EXECUTIVE SUMMARY

Introduction

The SS RICHARD MONTGOMERY grounded and split in two off Sheerness in 1944, whilst carrying a cargo of explosives. The wreck is protected under s. 2 of the Protection of Wrecks Act 1973, as being dangerous by virtue of its contents.

Surveys are carried out on an annual basis to ensure that any changes to the wreck, or its immediate environment, are discovered quickly. Since 1994 the surveys have been undertaken using up-to-date sonar technology.

Despite these precautions, it was deemed prudent to carry out a Risk Assessment to study the implications for the future of the SS Richard Montgomery. Firstly to identify the risks associated with the wreck, secondly to assess the probability of the risks identified, and thirdly to recommend options for the future management of the SS Richard Montgomery, based on the findings of the Risk Assessment report.

The main findings of the report

A mass explosion of the SS Richard Montgomery would be a significant event, causing damage to property, mainly to window glass, together with injuries from flying glass and hearing damage. The financial cost alone of such an event could approach 1 billion pounds. In addition, the explosion would generate a tidal wave up to a height of 1 metre, however, this is considered to be within the capabilities of sea defences in the affected area.

The state of the munitions is unknown, as expert opinion varies on the probability of stability and detonation over time. It is thought that the disintegration of the wreck will become increasingly likely, and that in 10 years time munitions will be disturbed, with dispersal likely in 20-30 years time, which could pose a risk to the public.

A wide range of options for the long term future management of the wreck were considered in this study; these include Removal, Entombment, Containment, Monitor with Non-Intervention and Do Nothing.

After lengthy consideration of all these options (see section on Suggested Options for Future Management), three of the options were discarded as not meeting the needs highlighted by the Risk Assessment: Entombment, Monitor with Non-Intervention and Do Nothing.

The two remaining options, Removal and Containment were considered the most viable. Further detailed assessments were made of the logistics, costing and public relations issues of these two options. The results can be summarised as follows:

The wreck still lies in 15 metres of water off the mouth of the Medway five miles from Southend. Its masts can be seen above the surface at all states of the tide.

Previous governments decided that leaving its 13,700 bombs and other explosives in place was less risky than trying to remove them.

Now, however, there are increasing fears the ship could deteriorate further in strong tides, detonating the explosives or scattering them along the coast. MPs studying the report say doing nothing "is not an option" but have yet to decide how to proceed.

Compiled in July 2001 by marine consultants BMT Reliability, the report says that an explosion would be "a significant event, causing damage to property, mainly to window glass, together with injuries from flying glass and hearing damage".

It admits the state of the munitions is unknown, and that "expert opinion varies on the probability of stability and detonation over time".

But it warns that disintegration of the wreck will speed up over time and that "any munitions which may still be active will increasingly be at risk from the collapse of the structure and/or may be liable to escape".

Sir Teddy Taylor, Tory MP for Rochford and Southend East, said: "It is a very dangerous and worrying situation. Every year the ship sinks a little lower and the danger becomes even greater."

Bob Marshall-Andrews, Labour MP for Medway, said the report shows "we have a very serious problem".

Removing the bombs is considered so risky that up to 15,000 people living near the wreck would have to leave their homes for months.

The recommended "containment" option would mean creating a huge barrier around the wreck and covering it in concrete and clay.

Ministers will make a final decision in the summer. Local MPs were this week briefed on the situation by transport minister David Jamieson.

LOAD-DATE: January 15, 2005

CONCLUSIONS AND RECOMMENDATION

As a result of the Risk Assessment of the SS Richard Montgomery the options for future management of the wreck have been assessed.

EXPLOSION

Explosion Probability - The majority of the explosives will remain capable of detonation for possibly hundreds of _years. Most munitions will be no more sensitive than when new, however, some may not have passed their most sensitive phase, and have a higher risk of premature detonation. Experience from other similar wrecks indicate that the explosion of one munition on the wreck is likely to result in mass explosion

Consequences - There would be significant consequences should a mass detonation occur, endangering property, and leading to injuries to the public, in particular from flying glass. Evacuation would be necessary for any intervention with the wreck.

The Water Wave *Effect* - An explosion would create a water wave, approximately 1 metre high, this would be well within the capabilities of sea-defences in the area. A 3 metre wave would be expected in the shipping channel.

Environmental Impacts - The effect of an explosion would be significant and' costs could reach one billion pounds.

COLLAPSE OF WRECK AND DISPERSAL

Structural Degradation - It is thought that the structure will start to collapse in approximately 10-20 years time. Collapse of the 'tween' deck would result in fused munitions falling if the vessel has not filled with silt on the inside.

Dispersal of Munitions - Should munitions escape, the most likely area for beaching would be the Isle of Grain.

SOLUTION AND COSTS

The environmental impact of leaving the vessel and cargo in place would be minimal. The effect of any remedial work would be minimal, and the environment would rapidly recover after any works.

Cost Assessment

The total cost for the option of removal and over a 100 year period is estimated at £17.5 to 27.1 million.

The total cost for the instalment of the containment option would be £3.85 million to £4.25 million, and over a 100 year period (including surveys and maintenance) would reach £5.85 to 6.25 million.

Press comment of the likely impact if the munitions exploded.

The Evening Standard (London)

January 14, 2005

SECTION: A; Pg. 6

LENGTH: 496 words

HEADLINE: Tidal wave alert over warship in Thames

BYLINE: DICK MURRAY

BODY:
A WRECKED Second World War ship lying in the Thames packed with explosives could cause a tidal wave if it blew up, a secret government report has revealed.

Damage costing £1 billion would occur over a radius of more than 12 miles if the **SS Richard Montgomery's** munitions cargo exploded and "a mass explosion is considered possible," according to the shock report.

Much of the damage would be caused by flying glass and debris. But an explosion would also generate a tidal wave up to a metre high which "could possibly swamp local coastal communities".

The report also says that in busy Thames shipping lanes - often packed with pleasure craft - the wave could reach up to three metres.

Despite these dire warnings, the Government has yet to publish its risk assessment on the US liberty ship, which sank in 1944 with about 1,400 tonnes of high explosive and a vast quantity of white phosphorus munitions on board.

It was delivering desperately needed supplies to Britain but broke in two when it ran aground about one-and-a-half miles from Sheerness and the Isle of Grain.

Removal

Removal of the wreck and munitions is technically feasible, would take between 6 months and 1 year, and when complete would have removed the risk.

During the period that an Explosive Ordnance Disposal (EOD) team would be working on site, evacuation of an area of at least 2.5 mile radius from the wreck, and restricted operation of the shipping channels would be required. Should an explosion occur during removal operations there could be loss of life to the operators, and significant damage to property. Considering the amount of munitions aboard, an event of this nature must be considered a possibility.

The risk levels would increase for the duration of the removal activity but the levels of exposure to risk for the general public could be controlled, provided suitable precautions, including evacuation, were taken. When completed, the risk would be removed.

The total cost for the option of removal and over a 100 year period is estimated at £17.5 to 27.1 million.

The practical difficulties and costs associated with removal prevent this option from being recommended.

Containment

Containment offers significant reduction in risk and the option of bunding the wreck and allowing it to infill with silt offers a practical solution. This option controls a number of aspects of risk that the SS Richard Montgomery is subject to.

This option does not involve any direct interference with the wreck apart from survey activity and provides much greater control of risk than is provided with the current approach, and has the advantage of being reversible. Suggested construction materials include Concrete and reused, dredged London Clay.

One of the main concerns with this option was the potential influence on the tidal flow in the Medway channel. However, a study commissioned from HR Wallingford found that an elliptical bund enclosing the wreck would minimise the effect upon tidal flow in the area.

Subsequent to the creation of the bund there would need to be an ongoing survey of the seabed to confirm that the vessel is fully supported, and that the structure is stabilised. The report recommends that 5 annual surveys are undertaken, followed by a survey every five years to maintain an eye on any changes.

The total cost for the instalment of the containment option would be £3.85 million to £4.25 million, and over a 100 year period (including surveys and maintenance) would reach £5.85 to 6.25 million.