PAJ OIL SPILL SYMPOSIUM, 21-22 FEBRUARY 2008

NAPOLI: PRESENTATION BY ROBIN MIDDLETON

Slide #1: Blank	
Slide #2: **SOSREP gold logo** **Slide #3: Title**	**Slide #2: SOSREP gold logo** **Slide #3: Title** I am robin Middleton and at the outset of the NAPOLI incident I was employed as the UK Secretary of State's Representative (SOSREP), a post which I had occupied for the previous eight years. The post of SOSREP is none political. My role was purely operational. I did not sit on any committees as my day job was to take control of the response to any incident at sea which involves either shipping or offshore oil or gas installations acting in the overriding interests of safety and the UK and its environmental and economic interests. As the UK SOSREP I represented the Secretaries of State for both Transport, for incidents involving shipping, and for Trade and Industry, where incidents involved offshore installations or the sub-sea oil and gas import/export infrastructure. I was able to exercise control and command without recourse to any higher authority in the UK. In the event of my getting things badly wrong the Government's only recourse would have been to sack me. In peacetimes I worked with the UK Maritime and Coastguard Agency (MCA). During incidents I was able to call upon the MCA and DTI resources including H.M. Coastguard, oceangoing tugs, aircraft, and other assets to assist me.
Slide #4:	**Slide #4:** MSC NAPOLI was a container vessel – the largest such ship in the world when she was launched in 1982. On this occasion she was under charter to MSC - the Mediterranean Shipping Company. The Ship Managers were Zodiac Maritime Agency of UK.

	She was a British Registered ship and her P&I insurers were the London Club. She was 275 metres long and of 53,409 gross tonnes. Her container capacity was 4,734 20 foot units and at the time of the incident she had was carrying 2,318 containers of which 159 contained highly dangerous goods. She had on board over 3,400 tonnes of bunkers most of which was HFO (Heavy Fuel Oil).
Slide 5: Date **Slide 6:** **Position, weather & problem**	**Slide 5: Date** **Slide 6: Position, weather & problem** At 10.28 UTC on 18 January 2007 a MAYDAY was received from the ship. At this time she was some 50 miles to the South South East of Lizard Point in UK. The weather had been particularly bad for several days and on scene the wind was reported as blowing from the West South West at Gale force 8 to severe gale force 9, with 5-7 metre swells underlying extremely rough seas. NAPOLI had earlier suffered engine failure but worse was to follow. She now reported serious structural failure with vertical cracks visible on both sides of the hull in the way of the engine room bulkhead and forwards of the accommodation block. The engine room was reported as flooded and open to the sea.
Slide 7: **<u>Video #1</u> Saving crew** **<u>Video #2</u> TV appearance**	**Slide 7: <u>Video #1</u> Saving crew** In atrocious weather and sea conditions the 26 crew members took to a lifeboat and managed to abandon the ship. There now followed heroics in the finest traditions of the sea as the crew of a Royal Navy helicopter operating form Culdrose in the UK managed to airlift the crew members from their lifeboat to safety. I am pleased to record that the helicopter crew's bravery on that day was later recognised when they were cited for gallantry medals. **Slide 7:** **<u>Video #1</u> Saving crew** With the risk to life and limb now removed the media attention transferred to the stricken ship which was known

	to contain substantial bunkers and over 2,000 containers many of which contained IMDG Coded goods.
Slide 8: Title	**Slide 8: Title "Commencement of the Incident to Beaching** Although the incident had happened on the French side of the Channel both the MCA (Maritime and Coastguard Agency) any myself as the UK SOSREP I had been involved in the incident from its outset While the UK Coastguards at Falmouth worked with their French counterparts to organise Search and Rescue activities I had set up an incident response centre at Southampton in the MCA's Marine Emergency Response Room. Into this room I summonsed expertise on Container ships and their cargoes, salvage expertise, a chemical cargoes expert (from MCA), a naval architect (from MCA) and room support. At first my role was to back-up the search and rescue services. However at the same time we had all realised that whatever the fate of this ship, there would be major pollution implications for the UK. I was also under no doubt that some of the best places for refuge for the seriously damaged vessel were within UK Waters. There was every possibility that at some point I would have to take the overriding decision to admit the ship into our waters!
Slide 9: **Chart and course**	**Slide 9: Chart and course** MSC NAPOLI was in fact proceeding from Amsterdam en route to the South Atlantic and eventually South Africa. She had made her way down the Channel on the UK side and passed through the Casquettes TSS (Traffic

	Separation System). Now she would head into French Waters and pass through the TSS off Ushant before heading out into the Bay of Biscay and southwards. At around 10.15 UTC there was a sound of banging and ripping metal and the ships motion in the water changed significantly. From the engine room came stories of the gratings moving, pipe-work fracturing and a sudden inrush of seawater.
Slide 10 **1. Crack in hull** **2. Ship & helo x 2** 3. **c/u helo rescue**	**Slide 10: 1. Crack in hull; 2. Ship & helo x 2; 3. c/u helo rescue** 1. This is one of the fractures in the hull – as you can see the shell plating is fractured from around 5 metres below the deck-edge and down into the water. There was a similar fracture on the starboard side of the vessel. What nobody would know for a long time was whether the fracture continued right around the underside of the hull. 2. The rolling of the ship can be clearly seen in these two pictures taken as the French salvage team were being lowered on board the casualty 3. This is the helicopter picking up crew from the ships lifeboat
Slide 11 **Chart & courses**	**Slide 11: Chart & courses** • At 10.28 the ship's position was around 2.33 nm (nautical miles) on the French side of the median line between Britain and France. The French Admiral (the Prefet Maritime at Brest) had overall command of the rescue and response. Within minutes he and I were talking directly to one another about the situation. Helicopter support had already been requested and agreed with the UK Coastguard under the Anglo/French Mancheplan Agreement. The Admiral informed me that he had mobilised the French Emergency Tugs operating out of Brest and Cherbourg to the casualty – I immediately authorised the UK Emergency Tug at

Falmouth to proceed.

The vessel started to move eastwards under the influence of wind and tide. Later that day the French succeeded in landing a small salvage team from Les Abeiles onto the ship to assess damage and her chances of staying afloat.

The French team reported that the vessel was severely damaged and could sink. The only means of trying to save her would be to place her in sheltered waters where she could be stabilised and pollutants and cargo could be removed.

The Salvage Master of that team was Captain Charles Cladan. We would be in frequent radio and telephone contact over the next few days. Charles was a man I had never met, but in whose honest judgement I would have to trust implicitly. I have to say that, in reflection there could have been no better man for the task.

Within a very short time a Lloyds Open Form salvage contract had been agreed between the owners and a consortium of the Dutch salvage company Smit, and Les Abeiles. Pending survey and inspection of the ship and a decision from the authorities on a place of refuge, the casualty was towed slowly to the east.

In the meantime I had to base every assumption on the probability that the ship would sink. With this in mind I had commissioned the UK Environment Group to provide me with an environmental impact assessment based on three possibilities:

1. The ship sinks in the Channel in deep water.
2. The vessel is towed out of the Channel and sinks in deep water offshore (or during the attempted tow).

3. The vessel is towed towards the UK towards shallower water and/or a port of refuge and sinks close into shore.

Their answer was unequivocal:

- The worst case would be if the ship sank in deep water and all cargo and bunkers were lost.
- Wherever she sank the UK shoreline would stand to be seriously affected by pollution and releases from the cargo.
- If she had to sink - the shallower the water the better as bunkers and cargo could more easily be restrained and removed.

The search was now on for a Place of Refuge and both the French Admiral and I set about the task.

On the French side of the Channel the coast is rocky and perilous with reefs and deep water even close into shore. The port of Cherbourg was not an option as the casualty now drew 13.5 metres of water and could not get into the breakwater there. The nearest place of refuge on that side would be the port of La Havre – around 220 miles away.

On the UK side we had large shallow bays – some of which, such as Lyme bay, were know places for ships to shelter from South West and Westerly winds. Also we had ports such as:

- **Falmouth – nearest potential port:** deep water sheltered moorings but no direct access to the port

due to NAPOLI's 13.5 metre draft, little space in the port, poor road access and no container handling facilities.

- **Portland:** Sheltered anchorage in outer harbour but no access to inside of breakwater due to 13.5 metre draft. Small container handling ability but large areas of disused space within the port. Comparatively little used by shipping. Better road access.

- **Portsmouth – nearer than Southampton:** Naval dockyard with space and road access but little container handling ability. Access by narrow, easily blocked, entrance with strong tides. No access to docks due to 13.5 metre draft. Implications for national security.

- **Southampton – furthest practically accessible port closer than La Havre:** large container handling port but difficult access via a narrow, easily blocked, channel. Very busy port with petrochemical operations. Disruption of port facilities could significantly impact upon UK container importation. Excellent road/rail access.

The salvors had requested to take the ship into Lyme Bay for shelter. I had discussed Falmouth with them but their feeling was that a tow across the Channel beam-on to the wind and waves would almost certainly lead to early sinking.

- **DECISION #1**

  At 00.25 the following morning, after studying the French environmental impact assessment I formerly agreed to accept the MSC NAPOLI into UK Waters.

- **DECISION #2**

  I instructed the Salvage Master to head for shelter into Portland Outer Harbour for shelter and stabilising of the casualty.

- As the night skies began to lighten the tugs turned the tow northwards to commence the passage across the Channel. Shortly afterwards the tow snapped. In the outrageous conditions the salvors struggled until early afternoon to reconnect the tow. By this time the salvors were gaining increasing confidence that the sip's condition was not worsening and that she "might" survive the passage intact.

- By the time the tow restarted it was too late to round the Potland Bill headland in daylight and the salvors requested shelter in Torbay, a known shelter for shipping – but with no port facilities and a large tourist centre (known as"The British Riviera").

- **DECISION #3**

  I instructed the tow to enter the south-western area of Lyme Bay and shelter overnight before inspection and recommencement of the passage to Portland in the morning.

  During the night I moved the Salvage Control Unit from Southampton to Portland MRCC (Marine rescue Co-ordination Centre – ie Coastguard station).

- Just after daylight at 07.35 the following morning I was informed by the salvors that the casualty was down by

	the stern and sinking. **DECISION #4** • I had prepared for this eventuality and within 4-5 minutes had instructed the salvors to tow and beach the vessel in a position midway between the coastal townships of Sidmouth and Lyme Regis. • By 12.17 the vessel had taken the ground, the tide had peaked and the tugs were able to relieve pressure on the casualty.
Slide 12: **Beaching #1/2**	**Slide 12: Beaching #1/2** Here you can see NAPOLI being towed into her beaching position. The two French tugs are ABEILES BOURBON and ABEILES LIBERTIE, both purpose-built salvage tugs offering in excess of 200 tonnes bollard pull. You can also see the UK Coastguard tug, ANGLIAN PRINCESS, in the background.
Slide 13: **Beaching #2/2**	**Slide 13: Beaching #2/2** This is the situation immediately after beaching. NAPOLI lies with a list to starboard Her bows are buoyant and rising and falling with the tide and she is grounded astern on a flat sandy seabed. Amazingly had she been beached more than half a mile to the east or west she would have destroyed very sensitive marine lifeforms. As it is she is now beached in one of the UK's most sensitive and protected areas. Known as "The Jurrasic Coast" the whole of Lyme Bay and its shoreline is designated as SSSI.
	Slide 14: Newspaper – "Tide of Death" The media was quick to make maximum publicity over the "disaster".

Slide 14: Newspaper	This Dorset Echo Newspaper shows a dead and bleeding Dolphin lying on the foreshore. The headline reads "Wildlife Carnage in Jurrasic coast oil Sillage" The caption to the picture reads "TRADEGY: A dead dolphin washed up at Chiswell after the oil spill from the stricken NAPOLI". The article starts "HUNDREDS of blackened seabird, fish and dolphin corpses are littering the Lyme Bay coastline after oil spilled from a stricken container ship. The tidemark of death stretched from Lyme Regis to Portland.....". What with this and the TV coverage of my interviews there was no doubt whatsoever in the people, press and politicians of Lyme Bay as to exactly who was responsible. At this time I was openly threatened and harangued as I walked on the streets at Weymouth where we set up the Salvage Control Unit.
Slide 15: Title	**Slide 15 Title – "The Salvage Plan"** What we had to have was a plan for the future operations In fact, in the UK the first thing we will push for is a "Salvage Plan" from owners and/or salvors. This plan however simple sets out clearly for all parties what direction operations will pursue. In the initial stages Salvage Plans are extremely simple – and need to be – but as the operation progresses details can be added into the plan which must always be fluid, subject to agreed alteration, able to adapt to changes in circumstance and reflecting the most up to date information available.
Slide 16: Salvage Control Unit	**Slide 16: Salvage Control Unit** • This is the Salvage Control Unit (SCU) at Portland MRCC. Under the UK's National Contingency Plan (NCP = National Contingency Plan for Marine Pollution from Shipping and Offshore Installations) the SOSREP will set up such a group to plan, manage and oversee the salvage operation. The SCU consists of a small group of people who are either experts in their own right , or are representing the main interests in the operation. In its simplest form it consists of a core of seven people. The detailed list is set out in the NCP document. The SCU however is not a "committee" at all times the final decisions and responsibility rests with the SOSREP. In this picture you can see: ➢ Myself – the UK SOSREP and, on my right, my assistant – one of three MCA Counter Pollution and salvage Officers. ➢ On my left is a French Officer of the Prefet Maritime, representing France's interests – the French were

extremely helpful throughout this incident and made all of their assets, including their emergency tugs and counter pollution vessels, available to us for as long as we wanted.

- The gentleman in the grey shirt is the newly appointed Australian SOSREP (correct title is “MERCOM” – Marine Emergency Response Commander) who flew into Uk to observe our response system
- The gentleman with the grey hair is Tim Boden, an very experienced lawyer representing owners and P&I insurers interests
- .Next to him is Captain Simon an experienced seaman from Zodiac who has been a previous Master of the NAPOLI.
- Jim Chubb in the red jumper is an acknowledged expert on container cargos – he is sitting with Clive Taylor who is Smit, the salvor’s expert on container cargos. These men are sitting and working togetherand were able to get us the best available data on NAPOLI’s containers including the ship’s manifest and stowage plans, individual container contents and their IMDG coding (IMDG = International Maritime Dangerous Goods Code). Out of the picture is a chemical cargoes expert who was able to advise on the dangers presented by any particular item and the possibility of dangerous “chemical cocktail” mixes on the ship.

  Thus combining the “government’s experts” and the “salvors experts” produced a very powerful tool and enabled both the salvors and government to have equal knowledge of what was happening.

- Their is also a Smit Salvage Master in the room who can give instantaneous updates on developments and can get instant answers to any question or request that he may have.
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- The Group at the end of the table are the shoreline response and cleanup contractors employed, on this occasion, by the owners and insurers. Theirs was an unenviable task, particularly in the early days of oil and cargo spillage, which continues to this day.

- The members of the SCU live and work together so that all knowledge within the room is common knowledge. In the early minutes and hours of a major incident updates will be kept to “Time-outs” called by the SOSREP as new and key information comes in. Later in the incident formal, minuted, update and review meetings are called

	The outline Salvage Plan was simplicity itself: • Remove the hydrocarbons from the ship: There was known to be over 3,500 tonnes of HFO and marine gas oil plus lubes and hydraulic fluids still in various tanks on the vessel. These represented the most immediate threat to the coastline, foreshore and their flora and fauna. • Identify and remove the cargo: For safety's sake the contents of all containers had to be identified so that the salvors and shoreline responders could be aware of any associated risks. As some containers had already fallen into the sea and been washed ashore this was particularly important for the safety of the public on the shoreline. • Removal of the ship: At the end of everything plans had to be in place to facilitate removal of the hull of the ship itself and the restoration, so far as possible, of the seabed to its original state.
Slide17: **Command & Control**	**Slide 17: Command & Control** The overall incident command and control structure was based on the standard British police/military model. • STRATEGIC overall command is exercised by a "GOLD Commander" normally operating with a Gold Command group in attendance. The GOLD Commander's task is to see the "big picture" of the whole event and issue strategic direction to all participants, agencies and organisations involved. Instructions from GOLD are passed to a SILVER level. At "SILVER" level the strategic direction is translated into tactical instructions to front – line responders for action. SILVER also has to control and mobilise assets as required and to advise GOLD on progress. BRONZE level is in fact the front line where the actual workforce put the Commander's instructions into practical effect. • During NAPOLI I was recognized as the GOLD Commander with responsibility for all involved people and organisations on land or sea. In this I was supported by the Salvage Control Unit whose role was expanded to cover this new and unforeseen situation. • At Silver level at sea there were Smit and the Salvage Master, H.M. Coastguard and the MCA-led Marine

	Response centre dealing with pollution in the water. On land we had essentially the police, local authorities and owner's clean-up contractor companies. • While actually out there doing the work were the various workforces and assets responsible to them. I believe this is the first time ever that a none-uniformed person has had charge of such an event and the outcome is now held as a model for future similar operations.
Slide 18: Title **Slide 19** **Lost Container**	**Slide 18: Title – "Scavanging"** **Slide 19: Lost Containers** At the time of beaching 114 containers were lost overboard into the sea – 104 at the time of grounding and a further 10 in bad weather shortly afterwards. They were all lost from the stern area of the ship and most of them were washed up on the nearby shoreline
Side 20: **Looting on the beaches**	**Slide 20: Looting on the beaches** What followed was both unforeseen and unprecedented in modern times. Literally thousands of people made their way to the beaches and began to break open the containers and steal

	the contents and other articles washed up on the shore. This included BMW motorcycles, oak barrels and the personal property of persons emigrating from UK. One elderly lady watched her TV helplessly as thugs ransacked a container of her private possessions and made off with them. The police and other authorities were slow to react and the looting went on into the night. Now nobody could be certain of what the content of these boxes were. As luck would have it there were no dangerous goods lost at this time. Added to this was the danger of explosion as fires were lit and the very real dangers of children being swept into the sea as they ran loose and unattended amongst the debris. Luckily no one was crushed under the collapsing contents of the containers as they were forced open.
Slide 21: **Newspaper coverage**	**Slide 21: Newspaper coverage** The media, of course, didn't help matters. This article in ajor newspaper is inviting people to join the looting. It even carries a map showing were the most desirable articles are coming ashore.
Slide 22: **More looting**	**Slide 22: More looting** At first the police were forced to be mere onlookers as the legislation covering wrecking in UK was thought to be very ancient . However, as the night drew in and the dangers to the public became greater I was able to agree a means of addressing the situation by appointing a senior coastguard officer to the position of Receiver of Wreck and gettingthe police to act in support of him. With this tactic, and support from contractors engaged by the NAPOLI's owners we were able to retake control of the shoreline. The following day the whole area was designated a "place of work" and sealed off. Thereafter we had a system in place which would enable us to take control of any section of the 60 plus mile shoreline within 1 hour of notification.
Slide 23: **NAPOLI on the Rocks beer**	**Slide 23: NAPOLI on the Rocks beer** Ever quick to take advantage of a local windfall the local industry was quick to repond. This included the local Branscombe Brewery Company which produced a very popular beer called "NAPOIL's On The Rocks". To be drunk, I am told, to the toast of "Down the hatch".

Slide 24: Title' **Slide 25:** **Leaking fuel oil**	**Slide 24: Title – "Oil Spill Response"** **Slide 25: Leaking fuel oil** The Most immediate problem was to minimise damage from the fuel oil on board the ship. At the time of the initial structural failure it was known that bunker tanks on the port and starboard side were breached and open to the sea. NAPOLI still had considerable bunkers left however most of which was Heavy Fuel Oil (HFO) By Day 4 of the incident Smit had mobilised a diving and salvage team to the site and already tanks had been "hot-tapped" and the first oil was being removed.
Slide 26 **Oiled birds**	**Slide 26: Oiled birds** Of course where there is oil in the water there will be oiled birds. To the delight of the media the first birds started to come ashore very quickly. Mainly guillemots, the birds were collected into boxes and taken to a bird rescue centre inland.
Slide 27: **Cleaning a bird**	**Slide 27: Cleaning a bird** At the rescue centre the birds were cleaned by trained staff. In total just over 2,000 oiled birds were picked up during the whole incident. This I am told indicates that over 4,000 birds were actually oiled.

	Of the birds recovered over 50% survived and were subsequently released.
Slide 28: **Birds waiting for release**	**Slide 28: Birds awaiting release** After washing the birds went through a process of waiting for their feathers to re-oil and waterproff themselves before being released. During the incident the MCA helped the rescue Centre out by loaning fast-tanks and the SCU team raised more than £500 in a charity collection for them.
Slide 29: **Satellite surveillance pic**	**Slide 29: Satellite surveillance** The oil spilling from the ship was also monitored by satellite and you can compare the satellite image here with the real-time equivalent photograph of the casualty.
Slide 30: **Lightering vessel alongside**	**Slide 30: Lightering vessel alongside** By Day 6 the salvage team had commenced removal of the HFO and three weeks later they had succeeded in removing all of the accessible HFO. Removal of other fuels and lubes continued however and it was not until Day 54 that we could say that all accessible hydrocarbons had been removed from the casualty. In all over 3,800 tonnes was removed. Note the phrase, “all accessible”, in fact NAPOLI still had sufficient oils on board to cause significant pollution as we were to find out. Harland & Wolfe, who scrapped the front end of the vessel, claim that there we up to 80 tonnes of oil still in that section.
Slide 31: Title	**Slide 31: Title – “Cargo Information And Tracking** Of particular importance to us was to get reliable information on exactly what was in each container on the vessel and its specific location in the holds. In order to protect the people engaged in removing and receiving the cargo and responding to cargo washed ashore it was vital that we knew what each box on the ship contained.

	To enable this I had commissioned Jim Chubb, a renowned consultant on container management. Jim worked side by side with Clive Taylor who had been commissioned for the same purpose by Smit, the salvors. Together and using the SOSREP's powers to require information the two of them achieved wonders within an astoundingly short time period. By the end of the weekend of the grounding (Day 5) they had obtained detailed information on around 95% of the cargo. Within a few more days they had more than 99% identified, with 100% shortly afterwards. A feat that has never been achieved before to my knowledge.
Slide 32: **Cargo identification & tracking**	**Slide 32: Cargo identification and tracking** • This is the cargo distribution on the ship. You can see there are 65 bays spread over 7 holds on the vessel. Each bay represents a 20foot container, so each double bay has its own additional number to represent the carriage of 1 x 40 foot container instead of 2 x 20 foot ones. • This is a section of one of the bays. Each container is clearly marked and bears an individual number to indicate its exact position in the ship. By cross-referencing the cargo manifesto and declared container contents, the goods packed within every container can be identified. Now the IMDG (International maritime Dangerous Goods) Code is intended to draw attention to particular handling issues for shipping the coded goods. Thus much of the coded goods are ordinary household products such as hair spray, or perfume disinfectants etc are not necessarily dangerous or harmful in themselves but have particular handling requirements (e.g. they could be inflammable or cause skin or eye irritation etc). With this in mind I designed a more basic division of the goods – and you can see these represented in this bay-plan. o The boxes coloured green contain ordinary household products

	○ The boxes coloured in pink contain really dangerous goods which must not be handled without proper precautions and protective equipment being worn. ○ The boxes coloured blue represent everything in between. When handling these it would be necessary to be aware of the contents and to handle them accordingly. • Across the wall of the SCU we had a massive chart of every bay on the ship. Therefore as the cargo discharge commenced we could keep check on exactly which box was to be removed next. This enabled us to: ○ keep the offshore salvage team advised of what to expect ○ Notify the discharge crews ashore of what the barges from the casualty were bringing in to them.
Slide 33: **Media coverage of cargo**	**Slide 33: Media coverage of cargo** Unfortunately in the UK we have "Freedom of information" legislation. This effectively meant that we had to release information about the cargo contents in their declared, chemical names, to the media. As usual the media rose to the occasion – and frightened the living daylights out of the local population for no good reason whatsoever.
Slide 34: Title	**Slide 34: Title – "Recovery of Cargo and Delivery to Portland**
Slide 35: **Initial cargo discharge**	**Slide 35: Initial cargo discharge** By the eleventh day the first containers of cargo were removed from the NAPOLI. A large barge, BIGFOOT, had been commissioned by the salvors and mobilised to site. Here you see her

	moored at the stern of the casualty with the coastguard tug ANGLIAN PRINCESS in attendance. The other vessels are the FORTH FISHER, a lightering tanker receiving discharged bunker oil, and the Smit Bever, workboat and counter pollution vessel. The plan was to start removal of the cargo from the stern forwards. The BIGFOOT was equipped with two cranes for this task. One at 800 tonnes lift to load containers onto the BIGFOOT and another, smaller crane, to offload them from BIGFOOT onto a smaller "shuttle-barge, BAO BARGE 5, for transit into Portland port for discharge ashore.
Slide 36: **Above-deck cargo part discharged**	**Slide 36: Above-deck cargo part removed** This picture shows the above-deck cargo half discharged. As can be seen the seas are rough and there is a constant sheen of released oil from the vessel in the surrounding water.
Slide 37: **C/u cargo discharge**	**Slide 37: close up – cargo discharge 1/3** These pictures give some impression of the on-board conditions during the cargo discharge operations.
Slide 38: **C/u cargo discharge**	**Slide 38: Close up – cargo discharge 2/3** Working with some of the cargo was very dangerous. The stack of 4 containers to the left of the picture had to be collapsed and recovered from the water.
Slide 39: **C/u cargo discharge**	**Slide 39: Close up – cargo discharge 3/3** For reasons of health and safety the salvors had to bring in experienced alpine climbers to teach the salvage crew how to use the equipment and absail etc.
Slide 40: **Hold #6 containers**	**Slide 40: Hold #6 containers** Hold 6 was immediately forward of the accommodation block and in the way of the fractures in the ship's side. It was therefore common with the engine room and HFO was free to find its way into the hold which was common to the sea.

	The strains on the ship had also distorted the cell guides making containers extremely difficult to remove. One container alone took 18 hours to free from the ship.
Slide 41: **Difficult to remove containers**	**Slide 41: Difficult to remove containers** In this picture the bottom container has been breached by the sea and its contents lost. The topmost container has collapsed and jammed into the cell-guides. Cutting the guides away under these conditions was extremely hazardous for the salvage team.
Slide 42: **Loose cargo lost to sea**	**Slide 42: Loose cargo lost to sea** At one time there was a high incidence of hypodermic syringes and other medical supplies being washed ashore. The authorities could not understand why until they saw this sequence of photographs: • It is high tide and the sea is washing freely into and out of the hold. The hold itself is full of cargo from a burst container. The four rectangles are the tops of lorry cabs strapped into a flatbed container which are about to be lifted out of the hold. • The flatbed container is lifted out of the cell-guides and • A scum of cargo is left free to float out of the hold. This material contained syringes, class 1 drugs including morphine and plastic bottles of hair shampoo.
Slide 43: **Last Container removed**	**Slide 43: Last container removed** After the above-deck cargo had been removed work started on the below-deck containers. On 17th May – Day 119 of the incident the last container was removed from the ship. There was much celebrating believe me!
Slide 44: Title	**Slide 44: Title – "Portland Operations"** By far the bigger problem with the salvage of NAPOLI began when the first boxes came into the port of Portland. Portland had been a major UK naval base, but is now in private, commercial ownership. However its naval

	history mean that it is a secure facility.
Slide 45: **Portland Port**	**Slide 45: Portland Port** Strategically located on the south coast of England it now acts as a service and supply base the Royal Navy Fleet Auxiliary Service (RFA). Otherwise the port is occupied by various privately owned commercial concerns including a cable-laying company and various small ship repairing and servicing yards. There is a thriving bunker supply business and frequent visits from ships to load or discharge cargo. Included within the port perimeter are large areas of land which, although scheduled for development were, at the time of NAPOLI, disussed. Port facilities for the reception of containers were hired by the salvors and NAPOLI owners and insurers. • **Landing site** The Outer Coal Pier (OCP) was taken over for landing containers from the shuttle barge and a 400 tonne capacity crane was located there. • **Container storage sites** As we were about to bring well over 2,000 containers into the port we would need large areas for handling containers, unloading and reloading containers and storage of containers for transhipment or scrapping. We would also need space in which to bring undamaged, empty containers for repacking goods from damaged ones. A number of secure sites were identified and cleared for this purpose. • **Treatment sites** Areas had to be identified for holding polluted, leaking and dangerous goods. A main treatment and scrapping area was created and called the “Hospital Site”. • **Dangerous chemical site** • Some cargo would be so dangerous that it could only be handled by workers wearing full chemical protective

	equipment. Some bulk liquid containers could only be safely decanted on the quayside itself and had to be stored there until the area could be cleared for operations. For the rest a “chemical processing site” was identified away from all other activity and cleared, resurfaced and equipped for the task.
Slide 46: **Outer Coal Pier**	**Slide 46: Outer Coal Pier** This is the OCP, or landing site with the shuttle barge alongside and discharged. As the pier would have to receive oiled and polluted containers all liquid drainage had to be collected and removed for treatment and disposal. Fortunately the pier was equipped with its own bunded drainage system which served to collect surface water into a single tank beneath the pier. This had to be entirely refurbished with new drainage ducts and lines put into place. Also arrangements had to be made to regularly pump out the collection tank and transport the waste liquid for treatment. The UK Environment Agency officials had to be satisfied that all operations within the port would be sufficiently effective to secure a Waste Disposal Exemption Certificate. In the picture Liquid chemical tank’tainers are stacked awaiting decanting or onward shipment, reefer containers are stored at the rear of the quay and there are numbers of damaged or leaking containers awaiting discharge and scrapping of container and cargo. Also oiled containers can be seen placed in drip trays awaiting transport to the hospital site for treatment.
Slide 47: **Fabricated drip tray**	**Slide 47: Fabricated drip-tray** This is one of the drip trays designed to hold one 40 foot container and contain polluted liquid or oils leaking from the container.
Slide 48: **Container storage berths**	**Slide 48: Container storage berths** Container storage was a major problem with port capacity of nowhere near the 2,300 that would be received. Main storage sites were established in old peat bays along the port’s main service road and by taking over an entire quayside called the New Quay. Other offsite storage was created on a disussed airstrip and called The

	Osprey Site. Heavy usage by 60 tonne reach-stackers carrying overloaded containers soon took its toll of surfaces in the port. The New Quay site had to be entirely re-surfaced in sheet steel and later re-stowed as the sheer weight of containers was causing subsidence of the dock wall itself. At the peak of operations it was estimated that within the entire port there was room for no more that 16 more boxes!
Slide 49: **The "Hospital" site**	**Slide 49: The "Hospital" site** This is The Hospital site – it used to be a football pitch. The laden, polluted containers from the quayside were transported to the site in a relay of vehicles. On site they were sorted into oiled containers, those holding rotten or foul goods (such as meat and vegetable products) and those containing damaged cargo for discharge and disposal at licensed waste disposal sites. The oiled containers were stored in a bunded area at the rear of the site. Five large wash bays were created to clean these containers. After discharge of cargo damaged boxes were either washed and re-used or torn into scrap metal by cutting shears on site. The hospital site worked 24 hours for 7 days a week. At all times there were relays of lorries bringing containers into the site and loading and removing foul cargo and scrap metal from the site. At its height the incident was keeping the UK's 7 largest licensed waste disposal site working around the clock.
Slide 50: **Hospital site wash bays**	**Slide 50: Hospital site wash bays** These are the wash bays in action – all the sprayed water was collected and processed through an oil/water separation system then re-used.

	During the operation it was necessary to dismantle the wash bays and reconstruct them entirely.
Slide 51: **Hospital site – oiled cargo**	**Slide 51: Hospital site – oiled cargo** In this picture oiled cargo awaits cleaning and disposal.
Slide 52: **Dangerous goods & chemical response site**	**Slide 52: Dangerous goods & chemical response site** This is the area which was cleaned, resurfaced and changed into a dangerous chemical handling area.
Slide 53: **Chemical response team**	**Slide 53: Chemical response team** These shots show the chemical response contractors at work.
Slide 54: **Port Operations meetings**	**Slide 54: Port Operations meetings** With the huge activity in the port it wasn't long before the various contractors were having problems with interference from each other's operations. Worse still the port itself was slowly becoming congested with heavy haulage vehicles occupying every available parking space. At one time the Port owners served 48 hours formal Notice to Quit the Port to the salvors and owner's contractors. This would have effectively terminated the at-sea salvage activity and I couldn't let that happen. Under the powers of SOSREP I am able to direct the owners of any coastal facility, whether publically or privately owned, to allow access to the port and allow discharge of cargo etc. In the event that I am not satisfied that such persons can, or will, undertake the action required I can take over the entire facility myself in order to get the result needed. I therefore contacted the Board of Management of the port and informed them that if they failed to retract their notice I would exercise these powers and take over. They retracted their Notice. I immediately moved my operations into the port offices and from that time until the end of the salvage discharge

	operations were completed I oversaw and exercised control over all operations within Portland Port. Each morning at the start of the day There was a Port Operations Meeting in my offices. At these meeting all operations and movement of plant and shipping were notified, discussed and agreed. After a short while I considered cancelling the meetings, but continued them at the specific request of all involved. Apart from operations and logistics the problems we had to address and solve included: o Problems with the health of the workforce – who were daily working in foul smelling and potentially dangerous environments o Vermin and insect infestations – only to be expected when products which have been rotting underwater for up to 5 months are being handled. o Watse water disposal – when all local reception facilities had become overloaded and heavy rain was forecast. o Health & safety protocols for handling dangerously overloaded containers – normal safe working load for a 40 foot container is 30 tonnes. Many removed from the NAPOLI contained goods such as paper and plasterboard with gross weights in excess of 100 tonnes. o Organising police escorts for convoys of lorries running through the night. o Running convoys at times when there would be least public complaints about the smells emitted. But the biggest problem of all was to get containers for onward shipping removed from the port to make room for more.
Slide 55: **MSC GRACE**	**Slide 55: MSC GRACE** This is the MSC GRACE. She made a number of calls into the port to collect and remove boxes for onwards shipping. Without this facility the port would have ground to a halt.
Slide 56: **Loading MSC GRACE**	**Slide 56: Loading MSC GRACE** MSC GRACE was slow to load – at one time the entire team had to get out to the various sites to oversee and speed up operations to sort out and transport containers for shipping to the quay.
Slide 57: Title	

	Slide 57: Title – "Fate of the Ship" Now the remaining problem was how to remove and dispose of the ship itself.
Slide 57: **Options for the ship**	**Slide 57: Options for the ship** The owmers and insurers attitude was that as part of their commitment to the UK Flag they would act responsibly and remove the wreck and reinstate the local environment as best they could. There were four options for disposal of the ship of which one, natural break-up in situ was discounted from the start. That left: o Refloat the ship in one piece and tow to a ship recycling facility. The problem with this was that due to the calculated draft of over 17 metres the only facility which could receive it was in Norway and there was very little chance that the vessel would survive a lengthy ocean tow – even if the Norwegian government would accept it. o Break the ship into two pieces and tow the bow section for dismantling. The stern would be cut up in situ. o Refloat the ship and tow as one unit to deep water for placement on the seabed. At this point the Uk environmental and political authorities became involved and work to refloat the ship went on while they considered and reconsidered the options. In the end there was no doubt that the best practical route was deep water placement. But events were to take an unforeseen twist.

Slide 59: **Pumping unit**	**Slide 59: Pumping unit** This is one of the salvage pumps being lifted into a hold.
Slide 60: **Pumps in place**	**Slide 60: Pumps in place** There would be 33 pumps deployed onto the ship with all their attendant power-packs, lighting units etc.
Slide 61: **Pumps in action**	**Slide 61: Pumps in action** To lift the vessel the salvors would have to remove at least 58,000 tonnes of water within less than six hours.
Slide 62: **Refloating NAPOLI**	**Slide 62: Refloating NAPOLI** On Day 172, 9th July 2007, the pumps were started and NAPOLI slowly raised herself to the surface. At this time the environmentalist's verdict on scuttling had yet to be confirmed, but it would almost certainly have bann agreement.
Slide 63: **NAPOLI afloat**	**Slide 63: NAPOLI afloat** The ship floated as the evening drew on. The big question in everyone's mind was exactly how far did the hull fractures on either side extend beneath the hull? At first all looked well and the ship was held in deeper water waiting for a full dive survey the next morning. But by first light it was obvious that all was not well. The picture shows the ship sagging with the bending moment around the fracture plating at deck level. Clearly the ship's hull was broken in two right the way around the hull. The only strength left in the hull was in the deck-level longitudal girders and box sections. And these could fail at

	any time. Clearly towing the ship anywhere in one piece was now out of the question. Passage to deep water was no longer an option.
Slide 64: **Beaching the ship's stern**	**Slide 64: Beaching the ship's stern** The decision, of course, was mine. But there was no other decision which could realistically be made. We would beach the stern hard aground and separate the floating bow which could be towed away separately to a local recycling facility.
Slide 65: **Separating the bow section**	**Slide 65: Separating the bow section** It had been hoped that the ship would break in tow without assistance but, as is the way with these things, she did not. It was the huge box sections on each side below deck and including the shear-strake which were holding the ship together. From a salvage point of view the bow section needed to be separated as quickly as possible before it became damaged and unable to float on its own. The solution was to use explosive charges. These would be sophisticated shaped charges designed to cut the deck and longitudinal members beneath. However because of the dangers to men working inside the vessel, which was now subject to immense stress at the point of flexure, access to the under-deck members had to be cut first.
Slide 66: **Access holes cut by explosives**	**Slide 66 Access holes cut by explosives** This is the situation after the second of three explosions. You can clearly see the clean cuts into the deck and rectangular access holes so that the team could reach the below-deck structure from deck level.
Slide 67: **Explosion #3**	**Slide 67: Explosion #3** This is the third explosion on Day 183 of the incident

Slide 68: **Bow section separates**	**Slide 68: Bow section separates** Here the bow is towed away from the stern section which is hard aground. Oil can be seen leaking from the ship and the vessel in the picture is the Smit counter pollution vessel which is spraying dispersant onto the oil. Dispersant spraying had previously been tested on oil from the casualty and proved very effective, under the right conditions, in breaking it up.
Slide 69: **Bow section leaking oil**	**Slide 69: Bow section leaking oil** Here booms are being deployed to corral the leaking oil. There was clearly substantial oil left in the bow section most of which had to be removed by hand!
Slide 70: **Diver removing oil**	**Slide 70: Diver removing oil** And this is the workface. Typical of the dedication and hard and dangerous work done by the Smit salvage team during this incident!
Slide 71: **Bow section leaves for recycling**	**Slide 71: Bow section leaves for recycling** By Day 203 the bow section was secure and a contract for dismantling and recycling had been agreed with Harland & Wolfe of Belfast in Northern Ireland. S, as the sun sinks slowly into the west the tow began its 6-day journey to the licensed recycling site at Belfast.
Slide 72: **Entering Belfast Port**	**Slide 72: Entering Belfast Port** Here the bow section enters the Port of Belfast on her way into Harland & Wolfe. It was a particularly proud moment for me. This would probably be my last salvage before retirement and the Smit team actually flew a British Union flag marked “SOSREP” over the Smit House flag .
Slide 73: **Harland & Wolf**	**Slide 73: Harland & Wolf** Here the bow enters the massive Harland and Wolfe recycling facility. It was in this very yard that the R.M.S.

	TITANIC was built.
Slide 72: **Stern section**	**Slide 72: Stern section** All that remained now was the stern section of the ship weighing an estimated 8,500 tonnes – and it is still there today.
Slide 75: **Plan of stern section**	**Slide 75: Plan of stern section** The original plan was to load a cutting machine onto the stern, which was stable, and cut away the accommodation block, the deck holds and steering flat. At the same time the hull would be fitted with lifting attachments. In the spring, with better weather, large lifting sheelegs would remove the engine and place the remaining stern onto a submersible barge for transport for recycling. Alas it was not to be.
Slide 76: **The cutting machine**	**Slide 76: The cutting machine** The operation commenced at the end of October 2007 and at first progressed smoothly. Within 10 days the accommodation had been cut down and work was starting on the decks.
	Slide 77: Near loss of cutting machine

Slide 77: Near loss of cutting machine	However at the end of November the site was racked by violent storms. There was no time to properly strap equipment and the cutting machine to the decks and, as the stern rolled to 40° list most of the equipment (pumps, power-packs, lighting etc) was lost overboard into the sea. The cutter was all but lost and was saved only by her tracks jamming under one of the remaining hatch coamings. Later the salvors re-boarded the wreck and secured the cutter with chains. Damage was also done to the crane barge ANNA IV and the salvage spread ran for shelter in Portland. Time was then spent repairing damaged equipment and recovering and replacing equipment lost overboard. During December work progressed slowly but increasingly had to wait for bad weather to pass – at massive daily cost to the owners and insurers. After more near misses over the Christmas/New Year period the decision was finally taken to demobilise from the site until more reliable weather during the British spring. And that is the story so far. At this time plans are being made and finalised for the return of the salvors to NAPOLI and the final removal and clean-up of the area which should take place during April of this year.
Slide 78: Blank	**Slide 78: Blank**
Slide 79: **Beaches before & after**	**Slide 79: Beaches before & after** These pictures show the beaches around Branscombe Bay ***BEFORE*** the NAPOLI incident. And this is the view today – in fact the local population was so pleased with the salvors and clean-up that they threw a party to thank them. In the meantime the beach clean-up contractors remain on standby to this day.
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