

Pacific Grebe

A new INF3 class vessel, the Pacific Grebe, joined the fleet of Pacific Nuclear Transport Ltd (PNTL) in 2010.



This vessel belongs to the latest generation of INF3 class PNTL vessels dedicated for nuclear transports. The design of these ships is a development of the previous fleet of INF3 class ships incorporating current regulations, and technologies. The cargo compartments are protected by a double hull, and all essential systems have back up systems to provide redundancy and resilience. The ships exceed the requirements of the INF code.

PNTL's ships are classified by the International Maritime Organisation (IMO) of the United Nations at its highest level of INF3 and are dedicated to the transportation of nuclear materials. The INF Code regulates shipments by sea of packaged irradiated nuclear fuel, plutonium and high level radioactive wastes.

PNTL overview

PNTL is the world's leading nuclear transport specialist, with more than 40 years of experience without any incidents involving the release of radioactivity. PNTL uses dedicated vessels to transport spent fuel, MOX fuel assemblies and vitrified high level waste between Japan and Europe. PNTL is owned by INS (62.5%), a Japanese consortium (25%) and AREVA through its subsidiary TN International (12.5%).

Factbox

Dimensions

Length overall	103.92m
Breadth	17.25m
Draft	6.75m
Number of holds	4
Capacity	20 flasks
Design speed	14 knots
Deadweight (max)	4,500 tonnes
Principle Cargo carried	High Level Waste /Compacted Waste

Safety in depth

The cargoes carried are protected by the transport packages containing the nuclear materials. These packages are designed and tested to international standards set by the International Atomic Energy Agency (IAEA). The design of the Pacific Grebe, like her

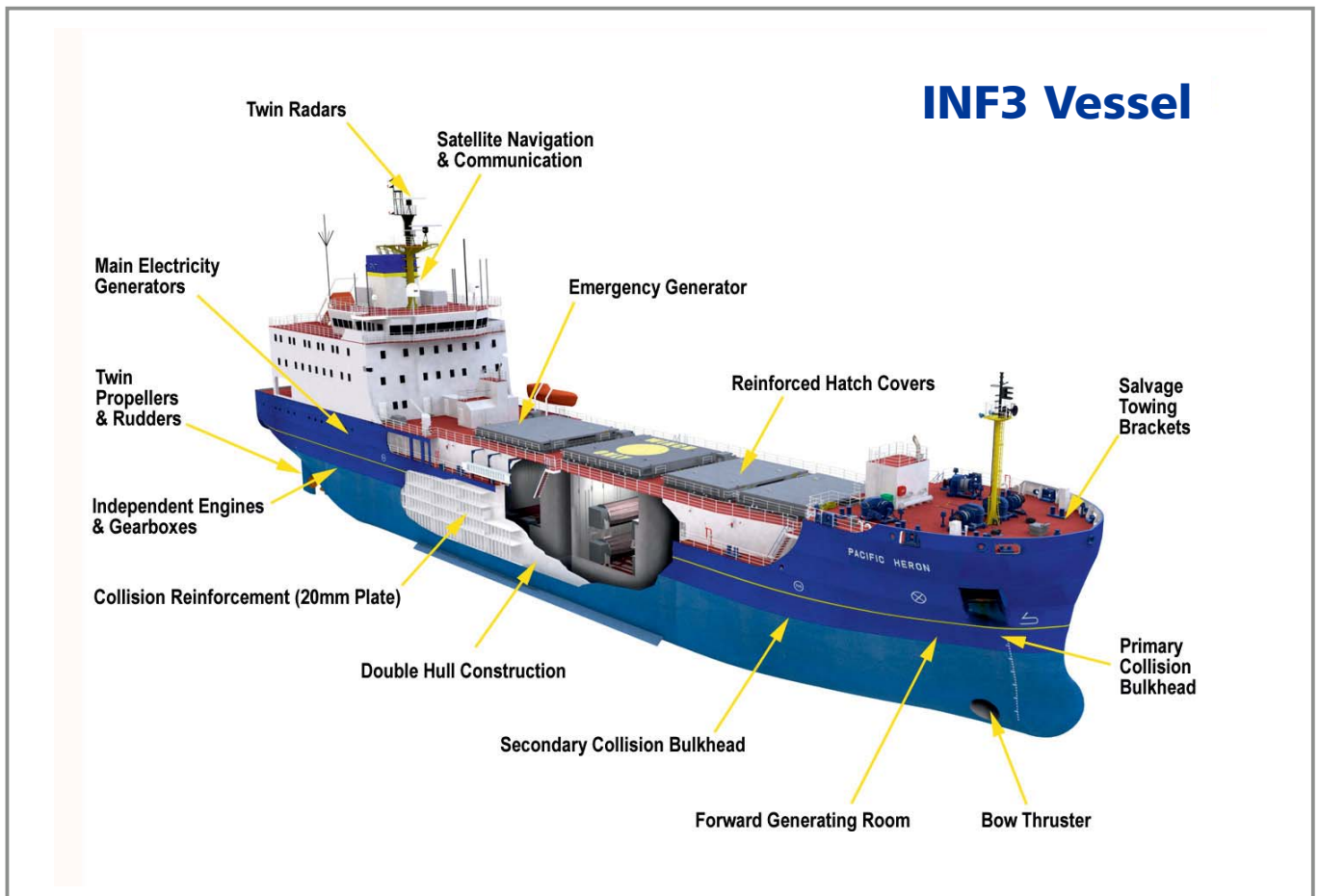
sister ships the Pacific Heron and the Pacific Egret, represents one of a series of further barriers to protect its cargo. It has a double hull throughout and impact resistant structures between the hulls.

The vessel also has duplication and separation of all the essential systems to provide high reliability and accident survivability. This means that if any important system fails during a voyage, either due to mechanical failure or as a result of an accident, there is always a back-up system ready to be brought into operation.

In addition, no tanks or spaces containing oils or other pollutants are positioned directly adjacent to the outer hull in order to ensure that there is no pollution should a tank be ruptured during an incident.

In summary the key safety features are:

- double hull throughout, with additional strengthening surrounding the holds
- separate machinery and steering gear rooms
- hold cooling plant located outside holds for easier maintenance
- integrated bridge system
- no oil tanks adjacent to outer hull
- security features incorporated into design
- improved environmental and safety performance
- advanced fire detection and fire fighting systems



In the unlikely event of a ship getting into difficulty, a fully trained and equipped team of marine and nuclear experts is available on a 24-hour emergency standby system, in line with IAEA requirements. The ships are equipped with a specialist system to assist in their location and subsequent salvage, should the unlikely need arise.

Security

The international regulators providing guidance for the protection of nuclear material are the International Atomic Energy Agency (IAEA) and its Member States, and in the European Union, Euratom.

Prior to each shipment a transport security plan is prepared, in accordance with the regulations, documenting the specific arrangements to ensure security of the cargo.

The specific regulations and guidelines that are met or exceeded by the design and operation of the Pacific Grebe are as follows:

- NISR 2003 – UK Nuclear Industry Security Regulations
- Convention on the Physical Protection of Nuclear Material (IAEA publication INFCIRC 274)
- Recommendations on the Physical Protection of Nuclear Material published by the IAEA (INFCIRC 225)

Crew

The Pacific Grebe will carry a crew which is substantially larger than that found on chemical tankers of a similar size. All senior navigating and engineering officers hold certificates of competence for a higher rank than the one they serve. For example, the Chief Officer must hold a Master's Certificate. In addition all personnel are

actively encouraged to enhance their skills and qualifications and to take relevant training courses.

Regulations

The Pacific Grebe's design and operation meets all of the following the requirements:

- United Kingdom Maritime and Coastguard Agency (MCA) regulations
- Japanese Ministry of Land, Infrastructure, Transport and Tourism (MLIT) regulations
- International Convention for the Safety of Life at Sea (SOLAS), which sets standards for the safe operation of vessels
- INF code: International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships
- The International Convention for the Prevention of Pollution from Ships (MARPOL), which protects the marine environment from pollution by vessels
- IMO International Maritime Dangerous Goods (IMDG) Code applicable to radioactive materials
- IMO International Safety Management Code (ISM Code)
- IMO International Ship and Port Facility Security Code (ISPS Code)
- The United Nations Convention on the Law of the Sea (UNCLOS), which recognises the principles of the right of innocent passage through territorial seas and the freedom of navigation beyond; and also that vessels carrying nuclear substances must carry documents and observe special precautionary measures when exercising the right of innocent passage through territorial seas.



On the bridge of the Pacific Grebe during a VIP tour



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