

PRESS RELEASE

Cherbourg, 12th April 2021

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Naval Group welcomed the French Minister of the Armed forces for a visit of the shipyard hosting repair work on the nuclear attack submarine *Perle*.

Naval Group received the French Minister of the Armed Forces, Florence Parly and the French Chief of Navy, Admiral Pierre Vandier, at its Cherbourg site. They toured the shipyard where the nuclear attack submarine (SSN) *Perle* is currently being repaired. The Minister of the Armed Forces and Ambassador of Australia Gillian Bird also met with the Franco-Australian teams working on the Australian Future Submarine program.

«Naval Group and its industrial partners are fully committed to enable to allow the French Navy to recover as quickly as possible the potential of its six nuclear attack submarines. The success of the repair works on the *Perle* owes a lot to the know-how and professionalism of the Naval Group teams involved and we are proud to offer these unique skills at the service of a challenge whose scope we fully appreciate” declared Pierre-Eric Pommellet, Naval Group Chairman and CEO

The *Perle* repair and transformation

The repair and transformation works on the SSN *Perle* that has been heavily damaged last June is a totally new challenge. Five months after the beginning of the work, the undamaged back of the *Perle* will be assembled with the bow of the *Saphir*. The latter was withdrawn from service in July 2019.

The hybridisation of two submarines is both an innovative and controlled operation. Different steps included:

- The cutting of the two submarines *Perle* and *Saphir*, respectively in February and March
- The very accurate movement and alignment of halves of the submarines on “walkers” at the beginning of April
- The welding of the thick hull of the two half-submarines, followed by the reconstruction of the inner decks in the junction area
- The splicing of hundreds of cables and manifolds

Around 100,000 hours of engineering studies are underway to update some 2,000 drawings and documents and to study in detail the junction area (a 1,4 meter long area added to the submarine) and the splicing area of the cables and pipes that run through the submarine from

bow to stern. An important layout work of the junction area has been carried out using a 3D digital model of the *Perle*, realised by a team of five design integrators. They created a digital twin of the area, in which they defined the pipe and cable routes, the supports that will hold the pipes and cables, etc. This 3D model will also allow the electricians and pipe fitters to rehearse their movements in virtual reality before carrying out the operations on board. As a technical authority for naval weapons systems, the French defense procurement agency, the Direction Générale de l'Armement (DGA) has validated the repair process for the SSN *Perle*.

Once refurbished, the SSN *Perle* will be stationed at the Toulon naval base. Naval Group will start afresh at the end of 2021 the Periodic Interruption for Maintenance and Repair (PIMR) and finally the upgrade of the submarine.

An extraordinary industrial site

Since the French Minister of the Armed Forces decided on October 22nd to proceed with the SSN *Perle* repair, all the milestones have been reached. The *Perle* was transported from Toulon to Cherbourg. She was positioned at the beginning of January 2021 on the launching device of the DGA and the preparation works for the thick hull cutting have started with the decks, bulkheads and electrical cables cutting. The thick hull cutting was a sensitive step perfectly mastered.

The work site in figures

This large-scale project represents more than :

- 300 people and more than 20 skills;
- 100,000 hours of engineering work with the creation and the update of more than 2,000 drawings and design documents;
- 250,000 hours of industrial work shared between cutting tasks, deck and internal partitions reconstitution, welding and junctioning;
- More than 120 electric cables that will be reconnected, which is equivalent to more than 2,000 connections;
- The PIMR works that will take place in Toulon and that will represent more than one million hours of work

The new SSN *Perle*

The nuclear attack submarine *Perle* is the last of six Rubis Class submarines, admitted to active service in 1993. Once renovated, she will be 1,4 meters longer, a volume specifically created to integrate the junction box necessary for the splicing of electrical cables in particular. This extension will also provide two new living quarters, which will save space for the crews.

The Rubis Class will be progressively replaced by the Barracuda submarines. The first of series, the SSN *Suffren*, was delivered to the French Navy in November 2020. The construction of the Barracuda submarines continues with 5 submarines under construction at the Cherbourg site.

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About Naval Group

Naval Group is the European leader in naval defence. Naval Group uses its extraordinary know-how, unique industrial resources and capacity to arrange innovative strategic partnerships to meet its customers' requirements. As a system-integrator and prime contractor, the group designs, produces and supports submarines and surface ships. It also supplies services to shipyards and naval bases. Attentive to corporate social responsibility, Naval Group adheres to the United Nations Global Compact. The group reports revenues of 3.3 billion euros and has a workforce of 15,798 (data for 2020).

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