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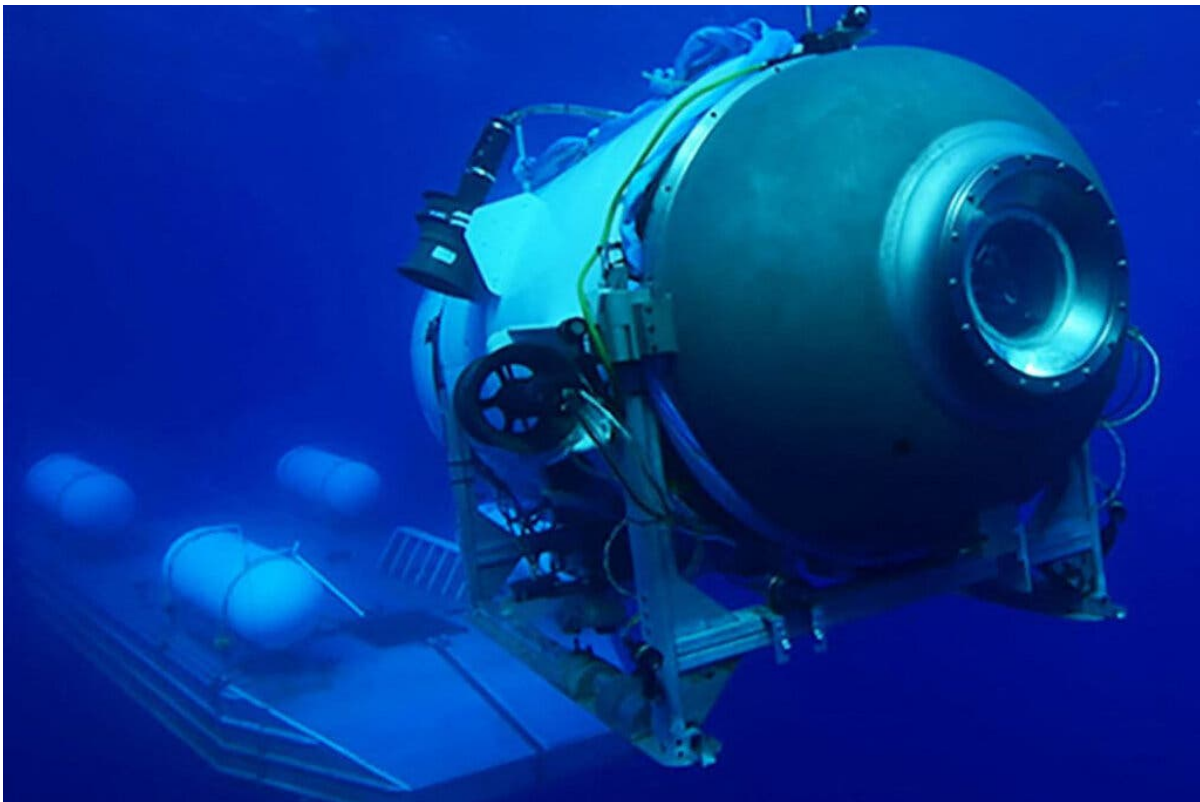
Nicholas Bogel-Burroughs, Jenny Gross, Anna Betts

June 20, 2023

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Experts inside and outside the company warned of potential dangers and urged the company to undergo a certification process.



This undated image, courtesy of OceanGate Expeditions, shows their Titan submersible launching from a platform. Credit...OceanGate Expeditions/Agence France-Presse — Getty Images

By [Nicholas Bogel-Burroughs](#), [Jenny Gross](#) and [Anna Betts](#)

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Years before OceanGate’s submersible craft went missing in the Atlantic Ocean with five people onboard, the company faced several warnings as it prepared for its hallmark mission of taking wealthy passengers to tour the Titanic’s wreckage.

It was January 2018, and the company’s engineering team was about to hand over the craft — named Titan — to a new crew who would be responsible for ensuring the safety of its future passengers. But experts inside and outside the company were beginning to sound alarms.

OceanGate’s director of marine operations, David Lochridge, started working on a report around that time, according to court documents, ultimately producing a scathing document in which he said the craft needed more testing and stressed “the potential dangers to passengers of the Titan as the submersible reached extreme depths.”

Two months later, OceanGate faced similarly dire calls from more than three dozen people — industry leaders, deep-sea explorers and oceanographers — who warned in [a letter](#) to its chief executive, Stockton Rush, that the company’s “experimental” approach and its decision to forgo a traditional assessment could lead to potentially “catastrophic” problems with the Titanic mission.

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Now, as the international search for the craft enters another day, more is coming to light about the warnings leveled at OceanGate as the company raced to provide extreme tourism for the wealthy.

A spokesman for OceanGate declined to comment on the five-year-old critiques from Mr. Lochridge and the industry leaders. Nor did Mr. Lochridge respond to a request for comment.

Mr. Rush, the company’s chief executive, is one of the passengers on the vessel and was serving as its pilot when it went missing on Sunday, the company said on Tuesday.

An aerospace engineer and pilot, he founded the company, based in Everett, Wash., in 2009. For the past three years, he has charged up to \$250,000 per person for a chance to visit the wreckage of the Titanic, which sank in 1912 on its inaugural trip from England to New York.

The critiques from Mr. Lochridge and the experts who signed the 2018 letter to Mr. Rush were focused in part on what they characterized as Mr. Rush’s refusal to have the Titan inspected and certified by one of the leading agencies that do such work.

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Mr. Lochridge reported in court records that he had urged the company to do so, but that he had been told that OceanGate was “unwilling to pay” for such an assessment. After getting Mr. Lochridge’s report, the company’s leaders held a tense meeting to discuss the situation, according to court documents filed by both sides. The documents came in a lawsuit that OceanGate filed against Mr. Lochridge in 2018, accusing him of sharing confidential information outside the company.

In the documents, Mr. Lochridge reported learning that the viewport that lets passengers see outside the craft was only certified to work in depths of up to 1,300 meters.

That is far less than would be necessary for trips to the Titanic, which is nearly 4,000 meters below the ocean's surface.

"The paying passengers would not be aware, and would not be informed, of this experimental design," lawyers for Mr. Lochridge wrote in a court filing.

The meeting led OceanGate to fire Mr. Lochridge, according to court documents filed by both sides. OceanGate has said in court records that he was not an engineer, that he refused to accept information from the company's engineering team and that acoustic monitoring of the hull's strength was better than the kind of testing that Mr. Lochridge felt was necessary.

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The company said in its lawsuit that it appeared Mr. Lochridge was trying to be fired. Mr. Lochridge responded by alleging wrongful termination. The legal battle ended in a settlement later in 2018.

The separate warning that OceanGate received that same year came from 38 experts in the submersible craft industry; all of them were members of the Manned Underwater Vehicles committee of the Marine Technology Society, a 60-year-old industry group that promotes, studies and teaches the public about ocean technology. The experts wrote in their letter to Mr. Rush that they had "unanimous concern" about the way the Titan had been developed, and about the planned missions to the Titanic wreckage.

The letter said that OceanGate's marketing of the Titan had been "at minimum, misleading" because it claimed that the submersible would meet or exceed the safety standards of a risk assessment company known as DNV, even though the company had no plans to have the craft formally certified by the agency.

"Their plan of not following classification guidelines was considered very risky," Will Kohnen, the chairman of the committee, said in an interview on Tuesday.

The industry leaders said in their letter that OceanGate should, at minimum, test its prototypes under the watch of DNV or another leading certification company.

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"While this may demand additional time and expense," the signatories wrote, "it is our unanimous view that this validation process by a third-party is a critical component in the safeguards that protect all submersible occupants."

Mr. Kohnen said that Mr. Rush called him after reading the letter and told him that industry standards were stifling innovation.

In an unsigned [2019 blog post](#) titled “Why Isn’t Titan Classed?,” the company made similar arguments. OceanGate said in the post that because its Titan craft was so innovative, it could take years to get it certified by the usual assessment agencies. “Bringing an outside entity up to speed on every innovation before it is put into real-world testing is anathema to rapid innovation,” the company wrote.

Another signatory of the 2018 letter, Bart Kemper, said in an interview that OceanGate had avoided having to abide by certain U.S. regulations by deploying the vessel in international waters, where Coast Guard rules did not apply.

“This letter was basically asking them to please do what the other submarines do, especially the passenger ones,” said Mr. Kemper, a forensic engineer who works on submarine designs.

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Submersibles, unlike boats and other vessels, are largely unregulated, particularly when they operate in international waters, said Salvatore Mercogliano, an associate professor of maritime history at Campbell University in North Carolina.

Because the Titan is loaded onto a Canadian ship and then dropped into the North Atlantic near the Titanic, he said, it does not need to register with a country, fly a flag or follow rules that apply to many other vessels.

“It’s kind of like a boat on the back of a trailer,” Mr. Mercogliano said. “The police will ensure the trailer meets the requirements to be on the road, but they really won’t do a boat inspection.”

The Passenger Vessel Safety Act of 1993, which regulates submersibles that carry passengers and requires that they be registered with the Coast Guard, does not apply to the Titan because it does not fly an American flag or operate in American waters, he said.

Mr. Rush has spoken publicly in the past about what he viewed as regulatory red tape in the industry.

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“There hasn’t been an injury in the commercial sub industry in over 35 years,” he told [Smithsonian magazine in a profile published in 2019](#). “It’s obscenely safe because they have all these regulations. But it also hasn’t innovated or grown — because they have all these regulations.”

In a [CBS report](#) last year, David Pogue, a former New York Times technology columnist, joined one of OceanGate’s Titanic expeditions and said the paperwork that he signed before getting onboard warned that the Titan was an “experimental vessel” that had not been

“approved or certified by any regulatory body, and could result in physical injury, emotional trauma or death.”

OceanGate has made two previous expeditions to the Titanic site, in 2021 and 2022, and said in a May blog post that it “always expects new challenges” with each trip. “We’re starting our Titanic Expedition earlier than usual and have been tracking all the social media posts showing icebergs and sea ice in the area,” the post read.

The earlier trips, while largely successful, were not without problems.

In February, a couple in Florida sued Mr. Rush, saying that his company refused to refund them the \$105,000 that they each paid to visit the Titanic on the Titan in 2018. The trip was postponed several times, according to the suit, in part because the company said it needed to run more tests on the Titan. The couple claimed that Mr. Rush reneged on his promise of giving them a refund and that the company instead demanded that they participate in a July 2021 voyage to the wreckage.

The lawsuit is pending and Mr. Rush has not responded to it. Court records do not list a lawyer representing him in that case.

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In a court filing last year, OceanGate referenced some technical issues with the Titan during the 2021 trip.

“On the first dive to the Titanic, the submersible encountered a battery issue and had to be manually attached to its lifting platform,” the company’s legal and operational adviser, David Concannon, wrote in the document, which was filed in the U.S. District Court for the Eastern District of Virginia, which oversees matters having to do with the Titanic. The submersible sustained modest damage to its exterior, he wrote, leading OceanGate to cancel the mission so it could make repairs.

Still, Mr. Concannon wrote in the filing, 28 people were able to visit the Titanic wreckage on the Titan last year.

Mr. Concannon invited the federal judge who was hearing the case, Rebecca Beach Smith, to join the company for an expedition, according to a separate filing, something the judge seemed interested in doing.

“Perhaps, if another expedition occurs in the future, I will be able to do so,” the judge wrote in May, adding that after many years of hearing cases about the Titanic wreckage, “that opportunity would be quite informative and present a first ‘eyes on’ view of the wreck site by the court.”

Kitty Bennett and Susan C. Beachy contributed research. Mike Baker and Shawn Hubler contributed reporting.

