By Mike Hixenbaugh
The Virginian-Pilot, the Investigative Reporting Program and NBC News
Jan 8, 2015

Wes Van Dorn slipped out of bed around 4 a.m., pulled a green flight suit on over his boxers, then brushed his teeth and kissed his wife before driving to work. Both of his young boys had woken up crying the night before, and although he needed to be up hours before sunrise, he had been the one to sing and cuddle them back to sleep.

Later, once she had strength to process the events of this day, Nicole Van Dorn would count that as a blessing.

Wes hated to leave her and the kids each day for a job that frustrated him. After graduating from the U.S. Naval Academy in 2007, the former rugby star had taken a run at becoming a SEAL. But after surviving the infamous Hell Week at basic SEAL training, he was cut by the instructors, who found that he was unwilling to sacrifice an individual for the survival of the group. The Navy instead sent him to Milton, Fla., for flight training.

Wes never wanted to be a pilot; he had always been scared of heights. So when it was time to choose a career path, he picked a little-known helicopter program that had a reputation for a slower work environment and less frequent deployments. A friend had told him flying MH-53E Sea Dragons was the most family-friendly job in naval aviation – and Wes was a family man.

Not long after joining his Norfolk-based squadron in 2010, he began to question the decision. Something wasn't right. Months later, after he took over as the division officer in charge of maintenance, he began to realize the depth of the problems. The aging helicopters weren't getting the care they needed. Maintenance protocols were being skipped. Replacement parts were scarce, and when they were available, it was usually because they had been plucked from another Sea Dragon. At any given time, only a few of the squadron's helicopters were ready to fly.

Whenever Wes tried to correct the problems, he felt as if he was bucking a chain of command that had grown accustomed to business as usual. He learned that a 20-something-year-old lieutenant has only so much power. Finally, a little more than a year ago, Wes told Nicole he was ready to get out. Maybe he could fly for the Coast Guard, he suggested.

"Wes, obviously there's a problem," Nicole remembers saying. "Maybe you've been put in this position because you're the one who needs to fix it."

He knew she was right. Wes agreed to stick it out – and Nicole agreed to support him – even if it meant she was left alone 15 hours a day with Jaxton and Maddox so their daddy could double-check maintenance records and punish sailors who took short cuts. He'd text home in the evening to explain why he was missing dinner again.

"I want to get flying, but I also need to fix maintenance so I don't die while flying," he wrote once, repeating a variation of a line he used often.

"Let's focus on the not dying," Nicole wrote back. "You're the best diaper changer I know."

The playful exchange was typical of their relationship. Before they fell in love, Wes and Nicole had been best friends.

Late on the morning of Jan. 8, 2014, a few hours after he had kissed her goodbye, Nicole sent Wes another text: "How's it going today?"

She didn't wait around for an answer. Nicole got the kids dressed and dropped one off at preschool, the other with a baby sitter, then headed out to run some errands. She had decided she was going to make Wes pulled pork for dinner – his favorite.

By the time she got to the store, he was already in the water.

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The Sea Dragon is a Cold War-era workhorse. It's the Navy's biggest helicopter and the only one in the fleet with enough horsepower to drag equipment through the sea to find and disable underwater mines. Iran's threat to place bombs in a heavily traveled Middle East shipping route two years ago was a reminder of just how critical that mission is.

The brass had planned to retire the Sea Dragon more than a decade ago, but after investing millions of dollars in a failed attempt to outfit smaller helicopters with mine-hunting gear, the Navy was forced to keep the old birds flying. The reversal put the service in a bind; Believing that the Sea Dragons were heading to a scrap yard, defense suppliers stopped making many of the parts needed to keep them going.

The Navy's top officer, Adm. Jonathan Greenert, acknowledged recently that the helicopters are too old and inefficient. He wants the program shut down "sooner than later," he told reporters. But his hopes are tied to a fleet of unproven mine-hunting robots that will someday be launched from the Navy's littoral combat ship – a defense program that's years behind schedule and millions over budget.

And so the Navy's oldest and most unreliable helicopter flies on, with no plans to take it out of service until at least 2025. Although Sea Dragons have crashed at a rate three times greater than other Navy helicopters – a crash rate that has nearly doubled in recent years – Navy officials have said repeatedly that they're confident in the helicopter's safety.

That sentiment is not shared by the authors of a recent internal review. The confidential report, obtained by The Virginian-Pilot, warned that without a comprehensive study of the helicopter's aging components, there's no way to ensure the Sea Dragon will be safe to fly for another decade, placing pilots and crew members at risk.

Wes Van Dorn knew all of this. With Nicole's help, he had been quietly building his case – taking detailed notes and writing private essays about problems he saw – preparing for the day when he might have enough authority to make real changes. Until then, there wasn't much he could do other than be vigilant.

He got to the hangar early that morning to make sure the helicopter he was assigned to fly was ready. A day earlier, in bitter winter cold, the helicopters had all frozen on the flight line. Lesson learned. This time, with the wind chill again dipping into single digits, the squadron had kept its helicopters inside overnight.

Wes and a co-pilot, Lt. Sean Snyder, ran through the standard preflight safety checks with the three enlisted crew members. One of them raised a concern: The cabin heater kept flaming out, and it was far too cold to fly without it. No big deal. Handling mechanical glitches was part of the job at this squadron.

"We'll make it work," Wes said, before firing up the engines and getting the OK from the tower to begin the training flight.

A moment later, they lifted into the sky and flew out over the frigid Atlantic.

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The Sea Dragon known by call sign Vulcan 543 had been towing a sonar device through the ocean for about an hour when a fire warning light flickered in the cockpit. Wes Van Dorn asked one of the crew members in back to inspect the engines for signs of trouble.

Even by helicopter standards, the cabin of a Sea Dragon is a noisy, grimy place – a web of fluid lines and wires, the roar of three massive engines, metal surfaces coated in a greasy film from the constant drip of leaking hydraulic lines.

A quick in-flight fire warning wasn't unusual; morning sunlight from the horizon can sometimes trip the sensors.

One of the crew members poked his head out a hatch and into whipping cold air to see whether any of the engines were smoking. The sky was bright blue, almost cloudless.

Everything looked normal.

"We're all clear, sir," the sailor told Wes, then returned to his position.

With the sonar system deployed, the crew's job was fairly simple: Keep an eye on the tow cable, make sure the helicopter isn't pulling against too much tension, and try not to freeze. One sailor crouched down for warmth below one of the engines, oblivious to a problem a few feet away.

A worn-out fuel line had been rubbing silently against a bundle of old electrical wires near the front of the cabin – a problem that had gone undetected for years. The same mechanical defect existed inside every Sea Dragon in the fleet, though nobody knew it. Over nearly three decades, the

Navy had never required anyone to regularly inspect Sea Dragon wires or fuel lines for damage.

The sailor beneath the heater felt the explosion before he saw it. He turned and saw a flame shoot through the helicopter. Another crew member, thinking the fire was coming from the malfunctioning heater, started shouting to the pilots: "Secure the heater! Secure the heater!"

The wires had rubbed a hole in the aluminum fuel line, sparking an electrical arc that connected with a pressurized stream of jet fuel. Within seconds, the fire grew into a wall of flames that blasted forward into the cockpit. Black smoke filled the helicopter.

One of the crew members grabbed a fire extinguisher, but it was no use. Another dropped to the deck and called for everyone to pull out their oxygen bottles. Wes and his co-pilot didn't have time to call for help. Blinded by smoke and scorched by the flames, they lost control and crashed, tail-first, into the water, less than 20 seconds after the fire erupted.

Saltwater flooded the cabin as the helicopter sank. Sean Snyder didn't have a chance – he was pinned in the cockpit. Another crew member, Petty Officer 3rd Class Brian Collins, was likely killed on impact. His body floated to the surface.

The others – Wes, Petty Officer 2nd Class Dylan Boone and a sailor who has not been publicly identified – managed to escape the submerged wreckage of Vulcan 543.

Another Sea Dragon circled overhead and radioed for help. When Wes reached the surface, he was missing a foot and three fingers on his left hand.

His wedding band disappeared into the sea.

About 30 miles away, Nicole Van Dorn was at T.J. Maxx buying a new dress shirt for her husband when her cellphone vibrated. It was a text from a friend in Hawaii.

"Is Wes OK?"

And then a few seconds later:

"We saw a 53 went down."

She stood trembling in the checkout aisle, praying it was a mistake.

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At least five times over the past three decades, the Pentagon has grounded its entire fleet of Sea Dragons after discovering design flaws.

The helicopter's troubles made national news about 15 years ago, but after the Navy announced fleet-wide fixes and a plan to retire the aircraft by the end of the decade, the Sea Dragon faded from the spotlight.

It resurfaced in 2012 following a string of crashes, including an accident in Oman that killed two sailors. Afterward, the Navy acknowledged it had long neglected the program, in both funding and attention. An investigation revealed systemic problems, confirming many of the issues Wes Van Dorn had been telling his wife about for more than two years.

"It was a failure of many things," Capt. Todd Flannery, then commander of Helicopter Sea Combat Wing Atlantic, said during an interview in October 2013. "It was a failure of leadership. It was a failure of maintenance. It was a failure of operations. There were just many things that came to a head that led to this."

The Navy committed millions of dollars to turn things around. It installed more advanced sensors to warn when parts were failing. It added dozens of maintenance personnel. It beefed up pilot training.

And it tapped Flannery, a career SH-60F Seahawk pilot, to implement leadership and cultural changes.

The investments were paying off, Flannery said more than a year ago: "We've still got a long way to go, but the program is back on the right track."

Three months later, Vulcan 543 burst into flames and slammed into the ocean.

Wes was conscious when a rescue swimmer plucked him from the water and got him into a helicopter about 30 minutes after the crash.

Once they landed at Sentara Norfolk General Hospital, Wes tried to get up from the gurney. A video posted to YouTube shows him batting away one of the emergency workers.

"Where's my wife?" he said as they wheeled him into the hospital.

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Two hours passed. Nicole Van Dorn hadn't heard anything from the Navy, and her husband wasn't responding to her calls and texts. She tried to stay calm. Several friends and neighbors had also seen news reports of the crash and came by to make sure she was OK. She stood in the kitchen watching a friend hack away at the hunk of pork that was supposed to be Wes' dinner. Then her phone rang.

It was a sailor who wasn't authorized to speak to her.

"Wes … helicopter crash … multiple blunt-force trauma … fire … get to Norfolk Sentara."

Click.

Nicole fell to the floor. A friend helped her up, and another drove her to the hospital as she sat in the passenger seat, shaking.

She and Wes had talked about how a day like this might play out. Nicole was more than his wife; she had become his sounding board and technical assistant. She helped him maintain spreadsheets to track sailor performance and discrepancies in maintenance logs. Wes had come to believe sailors were falsifying records to keep helicopters flying.

"Someday," Nicole would often tell him during their late-night chats, "you're going to be the commanding officer, and you'll be in a position to fix this."

She also was the keeper of his personal email account, where Wes forwarded work messages. Later, after the crash, one from November 2013 would jump out at her: a thread with the subject line “Japanese MH-53E.”

Japan was the only other country that bought Sea Dragons, but it had retired its fleet last year, replacing them with a smaller, more-efficient Italian-built helicopter.

Wes was copied on the email, authored by a Marine officer at the Maryland-based command that's responsible for overseeing the Navy's aircraft programs. In it, the officer outlined the Navy's efforts to acquire the scrapped helicopters:

"We have been negotiating with the Government of Japan for years to make this happen, and we are finally on the cusp. We are going to negotiate for 'nominal price,' meaning hopefully as close to free as we can get."

If everything worked out, the officer wrote in a follow-up message, the Navy would most likely just harvest the helicopters for parts. But they could also serve another purpose if needed:

"Unfortunately," the officer wrote, "last year we had two mishaps in the U.S. Navy that resulted in the destruction of two of our MH-53Es. We used to have 31, now we have 29. Since there may be more

mishaps in the future, we would like to reserve the possibility of making a flyable aircraft someday with these airframes."

The email had turned out to be prophetic.

Nicole composed herself in the parking lot outside Norfolk General, then walked into the hospital and started demanding answers.

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Back when she was pregnant with their first son, Nicole Van Dorn made a promise to her husband. At his request, she agreed to refuse pain killers during labor. He had told her he would read books on childbirth, that he would be with her, holding her hand and breathing through every contraction, and that he wanted her to rely on him when she felt like giving up.

"This will bring us closer together," Wes had said.

After 12 hours of labor, Nicole grabbed him by the face and pulled him close: "Wes, I'm literally going to die. Give me the pain meds."

Wes smiled as he looked into her eyes: "Oh, sweet girl. You made a commitment."

Typical Wes. He had a way of willing others to share his confidence, Nicole says. Now she was back at a hospital, praying once again for the strength of her husband.

She was greeted by a few dozen sailors from his command. They confirmed that Wes had arrived there a couple of hours earlier. Hospital staff led her to a private waiting room with a spread of Jimmy John's sandwiches and a bowl full of sodas and ice.

For nearly an hour, she sat at a conference table, resisting the urge to scream. Why wouldn't anyone tell her what was going on? Finally, a hospital worker entered. She told Nicole that Wes was being prepped for surgery and that she couldn't see him until he came out.

"With all due respect," Nicole told the woman, "if my husband is dying, I need to see him right now."

The woman left, then came back: "I can give you five seconds," she said.

Just stay calm, Nicole kept thinking as she was led a short distance to the operating room. Wes was lying on his back. His eyes were open, but he wasn't conscious. He had a tube in his mouth. The left side of his face was charred.

"Oh, J Wesley," Nicole said cheerfully, calling him by his full name. "You're so beautiful."

The woman who had led her to the room pulled up a chair and told her to stay. A doctor listed the injuries: Wes had third-degree burns. He was hypothermic. He had lost three fingers. He was missing a foot.

"OK, that's fine," Nicole said. "He'll win the Paralympics someday."

The nurses suggested she hold his hand. Kiss him, they said. Stroke his face. His body temperature wasn't warm enough for surgery, and they hoped her presence might help him pull through.

Nicole told him how much she loved him, that she and the boys needed him. She pleaded with the doctors to do everything they could: "I just want you to know what a good and kind person he is. He makes the world a better place."

After about an hour, a neurologist came in and waved a light over her husband's vacant eyes. The doctor shook his head, then reached to shut Wes' eyelids. He stopped when he noticed Nicole watching.

Oh God, please no, she thought, and tightened her grip on her husband's hand. A moment later, his heart stopped.

A hospital worker backed Nicole away from the bed as another pulled out shock paddles and tried to jolt Wes back to life. Nicole and two friends stood to the side, sobbing and praying.

Wes, a month and two days shy of his 30th birthday, was declared dead at 4:35 p.m.

Minutes later, a Navy casualty assistance officer entered the room to give Nicole the official notification that her husband had been in an accident. Nicole was too numb to be angry.

Weeks later – after the Navy had replaced dozens of dangerous wires and fuel lines and had once again cleared all of its Sea Dragons to fly – a thought would enter her mind: What her husband was unable to accomplish in life, perhaps she could accomplish through his death.

In this moment, though, she wasn't thinking about helicopters.

After everyone had left the operating room, Nicole climbed into the hospital bed with her husband.

She lay on his chest for the next seven hours, until the last of the warmth had faded from his flesh, and the body in her arms no longer seemed like the man she'd married.

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EPILOGUE

On Thursday – exactly one year after the crash – Nicole Van Dorn climbs into the passenger seat of her car and steels herself for one final memorial service at Norfolk Naval Station.

It's another bitter cold January morning, just like the one when Wes died. As usual, she hasn't slept much. How many nights had she spent awake, hours after the kids had been put to bed, reading through stacks of maintenance records and emails her husband saved?

A month ago, she'd sat down with an NBC film crew, and soon, a national audience would hear their story. She says she can't rest until she proves what Wes had said for years: It's time for the Sea Dragons to go.

Some nights she sits alone with a glass of wine, staring at a huge photo of Wes that hangs in their living room, and asks him out loud: "Am I doing the right thing?"

She can feel his presence in those quiet moments, and now she's hoping to channel him again as she returns to the same hangar he left from a year earlier.

Her hands shake as the car threads traffic on I-64 toward the naval base. Thank God a friend is driving. Nicole fumbles for her phone, connects it to the stereo and pushes play on a track she and the boys listen to almost every night.

Wes' voice – gentle, patient – soon fills the car. You can hear one of the boys giggling in the background.

Daddy is reading "Good Night Moon."

"In the great green room … there was a telephone … and a red balloon … and a picture of the cow jumping over the moon."

Nicole closes her eyes.

She bows her head.

And smiles.

About the reporting:

This narrative was constructed based on interviews with Nicole Van Dorn and sailors from Helicopter Mine Countermeasures Squadron 14, and the following records: The Judge Advocate General Manual Investigation of the Jan. 8 crash; a draft copy of the confidential Safety Investigation Report into the mishap; crash data from the Naval Safety Center, maintenance records provided by Naval Air Systems Command; archived newspaper stories; and dozens of personal text messages, emails, essays and letters written by Lt. Wes Van Dorn. This story was co-published with NBC News and the Investigative Reporting Program.

Internal Navy email: Safety of helicopters in question

By Mike Hixenbaugh and Jason Paladino
The Virginian-Pilot and the Investigative Reporting Program
Feb 6, 2015

More than a year after a Navy helicopter crashed off the coast of Virginia, killing three crew members, high-ranking military officials are worried not enough has been done to prevent a similar tragedy, according to confidential documents obtained by The Virginian-Pilot.

After an MH-53E Sea Dragon caught fire and went down on Jan. 8, 2014, the military ordered crews to inspect all Sea Dragons in the fleet – and every CH-53E Super Stallion, the Marine Corps variant – for signs of damaged fuel lines and wires like those that caused the crash.

There's now evidence that many of those inspections were conducted haphazardly, if at all, leaving dozens of potentially unsafe helicopters in service and sending officials scrambling to come up with a plan to fix the problems, according to a chain of emails circulating last week among leaders at Naval Air Systems Command, the Maryland-based office that oversees all Navy and Marine Corps aircraft programs.

"Please close hold this information and do not forward," a Marine officer wrote at the start of one email about the shortcomings of last year's inspections. "Engineering is very concerned. ... We don't need another mishap as a result of chafing wiring on a fuel line."

The emails included attachments detailing the seriousness of the situation, including a spreadsheet documenting disparities in how much time was spent on the inspections, and a PowerPoint presentation apparently used during a leadership briefing last week by Col. Hank Vanderborght, the Sea Dragon and Super Stallion program director.

Bottom line up front, Vanderborght wrote to begin the slides: "The risk of cabin fire was not mitigated and the hazard of chafing on fluid-carrying lines and wires was not eliminated."

A spot check of Marine helicopters conducted two weeks ago produced disturbing results, according to the slides. Of 28 Super Stallions examined, all but eight were found to have bad fuel lines or wiring,

including at least one with chafing lines in the same location that led to the deadly Sea Dragon crash a year ago, when a worn-out wiring bundle released an electrical arc that connected with jet fuel, igniting an explosive fire.

This week, a similar review is being done on Sea Dragons, said Cmdr. Mike Kafka, a spokesman for Naval Air Force Atlantic. The engineers so far have discovered additional discrepancies and have concluded that the initial training on how to conduct the wiring and fuel-line inspections was inadequate, Kafka said.

After the crash, the Navy had estimated crews would need to spend 36 hours on each aircraft to conduct the newly required inspections and related repairs. But on dozens of Navy and Marine Corps helicopters, crews reported spending less than three hours on the work, according to maintenance records included in the emails.

Only six of the 28 Sea Dragons that remain in service – and just 17 of the 151 Super Stallions – received an adequate wiring and fuel-line inspection of at least 36 hours after last year's crash, according to an analysis of the data.

Additionally, according to the emails, officials are worried that some of the squadrons focused on finding chafing fuel lines but failed to properly search for bad wiring, which should have been given equal attention.

Kelly Burdick, a spokeswoman for Naval Air Systems Command, said the findings spelled out in the documents are preliminary.

"We're going to be continuing to look into this and investigate this," she said, adding that Vanderborght was traveling and wasn't available for an interview.

The internal emails and documents sound an alarming tone, yet more than two weeks after the discrepancies were discovered, Sea Dragons and Super Stallions continue flying here, at bases across the country and overseas. Further, there is little indication that maintenance crews who work on the helicopters or sailors who fly them have been fully briefed on the matter.

"It's all news to me," said one aviator from Norfolk-based Helicopter Mine Countermeasures Squadron 14, or HM-14, speaking on the condition of anonymity. "I find it deeply troubling."

The inspections ordered a year ago were among measures the Navy has taken to try to improve the safety of wiring and fuel lines. Although some of the helicopters are outfitted with wiring from the 1980s – now brittle and prone to sparking fires – nobody had been required to regularly inspect Sea Dragon wires over the helicopter's three decades in service.

Since the crash, every Sea Dragon is supposed to be thoroughly inspected every 400 flight hours to ensure no wires or fuel lines are chafing or damaged.

Earlier this week at HM-14 – one of two Sea Dragon squadrons at Norfolk Naval Station – a maintenance crew, unaware of the higher-level concerns, grounded the only helicopter at the command that had been cleared to fly this week. Maintainers found several chafing fuel lines and wires, according to sources.

A safety investigation conducted after last year's crash said the Navy, in order to fully remedy the chafing issue, must go beyond inspections: "Physically isolating aircraft wiring from all critical aircraft components is necessary to prevent catastrophic chafing between maintenance intervals," the report said.

In a statement Thursday, Rear Adm. J.R. Haley, commander of Naval Air Force Atlantic, said he is

confident in the Navy's ability to ensure Sea Dragons are safe to fly and trusts the service's "culture of safety," which gives even junior pilots authority to demand that repairs be made if they are uncertain of an aircraft's safety.

"We are aware of the challenges in maintaining the aging airframe and will continue to ensure the helos remain safe," Haley said in the statement. "NAVAIR engineers have years of experience over many prior airframes in sustaining the safety of our aircraft as they age. We have total confidence in their ability to ensure we are flying airworthy planes."

Nicole Van Dorn, whose husband was among the three sailors killed off Virginia Beach, said it was "beyond inexcusable" that many helicopters were not properly inspected following the crash.

Lt. Wes Van Dorn had been working to expose problems at his squadron and often warned that someone would get hurt if changes weren't made.

"This points to exactly what Wes observed," Nicole Van Dorn said. "That is, an organizational culture that is built on the acceptance of risk because it's easier. I'm so glad someone is speaking up, because Wes can't."

The Virginian-Pilot has spent more than a year investigating problems with the Sea Dragon, the Navy's oldest and most crash-prone helicopter – and the only one in the fleet capable of sweeping for underwater mines. Word of the lax inspections comes days after an NBC Nightly News and Virginian-Pilot report detailed concerns about the safety of the aircraft.

Even as Naval Air Systems Command officials were trading emails last week, the newspaper had been questioning the command about its efforts to address wiring problems in light of a Jan. 15 incident over the Arabian Gulf.

In that incident, two wires had chafed inside a Sea Dragon, causing an electrical arc that – according to numerous sailors at the command – sparked a brief fire and forced the crew to land in Kuwait.

The Navy confirmed that there was an electrical malfunction but did not use the word "fire."

When asked about the incident, the service responded by touting its work to fix bad wires and fuel lines. No mention was made of the recent concerns about those efforts.

Pilot investigation: Sailors secretly cannibalized parts to keep Sea Dragons flying

By Mike Hixenbaugh
The Virginian-Pilot and the Investigative Reporting Program
Mar 9, 2015

NORFOLK

The Navy is retraining sailors who work on its Sea Dragon helicopters after a Virginian-Pilot investigation revealed workers had improperly filled out maintenance records, an apparent violation of naval aviation policy.

At least 15 times over the past year, according to records obtained by The Pilot, sailors at Helicopter Mine Countermeasures Squadron 14 failed to properly document their work after taking a part off one helicopter to install on another – a practice known as cannibalization, which the Navy tracks closely and tries to limit.

A few sailors at the squadron told The Pilot they had been outspoken at the command about inaccurate record keeping, which they say is more common than what's shown in the documents. They said their concerns were dismissed by maintenance chiefs and quality assurance personnel.

"We are hiding problems with our parts supply system to keep aircraft flying, instead of exposing our problems to get the help we need," said one HM-14 maintainer, who spoke on the condition that he not be named. "This is not a training issue; our maintenance controllers know the right way of doing business, they are simply choosing not to."

The newspaper presented its findings to the Navy early last week, allowing the service time to look into the matter. After a preliminary review, the Navy confirmed Thursday that the documents had been filled out incorrectly. Some appeared to be clerical errors, while others appeared to be more serious, said Lt. Cmdr. Jeff Brown, maintenance officer for Helicopter Sea Combat Wing Atlantic, which oversees the Navy's Norfolk-based helicopter squadrons.

"We're looking through all their outstanding (maintenance action forms), and we're going to provide clear direction on how these records should be done," Brown said. He emphasized that his team likely would have discovered the problems later this year, during a biennial audit of the squadron's books.

The Navy's MH-53E Sea Dragon program has been under scrutiny in recent years, first after a string of mishaps in 2012, and then again last year after a crash off the coast of Virginia Beach killed three crew members. That crash was caused by a fuel line that chafed against an electrical wire, igniting an explosive fire.

The Navy ordered fleet-wide inspections after the crash to repair chafing wires and fuel lines in the Sea Dragons and a similar helicopter flown by the Marine Corps, the CH-53E Super Stallion. Last month, though, engineers found evidence that those repairs were inadequate, and the risk of fire was not eliminated. The Navy called for a new, more thorough round of inspections, which are now underway.

Navy officials acknowledge that maintaining the 28 remaining Sea Dragons is a difficult task. The service had initially planned to retire the 1980s-era mine-clearing helicopters a decade ago but decided to keep them in service after a replacement plan fell through. For that reason, parts are not always readily available and sometimes must be custom-made.

Navy policy allows sailors to take a part from another aircraft if a critical component is unavailable and the mission is essential. The service requires sailors to closely document those cannibalizations and to do everything possible to limit the practice, which requires twice as many man hours because they must first remove the good part, then re-install it.

If sailors don't document that work correctly, quarterly cannibalization rates provided to top brass and to Congress won't accurately reflect what's happening and could mask gaps in the parts supply system, said Rear Adm. J.R. Haley, commander of Naval Air Force Atlantic.

"We're not having a safety problem by taking a part out of one airplane and putting it in another," Haley said. "What we have is a systemic issue long-term."

Haley reviewed the maintenance records obtained by The Pilot and said he's confident his officers will take appropriate action – just as they do after internal audits turn up discrepancies, which he said is not uncommon.

"I want to build a system that catches mistakes, fixes those mistakes, and then allows us to learn as we go, while having very minimal risk," Haley said. "And we do pretty good at that."

More than a dozen naval aviators and aircraft maintainers, including a former commanding officer of HM-14, reviewed the records on behalf of The Pilot. Most said the problems with the recordkeeping should have been caught by the squadron's quality assurance personnel.

They also noted the experience level of the sailors: Nearly all of the reports were filled out by chief petty officers or senior chief petty officers, sailors who typically have spent more than a decade in aviation maintenance.

In addition to creating more work for maintainers, there are other downsides to relying too heavily on cannibalization, especially if the same few helicopters are harvested for parts. According to experts on the matter, you run the risk of stripping an aircraft of so many components, a team of experts must be brought in to rebuild it.

All of the cannibalized parts cited in the records were taken from the same two helicopters, both of which have been grounded for about a year. Any work performed on those aircraft – known in aviation parlance as "hangar queens" – requires approval from the air wing, according to the Naval Aviation Maintenance Program manual.

But because sailors failed to record the work as cannibalizations – and because many of the work orders were left open in the computer system – the air wing was not alerted and was never asked to authorize the work.

Capt. Pat Everly, the air wing commander, said the Sea Dragon squadrons aren't under pressure to reduce cannibalization rates, so there shouldn't be incentive to take short cuts on documentation.

"That is essentially not the right way to do business," Everly said, adding that he is confident the recordkeeping has not had an impact on safety: "I am not concerned that they are doing unsafe maintenance or that they are willfully disregarding maintenance procedures."

Friday, the day after The Pilot met with Everly, sailors were poring through squadron maintenance records and correcting discrepancies. Moving forward, he said, the squadron will not be allowed to pull parts from the two grounded aircraft for troubleshooting purposes, and any cannibalizations from those aircraft will need to be approved by the air wing.

Meanwhile, personnel continue to perform a second round of fuel line and wiring inspections mandated last month by Naval Air Systems Command. So far, eight of the 28 Sea Dragons have been re-inspected.

On some of the aircraft, sailors and engineers have found several hundred instances of fuel lines or wiring bundles that must be repaired, replaced or repositioned to prevent chafing.

Until repairs are made, those helicopters can't be flown.