SS Richard Montgomery sank 20th August 1944

SS Richard Montgomery

“The Final Solution”

Mike A Barker M.B.E.

MikeABarkerMBE@gmail.com

History of Responsibility

Board of Trade - MOD - DfT since 1983

Committee on Hazardous Wrecks comprised Experts from MOD and Home Office, Health and Safety Executive, Port of London Authority and Medway Ports that met annually but disbanded by the government in 1983

DfT never employed an expert in explosives and munitions to expertly consider advice it commissioned or was offerred
e.g. DERA in their report of 1997 or given by others including e.g. me

Theresa Crossley claimed defining a safe zone, if the wreck exploded, would be the responsibility of the national and local civil authority contingency framework.
These would include the Chief Constables of Kent, Essex and the Metropolitan Police
But they deny such responsibility, even as a possible target of a terrorist attack

Department for
Transport

Theresa Crossley
Divisional Manager
Shipping Policy Division
Zone 2/33
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Our Ref: 09/022690/07, 01/022317/07 & 09/021965/07

7 November 2007

Mike Barker Esq MBE
Hillside
London Road
Dunton Green
SEVENOAKS
Kent TN13 2TQ

Dear Mr Barker

SS Richard Montgomery

Thank you for your recent letters to the Secretary of State, setting out your further thoughts on the SS Richard Montgomery. I have been asked to reply.

We are fully aware of the risks associated with the management of the wreck of the *SS Richard Montgomery*. In making recommendations to Ministers on options for the future management of the wreck, we have drawn on advice from a number of experts in their respective fields, including munitions experts from the Defence Academy of the United Kingdom.

I have checked with the Receiver of Wreck about the manifest documents we hold and have established that she does have a copy of the hand written manifest you mention. We have also checked that subsequent work done through DERA used this and salvage reports to gauge the amount of munitions left on board the vessel. I can therefore reassure you that the information you hold was made available to DERA and that their conclusions were based on all the relevant facts.

The exclusion zone currently in place around the wreck was established under the Protection of Wrecks Act 1973 to prevent unauthorised tampering with the wreck. It takes account of the navigation needs of shipping along the Thames estuary and through to Medway Ports. It is not intended as an indication of what would constitute a safe area in the event of an explosion - that is not something that would be addressed through the Protection of Wrecks legislation, but rather through the national and local authority civil contingency framework.

Local Members of Parliament and the local authorities have all been fully briefed on the results of the experts' studies and assessments in a series of meetings with DfT Ministers and officials from DfT and the Ministry of Defence. We do not see the need to arrange any further meetings at present.

The possibility of a terrorist attack on the SS Richard Montgomery is kept under continual review at the highest level with the appropriate authorities.

If you wish to see the BMT reports, we can make them available under supervision in our offices. However, you will not be able to take them away or copy them. Please let me know if you wish to take up this viewing. We will however need to consult Defence, Science and Technology Laboratory, the successor authority to DERA for their views on whether the DERA report you requested can be released.

Whilst your concerns about the SS Richard Montgomery are noted, in formulating plans for the management of the wreck the Government has taken appropriate advice from current leading experts. We will continue to liaise with colleagues in the Ministry of Defence and will keep local MPs and Local Authorities abreast of any new information as it becomes available. We will also continue to publish survey reports on the Maritime & Coastguard Agency's website.

I hope that all this answers the points you have made in your numerous letters, e-mails and telephone calls to this Department.

Yours sincerely

TM Crossley

THERESA CROSSLEY
Head of Shipping Policy Division

Prime Responsibility
to protect the public

- Any single bomb found on UK land or mine in UK territorial waters, has been routinely cleared for many decades along the lines of;-

  Public alert -> Police confirm and task Army or Navy EOD Unit -> EOD Unit states safe zone needed -> Police move people outside zone -> Bomb made safe and cleared
- But DfT have continued to disregard this process for the 10,358 bombs that pose a very significant risk to the public with their incompetent, unqualified management
- DfT stated it was not their responsibility to define a safe zone
- They have ignored the conclusions in the 1997 DERA Report that the fragmentation bombs were safe to remove with EOD normal handling and their advice to use computer modelling to assess the risk to people and damage to property
- DfT have failed to define a safe zone and task the police to remove people outside to be safe from the possible events they have stated that could cause it to explode.
- DfT have little idea how many people would be killed or how far people should move to be free from any risk, after 30 years of responsibility for its management
- DfT have ignored the risk to life and property, making their risk assessment flawed, misleading and life threateningly dangerous
- DfT rejected my offer to have all the risks modelled in 2007
- DfT are deliberately putting lives in unnecessary danger that is actionable in law

DfT misinformation

- The 500 m marked zone is intended to only warn shipping of its presence
- It is not a safe zone boundary if the wreck exploded though many believe it is, like Mr Neil Roberts, Senior Executive of Lloyds Marine Association who wrote two letters to the Sec of State of the DfT, Ruth Kelly, and never had any reply.
- DfT ignore any public debates or give any assurances. Most recently they ignored the invitation to make a statement by ITV Meridian News on 3rd March 2013
- Local MP Gordon Henderson had no reply from Philip Hammond he referred to in his letter, as he did not convey any response to me
- Gordon Henderson's loyalty seems to the DfT rather than his electorate, as he stated on Meridian News "Evacuating Sheppey would be impracticable." Yet the risk to life could be greater than those killed by Hiroshima and Nagasaki bombs
- DfT and Police have not made adequate protection against a terrorist attack
- Dft have not considered the natural gas and fuel silos on the Isle of Grain and Canvey Island could lead to man's greatest poisonous cloud of carbon monoxide.
- The DfT have refused to hold a meeting with any expert to defend their Policy of Non-Intervention and comment on my assessment and proposed clearance plan

LLOYD'S MARKET ASSOCIATION

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One Lime Street
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www.the-lma.com

Rt.Hon.Ruth Kelly M.P.
Secretary of State for Department of Transport
Great Minster House
76 Marsham Street
London
SW1P 4DR

14.2.2008

SS Richard Montgomery

Dear Minister,

I write with regard to the SS "Richard Montgomery", the wrecked Liberty ship lying in 15 metres of water roughly one and a half miles from Southend which is marked on charts and has a 500 metre (traffic) exclusion zone around it.

Over the years, the wreck has been assumed to be benign, but having recently been made aware of the correspondence between your department and Mr. Barker from July 2007 (7th November letter enclosed), it would not appear possible to continue this assumption.

From an insurance point of view, where there is risk, insurers must allow for the worst case. Market practitioners have concerns over the stability of the ship and would be grateful to know what actions you will be taking in this case.

Yours faithfully,

Neil Roberts
Senior Executive

cc Theresa Crossley

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Rt.Hon.Ruth Kelly M.P.
Secretary of State for Department of Transport
Great Minster House
76 Marsham Street
London
SW1P 4DR

22nd April 2008

Dear Minister,

I wrote to you in February on the subject of the Richard Montgomery but have not had a response. I am now writing to inform you that having been made aware of the recent correspondence with Mr Barker, it was thought prudent to canvas other informed and independent opinion in order to ascertain the potential liabilities of Lloyd's insurance market underwriters.

Our research supports the technical points made by Mr. Barker, particularly the central contention that this wreck could detonate and would explode given the right set of unfortunate circumstances. These could include a collision incident which in our view is impossible to rule out. It is reasonably foreseeable that an inexperienced crew could lose their bearings in a fog or that a loss of engine power could occur in similar wind conditions to those which caused the vessel to ground originally.

Whilst it is understood that no official detailed modelling has taken place, independent opinion estimates a considerable blast zone causing major structural damage over a distance of several miles with corresponding loss of life far beyond that. It is believed that an event of this magnitude, far exceeding Flixborough or Buncefield, would be more costly than the economic loss pursuant to a closure of the river for a period of weeks while the bombs are removed or made safe. The nearest equivalent incident is the Halifax Nova Scotia explosion which killed 1,900 people and injured 4,000 in December 1917.

It would seem to be in the public interest to clear this wreck, and that a decision to wait and see would be very hard to justify after the event. The Thames Gateway project is another complicating factor. As mentioned in the previous letter, where there is risk, insurers must allow for the worst case and market practitioners would be grateful to know what actions you will be taking in this case.

It is our understanding that the government owns the wreck, and thus any consequent liabilities for policies of indemnity (eg property) would be met from government funds. In the first instance, the insurers would bear the life, contingency and marine exposures such as ships and pollution. Please confirm this is correct and who insurers would subrogate against if they sought to recover their losses.

Yours sincerely,

Neil Roberts
Senior Executive

Cc Theresa Crossley

GORDON HENDERSON MP
Member of Parliament for Sittingbourne and Sheppey

HOUSE OF COMMONS
LONDON SW1A 0AA

Mr Mike Barker MBE
Hillside
London Road
Dunton Green
Sevenoaks
TN13 2TQ

March 2011

Our Ref:232/11/JD
Please quote on all replies

Dear Mike

SS Richard Montgomery wreck

Thank you for the background information regarding the above.

I have written to Philip Hammond to request a meeting to discuss this potentially serious situation. I will of course keep you informed.

Yours Sincerely
Gordon

GORDON HENDERSON MP

Telephone: 020 7219 7144 Constituency: 01795 423199
Email: gordon.henderson.mp@parliament.uk

DfT Legal Responsibilities

- Explosives Substances Act 1883 Section 2

- Action falls within this subsection if it;-

- (a) involves serious violence against a person,
- (b) involves serious damage to property,
- (c) endangers a person's life, other than that of the person committing the action,
- (d) creates a serious risk to the health or safety of the public or a section of the public

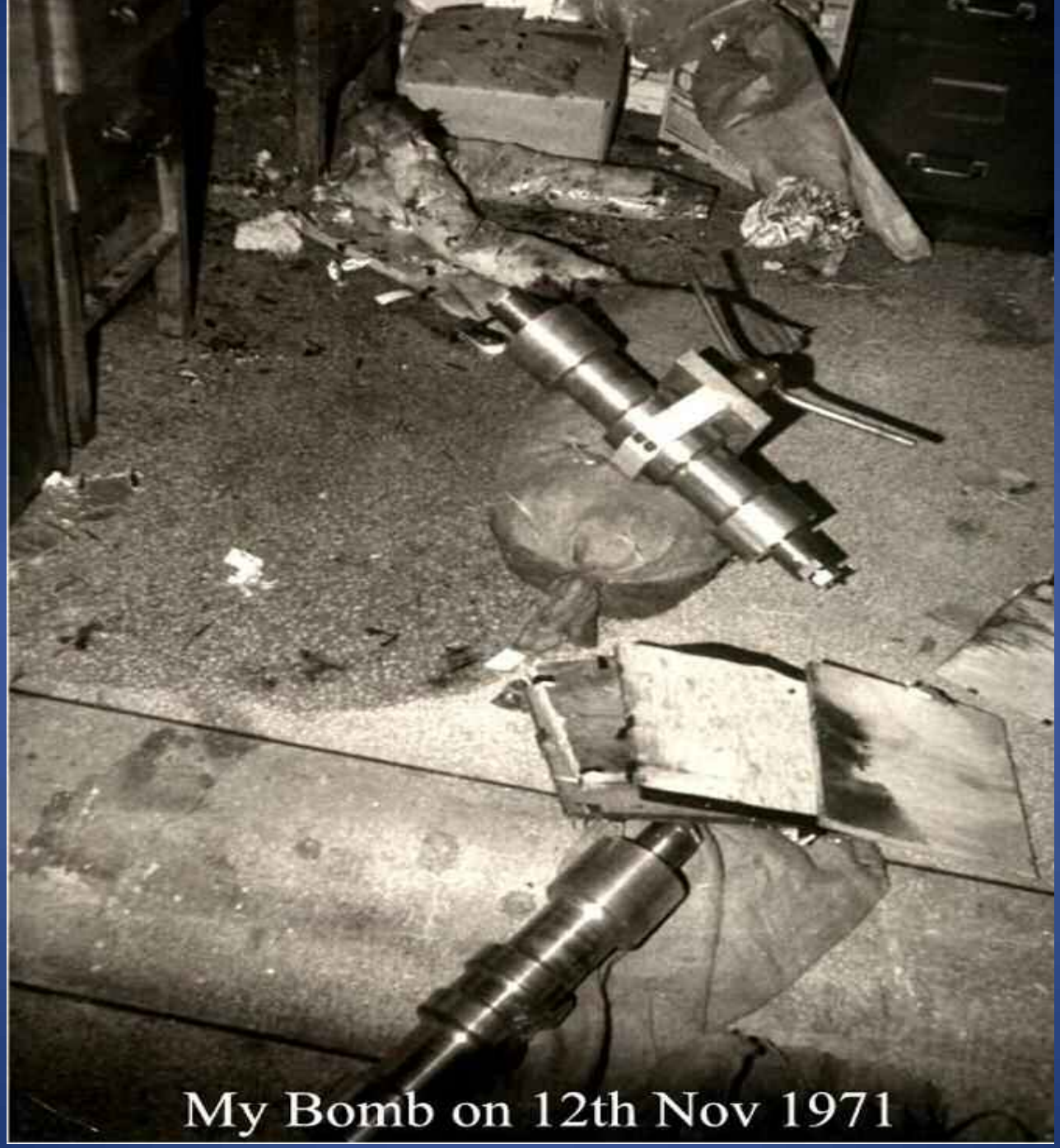
- Terrorism Acts 2000 - 2006

- “Duty of Care” in tort Common Law

- http://www.cps.gov.uk/legal/d_to_g/explosives/

Career Spectrum

- Joined R.A.R.D.E. 1966 Applied Explosives Branch EOD Section (pleased to be saving lives not taking)
- 1968 Invented water guns up to 3m long - 16 mm mild steel plate penetration
- 1970 Invented Water gun to make safe any limpet mines attached to Navy ship's
- 1971 Invented "Circuit Breaker" for NI IEDs – made safe the first IED in Belfast on Friday 12th Nov 1971
- 1972 Invented "Beguine" flying plate for first car bombs. Modified first RARDE Robot called "Skate"
- 1974 Invented RARDE Fragment Attack Test to rank explosives Anglo- French TNT most unpredictable
- Sensitivity testing of UK explosives in many tests, including TNT and its mixtures with others like RDX
- 1977 Invented Paw-Paw Mk 1
- 1982 Invited to be Team Leader of UK IND Response but rejected offer as no MOD insurance for Team
- 1986 Invented low height Paw-Paw Mk 2
- 1987 Designed various deployment systems to Mk 7 and Mk 8 Wheelbarrow
- 1992 Trainee Team Leader of Nuclear Terrorist bomb Response Team and shocked how backward the US & UK were and still are on joint exercises in US and UK
- 1994 Voluntary redundancy when PIRA declared their ceasefire 1994 – over 3,000 IEDs had been made safe in the UK by my systems
- 2007 Offered to computer model and clear the Montgomery
- 2012 First public proposal presentation on 27TH September at Canterbury University.
- Home Office and Kent Police warned people not to attend


My Bomb on 12th Nov 1971

Belfast Telegraph

102nd Year Friday, November 12, 1971 Price 3p [4p in Eire]

Bomb with petrol 'kicker' put in city shops

DOUBLE-TERROR BOMB DEFUSED AFTER 3 HOURS

Troops remove the gelignite as a policeman takes off the can of petrol from the now-safe bomb.

Belfast Telegraph reporter

ARMY EXPERTS to-day successfully defused a terrorist bomb which was put in a city centre shop. The team worked for more than three hours on the device, placed in the EAB Discount Store, College Square North.

The bomb had been placed shortly after 10-30 this morning by two armed men who held the staff at gun-point while they placed a large box containing the explosive near the back of the shop. The Army brought in sandbags to cushion the bomb while they attempted to blow the top from the box.

The entire area was cordoned off and police evacuated nearby buildings as the experts worked on the bomb, which had a can of petrol attached.

The bomb consisted of 15 lbs. of gelignite. Had it exploded extensive damage would have been caused to the many office blocks and shops near the store.

Units of Belfast Fire Brigade stood by in case they were needed.

The Army team made two attempts to detonate a small charge to render the bomb safe, but both attempts failed.

A MOBILE patrol of the Scots Guards came under attack in the Springfield Road area late this afternoon. Several shots are believed to have been fired by two men from a car.

Mr. Bill Brown, a Belfast Telegraph advertising representative, was in the store when the bomb was placed.

He said: "The gunman was quite young, about 18 to 21. He was carrying a very large revolver.

"He spoke with a Belfast accent, and seemed to be very nervous. His hand was trembling as he pointed the gun at us.

"He kept us covered while his companion planted the bomb near the back of the shop. He told us to sit still while the bomb was being placed, and then they made their getaway."

It is believed the terrorists escaped in a car waiting outside, and made off through the traffic.

Tarred girl puts back her wedding

LONDONDERRY Tar and feather victim, 19-year-old, Marta Doherty, and her soldier fiance have postponed their wedding which was due to take place to-day.

It is understood that the couple may be married in England at a later date.

The decision has ended speculation during to-day that the couple were to be married this afternoon in the non-denominational church in Ebrington Barracks Londonderry, by a Roman Catholic Army chaplain.

But this afternoon the chaplain, Fr. Bernard Jones, was not on the camp.

Secrecy has surrounded

Faulkner lays wreath

THERE WERE strict security precautions at Belfast City Hall to-day when the Prime Minister, Mr. Faulkner, laid a wreath at the Cenotaph.

The Prime Minister laid the wreath on behalf of the Northern Ireland Government. He was accompanied

Cyclist (73) is killed

A 73-year-old man on a bicycle was killed when he was in a collision with a heavy lorry at Calhame's Corner on the Larne road, Ballyclare to-day.

He was James Murphy, a retired farmer, of Dairyland, Straid, Ballyclare, and he was riding a bicycle when the collision occurred. Mr. Murphy was rushed to

Troops find rockets for bazooka

Belfast Telegraph reporter.

TROOPS HAVE FOUND some of the ammuni-

To Mr. H Barker RARDE
With the compliments of
SATO HQNI

ELECTRICAL AGENCIES (BELFAST) LTD
3-4 COLLEGE SQUARE NORTH
BELFAST, BT1 6AR
TELEPHONE: BELFAST (0232) 24813

JCM/EM.

12th November, 1971.

Lt. Gen. Sir H. Tuzo, K.C.B., O.B.E., M.C., M.A.,
Headquarters Northern Ireland,
Thiepval Barracks,
LISBURN.

Dear General Tuzo,

We would like to put on record our sincere appreciation of the excellent work put in to-day by your officers and men, and particularly to the ones who were directly responsible for removing and de-fusing the bomb which had been planted in our premises, and I am sure you will be good enough to pass our sincere thanks on to all concerned.

Yours sincerely,
ELECTRICAL AGENCIES (BELFAST) LTD.

J.C. Millar,
General Manager.

Procurement Executive, Ministry of Defence
Main Building Whitehall London SW1A 2HB
Telephone 01-930 7022 ext 3856

CHIEF EXECUTIVE

1 September 1972

M A Barker Esq MBE
Hillside
London Road
Dunton Green
Sevenoaks
Kent.

Dear Mr Barker,

During my absence on leave the announcement was made that H.M. The Queen had appointed you a member of the Most Excellent Order of the British Empire. Please accept my congratulations.

On a personal note however, I would like to express my admiration for your obvious dedication to your work and the sense of involvement in its successful application. Your leadership in dealing with a dangerous situation when your part had clearly already been completed marks a spirit of determination to see the job done properly which is outstanding. Your family, your colleagues at RARDE and all of us in the Procurement Executive can justly feel very proud of your achievement, gallantry and devotion far beyond the call of duty.

Yours sincerely

Derek Rayner

D G RAYNER

Derek Rayner was Chairman of Marks and Spencers in the late sixties and was brought into the MOD to radically change our accountability

FROM: GENERAL SIR NOEL THOMAS, KCB, DSO, MC

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-930 7022 Ext 6908

MASTER-GENERAL OF THE ORDNANCE

18 August 1972

M A Barker Esq
The Royal Armament Research
and Development Establishment
Fort Halstead
Sevenoaks
Kent

Dear Mr. Barker,

I am very pleased to hear that you have been awarded the MBE for Gallantry. I would like to offer you my very sincere congratulations on this well deserved award. I have heard nothing but praise for the outstanding work being done in the Establishments in support of the "war effort" in Northern Ireland and it gives me particular pleasure that your personal exposure to danger, and the most gallant way in which you reacted to it, have been recognised in this most appropriate way.

Yours sincerely,

Noel Thomas

Ministry of Defence
Main Building Whitehall
London SW1A 2HB
Telephone 01-930 7022

SIR MICHAEL CARY, KCB
SECRETARY, PROCUREMENT EXECUTIVE

17 August 1972

M A Barker Esq MBE
Hillside,
London Road
Dunton Green
Sevenoaks
Kent.

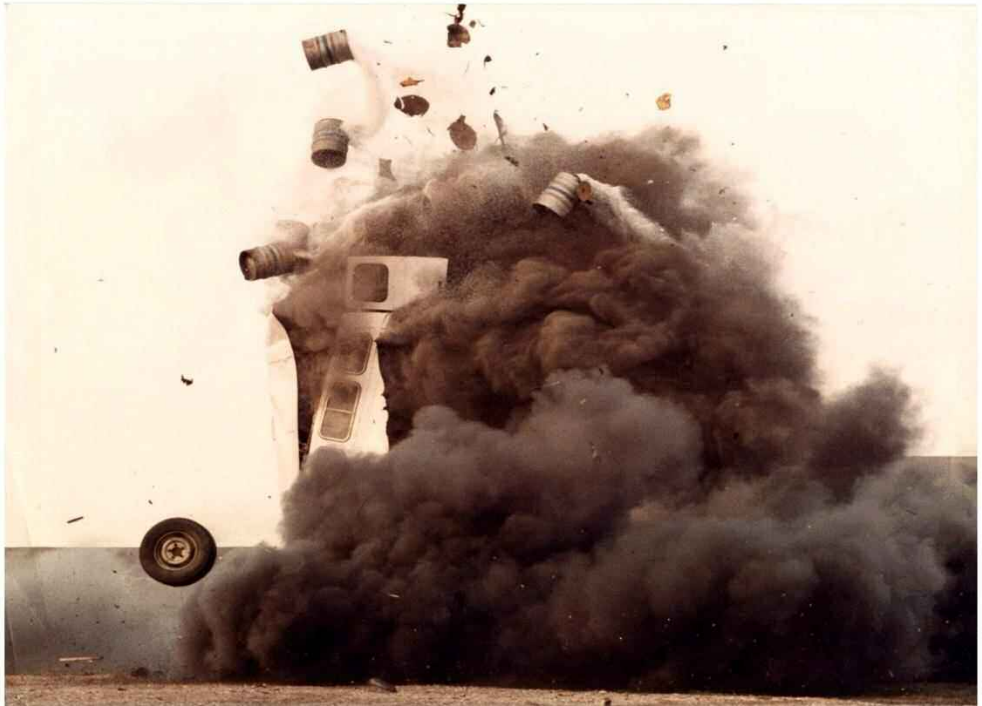
Dear Mr Barker,

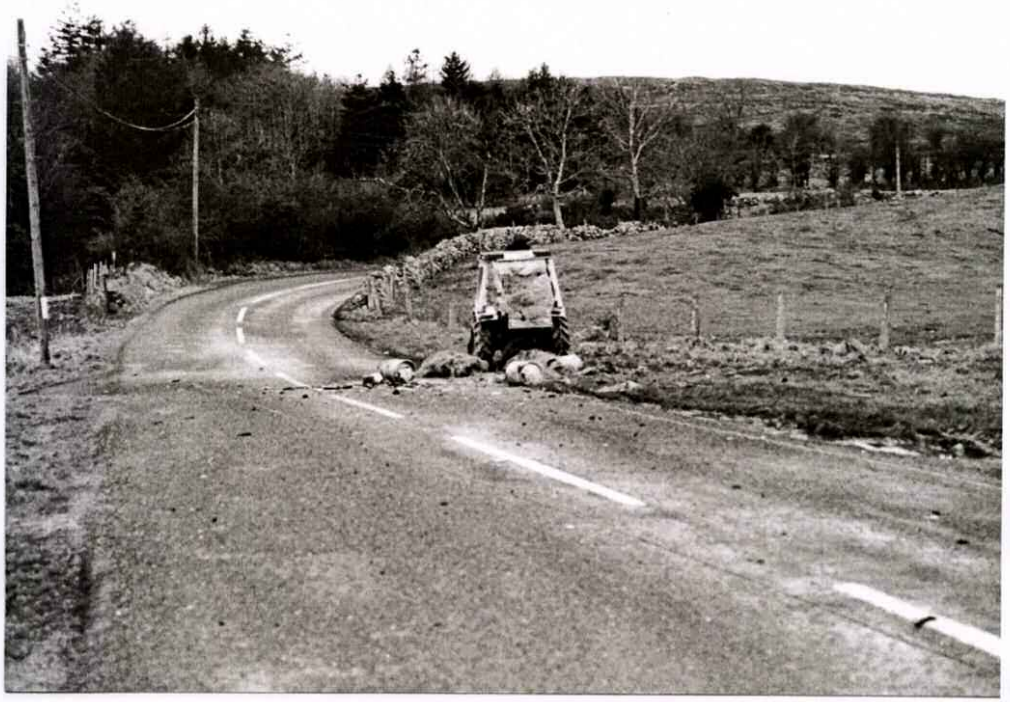
I have learned with great pleasure that The Queen has been graciously pleased to give orders for your appointment, for gallantry, as a Member of the Most Excellent Order of the British Empire.

I would like to offer you my warm congratulations on this recognition of the high order of gallantry displayed by you, in the face of known danger, on the 12 November 1971 in Belfast.

Yours sincerely

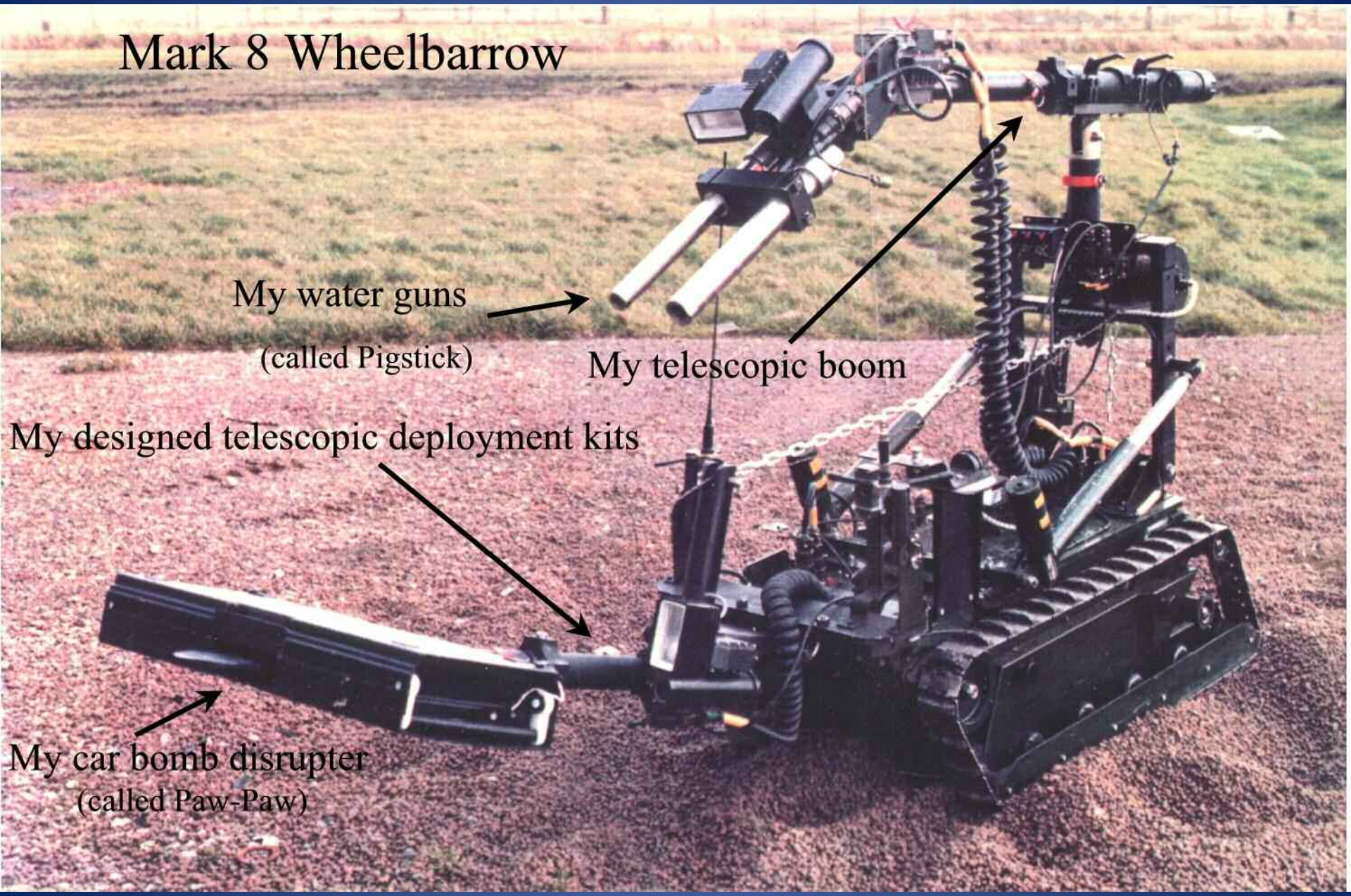
Michael Cary






BUS STOP
Progressive
KXI 747

Queen Street Bread Van Bomb in Belfast


Mark 8 Wheelbarrow
My water guns
(called Pigstick)
My telescopic boom
My designed telescopic deployment kits
My car bomb disrupter
(called Paw-Paw)

Your reference:

Our reference: HSB/1158/02

Date: 26 November 2002

METROPOLITAN POLICE

METROPOLITAN POLICE SERVICE

New Scotland Yard
Broadway
London SW1H 0BG
Telephone 0171-230 1212

Mr M A Barker MBE
Hillside London Road
Dunton Green
Sevenoaks
KENT
TN13 2TQ

Direct line 0171-230

Dear Mr Barker

Commander Pearce has asked me to thank you for your letter of 3 November with enclosures in which you express a number of concerns which affect us all.

Mr Pearce has noted your views with interest and has asked me to pass on his thanks and good wishes to you in helping to promote a peaceful society.

Yours sincerely

C. McDonald.

Christine McDonald
PA to Commander Pearce

Risk assessment overview

1. No unexploded terrorist bomb (IED) anywhere in the world is ever left to fate because it is too dangerous to make safe. They are all cleared by detonation or disruption
2. No other unexploded conventional bomb unearthed in the world is ever left to fate because it is too dangerous to make safe. They are detonated or made safe by removing the explosive and burning it
3. No unexploded mine found in any sea in the world is ever left to fate because it is too dangerous to make safe. They are detonated or made safe by removing the explosive and burning it
4. Only the 10,358 bombs in the SS Richard Montgomery have been left to fate because their owners, the DfT on behalf of all the UK Governments since 1944, have decided they are too dangerous to make safe because they have got their facts wrong. They are all safe to remove and dispose of. The 1997 DERA Report confirms this and was ignored by the DfT
5. All the UK Governments since 1944 have failed to realize they have legal obligations in the many Acts and Statutory Instruments to protect the public from their bombs
6. The DfT have decided to ignore expert advice from DERA that the fragmentation bombs are safe to remove and computer model the risk to life and property that I offered in 2007
7. The DfT have decided not to determine a safe zone to advise people where they would be safe if the wreck exploded and task the Police to move them to safety
8. The DfT have decided not need to employ an explosive expert to advise them over the last thirty years of being responsible for protecting the public from this wreck

DERA 1997 Report Conclusions

- 3.1 The bulk of munitions are high explosive bombs. The main fillings are probably still in serviceable condition and, with suitable initiation, capable of a mass high order detonation.

- 3.2 Any fuses present are likely to have been completely flooded for some time and are either non functional or no more sensitive than in their normal state.

- 3.3 The white phosphorus smoke bombs would present a special hazard in the event of a recovery operation or explosion.

- 3.4 The condition of the explosives would probably permit handling by normal EOD procedures providing an aqueous environment was maintained.

- 3.5 It would be extremely dangerous to use explosives in the vicinity of the wreck.

- 3.6 The reports which estimated the effects of a mass explosion of the remaining cargo were both written some time ago. As there have been significant developments in computer programs capable of modelling events of this type, it may now be possible to obtain a better assessment of the effects of a mass explosion under a variety of different wind and tidal conditions than was previously available. The Explosives Effects Sub Committee of the Explosive Storage and Transport Committee may be prepared to carry out this assessment.

Risk assessment overview

1. No unexploded terrorist bomb (IED) anywhere in the world is left to fate because it is too dangerous to make safe. They usually have a detonator in the explosive, battery, anti-disturbance device, timer and are armed ready to function
2. Bomb disposal operators are trained to make considered judgements and avoid putting their lives at risk, unless there is no alternative e.g. robot support
3. Every practicable precaution is taken e.g. bomb suit, before they risk their lives to make it safe, often using one of my systems e.g. “Pigstick”, a propellant powered water jet gun. No EOD operator has ever left a bomb because it is too dangerous
4. Unexploded IEDs have all the components in place i.e. detonator in the explosive, battery, anti-disturbance devices, timers and are armed.
5. Less than 3% of the Montgomery bombs have detonators in line with the explosives in the fragmentation bombs. But these have had their detonator explosive washed away, if they were not removed by stevedores in 1944
6. A detonator could kill an operator just as quick as 3,500 tonnes of bombs in the Montgomery. He/she would not tell the difference
7. None of the Montgomery bombs are armed, as unexploded IEDs generally are
8. The number of lives that would be made safe, likely exceeds all those killed by the Hiroshima and Nagasaki bombs that any EOD operator would be proud to protect

The significant expert advice sought has been ignored

The DERA 1997 Report is the most expert given but was ignored without support from any other expert stating;-

1. Southend Board of Trade Report that the fragmentation bombs were removed by the Stevedores in 1944
2. The lead azide in the detonators (less than 0.2 gm per detonator) were likely washed away soon after sinking
3. Any fused bombs would not be armed
4. Fused bombs no more unsafe than in pristine condition and could be removed with EOD handling care
5. Suggested computer modelling to define risks to life and property

Expert advice on copper azide has been wrong

- The fuses holding the detonators are not water tight and the 0.2 gm per detonator initiator primary explosive, lead azide, is soluble and would have been quickly washed away ERDE (MOD) Report.
- Likewise any copper azide would certainly be washed away but could not have been formed as the temperature in the wreck is too low to provide the reaction activation energy required
- Copper azide is in two forms and both are used as detonator filings by the US NAVSEA Research Center in a 40 mm Grenade and countermeasure Mine Dart. Copper azide passed impact tests
- Other research work shows copper and lead azides similar in sensitivity in impact tests but electrostatic tests show copper azides more sensitive than lead azides
- NAVSEA US conducted steel ball impact tests on copper azide producing no reactions. They chose copper azide for their micro-detonators in a 40 mm Grenade and Mine Countermeasure Dart
- Copper azides exists in two main states, cuprous azide and cupric azide

States of copper azide

Copper azide exists in two valent states as cuprous azide and cupric azide,

Cupric azide can be prepared by a metathesis reaction between copper(II) nitrate ($Cu(NO_3)_2$) and sodium azide.

$Cu(NO_3)_2 + 2NaN_3 \rightarrow Cu(N_3)_2 + 2\ NaNO_3$

Cu/N atom ratio 1/6 atoms

Cupric azide $Cu(N_3)_2$ has a Molecular weight of 147.59

Cuprous azide $Cu_2(N_3)_2$ has a MW of 211.14

Cu/N atom ratio 2/6 atoms

Atomic weight of copper is 63.546

Atomic weight of Nitrogen is 14.0067

DfT Non-intervention policy

- DfT quote unnamed experts saying this is the best option to leave it to fate and the elements
- DfT stated the major problem is the fuses in the fragmentation bombs that are not armed but the copper of the brass caps could have formed very unstable copper azide, so they are too dangerous to move, be disturbed or permit an internal survey of the state of the bombs
- DfT state the wreck could explode from a collision , capsize, movement or braking up. Yet still do not consider the public should be moved to safety
- No internal inspection of the cargo has been sanctioned, as DfT claim it could explode the wreck .
- The last DfT Summary Report was in November 2000. The Iraq war increased the emergence of suicide bombers. The wreck poses a serious easy target for terrorists intent on taking life
- DfT refused my offer to have the risk computer modelled so a safe zone could be determined and the number likely to be killed or seriously injured and property damage could be estimated
- Refused to invite me to argue my case with any expert who supports theirs

My case to clear the wreck

- It is likely there are no fragmentation bombs as DERA strongly indicated in their Report
- But the bombs, if present, are not armed
- ERDE stated any small initiator material would have been dissolved and washed away soon after sinking (In 1997 DERA Report)
- But copper azide exists in two forms cuprous and cupric azides. They are more sensitive than lead (plumbous) azide but can withstand steel ball impact tests. See NAVSEA Report
- Dr Daniel Jean of VAVSEA has used “copper” azide in a 40 mm Grenade and Mine Clearance Dart
- I consider the wreck is safe to clear from the munitions but not safe to leave to fate as a collision, an internal collapse or terrorist attack are real possibilities, causing it to explode that could kill all 14,000 in Sheerness and many more beyond
- Roger Elliot, now retired, Head of SMIT Salvage stated SMIT would support me subject to contract, as I intended to lead the way in a submersible first to ensure divers would be safe

Department for
Transport

Theresa Crossley
Divisional Manager
Shipping Policy Division
Zone 2/33
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e-mail: theresa.crossley@dft.gsi.gov.uk
Web site: www.dft.gov.uk

22 January 2008

Mike Barker Esq OBE
Hillside
London Road
Dunton Green
Sevenoaks
Kent TN13 2TQ

Dear Mr Barker

Thank you for your letter of 22 November 2007 and e-mail of 19 January 2008 to Ruth Kelly, outlining your concerns about the handling of the SS Richard Montgomery. I have been asked to reply.

Your request for a meeting with Ministers has now been considered with colleagues from the Ministry of Defence, who have been closely involved in the management of the wreck. They are willing to meet you for an informal discussion of the technical aspects of the concerns you have raised about the current management regime for the *SS Richard Montgomery*. The Secretary of State has agreed with this approach.

I should emphasise that what is proposed is a private meeting, undertaken in good faith to allay your personal concerns as a member of the public. It is not to be used by either party as a vehicle for making personal attacks on the integrity of any of those involved in this issue, or to cause alarm or panic among the wider population.

So that these arrangements can be put in hand, please let Pauline Hutchinson (Tel No 020 7944 5426) know if you are happy for the meeting to go ahead and, if so, your availability over the next four weeks. She will then arrange a convenient date and venue for the meeting.

Yours sincerely

Theresa Crossley

THERESA CROSSLEY
Head of Shipping Policy Division

2008MBarkerTC22.01.dot

Department for
Transport

Pauline Hutchinson
Policy Adviser, Shipping Policy 5
Department for Transport
2/33, Great Minister House
76 Marsham Street
London SW1P 4DR

Direct Line: 0207 944 5426
Fax: 0207 944 2186
GTN No: 3533 5426

pauline.hutchinson@dft.gsi.gov.uk
www.dft.gsi.gov.uk

Mike Barker MBE
Hillside
London Road
Dunton Green
SEVENOAKS
Kent
TN13 2TQ

6 February 2008

Dear Mr Barker

I am writing to confirm arrangements for the meeting concerning the wreck of the *SS Richard Montgomery*, as detailed in Theresa Crossley's letter dated 22 January, and our subsequent telephone conversations.

The meeting is arranged for 2.00pm on Friday 29 February in the Knole Room at the Royal Oak Hotel in Sevenoaks, the address is as follows:

The Royal Oak Hotel
High Street
Sevenoaks
Kent TN13 1HY
Tel: 01732 451109

I can confirm that three colleagues from the Ministry of Defence will be attending the meeting. I will notify you of their names once these have been confirmed. David Milroy, Deputy Head of Shipping Policy, will attend the meeting as a representative from the Department for Transport.

I would like to re-emphasise that the meeting was organised, with the agreement of the Secretary of State and the MoD, as a private, informal meeting to allay your personal concerns as a member of the public on the technical aspects concerning the current management regime for the *SS Richard Montgomery*. I hope that you will respect this opportunity for discussion and be circumspect in any discussions you may then pursue.

If you would like to discuss the arrangements for the meeting, please contact me on the telephone number above.

Yours sincerely

P A Hutchinson

Pauline Hutchinson

Department for
Transport

Pauline Hutchinson
Policy Adviser, Shipping Policy 5
Department for Transport
2/33, Great Minister House
76 Marsham Street
London SW1P 4DR

Direct Line: 0207 944 5426
Fax: 0207 944 2186
GTN No: 3533 5426

pauline.hutchinson@dft.gsi.gov.uk
www.dft.gsi.gov.uk

Mr Mike Barker MBE
Hillside
London Road
Dunton Green
SEVENOAKS
Kent
TN13 2TQ

25 February 2008

Dear Mr Barker,

Further to my letter dated the 6 February, I am writing to confirm the attendees for the meeting concerning the wreck of the SS Richard Montgomery. The meeting is scheduled for 2.00pm on Friday 29 February in the Knole Room at the Royal Oak Hotel in Sevenoaks.

Attendees

David Milroy, Deputy Head, Shipping Policy
Peter Barnes, DES Weapons Defence Ordnance Safety Group (MOD)
Neil Turner, Head of Energetic Material Qualification & Characterisation Section (DOSG - MOD)
Morgyn Davies, OBE, Chief Salvage Officer (MOD)

If you have any questions, please contact me on the telephone number above.

Yours sincerely

P A Hutchinson

Pauline Hutchinson

MICHAEL FALLON MP
Sevenoaks & Swanley

House of Commons
London
SW1A 0AA

19 September 2008

Mike Barker Esq MBE
Hillside
London Road
Dunton Green
Kent
TN13 2TQ

Dear Mr. Barker

SS Richard Montgomery Munitions Wreck off Sheerness

I enclose a copy of a reply from the Parliamentary Undersecretary of State at the Department for Transport.

I will wait to hear back from you with your response.

With all best wishes.

Yours sincerely,

Michael Fallon

MICHAEL FALLON

tel 020 7219 6482 fax 020 7219 6791 email fallonm@parliament.uk
website www.michaelfallonmp.org.uk

From the Parliamentary
Under Secretary of State

Department for
Transport

Great Minster House
76 Marsham Street
London SW1P 4DR

Tel: 020 7944 2566
Fax: 020 7944 4309
E-Mail: jim.fitzpatrick@dft.gsi.gov.uk

Web site: www.dft.gov.uk
Our Ref: RK/JF/023664/08

Michael Fallon MP
House of Commons
LONDON
SW1A 0AA

17 SEP 2008

Dear Michael,

Thank you for your letter to Ruth Kelly of 22 August, enclosing correspondence from your constituent, Mr Mike Barker. I have been asked to reply, as I have Ministerial responsibility for this issue.

Mr Barker has been in correspondence with Ministers and officials from this Department and the Ministry of Defence (MoD) since mid-2007, when I understand he came across a reference to the *SS Richard Montgomery* on the Maritime and Coastguard (MCA) website. He has also written to the Prime Minister, Douglas Alexander (as a former Secretary of State for Transport), Metropolitan Police Commissioner Sir Ian Blair, the Chief Constables of Kent and Essex, the Port of London Authority, Medway Ports and many other organisations, repeating his view that the Government is not managing the wreck correctly and offering his expertise to clear the site.

Mr Barker has had replies to all his correspondence, although, because of the detailed technical nature of the subject, the replies have mostly come from officials. In February this year, Department for Transport (DfT) and MoD officials (including two MoD explosives experts, who had previously worked with him) met Mr Barker in Sevenoaks to try to allay some of his concerns. Unfortunately, Mr Barker refused to accept the reassurances offered to him and has continued with his correspondence.

As you know, the *SS Richard Montgomery* was a US-owned Liberty ship carrying munitions from the United States to assist the Allied war effort. While at anchor in the Thames Estuary in August 1944, waiting to join a convoy to France, she broke her back and sank. Although stevedores, working in very difficult conditions, managed to clear the forward section of cargo, they were unable to clear the aft section, before the worsening weather made further salvage impossible. The wreck remains on a sandbank, supported by sand, with the remaining munitions onboard. Over the years, the management of the wreck has been the responsibility of various Government Departments. This responsibility has now passed to the DfT and is discharged by the MCA, who commission regular surveys of the wreck. In addition, the wreck is protected under the Protection of Wrecks Act 1973 and is surrounded by an exclusion zone that is clearly marked with buoys. It is also under 24 hour radar surveillance by Medway Ports, under contract to the MCA.

There is no doubt that Mr Barker has considerable expertise in the field of terrestrial bomb disposal. However, the management of the wreck of the *SS Richard Montgomery* requires an in depth knowledge of the behaviour of particular types of explosive that have been submerged in sea water for more than sixty years.

I can reassure Mr Barker that we take our responsibilities for the safe management of the wreck very seriously indeed. That is why, in formulating the management regime for the wreck, we have worked with MoD to obtain the best advice from the foremost current experts in this area (based at the UK Defence Academy). Their advice is that the current management regime (of monitoring the wreck using non-invasive multi-beam sonar and by not physically intervening in the wreck) remains the best approach for the foreseeable future.

In conclusion, I should add that, although Mr Barker has cited support for his proposals from senior figures in the maritime salvage industry in his letter to you, I am not aware that any have so far confirmed this support in communications with either DfT or MoD.

Yours Sincerely

JIM FITZPATRICK

House of Commons, London SW1A 0AA
Tel: 020 7219 5807 Fax: 020 7219 5520
email: wyattd@parliament.uk
website: www.derekwyatt.co.uk

Winner: 2006 New Statesman New Media Award for Elected Representative

DEREK WYATT MP
Sittingbourne & Sheppey
1997 2001 2005

Mr. Mike Barker
Hillside
London Road
Dunton Green
Sevenoaks
Kent
TN13 2TQ

21 February 2008

Dear Mr. Barker

SS RICHARD MONTGOMERY

Thank you for your fax of 15 February 2008. I have every sympathy with your stance regarding the MONTGOMERY but, in truth, I can no longer assist with your requests and inquiries.

I intend no discourtesy thereby but given strict parliamentary protocol, MPs are prohibited from engaging with non-constituents. In view of this, I must desist from further correspondence with you and re-direct your concerns to your own Member of Parliament, Mr. Michael Fallon MP.

Thank you so much for your understanding in this regard.

Yours sincerely

T. Sheridan

pp Derek Wyatt MP

WORKING FOR SITTINGBOURNE & SHEPPEY

Bapchild, Bobbing, Borden, Bredgar, Eastchurch, Halfway, Hartlip, Iwade, Kemsley, Kingsdown, Leysdown, Lower Halstow, Luddenham, Lynsted, Milsted & Kingsdown, Milton Regis, Minster, Murston, Newington, Norton, Buckland & Stone, Oare, Queenborough, Rodmersham, Rushenden, Sheerness, Teynham, Tonge, Tunstall, Upchurch and Warden Bay

10 DOWNING STREET
LONDON SW1A 2AA
www.pm.gov.uk

From the Direct Communications Unit

6 February 2008

Mr Mike Barker MBE
Hillside
London Road
Dunton Green
Sevenoaks
Kent
TN13 2TQ

Dear Mr Barker

The Prime Minister has asked me to thank you for your recent fax.

As you can imagine, Mr Brown receives thousands of letters each week and regrets that he is unable to reply personally to them all.

I have been asked to forward your letter to the Department for Transport so that they may reply to you direct.

Yours sincerely

R. Smith

R SMITH

THE OFFICE OF THE LEADER OF THE OPPOSITION

HOUSE OF COMMONS

LONDON SW1A 0AA

Mr. Mike Barker
Hillside
London Road
Dunton Green
Sevenoaks, Kent TN18 2TQ.

February 19th, 2008
DC/SD

Dear Mr. Barker

I am writing on behalf of David Cameron to acknowledge receipt of the fax that you sent him on February 1st, together with copies of your correspondence to the Prime Minister, the Chief Constable of Kent and to Theresa Crossley concerning the SS Richard Montgomery.

Yours sincerely

Sue Dennis

Sue Dennis
Office of the Leader of the Opposition

10 DOWNING STREET
LONDON SW1A 2AA
www.pm.gov.uk

From the Direct Communications Unit 15 April 2008

Mr Mike Barker MBE
Hillside
London Road
Dunton Green
Sevenoaks
Kent
TN13 2TQ

Dear Mr Barker

I am writing on behalf of the Prime Minister to acknowledge your recent copy letters, the contents of which have been noted.

Yours sincerely

G Edwards.

G EDWARDS

Swale House, East Street,
Sittingbourne, Kent ME10 3HT
DX59900 Sittingbourne 2
Phone: 01795 424341
Fax: 01795 417141
www.swale.gov.uk

Swale
BOROUGH COUNCIL

Mr Barker
Hillside
London Road
Dunton green
Sevenoaks
Kent, TN13 2TQ

Date: Monday 30 July 2012
Contact: chiefexecutive@swale.gov.uk

Dear Mr Barker,

Re: Request for funding for coaches

Further to the message left on your answer phone, I confirm that Swale Council will be unable to provide funding for coaches to the proposed event due to take place in a central London location. This is on the basis that we have no statutory obligation to provide transport for residents that may wish to attend your event, that no budget provision has been made for such expenditure, and that in our view it would not be a good use of public funding.

However, we may be able to invite you to a Sheppey Local Engagement Forum to discuss your proposals, or the outcome of the event with residents that were unable to attend, subject to the agreement of the LEF Chair.

If you would like to schedule an item at one of these Forums, please contact Mr Brian Planner on 01795 417 357 or brianplanner@swale.gov.uk

I do hope that this answers your queries fully, but if not, please do not hesitate to get back to me.

Yours sincerely,

Abdool Kara
Chief Executive

ESSEX POLICE

NOT PROTECTIVELY MARKED

Roger Baker
Chief Constable

Chief Constable's Office
Headquarters, Springfield,
Chelmsford, Essex CM2 6DA

Telephone 01245 452110
Email: chief.constable@essex.pnn.police.uk
Facsimile: 01245 452123

Mr Mike Barker MBE
Hillside
London Road
Dunton Green
Sevenoaks TN13 2TQ

Our Ref: CC/th

Date: 12th February 2008

Dear Mr Barker

Thank you for your faxed letter dated the 24th January 2008, in which you explain your concerns regarding the SS Montgomery and the possible impact on the Essex and Kent coastlines in the event of its load becoming unstable.

As you are no doubt aware the location of the Montgomery and its potentially dangerous cargo are well documented. At a local level, the Essex Resilience Forum within Essex County Council is well aware of the issue and currently examining the risks associated with it in partnership with other agencies. At the national level it is the Department of Transport which has prime responsibility for this matter and I understand they responded to your recent correspondence offering you an opportunity to meet representatives from the Ministry of Defence on the 29th February 2008 so that you may share your concerns in detail with them.

I am content with the above approach which I trust you find acceptable, as it will provide you with the most appropriate audience to understand these significant issues and assess any further risks as seen fit.

Yours sincerely

Roger Baker
Chief Constable

c.c. Pauline Hutchinson, Department of Transport

NOT PROTECTIVELY MARKED

taking a lead in making Essex safer

www.essex.police.uk

PO Box 2, Headquarters, Springfield,
Chelmsford, Essex CM2 6DA

Telephone 01245 452603/5
Website: www.essex.police.uk
Facsimile: 01245 452246

Mike Barker MBE
Hillside
London Road
Dunton Green
Sevenoaks
Kent TN13 2TQ

Our ref: MISC-3624-PP-AH
Your ref:

7 April 2008

Dear Mr Barker

Re: SS Richard Montgomery

I acknowledge receipt of your letter dated 21 March 2008, addressed to the Chief Constable of Essex Police, and confirm that I am instructed to represent him in this matter. I note your intention to commence proceedings against the Chief Constable and confirm that I am authorised to accept those proceedings on his behalf.

Yours sincerely

for Adam Hunt
Force Solicitor

Kent Police

Serving the community
for 150 years

T/Superintendent Martin Very
Staff Officer to Chief Constable

Mr. M.A. Barker,
Hillside,
London Road,
Dunton Green,
Sevenoaks,
Kent.
TN13 2TQ.

Direct Line: 01622 652004
Fax: 01622 652009

Date: 29th January 2008

Dear Mr. Barker,

Thank you for your correspondence dated 24th January 2008.

I note that you have raised a specific question regarding the exclusion zone around the SS Richard Montgomery. In response to this question I would again state that the agency responsible for the safety of this wreck is the Maritime and Coastguard Agency. Kent Police do not set, and do not have any input into decisions regarding the exclusion zones around such wrecks.

As a police force we are often advised by our partner agencies in areas where they are considered to be the experts and they are therefore best placed to give us such advise. This wreck is one such example. As a result I am happy that the advice offered to us on this matter is both correct and sufficient.

Again, I would thank you for your interest in this matter but our position remains unchanged from that previously stated.

Yours sincerely,

Staff Officer to Chief Constable.

Kent Police Headquarters , Sutton Road, Maidstone, Kent ME15 9BZ
Tel: 01622 690690 Fax: 01622 654109 www.kent.police.uk

This is available in
large print on request

Kent Police

Working to keep **Kent** safe

T/Superintendent Martin Very
Staff Officer to Chief Constable

Mr. M.A. Barker,
Hillside London Road,
Dunton Green,
Sevenoaks,
Kent.
TN13 2TQ.

Direct Line: 01622 652004
Fax: 01622 652009

Date: 7th January 2008

Dear Mr. Barker,

Thank you for taking the time to write to the Chief Constable regarding the S.S. Richard Montgomery. Mr. Fuller has authorised me to respond on his behalf.

I have read with interest your letter and indeed have taken note of the considerable experience you have in this area.

As you are no doubt aware, the Maritime and Coastguard Agency undertakes surveys of the wreck on behalf of the Department for Transport. These surveys have been on-going for many years now and employ the latest technology, including ultra-sonic hull-thickness surveys.

Through established interagency liaison, we are kept apprised of the situation relating to the wreck and any risks that it may pose. At this time, there are established contingency plans in existence that can be initiated should an incident occur that affects or involves the S.S. Richard Montgomery.

I note your request to have persons interviewed in relation to this matter. Having taken advice, the grounds for such a course of action are limited as, I am sure you are aware, the Government has sought and received advise from professional bodies deemed competent in their field of expertise. I accept that you may not agree with their position, but a difference of opinion on any given subject does not warrant a criminal investigation.

I note that you have also corresponded with Members of Parliament amongst others, and trust that you will receive further guidance that will satisfy your concerns in this matter.

Yours sincerely,

Staff Officer to Chief Constable.

Kent Police Headquarters , Sutton Road, Maidstone, Kent ME15 9BZ
Tel: 01622 690690 Fax: 01622 654109 www.kent.police.uk

This is available in large print on request

METROPOLITAN POLICE Working together for a safer London

Our Reference 2008010001658

8th January 2008

Mr M A Barker MBE
Hillside London Road
Dunton Green
Sevenoaks
Kent
TN13 2TQ

Sir Ian Blair QPM MA (Oxon)
Commissioner of Police of the Metropo

New Scotland Yard
Broadway
London SW1H 0BG

Tel: 020 7230 1212
www.met.police.uk

Dear Mr Barker,

Thank you for your letter dated the 20th December 2007 and subsequent fax dated the 1st January 2008 addressed to the Commissioner – Sir Ian Blair.

I understand that you are concerned about the safety of the wreck of the SS Richard Montgomery in view of its munitions cargo. The management of the safety of the vessel lies with the Department for Transport and the Maritime and Coastguard Agency. I understand that on an almost yearly basis, a survey of the wreck is carried out which assists in the management and safety of the surrounding area.

It is acknowledged that you have obvious expertise in the field of EOD however, whilst you may not agree with the safety recommendations laid down by those charged with the responsibility of the SS Montgomery, this disagreement does not constitute a criminal offence or any negligence on behalf of those agencies. It would appear that the MCA will continue to introduce new technologies to monitor and study its safety.

I can assure you that any change in the safety of the wreck will be made known to the Metropolitan, Kent and Essex Police and we would work closely with our partner agencies to ensure that the requisite contingency plans are put into place.

Yours sincerely

Jonathan Hubbard
Sergeant
Commissioner's Private Office

LLOYD'S MARKET ASSOCIATION

Suite 358
One Lime Street
London
EC3M 7DQ

Tel. 020 7327 3333
Fax. 020 7327 4443
lma@lmalloyds.com
www.the-lma.com

Rt.Hon.Ruth Kelly M.P.
Secretary of State for Department of Transport
Great Minster House
76 Marsham Street
London
SW1P 4DR

14.2.2008

SS Richard Montgomery

Dear Minister,

I write with regard to the SS "Richard Montgomery", the wrecked Liberty ship lying in 15 metres of water roughly one and a half miles from Southend which is marked on charts and has a 500 metre (traffic) exclusion zone around it.

Over the years, the wreck has been assumed to be benign, but having recently been made aware of the correspondence between your department and Mr. Barker from July 2007 (7th November letter enclosed), it would not appear possible to continue this assumption.

From an insurance point of view, where there is risk, insurers must allow for the worst case. Market practitioners have concerns over the stability of the ship and would be grateful to know what actions you will be taking in this case.

Yours faithfully,

Neil Roberts
Senior Executive

cc Theresa Crossley

LLOYD'S MARKET ASSOCIATION

Suite 358
One Lime Street
London
EC3M 7DQ

Tel. 020 7327 3333
Fax. 020 7327 4443
lma@lmalloyds.com
www.the-lma.com

Rt.Hon.Ruth Kelly M.P.
Secretary of State for Department of Transport
Great Minster House
76 Marsham Street
London
SW1P 4DR

22nd April 2008

Dear Minister,

I wrote to you in February on the subject of the Richard Montgomery but have not had a response. I am now writing to inform you that having been made aware of the recent correspondence with Mr Barker, it was thought prudent to canvas other informed and independent opinion in order to ascertain the potential liabilities of Lloyd's insurance market underwriters.

Our research supports the technical points made by Mr. Barker, particularly the central contention that this wreck could detonate and would explode given the right set of unfortunate circumstances. These could include a collision incident which in our view is impossible to rule out. It is reasonably foreseeable that an inexperienced crew could lose their bearings in a fog or that a loss of engine power could occur in similar wind conditions to those which caused the vessel to ground originally.

Whilst it is understood that no official detailed modelling has taken place, independent opinion estimates a considerable blast zone causing major structural damage over a distance of several miles with corresponding loss of life far beyond that. It is believed that an event of this magnitude, far exceeding Flixborough or Buncefield, would be more costly than the economic loss pursuant to a closure of the river for a period of weeks while the bombs are removed or made safe. The nearest equivalent incident is the Halifax Nova Scotia explosion which killed 1,900 people and injured 4,000 in December 1917.

It would seem to be in the public interest to clear this wreck, and that a decision to wait and see would be very hard to justify after the event. The Thames Gateway project is another complicating factor. As mentioned in the previous letter, where there is risk, insurers must allow for the worst case and market practitioners would be grateful to know what actions you will be taking in this case.

It is our understanding that the government owns the wreck, and thus any consequent liabilities for policies of indemnity (eg property) would be met from government funds. In the first instance, the insurers would bear the life, contingency and marine exposures such as ships and pollution. Please confirm this is correct and who insurers would subrogate against if they sought to recover their losses.

Yours sincerely,

Neil Roberts
Senior Executive

Cc Theresa Crossley

- The Kielce has been wrongly cited to support the Non-Intervention Policy.
- It was totally irresponsible to use Explosive line cutting charges to cut hull plates with bombs on the other side
- Mines and bombs are designed to detonate but this does not make them unsafe to move with care but the DfT cite the Kielce as a reason for their Policy of Non-Intervention.
- This shows again, their lack of understanding in the most basic of explosives' behaviour
- The water provided a good explosive shock transmission from the charges to the bombs on the other side of the hull plates

THE KIELCE EXPLOSION

BACKGROUND

1. In 1946 the Kielce, a ship of Polish origin, built in 1944, was on charter to the US forces, sailing from Southampton to Bremerhaven, when it was in collision and sank in the English Channel off Folkestone. The ship was of 1896 gross tonnage, 250 ft long, 41 ft berth and drawing just over 20 ft. It had a "full cargo of bombs and ammunition" although no cargo manifest has ever been traced.

2. In the early 1950s an unknown wreck was chartered at 51°02'20" N, 01° 13'33" E, and it was not until ten years later, when Trinity House awarded several contracts for the removal of wrecks in the Channel, that this was identified as the Kielce and confirmed to contain ammunition.

3. In 1966 the Folkestone Salvage Company was given a contract to clear the wreck, to give 50 ft clearance at MLWST, and part of the contract called for the dispersal of the explosive stores. During their preliminary work to clear collapsed hull plating, the Salvage Company fired two cutting charges on the hull without serious effect. On firing the third, however, at 1159 hours BST on 22 July 1967, a large explosion occurred which "brought panic to Folkestone's town and chaos to the beaches ".

THE EFFECTS OF THE EXPLOSION

4. At the time the Press and the local Police, were made aware of significant damage to various properties. Chimneys were damaged, slates dislodged and ceilings were cracked, but no case of personal injury was reported.

5. Meanwhile, the seismic effects of the explosion had been recorded by at least 25 observatories, throughout Europe and America, out to a distance of nearly 5000 miles from Folkestone, and from these records, using techniques which were developed for cataloguing the severity of earthquakes and other seismic disturbances, a magnitude of 4½ ± ½ was allocated to the explosion.

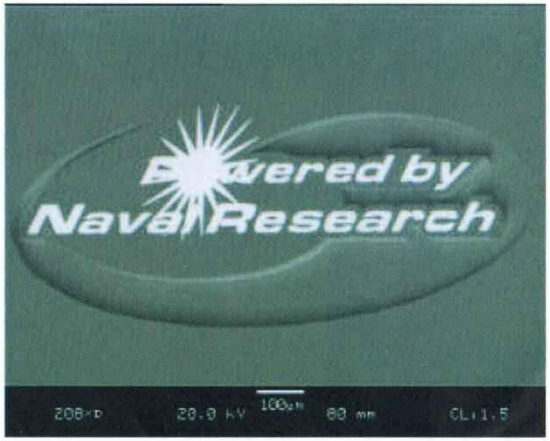
6. By subsequent survey, the sea-bed crater formed by the explosion was found to be roughly elliptical with major and minor axes 153 and 67 ft respectively, the maximum depth 20 ft and with the "lips" rising to between 5 and 11 ft proud of the general level of the sea bed[8].

7. The wreck had been lying in approximately 90 ft of water, on a sea bed of silt, when the explosion occurred. An acoustic signal was received at one station in the UK, whose amplitude was approximately one-thirtieth of that which would have been expected from a surface explosion of the magnitude from the seismic records. In other words, by far the larger proportion of the energy released was transmitted seismically

[8] The size of this crater is consistent with the figures predicted, as a result of US experience, for sea-bed craters formed by explosions with a yield of 2 kton.

MEMS Micro-Detonator Based Fuzing

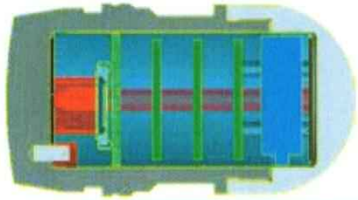
Daniel Jean, Ph.D.
daniel.jean@navy.mil
301-744-4389
Naval Surface Warfare Center
Indian Head, MD

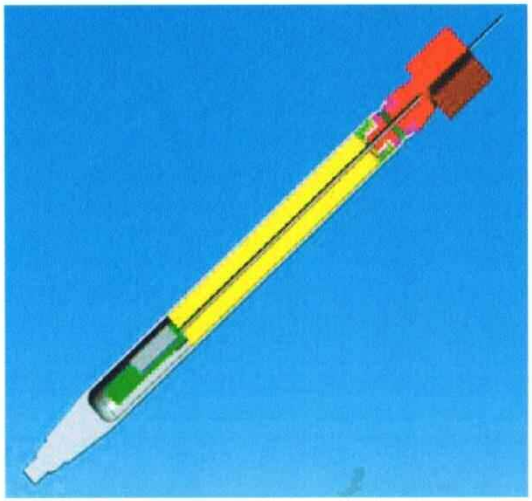


DoD ENERGETICS CENTER
Excellence for the Warfighter

Micro-Detonator Based Fuze

- Description
  - Microdetonator (2 mm diameter by 0.5 mm thick) formed in place in a silicon MEMS chip
  - Mechanical locks used to keep detonator in an out-of-line safe position
  - Command or spin arming moves the detonator to the armed position
  - Electronic signal fires detonator, flyer used to initiate secondary
- Fuzing applications
  - 40 MM grenade
  - Mine countermeasure dart
  - Distributed initiation

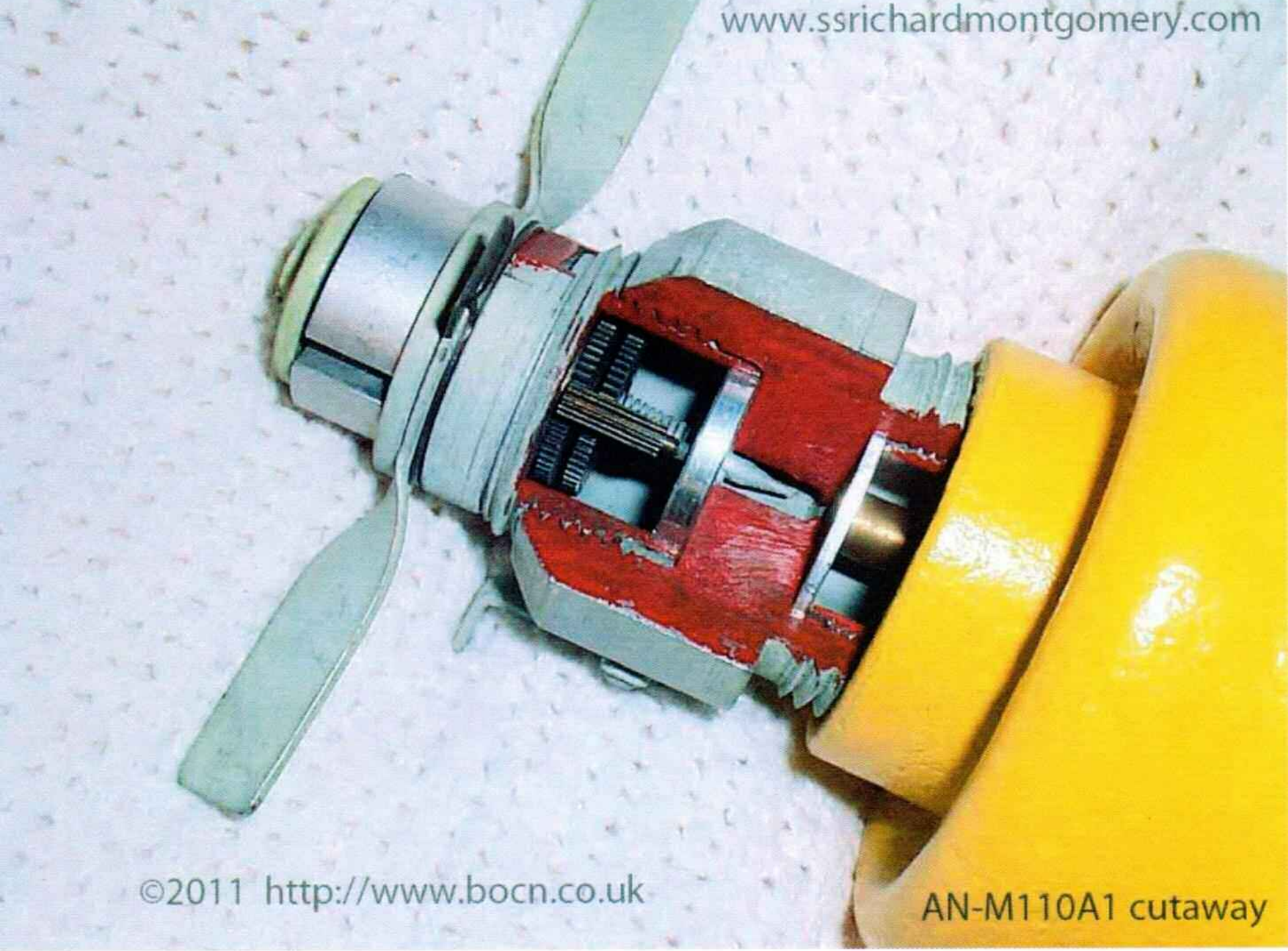




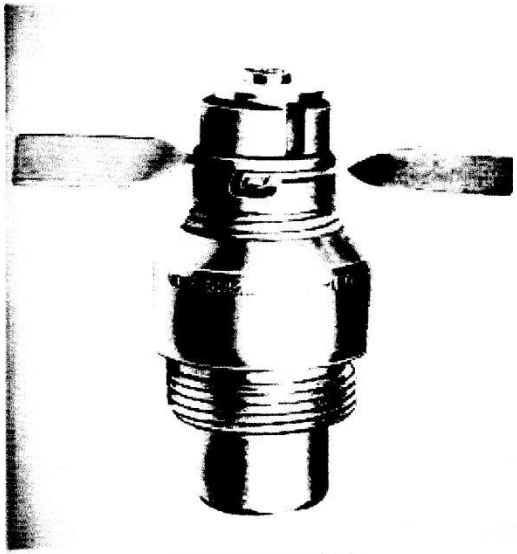
High Shock Testing of Copper Azide

- Conducted using VHG machine
  - Test samples consisted of 2 mm diameter by 0.5 mm thick copper azide pieces, formed in a silicon chip
  - Shocks applied both normal and parallel to explosive chip
  - Shock levels up to 120 kG, durations varied from 10 to 50 μs
- No initiation of copper azide
- Minor damage to explosive structure at 120 kG

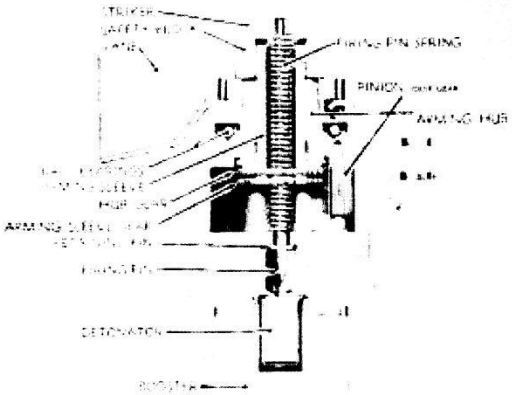
VHG Machine at NSWC Indian Head



AN-M110A1 cutaway



FUZE, BOMB, NOSE, M110



FUZE, BOMB, NOSE, AN-M110A1

FUZES, BOMB, NOSE,

AN-M110A1, STANDARD—M110, LIMITED STANDARD

These are nose fuzes of the arming vane type with mechanical delay arming and are designed to function on impact.

Striker and firing-pin form a unit held in the fuze by a pin passing through the firing-pin behind the end plate. Safety in the unarmed position is secured in the AN-M110A1 by a C-shaped safety block placed between the striker and the delay-arming mechanism. In the M110 fuze this block is made in three segments.

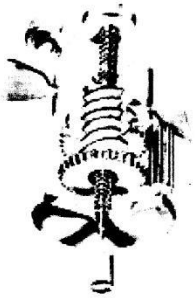
Operation of the delay-arming element can be understood more clearly by reference to the illustration of the AN-M110A1 fuze. The arming vanes are mounted upon a hub to the lower face of which is staked a gear with 33 teeth. The arming sleeve is threaded within the hub and turns with it on ball-bearings. A gear with 34 teeth is staked to the lower face of the sleeve and both gears mesh with an idler pinion in the fuze body.

When the bomb is released from the airplane the entire arming assembly, including the sleeve and its gear, begins spinning as a unit in the air stream under the impulse of the rotating vanes. Since the sleeve gear has one tooth more than the hub gear it necessarily lags behind for the distance of that one tooth, or 1/34 revolution, for each complete turn the sleeve and hub make together. This lag serves to withdraw the sleeve, threaded into the hub, a distance corresponding to that 1/34 revolution.

The result is that of a gear train with a reduction ratio of 34 to 1 between the revolutions of the arming hub and the withdrawal of the sleeve from its threads. After 260 revolutions of the arming vanes the sleeve is completely withdrawn from the C-shaped safety block which is then thrown clear of the fuze by centrifugal force. The fuze is now fully armed and the firing-pin is held from contact with the detonator only by its spring.

When the bomb strikes the target the resistance of this spring is overcome and the pin is driven into the detonator, firing the integral booster charge and the main explosive charge of the bomb.

The AN-M110A1 differs from the M110 in being constructed of stronger parts to insure functioning when released at high air-speeds. A single C-shaped safety block is employed instead of one consisting of three segments. The M110 has reduction gears with 57 and 56 teeth and is armed after approximately 455 revolutions of the arming vanes in the air stream.



FUZE, BOMB, NOSE, AN-M110A1—MECHANISM

BOMBS

M110

Bomb, Practice, 20 lb., AN-M48
Bomb, Fragmentation, 20 lb., AN-M41
Bomb, Fragmentation, 20 lb., AN-M41A1

AN-M110A1

Bomb, Gas, Persistent (HS), 115 lb., AN-M70
Bomb, Fragmentation, 20 lb., AN-M41
Bomb, Fragmentation, 20 lb., AN-M41A1

CHARACTERISTICS

	M110	AN-M110A1
Length overall	3.58 ins.	3.7 ins.
Weight	0.62 lb. (aluminum) 1.1 lb. (steel)	1.02 lb.
Diameter	1.75 ins.	1.75 ins.

3 Conclusions

3.1 The bulk of munitions are high explosive bombs. The main fillings are probably still in serviceable condition and, with suitable initiation, capable of a mass high order detonation.

3.2 Any fuzes present are likely to have been completely flooded for some time and are either non functional or no more sensitive than in their normal state.

3.3 The white phosphorus smoke bombs would present a special hazard in the event of a recovery operation or explosion.

3.4 The condition of the explosives would probably permit handling by normal EOD procedures providing a aqueous environment was maintained [8].

3.5 It would be extremely dangerous to use explosives in the vicinity of the wreck.

3.6 The reports which estimated the effects of a mass explosion of the remaining cargo were both written some time ago. As there have been significant developments in computer programs capable of modelling events of this type, it may now be possible to obtain a better assessment of the effects of a mass explosion under a variety of different wind and tidal conditions than was previously available. The Explosives Effects Sub Committee of the Explosive Storage and Transport Committee may be prepared to carry out this assessment.

Appendix 1

MUNITIONS REMAINING ABOARD SS RICHARD MONTGOMERY

DERA in their summary report have listed the best estimates of the munitions which remain aboard the SS Richard Montgomery. The weights given in the table below are those of the explosive content of the cargo and not the shipped weight.

LOCATION	TYPE OF MUNITIONS	EXPLOSIVE WEIGHTS (TONNES)
HOLD NO1		
Deep tanks Aft	79 cases signals	3 (pyrotechnics)
	1429 cases wp 100lb smoke bombs	65 (white phosphorus)
Deep tanks Forward	30 Boxes boosters	31 (pyrotechnics)
	786 boxes signals	
Lower hold/tween deck	1407 500lb bombs TNT AN M64A1	167
	850 1000lb bombs TNT AN M65	208
	1500 250lb bombs TNT AN M57	84
HOLD NO 2		
Lower hold	1068 1000lb SAP bombs TNT AW-M59	140
	574 500lb SAP bombs AN M58	41
	286 2000lb GP TNT AN-M66	144
	588 1000lb AN M65	140
Tween deck	521-580 B260lb fragmentation bombs AN M81	9
	2297 cases of fragmentation bomb clusters	9
	AN M1A1 (6 x 20lb fused)	
	and/or AN M4A1 (3 x 23lb unfused)	
	and/or AN-M81 B260lb	
HOLD NO 3		
Lower hold/tween deck	1170 SAP 1000lb bombs	163
	406 GP 1000lb bombs	99
	1351 SAP 500lb bombs	97
	TOTAL	**1400 tonnes**

Clearance criteria to be met

1. Zero visibility in and outside of wreck
2. Very high Tidal currents for divers
3. Minimal disturbance to wreck
4. Minimal impact on those at risk
5. Likely high sedimentation around bombs
6. Safe disposal dismantling of bombs
7. Removal of wreck for reconstruction
8. Sea bed in vicinity of wreck to be cleared of bombs and levelled

Proposed Clearance Scheme

1. Salvage Company SMIT or other to provide Salvage Support Barge resting on sea bed or fixed to provide access and services
2. Length adjustable modular hatch cover made neutrally buoyant to avoid overloading the deck members, to fit all five hatches with LED lights in addition to those around the Transfer Frame
3. Pair of hydraulically opening doors allows access and excludes cloudy sea water mixing with filtered water in hold
4. Transfer frame carries submarine, 20 tonne bomb skip and diver rest room between wreck and support barge. It has a crane hoist rail to reach bombs and locates hoist over bomb skip
5. Three man submarine with umbilical services, heavily protected from debris with steel cutting and heavy manipulator
6. Filtered water from barge gives 100% visibility in wreck hold
7. High volume suction hoses removes sediment, as it is released by high pressure water jets

Transfer, storage and disposal of bombs

1. 160 bomb skips of a standard road transportable design, carry the bombs and stores them awaiting disposal at Qinetiq site at Shoeburyness. These can be sold after to recover their cost

2. Neutrally buoyant packaging holds bombs safely in position

3. Skips spaced and temporarily stored on HSE & DES advice

4. New semi-automated case panel cutting and steaming facility to be built at Shoeburyness Qinetiq site

5. TNT safely burnt to produce super-heated steam

6. Water scrubber filters remove particulates from TNT combustion


Freaky

The need for action now

1. The risks are now increasing with the integrity of the wreck declining
2. The risk of a terrorist wanting to take life, is more likely today with the advent of the suicide bomber being a more common occurrence and the UK's Foreign Policies embroil us in the affairs of others
3. No collision for 68 yrs makes the statistical chance of one more likely. Over 5,000 vessels are logged inward each year passing close by in the dredged channel
4. Very soon the wreck will become too dangerous to enter and detonation of it may be the only option to leaving it to fate and disintegration

Public inconvenience

1. The public at risk are the most important of all who have a right to know all the facts and not treated like mushrooms
2. Computer modelling will determine the risks to population and property and a safe zone can be reasonably judged
3. If I can confirm the fragmentation bombs have been removed, from my small debris protected submarine, the evacuated public could return within two days while the remainder is safely cleared
4. A TV Digital Channel would cover the preparations and clearance in real time, as it happens, so those affected can see progress or difficulties first hand
5. I would aim to remove the bombs in less than two months

The Reconstruction of the SS Richard Montgomery

1. The debt owed to the US is priceless in their support for winning WWII with the aid of these 2,010 Liberty Ships and stores in addition to finalising the end in Hiroshima and Nagasaki atom bombs, the like again must never be used on mankind
2. Every Jew living today and born tomorrow owe their lives to our allies in a horrific part of human history that must never be forgotten.
3. I believe Jews and millions of others would help finance the rebuild of this wreck to sail again, as a fitting tribute to all innocent lives lost on both sides during WWII

How can anyone help?

Lives within 30 miles of Sheerness are at risk from the SS Richard Montgomery bomb fragments. I would appreciate everyone posting a letter on 1st April 2013 to David Cameron on the following lines;-

1. The MCA Report November 2000 states the SS Richard Montgomery could explode if a vessel is in collision with it, it capsizes, moves or breaks up

   How far must we move to be free of any risk?

3. Every terrorist or conventional bomb in the UK or mine in UK territorial waters is made safe no matter how dangerous it is
4. Why are the 10,358 bombs in the Montgomery not cleared that are risking our lives?
5. The DfT refuse to reassure us at any meeting or make statements in Press or Media. They will not support their case to Mike Barker
6. I want Mike Barker to be given authority to clear this wreck, as he has the expertise and confidence it is safe to clear, unlike the DfT

What do they know FOI request

- Please see my request made on 20th March 2013 to Patrick McLoughlin Secretary of State to the DfT

- https://www.whatdotheyknow.com/request/dfts_legal_failure_to_protect_li/new