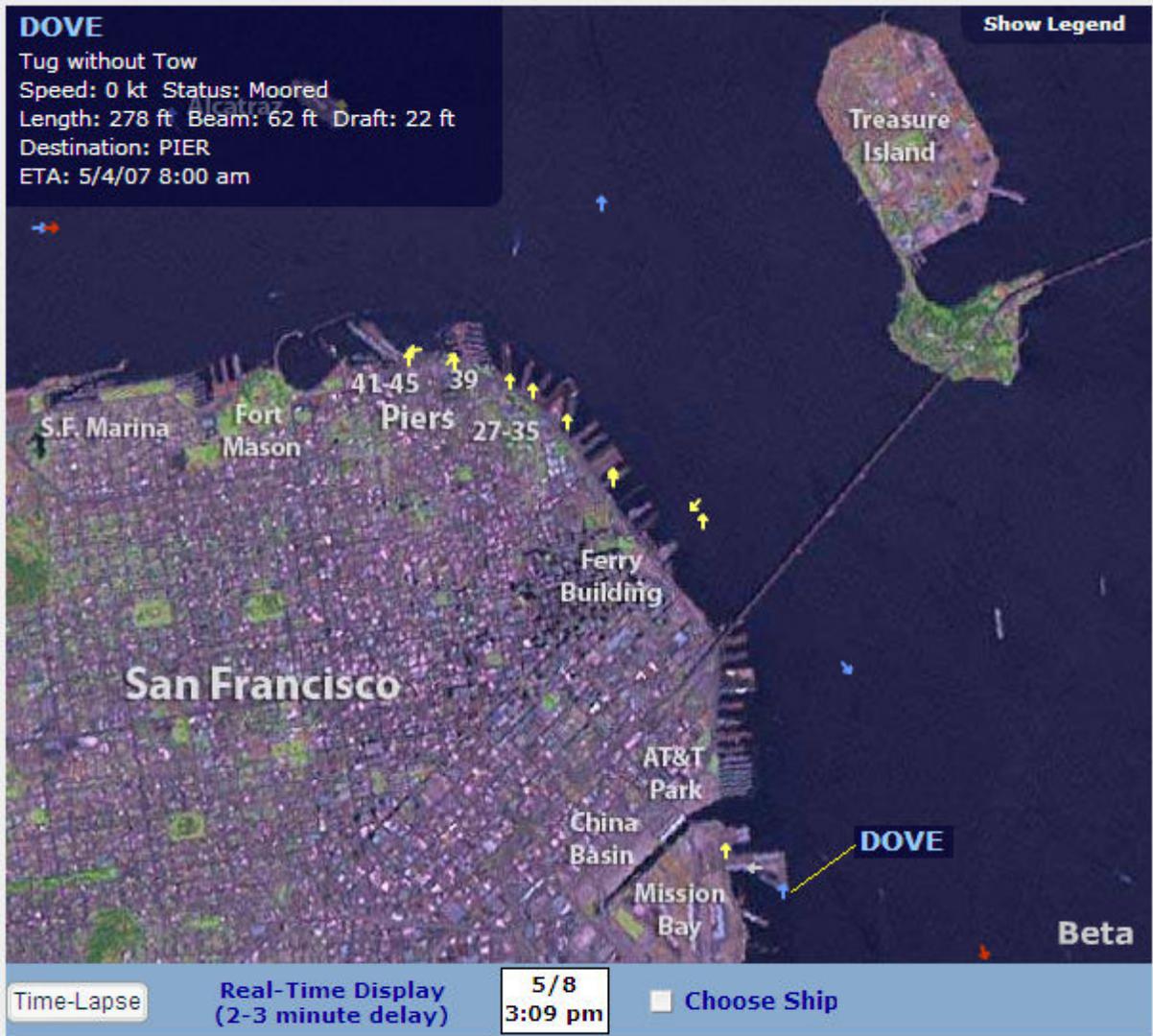
San Francisco Bay Ships

To list just a type of ship, click on of the buttons on the left. To choose the sort order, select from one of the options below.

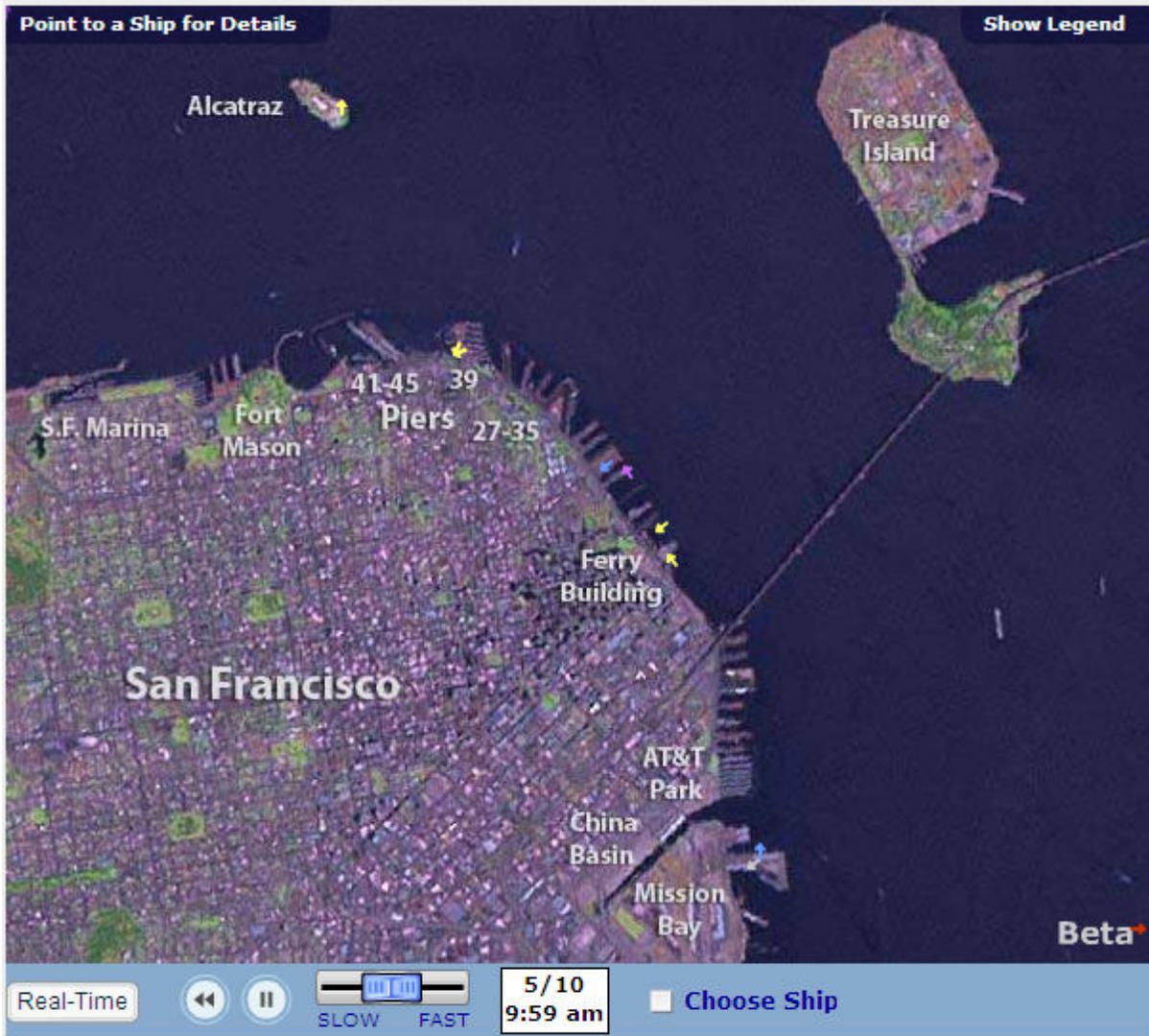
[Largest Ships](#) [Most Recently Seen](#) [Destination](#)

Reports Received from 1745 Ships Since April 18, 2006

Name	Type	Length (feet)	Last Seen
SBX 1	Other	390	4/30/07 9:35 am



San Francisco Bay Ship Activity



San Francisco Bay Ship Activity

[M/V Dove appears to be absent.]

http://www.boatingsf.com/ais_shipnotes.php

Complete List

San Francisco Bay Ships

To list just a type of ship, click on of the buttons on the left. To choose the sort order, select from one of the options below.

[Largest Ships](#) [Most Recently Seen](#) [Destination](#)

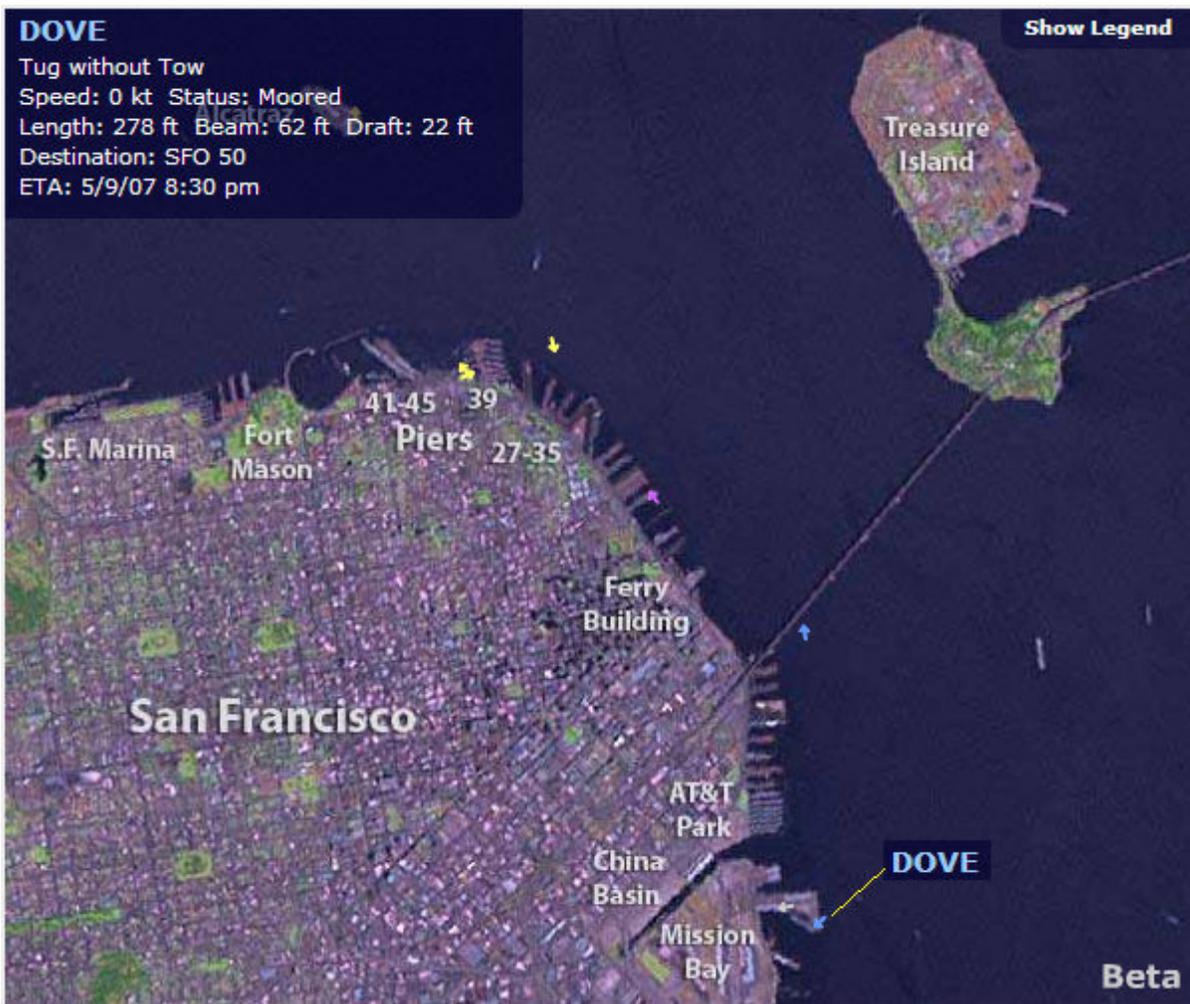
Reports Received from 1745 Ships Since April 18, 2006

Name	Type	Length (feet)	Last Seen
DOVE	Tug without Tow	278	5/8/07 3:31 pm

DOVE

Tug without Tow
Speed: 0 kt Status: Moored
Length: 278 ft Beam: 62 ft Draft: 22 ft
Destination: SFO 50
ETA: 5/9/07 8:30 pm

Show Legend



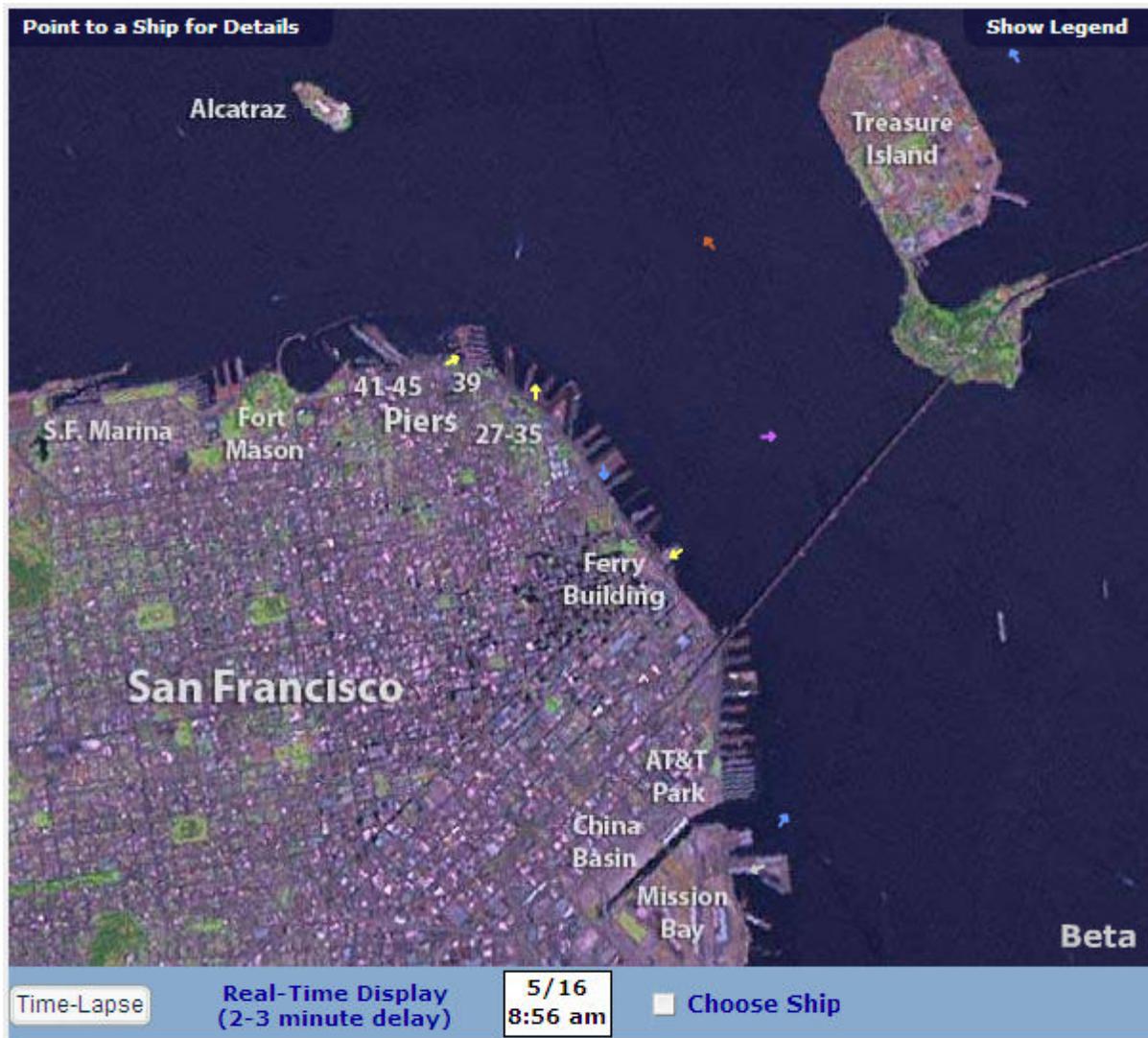
Real-Time



5/13
11:14 am

Choose Ship

San Francisco Bay Ship Activity



San Francisco Bay Ship Activity

[M/V Dove appears to be absent.]

Complete List

San Francisco Bay Ships

To list just a type of ship, click on of the buttons on the left. To choose the sort order, select from one of the options below.

[Largest Ships](#) [Most Recently Seen](#) [Destination](#)

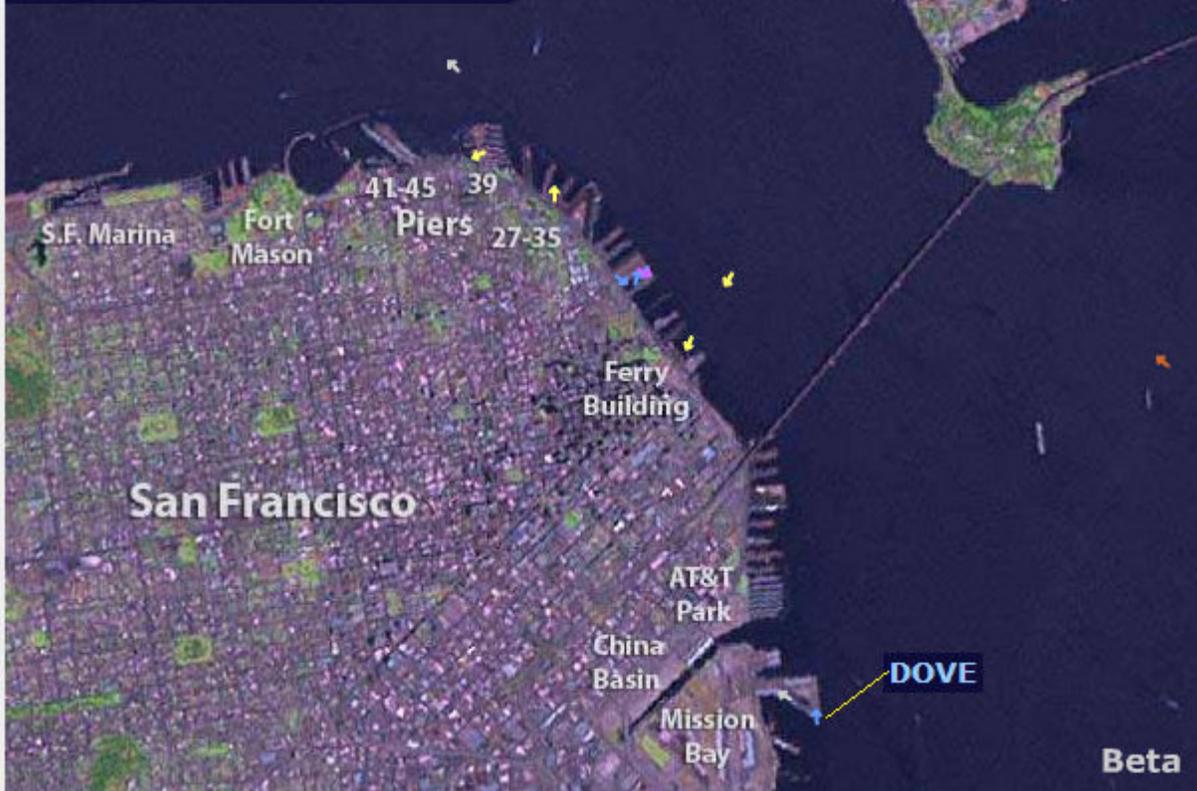
Reports Received from 1745 Ships Since April 18, 2006

Name	Type	Length (feet)	Last Seen
DOVE	Tug without Tow	278	5/14/07 9:57 pm

DOVE

Tug without Tow
Speed: 0 kt Status: Moored
Length: 278 ft Beam: 62 ft Draft: 19 ft
Destination: PIER50
ETA: 5/15/07 7:00 pm

Show Legend



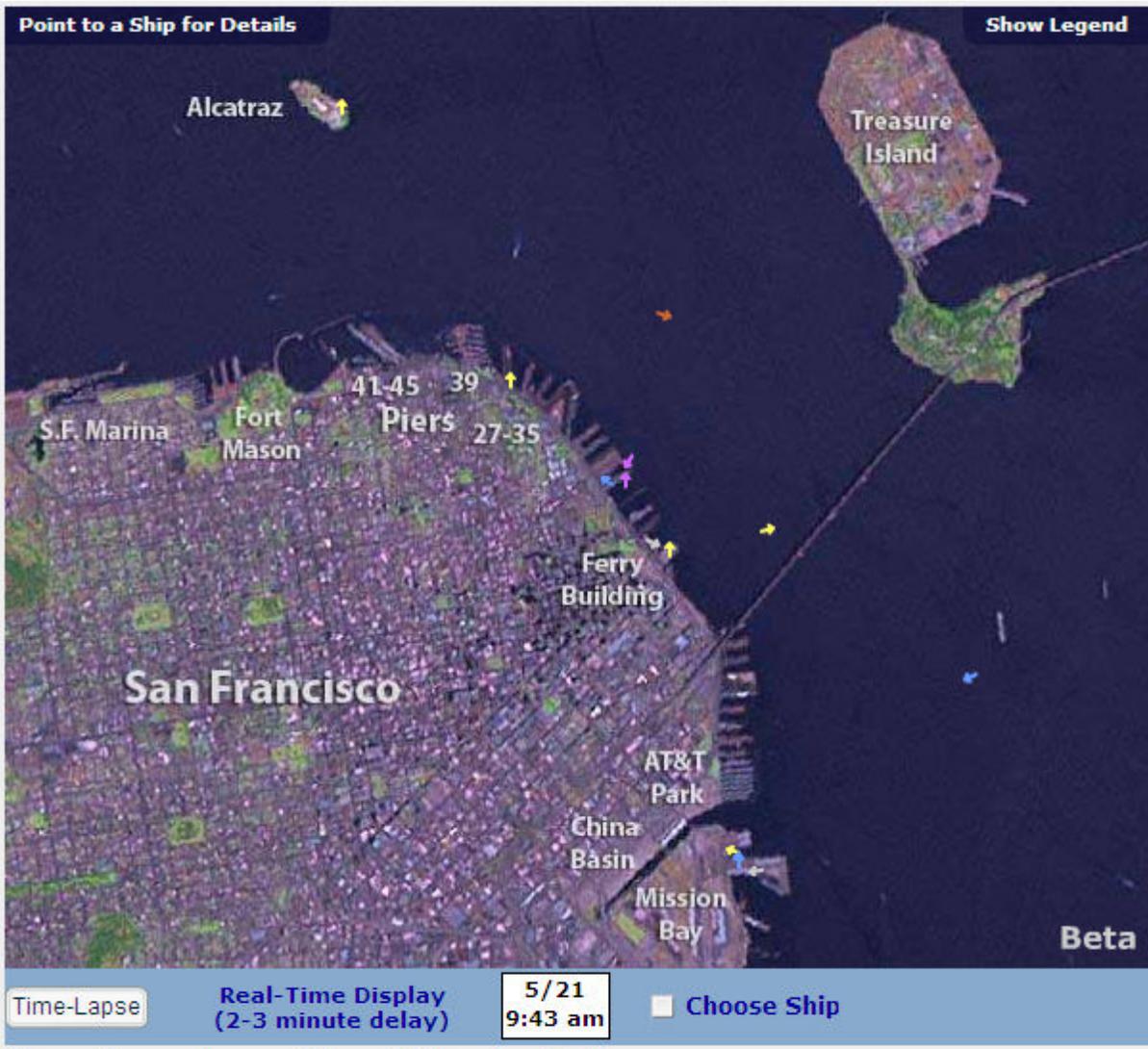
Real-Time



5/18
9:09 am

Choose Ship

San Francisco Bay Ship Activity



San Francisco Bay Ship Activity

[M/V Dove appears to be absent.]

Complete List

San Francisco Bay Ships

To list just a type of ship, click on of the buttons on the left. To choose the sort order, select from one of the options below.

[Largest Ships](#) [Most Recently Seen](#) [Destination](#)

Reports Received from 1745 Ships Since April 18, 2006

Name	Type	Length (feet)	Last Seen
DOVE	Tug without Tow	278	5/19/07 2:36 pm

DOVE

Tug without Tow
Speed: 0 kt Status: Under power
Length: 278 ft Beam: 62 ft Draft: 19 ft
Destination: SF PIER 50
ETA: 5/22/07 11:45 am

Show Legend



Time-Lapse

Real-Time Display
(2-3 minute delay)

5/23
9:35 am

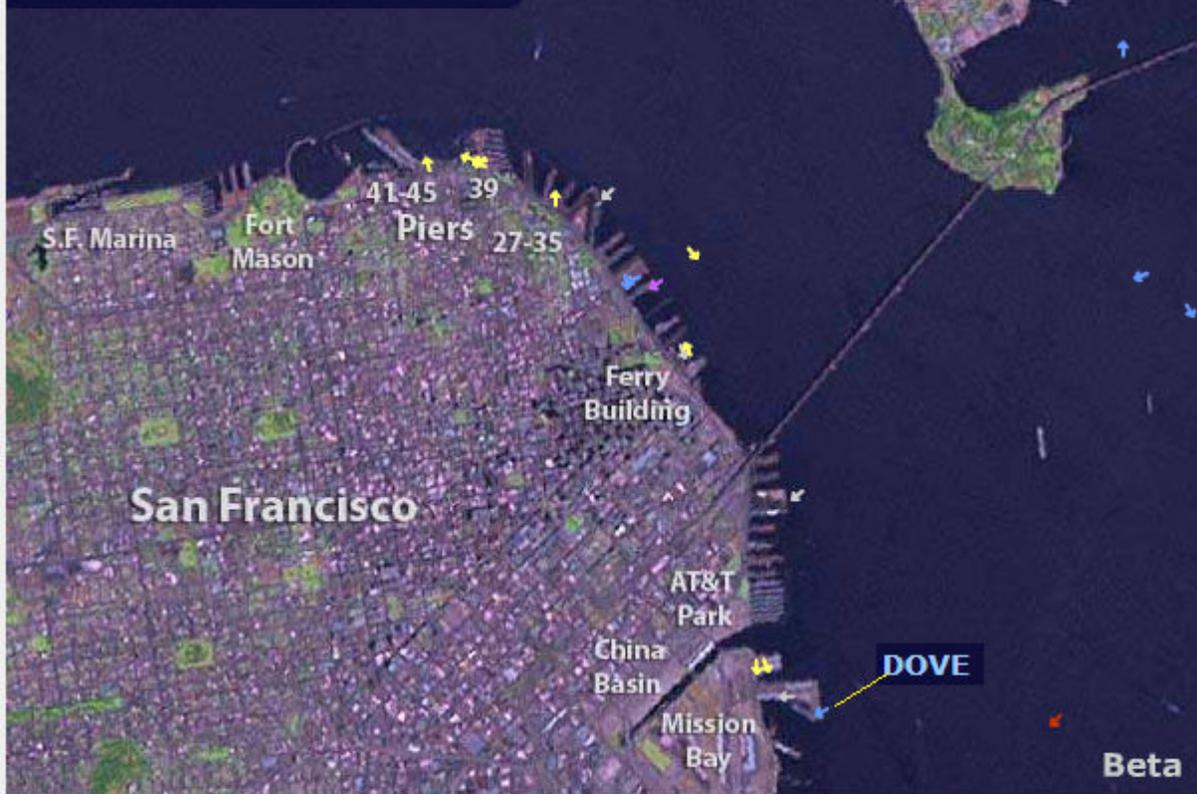
Choose Ship

San Francisco Bay Ship Activity

DOVE

Tug without Tow
Speed: 0.1 kt Status: Moored
Length: 278 ft Beam: 62 ft Draft: 19 ft
Destination: SF PIER 50
ETA: 5/22/07 11:45 am

Show Legend



Real-Time



5/24
12:44 pm

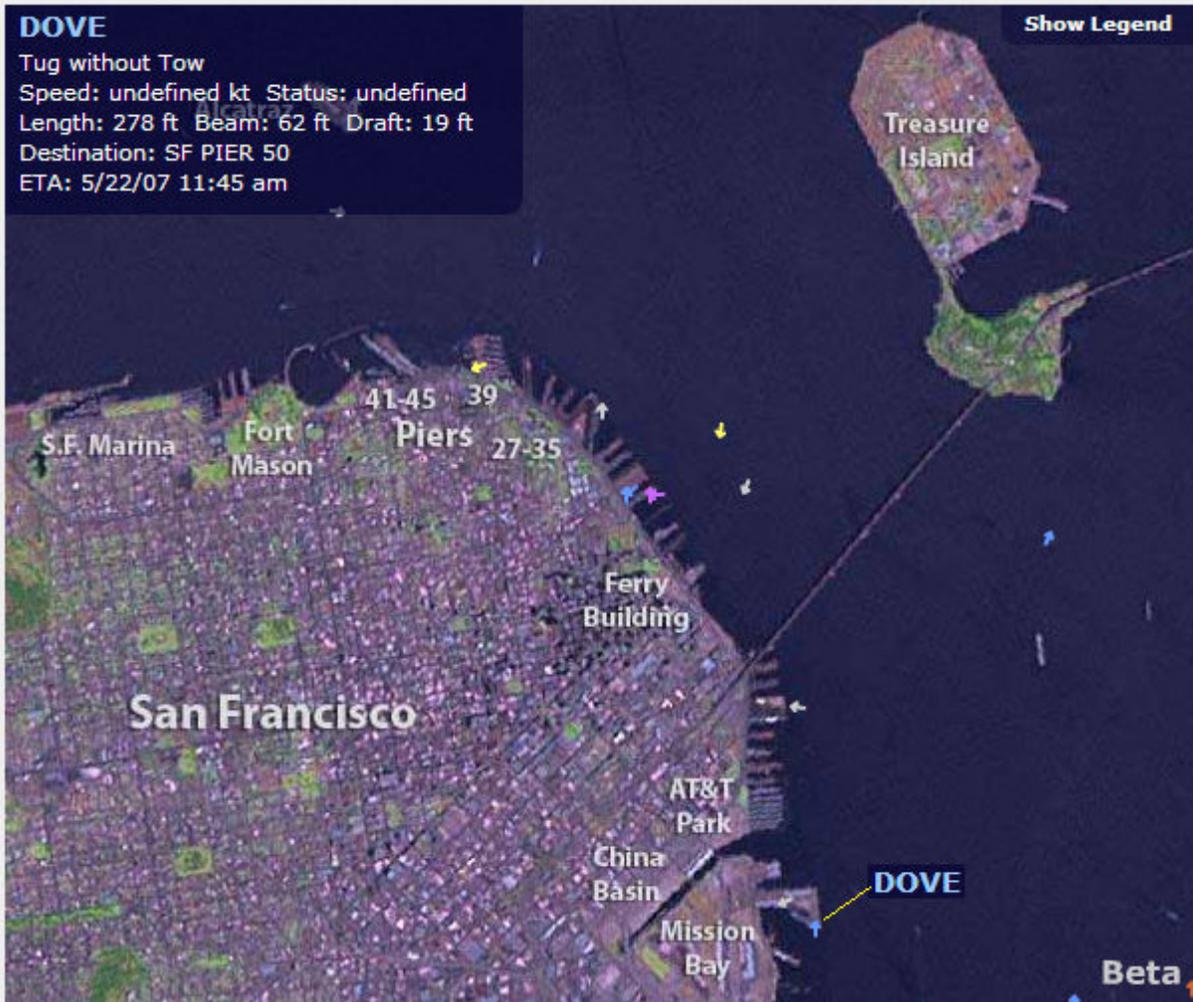
Choose Ship

San Francisco Bay Ship Activity

DOVE

Tug without Tow
Speed: undefined kt Status: undefined
Length: 278 ft Beam: 62 ft Draft: 19 ft
Destination: SF PIER 50
ETA: 5/22/07 11:45 am

Show Legend



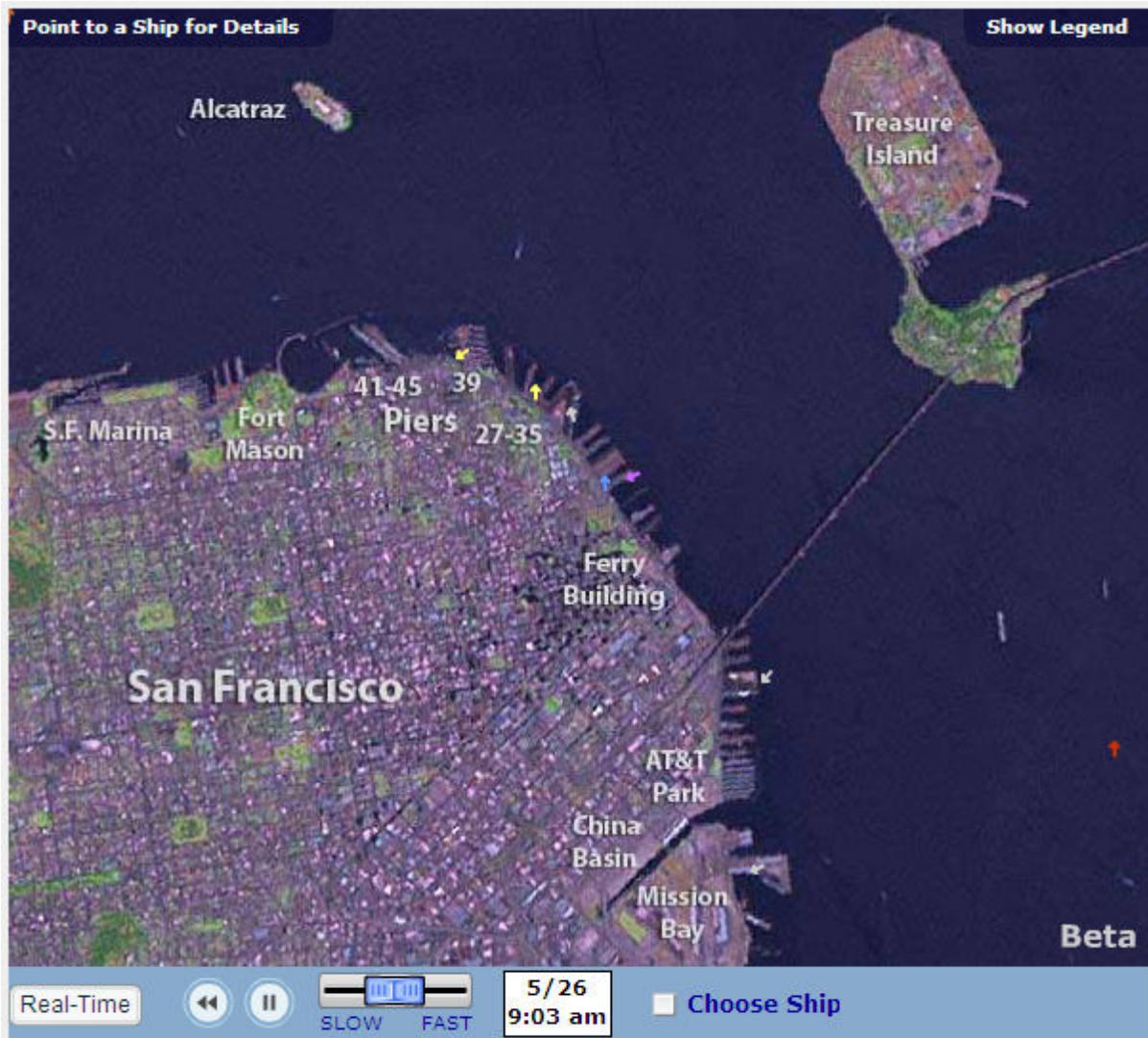
Time-Lapse

Real-Time Display
(2-3 minute delay)

5/25
8:16 am

Choose Ship

San Francisco Bay Ship Activity



San Francisco Bay Ship Activity

[M/V Dove appears to be absent.]

Complete List

San Francisco Bay Ships

To list just a type of ship, click on of the buttons on the left. To choose the sort order, select from one of the options below.

[Largest Ships](#) [Most Recently Seen](#) [Destination](#)

Reports Received from 1745 Ships Since April 18, 2006

Name	Type	Length (feet)	Last Seen
DOVE	Tug without Tow	278	5/25/07 9:14 pm

DOVE

Tug without Tow

278

5/29/07 7:13 pm

[Accessed 2007-06-05T14:20Z]