



The Porthole

Volume 16 No. 4
April 2016

The newsletter of the South Australian Branch of the Company of Master Mariners of Australia.

PO Box 1, PORT ADELAIDE, SA 5015



Branch Master's Comments:

A busy few weeks, our Federal AGM in Brisbane, I will report on that at the meeting. Last weekend we remembered ANZAC Day with commemorations held around the country. On Saturday I was able to attend the opening of the Anzac Centenary Memorial Walk and will report on that ceremony at our Branch meeting.



The photograph is of the Merchant Navy Memorial, Liverpool overlooking the River Mersey.

Lest We Forget.

Inside this issue:

Branch Minutes	2, 3, 4
Island Seaway	4
Nuclear Fuel Cycle Royal Commission	5
Storage and Transport of High Level Nuclear Waste	6, 7, 8
Proposed Amendments to	9

Speaker:

April: Late Cancellation.

May: to be advised

The next Branch Meeting will be held at the Largs Pier Hotel, 198 The Esplanade, Largs Bay, on Wednesday, 27th April 2016, at 1145 for 1200.

Please confirm your attendance at the lunch or register your apology before 1200 on Monday, 25th April 2016, with

**Ian Dickson (08 8396 1030)
or
Paul Phillips (0407 779 209)**



The Company of Master Mariners of Australia Ltd. is a Company established to promote and further the efficiency of the Sea Service generally, and uphold the Status, Dignity, and Prestige of Master Mariners in particular.

Minutes of the Branch Meeting held at the Largs Pier Hotel, on 30 March 2016

Meeting opened at 1200 Branch Master welcomed members and guests.

Members present: Paul Phillips (Branch Master), Howard Pronk, Eddie Carr, Bob Westley, Alan Lydell, Iain Fraser, Michael Hehir, Bob Buchanan, Kevin Hales, Ian Dickson, David Holmes.

Jon Bok and Jenny Turner (Guest Speakers)

Apologies: D. Bourne-Jones, C. Marshall, R. Pearson, M. Parsons, D. Kemp, M. Carrington, H. Jayasuriya, Sir Eric Neal, Tony Wynne, Phillip Hammond, Raj Rajagopalan, Nada Ganesan..

Minutes of last business meeting: 24 February 2016 (circulated in the Porthole). Captain Fraser proposed that the minutes be accepted as a true and correct record. Seconded by Captain Buchanan and carried.

Business arising from the minutes:

- a) Speakers: April: Sqdn Leader Andrew Sibenalar, RAAF. 'Experiences in the Service'

Suggested future speaker: Branch Master noted that a previously suggested visit to the SA Health and Medical Research Institute was not feasible because of the high fee. However, the Institute's web-site indicated it might be possible for a speaker to come along to a meeting and this would be investigated.

Visits:

Suggestions welcome.

- b) Re-engraving of the *One and All* bell - Nothing to report.
 c) Anniversary Book - Branch Master noted this topic would be covered in Federal Matters.
 d) ANZAC Memorial Walk - No progress report available but Branch Master understood the construction of the Walk was on schedule and the Walk due to be opened on 23 April.
 e) Name tags - These were distributed to members

Financial report: Due to the Treasurer's absence, no formal Treasurer's report was available. However the following report of the Branch current finances was tabled

Westpac Balance at 20/01/16	1,113.85	Bendigo Bank deposit balance at 20/10/15	2,480.44
Income: Subs.	871.00	Interest added quarterly	2.59
Expenditure Guest speaker lunch	28.00	Bendigo Bank deposit balance at 23/03/16	<u>2,483.03</u>
Balance at 23/03/16	<u>1956.85</u>	Bendigo Bank Term Deposit at 01/11/15	7,230.98
		Reinvested on 01/11/15 for 9 months @ 2.6%	

Membership: Applications:

Applicant	Status sought	Branch	Master's Certificate			Occupation/ Position
			No.	Date	Place	
Graham Thomas KEYS	Ordinary	Melbourne	AY00660	10/02/71	Melbourne	Retired Pilot
Christopher Robert STIRLING	Ordinary	Sydney	AY13840	21/01/13	Sydney	Master in Off Shore Industry
Mario Joseph MURZELLO	Ordinary	Sydney	?	2007	AMC, Tas.	Head Teacher, Maritime & Aviation, Ultimo TAFE
Steven PELECANOS	Ordinary	Queensland	3899	4/08/80	Southampton	Retired Pilot
Rodney Arthur MAXWELL	Ordinary	Western Australia	AY13747	1989	Fremantle	Master in WA Off Shore Industry
Patrick Cameron John ELLABY	Ordinary	Melbourne	17095	17/10/89	UK	Cargo Superintendent/ Marine Surveyor, Austral Asia Line
Richard VAN DER SPOEL	Ordinary	Western Australia	252	18/12/91	Durban	Marine Warranty Surveyor, Braemar Technical Services
Graham THORNTON	Ordinary	Western Australia	AY02262	7/05/01	Fremantle	Master, Off Shore Industry

Rachel Maree BARBOUR	Associate	Western Australia				Passed Deck Watch Keeper Certificate at AMC; now Norwegian Cruise Line Cadet
Gavin Anthony ALVES	Ordinary	Melbourne	CoC0040886	3/01/07	UK	Superintendent, ANL Container Line

Branch members endorsed the above applications, with the exception of the application from Mr S. Pelecanos. On the recommendation of the Branch Court, consideration of Mr Pelecanos's application was deferred pending further information from Queensland. It was noted that the application Mr Murzello did not include the number of his certificate of competency and this detail would be requested.

Ratifications: Noted

Applicant	Status granted	Branch
Sean William LILEY	Ordinary	Melbourne
Andrew John BURN	Ordinary	Melbourne
Ragupathi RATNATHURAI	Ordinary	South Australia

Branch Members:

Category	Number		
	Financial	Un-financial	Total
Members	3	4	7
Seagoing members (incl. tug crews & pilots)	1	2	3
Retired members	12	3	15
Associate member	<u>1</u>	<u>2</u>	<u>3</u>
Total paying members	17	11	28
Honorary members	<u>4</u>	<u>0</u>	<u>4</u>
Total Levied Members	21	<u>11</u>	32
Life Members			<u>2</u>
Total Branch Membership			<u>34</u>

Correspondence 13/02/16 to 18/03/16: (Summary tabled). Inwards correspondence received & outwards correspondence approved at the Branch Court meeting on 23/03/16.

Federal Matters: The Branch Master reported on Federal Court discussions of 24 March as follows:

- a) Banking All Commonwealth Bank accounts had been closed and the CMMA had moved to
- b) AGM Federal AGM will be held on 16 April in Brisbane and Branch master will be attending. Agenda for the meeting not yet issued. Captain Buchanan proposed that the agenda be requested and the Branch Court convene prior to the Federal AGM to consider agenda items
- c) CMMA membership CMMA currently had 487 members comprising: Western Australia 149; Melbourne 126; Sydney 73; Queensland 68; South Australia 34; Newcastle 31; Federal 6.

Newcastle Branch Master had reported that his Branch may need to merge with Sydney due to low attendance at meetings and difficulty in filling Branch Court positions or getting speakers.
- d) Anniversary Book All Branches had expressed considerable dissatisfaction with the draft and there was a general impression that the content was fragmented and lacked balance
The Federal Court was considering appointing a new editor.

- e) Outstanding Achievement Award The Branch Master reminded members that the previous restriction on the award going to a CMMA member no longer applied and he noted Mr S Ballantyne's name had been suggested. Branch Master invited other nominations but none was forthcoming. Captain Buchanan expressed strong support for S. Ballantyne's nomination and this was endorsed by the Branch.
- f) Federal Master A new Federal Master needed to be elected as the current Federal Master was coming to the end of the maximum allowable period in office (3 years). Nominations were being sought and were not restricted to current or past Branch Masters
- g) International Federation of Shipmaster Associations Membership of IFSMA had been renewed. At this stage it was not known who would be a delegate (if any) at the forthcoming IFSMA Annual General Assembly in Istanbul.
- h) Statutory requirements for keeping of Company records Branch Master reported that under the Companies Act, the Branch's financial records and the names of Branch Masters needed to be kept for seven years.
- i) Apolitical stance This matter had arisen because there was concern that the recent submission to the Senate Committee on FOC shipping could be considered party political. Federal Court had decided that, while the CMMA constitution requires an apolitical stance, senate committees were all-party affairs and, as the submission related to shipping and employment of Australian seafarers, it was apolitical. The Branch Master noted that at about the same time the CMMA had been invited to make a submission to an ACTU conference on FOC shipping but, as the ACTU was effectively a party political organization, no submission was made

Motions on Notice: Nil

General Business:

- a) Articles for "Master Mariner". Always required.
- b) AMSA seminar The Branch Master advised that AMSA would be hosting seminars on 'The SOLAS Amendments Relating to Verified Gross Mass of Containers and update of MO 42' on 7th April at Flinders Ports Marine Operations Centre.
- c) CMMA 50th Anniversary (1988) envelopes These were offered to any Branch member wishing one as a souvenir.
- d) Pewter mugs The two pewter mugs were duly raffled.

The next Branch meeting will be held at 1145 for 1200 on Wednesday, 27 April 2016, at the Largs Pier Hotel, Largs Bay. The guest speaker will be Sqdn Leader Andrew Sibenalar, RAAF: 'Experiences in the Service'

The business meeting closed at 1240 and lunch was taken.

After lunch the Branch Master welcomed the guest speakers, Mr Jon Bok and Ms Jenny Turner of the Nuclear Fuel Cycle Royal Commission whose topic was the work and tentative findings of the Royal Commission.

Presentation starts on the following page.

=====

ISLAND SEAWAY

Built by Eglo Engineering Company at Osborne Port Adelaide in 1987 as replacement for the ferry "Troubridge" sailing between Port Adelaide and Kangaroo Island. Island Seaway was sold in 1995 and sailed for Malta where it entered service, as a ferry, between Malta and Italy. In 2011 it was sold to Norwegian interests for conversion to an Accommodation Ship Off-shore Support Vessel. At the time it was renamed SEABED SUPPORTER, and eleven months later was named FLYING VIKING, according to the Equasis website. However Marine Traffic ATS reports that it is presently (18 April 2016) in Piraeus, Greece but still under the Maltese flag, and still trading as a Ro-Pax ferry. A recent photograph shows it little altered since it was built twenty-nine years ago.

=====

Nuclear Fuel Cycle Royal Commission Tentative Findings

Mr Bok opened his presentation by outlining the purpose of the Royal Commission i.e. to investigate the potential for increasing South Australia's participation in the nuclear fuel cycle.

Four areas of activity were considered by the Commission:

- expanding exploration,
- extraction and milling of minerals (an expansion of current activities in SA); further processing of materials and the manufacture of materials containing and nuclear substances;
- electricity generation with nuclear fuels;
- and the establishment of facilities for the storage and disposal of nuclear waste.

The key tentative findings of the Commission were that South Australia can safely increase its participation in nuclear activities and by so doing significantly improve the economic welfare of the state community.

The Commission recognised that community consent would be essential to the development of nuclear fuel cycle activities; that the management of the social, environmental, safety and financial risks was not beyond South Australia; that long-term political decision-making and bi-partisan support were prerequisites; and that any development would need to acknowledge the particular interests and experiences of regional, remote and Aboriginal communities.

The Commission found that of the four areas of activity outlined, the storage and disposal of nuclear waste had the most potential to deliver substantial economic benefits.

Mr Bok then spoke about the issues relating to the storage and disposal of waste and noted Australia already had quantities of low and intermediate level nuclear waste stored in numerous facilities in each state pending final disposal. He noted that a number of countries had developed purpose-built low-level waste repositories and outlined some of the design features, containment methods and barrier types used to safely contain nuclear waste over millennia. With the aid of projected images, Mr Bok then discussed the features of a repository under development in Finland for high level nuclear waste. An Australian facility for storing high level waste could have similar features. Mr Bok pointed out that South Australia had numerous areas with stable geology and suitable climatic and groundwater situations. A dedicated wharf facility would need to be developed and, ideally, an interim storage facility constructed within a few kilometres distance of the wharf. The permanent depository would then be developed further afield with a dedicated rail line connecting the wharf, interim storage and permanent depository.

A quantitative cost analysis and business case study had estimated that, over the life of such a project, revenues of some \$250 billion could be generated with profits to the state of some \$50 billion. Approximately 1,500 full-time jobs would be generated over the construction period and more than 600 jobs in the operational phase.

The final report of the Commission is due in May 2016.

At the conclusion of the presentation Mr Bok and Ms Turner answered a number of questions from Branch members and distributed printed brochures of the Commission's Tentative Findings.

On behalf of the S.A. Branch, the Branch Master then thanked Mr Bok and Ms Turner for a most interesting presentation.

Nuclear Waste Storage Facility

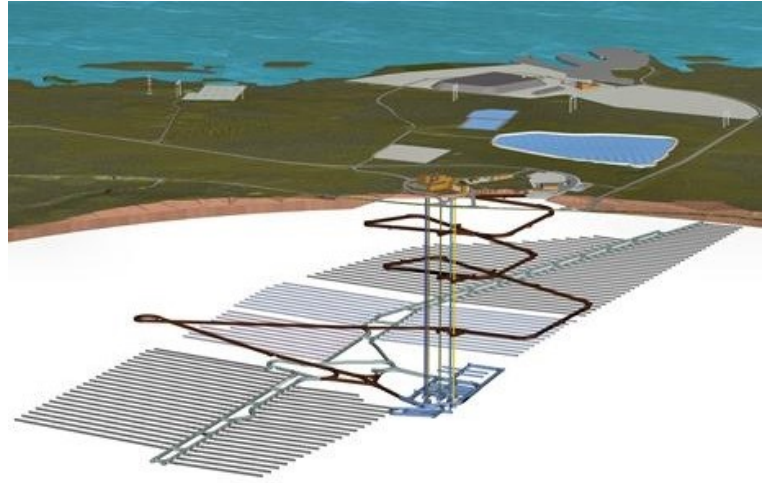
The design of the nuclear waste storage facility proposed for South Australia is based on the design of the Onkalo spent nuclear fuel repository currently under construction on Olkiluoto Island off the west coast of Finland.; the first such depository in the world. This very long term underground storage facility is being built as Finland requires that all nuclear waste produced in Finland must be disposed of in Finland. The description 'very long term' is warranted as it takes about 10,000 years for the waste nuclear fuel to return to the radiation levels at which it was mined.

Construction is planned in phases :

- excavation of the main access tunnel, in the form of a spiral, to a depth of 420 metres (1,380 ft), thence continuation to a final depth of 520 metres (1,710 ft)
- construction of the herring-bone pattern storage tunnels.
- The encapsulation and burial of tunnels filled with spent fuel.

The main access tunnel must be large enough and strong enough to support the weight of each capsule which will contain about 720 kg of spent fuel assemblies, placed in a boron steel canister and enclosed in a copper capsule, each containing about 10 tonnes of copper.

Each canister, after being placed in its own hole in the repository, would then be packed with bentonite clay, a natural clay almost impermeable to water. Each storage tunnel will be sealed with a bentonite clay plug backed by ultradurable concrete. When the repository is filled to capacity, about 5500 tonnes of high-level waste, the final encapsulation and burial will occur. The transport tunnels and vertical shafts will be backfilled with almost a quarter of a mile of concrete and native rock (granite).



According to "Popular Mechanics" the Onkalo repository is designed as a "fill and forget" facility. "The bedrock of Olkiluoto Island is boring, with no valuable metal ores or other enticements to encourage digging. The groundwater is unpleasantly salty, so it's not a good place to put in a well. The soil is bad for farming. Olkiluoto is at best unremarkable, and at worst unpleasant. And that's why Finland thinks it's the perfect place to store nuclear waste. There may be no need to create elaborate ways to prevent unsuspecting people of the future from breaking into the waste repository, because nobody would ever want to visit this island in the first place.

In 2120 or so, Onkalo will be sealed, and if some engineers have their way, that will be it. No signs saying keep out, no skull-and-crossbones icons, no locks on the door. No door at all. Why draw unnecessary attention? Left alone, it won't be long—a few human generations at most—before nature buries the aboveground evidence, and after that there will be no reason for anyone to remember it was there at all.

According to Wikipedia, "in 2012, a research group at the Royal Institute of Technology in Stockholm, Sweden, published research that suggests that the copper capsules are not as corrosion-proof as the companies planning the repositories claim."

The Posiva (the facility operator) website states that "According to (Finnish) law, final disposal may cause an annual radiation dose of no more than 0.1 millisieverts to an exposed individual after the facility is closed. In order for any radiation exposure to occur at all, radioactive substances in the nuclear fuel would need be released from the canister and carried in groundwater to the ground surface and, from there, to people through food, Based on the analyses, even if this were to occur, the radiation exposure would be one 10,000th of the specified 0.1 millisievert limit, it said. The average annual radiation dose received by Finns is approximately 3.2 millisieverts. A 0.1 millisievert exposure is possible during one cranial x-ray examination or one transatlantic flight."

For comparison a 20ft container of Uranium Ore from Olympic Dam contains about 14 tonnes nett of U₃O₈ and the radiation level on the container surface is typically around 0.01 millisieverts (mSv), and less than 0.001 mSv in the driver's cab.

=====

The Transport of High Level Waste (HLW)

High Level Waste products are of a solid nature, "characterised by long-term stability and low solubility in water and will stay contained in a solid form after an accident". (World Nuclear Transport Institute. WNTI). HLW is packed into specially designed flasks or casks which may vary from the size of drums to the size of trucks.; these packages are termed Type B in the IAEA (International Atomic Energy Authority) Regulations.

HLW may be transported by road, rail or sea and "transport packages are designed to ensure safety no matter what mode of transport is used. No only must the packages survive impact, fire or submergence but must also ensure, in the case of fissile materials, that an unwanted chain reaction cannot occur." (WNTI).

- two drop tests - a 9 metre drop onto an unyielding surface and a 1 metre drop onto a steel punch bar;
- a subsequent fire test in which the package is subjected to a fully engulfing fire of 800°C for 30 minutes;
- immersion test where the cask is then subjected to conditions equivalent to 15 metre submersion for 8 hours. For casks designed for the more highly radioactive materials there is an enhanced immersion test of 200 metres for 1 hour.

According to WNTI “Several demonstration tests have been carried out to show the large safety margin and robustness of Type B Packages. For example, engineers and scientists at Sandia National Laboratories conducted a wide range of demonstration tests in the 1970s and 1980s on Type B packages. These tests included truck impact tests at 98 and 138 km/h in which truck trailers carrying packages were impacted into 3 metre thick concrete barriers, and a diesel locomotive crashed into a Type B package at 131 km/h at a simulated rail crossing.



(above) Nuclear waster carriage by rail



(above) Handling nuclear waste casks

Post-crash assessments showed that packages suffered only superficial damage and would not have released their contents. Although spectacular, these demonstration tests were not as severe as the IAEA series of tests summarised above. This shows the IAEA series of tests are conservatively representative of real-world accidents.”

=====

The Carriage of High Level Waste by Sea.

“In 1993, the IMO introduced the voluntary Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes in Flasks on Board Ships (INF Code), complementing the IAEA Regulations. These complementary provisions mainly cover ship design, construction and equipment. The INF Code was adopted in 1999 and made mandatory in January 2001. It has introduced advanced safety features for ships carrying spent fuel, MOX or vitrified high-level waste (WNTI)”

The INF Code, complements the IAEA Regulations and introduced regulations for the design of ships carrying radioactive material. The INF Code classifies ships into three categories; INF 1, INF 2 and INF 3, with INF 3 being the highest and the only classification allowed to handle irradiated nuclear fuel, plutonium and high-level radioactive waste. The INF Code addresses “such issues as stability after damage, fire protection, and structural resistance”. An INF vessel must, in addition to complying with the INF Code, also comply with IMDG, MARPOL and SOLAS requirements.

Class INF 3 ships, which are the type that will be seen in South Australian waters, are “ships which are certified to carry irradiated nuclear fuel or high-level radioactive wastes, and ships which are certified to carry plutonium with no restriction on the aggregate radioactivity if the materials”.

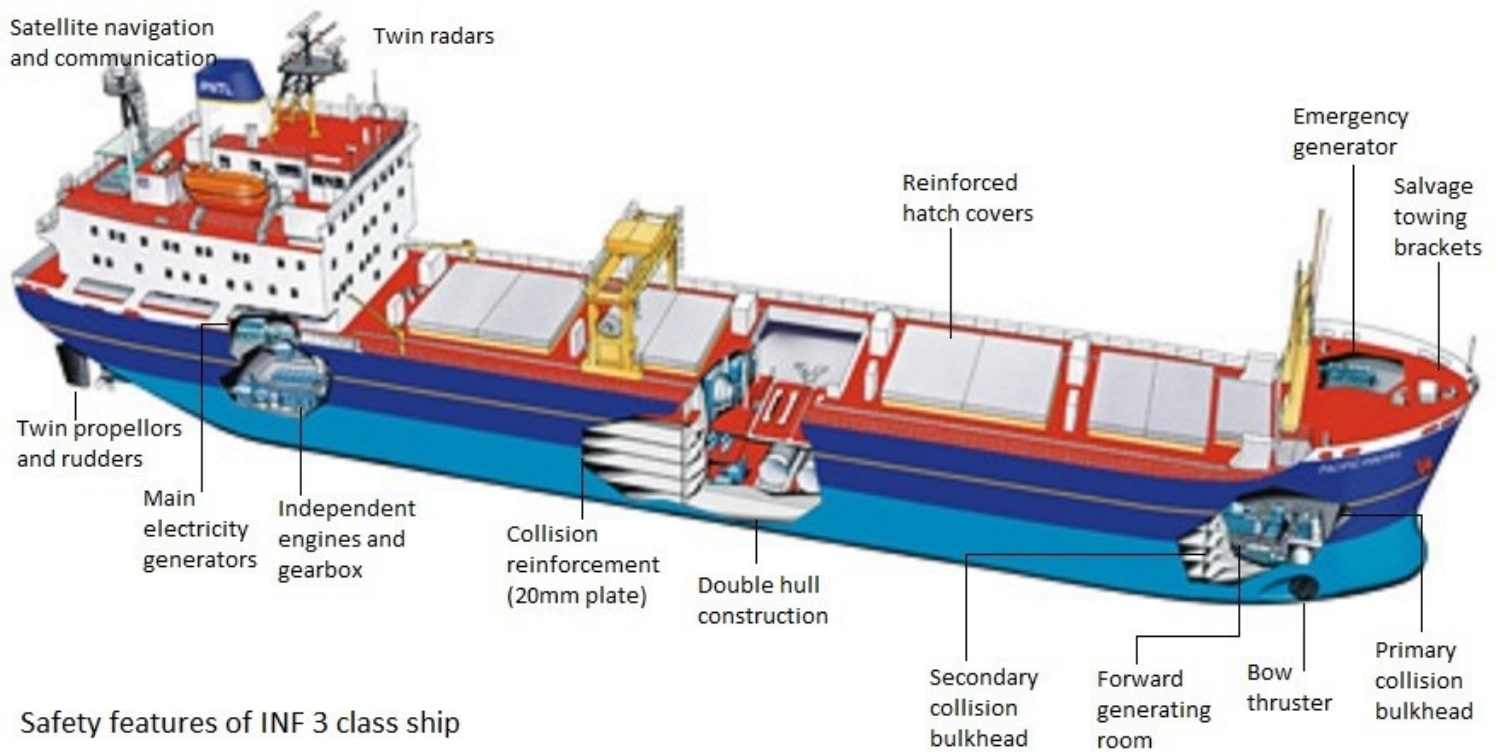
Carriage on Class INF 3 ships is mandatory if carrying HLW with an aggregate activity exceeding 2×10^6 TBq (10^{18} Bq) or if carrying plutonium with an aggregate activity exceeding 2×10^5 TBq (10^{17} Bq).

For comparison our previously mentioned 20ft container of Uranium Ore has a typical activity of 440 GBq (10^9 Bq) , and the “roughly 0.0169 grams of potassium-40 present in the human body produces 4.4 kBq (10^3) of activity.” (Harvard University October 2013).

It will no surprise that cargo that should be carried on a Class INF 3 ship must never be carried on a passenger ship.

A class INF 3 is required to meet enhanced stability requirements and fire fighting equipment including fixed cargo space cooling arrangements. In addition to the foregoing, the ships shall be provided with fully duplicated refrigeration of cargo spaces so that the ambient temperature of cargo spaces does not exceed 55° C. All ventilation and cooling systems to cargo spaces shall be full independent of similar systems provided to accommodation and machinery spaces.

An alternative to the ships main power supply must be fitted capable of supplying main power for at least 36 hours.



Safety features of INF 3 class ship

Above diagram copyright WNTI (World Nuclear Transport Institute)

Class INF 3 ships include PACIFIC GREBE, PACIFIC HERON and PACIFIC EGRET operated by Pacific Nuclear Transport Limited (PNTL) and SIGRID, operated by Svensk Kärnbränslehantering AB (SKB). This latter ship has been designed to carry waste to the Onkalo spent nuclear fuel repository in Finland (refer page 5).

	PACIFIC EGRET	SIGRID
	PACIFIC GREBE	
	PACIFIC HERON	
Flag	British	Swedish
Length Overall (metres)	103.92	99.5
Breadth (metres)	17.25	18.6
Draft (metres)	6.75	n/a
Number of holds	4	n/a
Capacity	20 flasks	12 flasks
Design Speed (knots)	14	n/a
Deadweight, max. (tonnes)	4,916	1,600

During 2016 two PNTL ships have been on the East Coast of North America. The third PNTL ship and SIGRID have been in East Asia.

All ships have crews, 21, in excess of manning requirements and all officers must be qualified for the rank above their assigned rank.



Left: PACIFIC EGRET (copyright PNTL)



Right: SIGRID (copyright SKB)

At the AGM on 16 April, the Federal Court reached an impasse during the declaration of office bearers for 2016. Our present Federal Master, Capt Ted van Bronswijk was the only Nominee for the position as Federal Master, despite the fact that he had served three years as Federal Master. Under Clause 47 of our Constitution, The Federal Master could not continue in his role as FM. Considering that the make-up of the Federal Court consisted of a combination of older members who may not serve out their full term as Branch Masters, and young and inexperienced members, the Court decided to appoint Capt van Bronswijk as an “caretaker” Federal Master and serve in this capacity until the proposed amendments below have been accepted by all the Branches.

It is also proposed that the proposed amendment be tabled at each Branch’s general meeting and be accepted/rejected by a majority vote from the floor. Members who cannot attend the monthly Branch meeting, may nominate a proxy to cast their vote.

Federal members may advise the Federal Secretary direct

The relevant Clauses are:

Current Clause 47d: “The members of Federal Court shall elect one of their number to be Chairman with the title Federal Master, Such member elected as Federal Master shall hold office until the next succeeding Annual General Meeting”

Current Clause 47e: “No member of Federal Court may be elected as Federal Master for more than three consecutive years.”

The Court proposes the following amendment to Clause 47e and insert a new Clause 47f

Proposed Clause 47d to remain unchanged

Proposed Clause 47e to read: “No member of the Federal Court may be elected as Federal Master for more than three consecutive years, unless there are no other nominations tabled at the Annual General Meeting”

Proposed Clause 47f: “A member of the Federal Court may only be elected as Federal Master if he has served at least one year as a Court Member.”

May I remind members that prior to the amended Constitution (2013) the Federal Court consisted of 6 Branch Masters plus a Federal Master plus a Deputy Federal Master. A then elected Federal Master could only be appointed after having served as a Branch Master (ie member of the Federal Court). The reason why the Constitution was amended to incorporate Clause 47, was to save the cost of at least two members attending the Annual General Meeting.

If you are unable to attend the April Branch meeting, please email your comments to the Branch Master (email address as shown on covering email). Thank you.