

Speakers

CDR WALTON: At 0605 KOOTENAY and SAGUENAY were ordered to clear the fleet to the west at 25 knots. This was a prearranged serial and C1 ordered the ships to act independently to carry out the quarterly full power trials. SAGUENAY was ordered to remain within 15 miles of KOOTENAY.

CDR YANOW: SAGUENAY completed her full power trials prior to 0800 and commenced thermohydraulic trials at 15 knots, after launching SAGUENAY 10. KOOTENAY commenced her full power trial at approximately 0810.

CDR WALTON: At 0821, within seconds of a hurried phone call from the engine room requesting an emergency stop and the QM reporting the engine room "bells", the engine room exploded. The ship was detached from the main body of the fleet and therefore, for the first while, was alone. The explosion caused wide spread devastation and fire, filling the ship within seconds with thick black smoke.

CDR YANOW: At 0836 KOOTENAY sent out a flash message - "I have had an explosion in my engine room, I require immediate assistance". This message was probably heard by the majority of ships in the vicinity. SAGUENAY saw a flare fired at this time and vectored SAGUENAY 10 over to KOOTENAY to investigate. Within minutes ST. LAURENT was detached to join KOOTENAY and TERRA NOVA and SAGUENAY were joining at full speed.

CDR WALTON: By 0840 the fire in KOOTENAY's engine room and Burma Road in vicinity of the engine room was at its worst. KOOTENAY required doctors, CHEMOXs, narcotics, blankets, and foam. These demands were heard by BONAVENTURE and the DDHs as they closed KOOTENAY. By 0900 SAGUENAY's Helo had dropped the Squadron Medical Officer, some narcotics and CHEMOXs. Within 10 minutes of this the fleet was near KOOTENAY, and CANCOMFLT was directing the flow of equipment and personnel to KOOTENAY.

CDR YANOW: Within this time frame, a fwd and aft damage control party had been organized in KOOTENAY and were taking action to limit the damage. The boiler room was still manned to provide steam to the auxiliaries for essential services. The engine room was inaccessible; apart from the EO's

report the situation was unclear, but it had to be assumed that all in the engine room had been lost. KOOTENAY made a SITREP to CANCOMFLT, "Request Helo evac, 1 officer, 2 men to BONAVENTURE, 3 missing."

CDR WALTON:

Between 0900 and 0930 the damage control parties were fighting the fire which was largely confined to the engine room. The smoke in the Burma Road had cleared slightly, but it was still difficult to breathe in this area without a CHEMOX, although somehow many did. There were many immediate casualties from smoke inhalation and partial asphyxiation. At 0910 KOOTENAY reported that the fire in the machinery space was being brought under control. The 3"50 magazine had been ordered flooded and there was no change in missing or casualties. Helicopters from BONAVENTURE and the DDHs were off-loading narcotics, foam, blankets and stretchers on KOOTENAY's fo'cs'le and quarterdeck. KOOTENAY made her third SITREP "The boiler room now accessible, extent of engine room damage not known, commencing evacuation of casualties."

CDR YANOW:

In the next 30 minutes, 0930 to 1000, the fire in the engine room became more intense due to a drop in fire main pressure. However, the damage control parties had the situation in hand and KOOTENAY did not require any more foam or fire fighting equipment at that time. KOOTENAY made her fourth SITREP "Have shut down both boilers. Engine room still on fire, split developed in Hull STBD side engine room, but considered not of immediate danger, have electrical power nos. 1 and 3 diesels."

CDR WALTON:

At 1000 BONAVENTURE PEDRO arrived in KOOTENAY with a fire fighting and an engineer officer. Approximately 10 minutes later KOOTENAY reported "Fire apparently under control; Y magazine flooded; casualties - 2 dead, 3 seriously burned and transferred to BONAVENTURE. 15 - 20 minor burns, smoke exhaustion and shock. Almost certain that more casualties will be disclosed when possible to enter engine room; rigging for tow forward." SAGUENAY was then ordered to standby to take KOOTENAY in tow.

CDR YANOW:

From 1030 - 1100 KOOTENAY's damage control parties put the fire out in the engine room. Casualties were evacuated to BONAVENTURE and ships provided medical supplies and submersible pumps as requested by KOOTENAY. CANCOMFLT informed FO Plymouth for repairs

required as a result of fire in engine room. CCC1 will advise ETA and assistance required." At 1055 KOOTENAY reported "Fire is out, 2 dead, 5 missing; further report." Five minutes later KOOTENAY reported she was ready to be taken to tow.

CDR WALTON:

By 1114 KOOTENAY was under tow and proceeding to Plymouth. By this time the fire fighting parties in KOOTENAY had entered the engine room. KOOTENAY reported, "total casualties 7 dead of whom one transferred to BONAVENTURE, in addition 9 medically evacuated. Damage - engine room gutted, after magazine flooded and will be pumped out, small split reported STBD side Hull in engine room; under tow by SAGUENAY to Plymouth. At 1136 KOOTENAY reported a fire in her tiller flat; however, 4 minutes later the fire was extinguished. BONAVENTURE provided the noon meal and asked KOOTENAY if she required any more medical supplies.

CDR YANOW:

Between 1200 and 1300, the fire fighting party was returned to BONAVENTURE: however, the Engineer Officer remained in KOOTENAY. C1 requested FO Plymouth to dispatch an ocean going tug to take over the tow ASAP. KOOTENAY reported "1 further man missing for a total of 8 dead and missing; positive identification of casualties as machinery spaces are cleared." SAGUENAY was told by C1 that the ship would remain with KOOTENAY in Plymouth until further orders.

CDR WALTON:

In the next hour, 1300 - 1400, CANCOMFLT informed FO Plymouth that the Board of Inquiry with Captain C.G. PRATT as President of the Board would arrive at Culdrose at 1830. FO Plymouth ordered RFA SAMSONIA to take KOOTENAY in tow approximately 118 miles from Bishops Rock. HMS PHOEBE in the vicinity, approximately 50 miles away, was given SITREP by FO Plymouth and requested to offer assistance if required. At 1500 CANMARCOM informed the fleet "Vice Admiral J.C. O'Brien, Commander, Maritime Command, announces with regret that as a result of an explosion this morning onboard the destroyer escort KOOTENAY, 7 men have been killed, 9 injured and 1 man missing. The explosion occurred in the engine room about 4:20 AM Halifax time. The KOOTENAY, at the time, was taking part in naval exercises about 210 miles west of Plymouth, England. The explosion was followed by a fire which has since been extinguished. As a result of the explosion, the KOOTENAY has been taken in tow by the

Helicopter Destroyer SAGUENAY, and they are expected to arrive in Plymouth about 8 PM Friday. Every effort is now being made to obtain the names of those involved to notify NOK. Three of the injured men have been flown to hospital in England; their condition is not known. An investigation into the cause of the explosion and fire has been ordered."

CDR YANOW:

At 1505, the tow line forward of the splice at KOOTENAY's end parted. After several helicopter transfers, the tow was picked up again, and the ships were headed toward Plymouth. BONAVENTURE and the destroyers had detached by this time; however, it was decided to leave the transfer to the tow until a convenient time the following morning. The tow, complete with towing hawser was passed to SAMSONIA at 0852 on the 24th October.

CDR WALTON:

SAGUENAY entered Plymouth Sound at approximately 2345 and KOOTENAY was taken over by harbour tugs eventually coming alongside at 0200 on the 25th October. In the next few days the Board of Inquiry convened and KOOTENAY's dead were buried at sea and ashore. KOOTENAY was docked and the screws removed and she was prepared for being towed home. The Dutch tug ELBE took KOOTENAY in tow on the 16 of November, and she arrived in Halifax 27 November, 36 days after the incident, ably supported by SAGUENAY, her sister ship. I would like to mention that during the incident, and while KOOTENAY was fighting to survive, the task force, composed of BONAVENTURE, FRASER, ST. LAURENT, TERRA NOVA, OTTAWA, MARGAREE, ASSINIBOINE, and SAGUENAY, stood by and provided support as needed by KOOTENAY under the direction of the Sr. Canadian Officer Afloat (Atlantic). The helicopters provided by BONAVENTURE and the DDHs did a great job. In all, 9 men were killed in this disaster; however, not in vain since much has been learned about our destroyers, some of which we intend to present in the next few minutes.

"THE GEAR BOX"

CDR BROWN:

Much has been said about the events of the 23rd October 69 and no doubt much more will be said. It is thought however, that a few minutes might well be spent here in relating the considered opinions of Ship and Squadron Staff as to the cause and effect of the Gear Box Explosion. At the time of the explosion, the machinery state was: - The main boilers and main machinery, as well as

associated auxiliaries were in use. Both T/A's were on load with the diesel generators on automatic back-up.

The port and starboard main engine lub oil systems were married with the steam driven lub oil pump in use. The motor driven lub oil pump was on automatic stand-by. All machinery was performing normally and all indicated temperatures and pressures were normal. The explosion which erupted from within KOOTENAY's starboard gear-box, while the ship was on full power trials, is of a type that has not been experienced, to our knowledge, in any other ship or navy.

The cause is considered to have been the spontaneous ignition of oil and oil vapour through the gross overheating of the high speed pinion bearings. The overheating is believed to have been caused by the incorrect fitting of the insert bearing shells, which were installed "back to front". This resulted in the direct oil supply being completely cut off.

Consideration was given to the theory that a fire in the starboard vent vapour trap triggered the gearcase explosion. This was investigated after finding a striking difference in appearance between the port and starboard vapour trap aluminum filings! The port trap filings were covered with an oily film, while the starboard filings were bright and clean. A metallurgical examination of the filings from both traps showed that those immediately in way of the starboard vent pipe discharge, unlike the remaining filings in both traps, sustained incipient melting and exposure to a high heat source between 650° and 1000° Centigrade. It is in this range that aluminum and the common aluminum alloys will melt. This heat source would have had to be hot or burning gases rising in the vent pipe from the gearcase. It is possible that the oil deposits on the starboard vapour trap filings were burned off, but evidence has proven that the temperature of the filings outside of the vent pipe discharge did not reach 650°C.

For these reasons, the triggering of the explosion from a heat source outside the box has been discounted. Having deliberated on the cause, let us now look at the effect.

The primary effect of the explosion was a rapidly expanding fire in the form of a fire ball which enveloped

the Engine Room from aft to forward. This fire ball emerged from the after engine room hatch, and to a lesser degree, from the forward engine room hatch, and swept along the Burma Road. There is no doubt that the explosion resulted in the death of the Chief E.R.A. and his colleagues. The fireball was accompanied by intense heat, hot gasses, and very dense smoke. This smoke quickly spread, ably abetted by the ventilation system, throughout the ship. The secondary effects of the explosion were many, and can only be gone into in broad outline here. These are not necessarily in order of importance. The lack of communication between the boiler room and the Bridge: There was no direct communication between these spaces. The loss of steering control from the Wheelhouse. The loss of NBCD HQ 1 and the Sickbay. The inability to use, because of damage or inaccessability, the majority of fire-fighting equipment in the Burma Road. The loss of electrical power from midships aft. The loss of the Wardroom and CO's Cabin due to smoke. These spaces of course are secondary. Sickbay Areas and the latter could contain a supply of ready available narcotics. The inaccessability of the Engine Room foam tubes and the Boiler Room fuel and steam emergency cutoff valves and magazine flood and spray valves. The melting of Engine Room aluminum ladders, Gratings, Stanchions and Hand Rails. It should be pointed out that much was done to alleviate many of the above situations by use of breathing sets. However, these were in short supply, and there is no doubt that much more could have been done and probably more quickly had all CHEMOX Units onboard been available.

So much for the effects, now let us discuss the lessons learned. Much is required to be changed and added and it is hoped that every effort will be made, not only to approve the changes in principal, but to implement them, notwithstanding the current alterations and additions situation. The immediate requirements are as follows, - An increase in the number of CHEMOX Units carried, and their distribution in proper stowages. (The inclusion of reliable Walkie-Talkie units in the Damage Control pack. These would have proved invaluable during the relaying of commands to the Steering Gear Compartment.) - The stowage of additional life-jackets at all liferaft stations. The installation of a common broadcast system between the Boiler Room,

Engine Room, Hq 1, the Command Position and the Wheelhouse. This should be backed up by a secondary means of communication, preferably of the "passive" type - i.e. voice pipes.

The extension of the foam tubes, emergency cut-off valves, and ventilation power switches to an open deck or, where applicable, to the Command Position. The introduction of fire screen doors at suitable intervals on the Burma Road.

The introduction of fire-fighting training, under more realistic conditions, during each cycle, for all personnel. The venting of gear-boxes to an open deck, notwithstanding the engineering difficulties involved in designing a system that would exclude moisture, from the atmosphere, entering the gear-box. The introduction of effective temperature recording instruments on all critical machinery. The introduction of steel ladders and gratings in machinery spaces. The fitting of more effective damage control and emergency lighting. An increase in the number of Foam Canisters and more thought given to their distribution and stowage throughout the ship. The fitting of escape hatches (not scuttles) from the CPO's and Main Cafeterias. It is also suggested that the ladders to these hatches should not be of flexible type, but rather a double hinge type similar to Submarine Control Room/Conning Tower ladders. This has already been implemented:

Before leaving this section of the briefing, I would like to clear up some of the rumors that have been circulating regarding the explosion and its effects.

- a. There is no truth in the statement that all DDE/DDH Gear Boxes are capable of having their pinion one bearing shells installed incorrectly. Only the pinion one bearing inserts on 205 and 257 class destroyers can be fitted incorrectly.
- b. It is true that an installation drawing for bearing shells was wrongly labelled.
- c. It is true that firemain pressure dropped to 30 PSI during the spraying of the Magazine.
- d. It is true that the Boiler Room personnel

continued to operate their boilers until a command from the Captain to "Shut Down", was received. Until secondary power for the operation of Hull and Fire Pumps, submersible pumps, lighting etc. had been proven, this was most necessary.

- e. It is true that the use of "quick-start" CHEMOX Breathing Canisters was not fully realized. If the set is removed for any reason (to give a report), a new canister is required before the set can be reused.
- f. It is true that the ship steamed on for some 40 minutes at a speed in excess of 20 knots out of control.
- g. It is not true that the ship's side was ruptured.
- h. It is not true that all ships after having their Gear Boxes examined will be allowed to go to "Full Speed". This will only be permitted after a calibrated temperature recording and alarm system is fitted to at least the pinion one gears. The present 150 RPM limitation will be raised to 200 RPM on all vessels that have been examined but do not have a Temperature Recording and alarm system.

It is understandable that many of you here may think we are overdoing our "Thing". The spending of money for the introduction of safety measures is paramount in the Air and Submarine world -- I trust we "Destroyer" types have learned our lesson.

KOOTENAY TOWING ARRANGEMENT - CDR Yanow

Prior to leaving Plymouth, KOOTENAY made the following preparations:

- a. the main boilers were checked in order to have steam for #1 turbo alternator and all the necessary auxiliaries,
- b. the undamaged ammunition was embarked,
- c. fresh water tanks were topped off,
- d. ship fueled to 75%,
- e. ship was trimmed slightly by the bow. By drawing from the fwd tanks, it was hoped to gain a slight trim by the stern. However throughout the tow, there remained a slight bow trim.

f. The ship was docked and the propellers were removed.

The contract to tow KOOTENAY was awarded to the Dutch tug ELBE owned by SMIT and Co., Rotterdam. The Towing gear was supplied by ELBE and was arranged as follows: from ELBE's stern 600 meters of 6" FSWR, then 27½ meters of 15" double laid nylon followed by 30 meters of 5½" FSWR and finally 2 meters of 2¼ chain cable to KOOTENAY's bullring. The 2 meters of cable was the out-board end of 18 meters of cable laid once around the stbd fwd bollards and attached to a wire pennant secured to the stbd after bollards and then across to the port bollards.

Even during the roughest weather the cable was steady in the bullring and the tow line entered the water at short stay so that the nylon was not seen. During the short periods when the tow was reduced to 200 meters, the nylon was just visible. Greasing of the cable in the area of the bullring was carried out daily.

The tow was steady and KOOTENAY being able to steer made control of the tow much easier. A jackstay transfer with SAGUENAY was carried out at 80 feet. The pressure wave deflected KOOTENAY 5° off the lateral position to starboard of the tug and this position was maintained throughout the transfer.

The route taken home is as shown on the vugraph. Captain Kaulkman, captain of the tug, played the weather to his advantage. The weather apart from two days was extremely good. ELBE's only concession to the weather was to reduce speed by 10 revs during the bad weather.

The optimum manning was 64 officers and men. This included the CO, XO, 5 officers and 57 men. The number chosen was predicated on an estimated 16½ day tow in rough weather, which would ensure that essential and normal services would be maintained, normal watches stood and in the event of the tow breaking, an all-hands evolution to reconnect heavy gear.

All went well which leads to the moral of the story "If one needs to be towed - hire a Dutchman".

KOOTENAY - HONOURS AND AWARDS - CDR Yanow

A problem which has faced Commanding Officers for many years is the lack of honours to bestow upon officers and men for acts of bravery or meritorious performance. A review of QR&O and CFAOs indicates that very little in the way of official recognition as far as orders, decorations, and medals can be awarded to members of the Canadian Armed Forces for acts of bravery. There are many reasons why this deplorable situation exists; primarily that nobody until now has really forced the issue. Since British decorations can no longer be used, it is possible that a list of distinct Canadian decorations will replace them in the very near future.

Let's cite an example where recognition is necessary.

The setting - 23 October, 1969, at approximately 0821, KOOTENAY's engine room exploded during a full power trial. The ship was detached from the main body of the fleet, and therefore, for the first while was virtually alone. The explosion caused wide spread devastation and fire, filling the ship with thick black smoke within seconds. Damage control parties were organized to first save the ship and then rescue injured men. During this period, men responded in a way that they were trained to cope within such an emergency. However, many were called upon to perform above and beyond the call of duty, and as a result some gave their lives in order to save the ship.

From the board of inquiry, it was noted that:

- a. Men gave their lives in order to warn the bridge of impending disaster.
- b. Officers and men conducted parties into the devastated area without regard to personal safety to save lives and tend to men trapped in isolated spaces.
- c. Men remained at their posts in the dangerous area in order to provide the services necessary to save the ship.
- d. Officers and men behaved in meritorious fashion to fight the fire, and overcome the many obstacles in order to save the ship.

These men deserve recognition for heroism and courageous conduct. For some, a good PER will be of little value.

In context with the recognition for acts of gallantry, valour, and brave conduct, there is a need for an award similar to the "United States Distinguished Unit Citation" whereby a unit may be honoured for its display of gallantry and determination in accomplishing its mission under hazardous conditions. The ship's company of KOOTENAY is the perfect example where many acts of bravery and meritorious service went unnoticed because of the severe conditions at the time and the necessity to save the ship and not record acts of valour. During this review many such acts were noted, such as the Squadron Medical Officer on arriving in the ship saw a man giving mouth to mouth resuscitation to a man who had been asphyxiated and continued to do so while wiping away the vomit. This man's name is not known; however, his act of personal courage should not go unrecognized. Notwithstanding the need to recognize the 9 men who died in the explosion and the many men injured.

There are probably as many opinions on this subject as there are people in this room. However, many elite forces, to a degree anyway, are based on emotion. Pride in Canadians by Canadians should not be measured in dollars.

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