

Recycling of Ex-HMS Invincible A111



DSA



HMS Invincible

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Executive Summary

The former Royal Navy Aircraft Carrier HMS Invincible ceased operational service on the 10th September 2010.

Following an open competition against strict criteria (including environmentally sound management) for the recycling of the former HMS Invincible, The Disposal Services Authority awarded preferred bidder status to the Turkish company LEYAL Ship Recycling whose formal proposal was to conduct the recycling of Ex-HMS Invincible at their dedicated ship dismantling facility in Aliaga Turkey.

The vessel was towed independently and left HMNB Portsmouth under tow on the 24th March 2011 and arrived in Turkey on the 12th April 2011. On the 4th January 2012 LEYAL reported that Ex -HMS Invincible had been completely dismantled and recycled in accordance with the relevant EU Waste Management Legislation and the UK's Ship Recycling Strategy in just 10 months demonstrating the value of an experienced workforce familiar in the complex art of Ship Recycling. Out of all the materials that are required to build a ships of this type 93% of the material was recovered and recycled and less than 7% was disposed of as waste.



To equip and support our Armed Forces for operations now and in the future

Background

General Particulars

Date and Place of Build	Laid Down: 1973, Vickers Shipbuilding Barrow-in-Furness UK Completed: 1980
Date ceased operational service	10 September 2010
Type of Vessel	CVS - Carrier Vehicle Strike (Light aircraft carrier)
Summary of condition	Sound for Towing, not in running condition.
Displacements & Weights in Tonnes	Current: 17000 Lightweight: 16000
Estimated metal weight	10000 tonnes including machinery
Estimated metal %	95% mild steel
Draughts	5.2m fwd. 5.8m Mid. 5.8m aft. Ship upright.
Length	OA 210m. W/L 193m
Beam	Extreme 35m. Ex walkways 32m. W/L 27.53m
OA height Mast-head to W/L	46m (estimated, at current draught)
Last Docking	March 2006. Portsmouth
Last Refit	July 2001. Portsmouth
Historical Interest	HMS Invincible was a British light aircraft carrier, the lead ship of three in her class in the Royal Navy. She was launched on 3rd May 1977 and is the seventh ship to carry the name. She saw action in the Falklands War when she was deployed with HMS Hermes; she took over as flagship of the British fleet when Hermes was sold to India. Invincible was also deployed in Yugoslavia and Iraq. She was decommissioned in 2005.

HMS Invincible

Background on the Disposal Services Authority (DSA)

- The DSA has delegated authority to dispose of all UK MOD surplus equipment in the UK and overseas.
- The DSA's role is to dispose of surplus assets identified by the owner for release into the commercial market.
- The DSA is the only Government Organisation offering a completely managed service for the Re-use, Recycling and ultimately disposal of surplus government assets.

The DSA's primary aim is to sell surplus ships for further use but where this is not possible (for instance, when ships are no longer seaworthy and only suitable for recycling) its objectives are to ensure that the vessel is recycled in a safe and environmentally sound manner, and in compliance with its legal responsibilities as a producer of waste.

Introduction

The DSA's primary aim is to sell surplus ships to Overseas Governments for Military use but where this is not possible (for instance, when ships are no longer seaworthy and only suitable for recycling) its objectives are to ensure that the vessel is recycled

in a safe and environmentally sound manner, and in compliance with its legal responsibilities as a producer of waste.

HMS Invincible is the 14th successful ship to be recycled for DE&S Disposal Services Authority (DSA).



Ex -HMS Invincible departs from HMNB Portsmouth on the 24th March 2011

Competition

Information and Requirements

The preparation of the vessel by the MOD's Disposal Reserve Ship Organisation (DRSO) played a vital part in the process and an inventory of hazardous materials and a 'Green Passport', highlighting the hazardous material on board was produced, along with a Type 2 Asbestos survey. Both of which were included as part of the tender documents. The activity conducted by DRSO demonstrated to ship owners the value in investing in the preparation of vessels for disposal which is of enormous benefit to the UK MOD as it continues to set standards for the dismantling of Government owned vessels.

DRSO played an important part in supporting the towing preparations on deck and contributed to the successful sale and departure of this capital ship whose disposal preparations took many months of hard work to complete.

Tenders were limited to bidders from within the Organisation for Economic Co-Operation and Development (OECD) – as recommended by the UK Ship Recycling Strategy (SRS). 9 compliant bids were received.

This information was provided to all bidders to enable them to identify key environmental issues and cost drivers in their tender responses. The DSA secured additional provisions from the bidders in the form of a substantial financial bond, acting as security to ensure that the vessel was recycled in the destination stated and not reflagged and taken to a non-compliant yard outside the OECD.

The recycling of ships is covered by a range of UK and EU legislation for which Department for Environment, Food and Rural Affairs (DEFRA) is the lead department in the UK. This Legislation includes but is not limited to:

- The Waste Shipments Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006
- Parts of the Radioactive Substances Act 1993
- Environmental Protection (Duty of Care) Regulations 1991 SI 2839

- Hazardous Waste (England and Wales) Regulations 2005 SI 894
- Health & Safety at Work etc 1974
- Control of Asbestos at Work Regulations 2006

Ship Recycling Evaluation

Following the recommendations of the SRS, the DSA once more convened a Ship Recycling Evaluation Committee, involving representatives from Defra, Maritime Coastal Agency (MCA), DRSO and the DSA to assess the tender responses against set criteria called for in the Strategy. Prospective purchasers were required to produce a detailed Ship Recycling Plan, demonstrating their understanding of all the requirements involved in Ship Dismantling against each of the following:

- Facilities & dismantling methodology
- Health & Safety
- Environmental plans
- Operations, sub-contractors
- Licences & permits
- Media, and Trans-Frontier Shipment of Waste (TFS)

The Ship Recycling Plan is paramount to the consideration of offers to purchase and should provide evidence to enable the Evaluation Committee to score against.

Award of Preferred Bidder Status

The DSA awarded preferred bidder status to LEYAL Ship Recycling, one of Turkey's leading Ship Recycling Companies in Aliaga (near Izmir) on Turkey's Aegean Coast. This heavily industrialized part of Turkey has been established by the Turkish Government as the area dedicated in the business of ship dismantling. A formal contract was awarded in January 2011 once the appropriate consents were obtained, in accordance with the provision of the EC Waste Shipments Regulation 10313/2006.

HMS Invincible

Recycling of Ex- HMS Invincible

Photographic evidence was provided at key stages of the dismantling process, which ensured that the DSA could be confident on the method and manner in which the Vessels were dismantled and recycled in accordance with the aims of HMG's Ship Recycling Strategy (SRS).

In addition to these checks, LEYAL Ship Recycling were also subjected to audits and inspections from the UK Environmental Agency, ensuring that LEYAL Ship Recycling were adhering to all current H&S and Environmental Legislation and the terms of their waste management permit.

Photographic Evidence

The photographic evidence shows the dismantling progress of Ex-HMS Invincible and this coincides with the monthly reports, Demo Schedule and the sales progress submitted by LEYAL Ship Recycling.



Ex-HMS Invincible arriving at LEYAL Ship Recycling in Aliaga Turkey April 2011



Dismantling of the Flight Deck May 2011



HMS Invincible



Progress of works showing dismantling of superstructure
June 2011

Progress of Works
July 2011



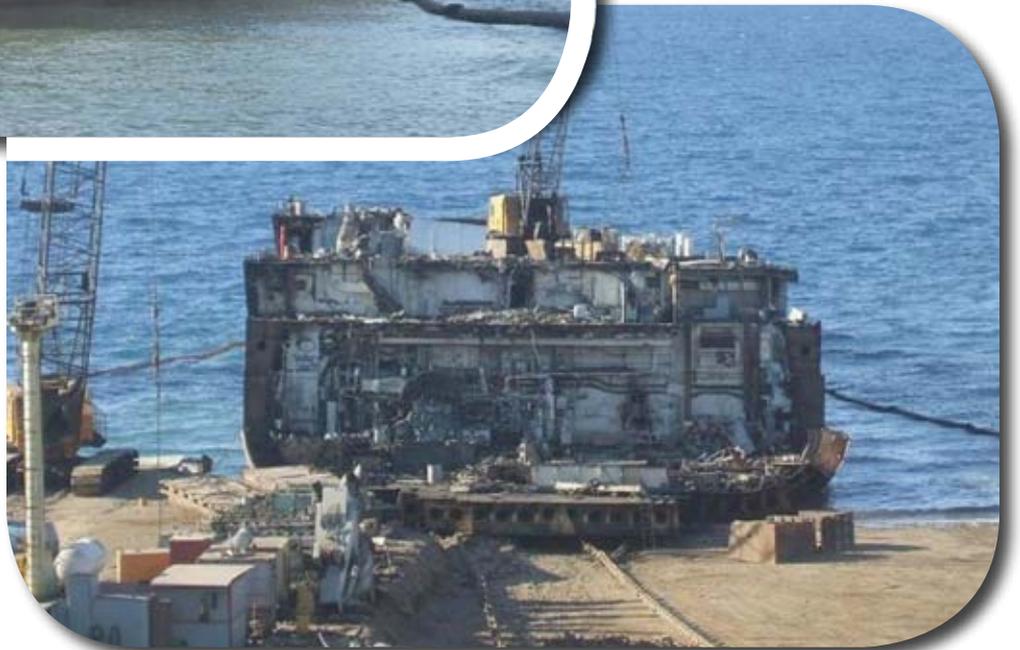
Progress of works Aug 2011

Aug 2011 Ship on Slipway



Sept 2011

Sept 2011 – superstructure dismantling complete



HMS Invincible

Oct 2011 Ship on Slipway, Asbestos removal completed



Oct 2011 Invincible as a Hull is fully gone



Final Outturn

At the start of the project DRSO produce a 'Green Passport', the purpose of this was to identify what hazards were contained in the vessel which is then

compared with the final outturn figures reported to the DSA by LEYAL Ship Recycling.

(All figures in Tonnes)	Expected	Actual	Destination
Ferrous	10,000	10,214	Recycled
Non-Ferrous	300	454	Recycled
Other Products	1,500	163	Sale
Remnant Waste	1,250	852	Disposed
Total	13,050	11,683	

Final Destination	Tonnes	%age of Total
Recovered or Recycled	10,831	93%
Disposed of as Waste	852	7%
Totals	11,683	100%

The Green Passport did not calculate expected Asbestos by weight and therefore it was not possible to compare directly with the final asbestos quantity found which was 1,740kg.

The relatively small amounts of asbestos found on board was primarily as woven conduits and gaskets

and was in line with the expectations for a vessel of this age.

There was only small quantities of residual liquid waste (including oils) and the surveys carried out revealed no PCB content on board.

Conclusion

Ex-HMS Invincible was completely recycled on the 4th January 2012.

The DSA have now successfully recycled 14 vessels in which all have complied with all international agreements and principles concerning environmentally sound management of waste.

HMS Invincible is LEYAL's eighth and highest profile ship recycled so far following previous recycling on Type 42 destroyers Cardiff, Newcastle, Glasgow, Exeter, Southampton and Nottingham, and the former fleet auxiliary ship Oakleaf. More recently they have completed the recycling of Type 42 Destroyers Exeter, Southampton and Nottingham. LEYAL received a great deal of media interest in this vessel as well as enquiries from former sailors

who received, with the compliments of the company and in recognition of the strong attachment that Invincible had with those who served on her, a memento in the shape of a small piece of the hull suitably engraved....and who said that scrap dealers were ruthless!!

This final report will be sent out to senior internal stakeholders and a growing number of other foreign Governments as they view the UK MOD as the lead when it comes to recycling warships.

The report will be up loaded on to the DSA website <http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/FinanceandProcurementPublications/DSA/Recycling.htm>



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