

PILOTAGE ADVISORY COMMITTEE MINUTES OF MEETING

Date : 13 December 2017 (Wednesday)
Place : Conference Room A, 24/F, Harbour Building
Time : 2:30 p.m.

Present

Chairman:	S F WONG	Deputy Director, Marine Department (“MD”)
Members:	LAM Ming-fung, Lothair MA Kam-fai, Henry NG Che-kan, Deforest Ms LU Zheng, Caroline CHU Wai-leung YIP Hang-hong ZHOU Wei CHOW Shiu-bong, Cliff CHAN Kam-wing TSANG Cheuk-yin, Joe LEE Koon-wah, Bruce LAW Kwun-pan, Marso W H WONG Y W LEE	Hong Kong Shipowner Association Hong Kong Liner Shipping Association (“HKLSA”) Shipping Agencies Dry Bulk Cargo Operators Oil Terminal Operators Dockyard Industry Master Mariner Tug Operators Master Mariner Master Mariner Licensed Pilot Licensed Pilot Acting Assistant Director / Port Control (“AD/PC (Ag)”) / General Manager (“GM”) / Vessel Traffic Services (“VTS”), MD Surveyor of Ships (Nautical) Examiner, MD
Secretary:	Anson MC SINN	Executive Officer (Committee & General), MD

I. (a) Opening Remarks

Action

1. The Chairman extended his welcome to all the members.
2. The Chairman informed attendees that all the non-official members of the Pilotage Advisory Committee (“PAC”) were appointed *ad personam*. Given PAC is a statutory committee under the Pilotage Ordinance (Cap. 84), only members appointed *ad personam* would be allowed to attend the meeting. In other words, no substitute / observer would be allowed if the non-official member was not available.
3. Marso Law, licensed pilot said it was an established practice for two junior pilots from Hong Kong Pilots Association (“HKPA”) to sit in PAC meetings as observers to familiarise themselves with the committee work. The Chairman reiterated paragraph 2 above to decline Mr Law’s request.

I. (b) Interview of apprentice pilot

4. The Chairman said that PAC would interview the following three candidates in sequence to test their suitability for being apprentice pilots –
 - (i) Mr Ho Chi-kin, Daniel
 - (ii) Mr Ho Ming-tim, Timothy
 - (iii) Mr Wong Yuk-cheung
5. The three candidates were asked to brief PAC on their maritime study and work experience, in particular their experience in manoeuvring ocean-going vessels and handling critical or emergency situations on board. They were asked about the vision and core competence of being a pilot, the challenges on board as well as the differences between a deck officer and a pilot.
6. PAC considered the interview performance of the three candidates ranging from satisfactory to impressive. Most candidates treated the term “core competence” as the equivalent of “skills”, but “core competence” should be a broader term encompassing personal attributes such as leadership, analysis, judgment, foresight, etc. As such, there was room for improvement for candidates to enhance their ability to read and understand the questions.

7. PAC agreed to recommend the three candidates to the Pilotage Authority for registration as apprentice pilots.

Post-meeting note: With the approval from the Pilotage Authority, the three candidates in paragraph 4 above registered as apprentice pilots on 14 December 2017.

II. Confirmation of the minutes of the last meeting

8. The minutes of last PAC meeting held on 16 January 2017 were confirmed without amendment.

Post-meeting note: The meeting minutes were uploaded to the website on 19 December 2017.

III. Matters Arising from Previous Minutes of Meeting

- (a) *PAC Paper No. 3/2013 – Establishment of Principal Fairways in the Waters North of Lantau Island*

and

PAC Paper No. 5/2014 – Rearrangement of Principal Fairways and Anchorages in the Western Harbour

9. Jihe Huang, SMO/VTC reported that the legislative amendment proposal had been considered by the Legislative Council (“LegCo”) Economic Development Panel at its meetings on 24 April 2017 and 21 July 2017. While most Panel members supported the proposal, the fishing industry opposed it since the proposal would introduce new prohibited fishing area in the waters north of Lantau and affected the livelihood of fishermen. The Chairman supplemented that MD had carefully examined four alternative proposals, namely –
 - (i) Establishing a traffic separation scheme allowing fishing vessels to engage in fishing in the separation zone between traffic lanes;
 - (ii) Prohibiting ocean-going or river trade vessels from travelling through North Lantau;
 - (iii) Imposing speed limits on vessels using the navigation channel; and
 - (iv) Allowing fishermen to fish within the principal fairways at designated time;

but the above alternatives were not practicable.

Post-meeting note: For details, see the Transport and Housing Bureau (“THB”)’s letter of reply dated 18 July 2017 to LegCo Secretariat¹.

10. SMO/VTC continued that the legal notice had been published in the Gazette on 20 October 2017 and laid on the table of the LegCo at its meeting of 25 October 2017 for negative vetting and would come into operation on 1 February 2018. W. H. Wong, AD/PC (Ag)/ GM/VTS supplemented that a Marine Department Notice (“MDN”) would be issued shortly. In addition, at the forthcoming Safety Afloat Educational Seminar in January 2018, MD would brief the participants on establishment of principal fairways in the waters north of Lantau Island and in the Western Harbour. In response to an enquiry by Joe Tsang, master mariner, AD/PC (Ag)/ GM/VTS responded that the high speed craft and Sky Pier operators supported the legislative amendment proposal. The Port Control Division would liaise with the Shipping Division to adjust the endorsed routes of the affected high speed craft at a later stage.

IV. New Discussion Items

- (a) *PAC Paper No. 7/2017 – Proposed Amendments to the Berthing Guidelines*
11. George Tang, MO/Pilotage reported that a review on the berthing guidelines had been conducted by MD in conjunction with HKPA together with information provided by relevant stakeholders. The proposed amendments had been circulated to Working Group (“WG”) members via PAC WG Paper No. 1/2017 on 27 November 2017. While WG members had no objection to the proposal, HKPA proposed to amend the berthing guidelines for Central Harbour Transit (passenger ships) in the same fashion as Ma Wan Transit, i.e. to categorise passenger ships into conventional or highly manoeuvrable categories.
12. In response to an enquiry by Cliff Chow, tug operators, AD/PC (Ag)/ GM/VTS replied that since the vessels could be considerably heavier in weight after completion of dredging works in Kwai Tsing due to increase in draft, MD might need to reassess the berthing requirement in that area. The issue would be discussed at WG level either by paper circulation or convening a meeting nearer the time. As it would take some lead time to seek PAC’s endorsement on amendment of berthing guidelines, MD would

¹ <https://www.legco.gov.hk/yr16-17/english/panels/edev/papers/edev20170424cb4-1420-1-e.pdf>

propose a trial run with HKPA on a case-by-case basis. Bruce Lee, licensed pilot supplemented that given the increase in depth of berth after dredging works, the corresponding increase in ship's draft resulting in the momentum of the vessels could be greater, leading to a possibility of requiring more tugs of power more than 5 000 horsepower to be used. The Chairman summarised that the berthing guidelines would be amended after dredging works in Kwai Tsing subject to discussion at the WG level.

13. In response to another enquiry towards Annex X of the paper by Cliff Chow, tug operators, MO/Pilotage replied that the crux was to maintain 10% under-keel clearance. By and large, the draft was less than 9.5 m. For cases exceeding 9.5 m but less than 10 m, MD would assess the case on a case-by-case basis subject to the tidal window. AD/PC (Ag)/ GM/VTS supplemented that the re-alignment of fairways in Central Harbour would also be subject to the progress of the Shatin-Central Link works.
 14. Henry Ma, HKLSA suggested that the Hydrographic Office of MD might provide information or graphs to help shipping liners to find suitable windows with ship's air draft using tidal allowance on particular days for transiting Ma Wan. AD/PC (Ag)/ GM/VTS would liaise with the Hydrographic Office to explore the possibility.
 15. PAC members endorsed the proposed amendments set out in PAC Paper No. 7/2017. The proposed amendments would come into effect on 4 January 2018.
- (b) *PAC Paper No. 8/2017 – Proposed Pilotage Dues for Mirs Bay Pilotage Services*
16. Jihe Huang, SMO/VTC gave a powerpoint presentation entitled “Proposed pilotage dues for Mirs Bay pilotage services” (*Annex I*).
 17. The Chairman briefed members on the background of this paper. The waters of Hong Kong shall be a pilotage area pursuant to the Pilotage Ordinance. This was no exception to the waters of Mirs Bay within Hong Kong boundary as the Director of Marine *qua* the Pilotage Authority did not have any power of exemption over a specific part of the waters of Hong Kong from compulsory pilotage in accordance with the extant statute. Since April 2017, MD had performed the role of the mediator with a view to materialising consensus between HKLSA and HKPA over the level of additional pilotage dues for Mirs Bay pilotage services, but to no avail. HKLSA had continued to object in principle to the proposed

implementation of compulsory pilotage apart from disagreeing with the calculation of additional pilotage dues although both HKLSA and HKPA had no dispute over the standard pilotage dues (HK\$4,700 + HK\$0.07 per ton of the ship's gross tonnage).

18. The Chairman continued that MD took the issue forward by putting forth a consolidated proposal (i.e. Annex II of PAC Paper No. 8/2017) after critically examining the earlier submissions of HKLSA and HKPA. MD's proposed additional pilotage dues were based on scientific calculation and would be in accordance with the law. MD noted that tugs were not primarily designed for serving the boarding and disembarkation of pilots, but the use of tugs would be unavoidable for the time being. Therefore, the associated tug cost should be reviewed not more than two years after pilotage service in Mirs Bay was commissioned. [*Post-meeting note*: cf. para. 20 of the PAC minutes of 2 June 2015².] HKPA should explore the feasibility and practicability of employing purpose-built pilot launches for safe boarding and disembarkation of pilots in Mirs Bay. Henry Ma, HKLSA queried whether the tugs would be the only available means at present given his earlier groundwork research on availability of some European models of pilot launches. The Chairman replied that whether to use tugs or purpose-built pilot launches for Mirs Bay waters would be the commercial decision between the service user (HKLSA) and the service provider (HKPA). MD took a neutral stance on the choice of transportation. Although HKLSA considered that the cost of tugs would be too expensive, there would be no room for MD to shelve the implementation of pilotage service in Mirs Bay until a pilot launch would be ready after some years.
19. In response to a follow-up question by Henry Ma, HKLSA on whether there was validation from MD that the tug cost per voyage would be HK\$15,900 (paragraph 11 of PAC Paper No. 8/2017), AD/PC (Ag) / GM/VTs said that in order for HKPA to provide pilotage service, HKPA would have to either arrange its own transportation or procure the transportation service by itself. The figures of HK\$15,900 in the paper came from HKPA which went through its own tendering process whereas the other figures of HK\$4,200 and HK\$2,400 (paragraphs 8 to 10 of PAC Paper No. 8/2017) would be an indication of suitably remunerating the licensed pilots as proposed by MD.

² https://www.mardep.gov.hk/en/aboutus/pdf/pac_m150602.pdf

Post-meeting note: According to HKPA, the tender notice was published on Oriental Daily on 29 April 2017 and 30 April 2017. HK\$15,900 per passage was the lowest offer amongst three bidders in a tender prepared by HKPA. This bidder remarked that HK\$15,900 was quoted on the assumption that it would take all orders in Mirs Bay.

20. The Chairman invited Cliff Chow, tug operators to comment on whether the level of HK\$15,900 would be fair enough. Cliff Chow commented that HKPA went through a strict procurement process to invite bidders for an open tender via newspaper. Mr Chow further supplemented that there was a case of using tug to provide pilotage service in Mirs Bay and the tug cost for that one-off job was of 6-digit number. The respective tug operators quoted the price having regard to the considerations of the viability of the business operations. Marso Law, licensed pilot added that HKPA had invited HKLSA in different meetings to negotiate with the tug operators and quote a price which would be agreeable amongst HKLSA and tug operators. The Chairman reiterated that the issue of tug cost was indeed a commercial activity which MD would not intervene. Notwithstanding the issue of tugs, MD would still go ahead to amend the schedules under the Pilotage Ordinance (Cap. 84) and the Pilotage (Dues) Order (Cap. 84D).
21. In response to an enquiry from Ms Caroline Lu, dry bulk cargo operators, AD/PC (Ag) / GM/VTS replied that the legislative amendment process would take at least half a year. The intent of legislation amendment would put forth to the LegCo Economic Development Panel. After that, the amendments cleared by the Law Draftsman would be laid on the LegCo for negative vetting.
22. In view of the remote location of the new pilots stations in Mirs Bay, Bruce Lee, licensed pilot requested MD to add a provision to cater for the urgent order, i.e. “*an additional pilotage due equal to 50% overall of the standard pilotage dues shall be payable for any pilotage service which is provided on notice of less than 5 hours in Mirs Bay*”. AD/PC (Ag) / GM/VTS acknowledged Mr Lee’s request. As supplemented by the Secretary, MD would make reference to the existing statutory provision in para. 7 of Part 2 of Schedule 2 to the Pilotage (Dues) Order (Cap. 84D) when drafting the legislative amendments.
23. At the meeting, Bruce Lee, licensed pilot distributed a three-page handout entitled “Comments on PAC Paper No. 8/2017 from HKPA” (*Annex II*) which was noted by the Chairman and members.

Bruce Lee said that the licensed pilots understood their statutory role and obligations to provide pilotage service in Hong Kong waters and therefore supported the implementation of pilotage in Mirs Bay prescribed under section 10 of the Pilotage Ordinance (Cap. 84). However, they disagreed with the level of additional pilotage dues proposed by MD in Mirs Bay which, according to HKPA's understanding, was not commensurate with the time, expenses and risks taken by pilots. Bruce Lee on behalf of HKPA requested that the additional pilotage dues for Mirs Bay should be adjusted to its proposed level in tandem with the review of the tug cost in future. The Chairman reiterated that MD had adopted a scientific approach to establish the proposed pilotage dues (PAC Paper No. 8/2017) with clear breakdown and descriptions of each component.

24. Most PAC members had no objection to MD's proposed additional pilotage dues except for the liner operators and the licensed pilots.

V. Any Other Business

25. Bruce Lee, licensed pilot distributed a three-page paper entitled "Proposed ship simulation system for training and assessment by HKPA" (*Annex III*) at the meeting.
26. The Chairman considered that the proposal submitted by HKPA should be beefed up and refined. He directed that a working group meeting would be convened within a month to discuss HKPA's proposal to set up a ship simulation system for training and assessment. While MD welcomed HKPA's initiative, MD would be obliged to play a gate-keeping role towards training, assessment and examination of pilots to safeguard pilots' competency and discipline.

Post-meeting note: The working group meeting had been held in the afternoon of 3 January 2018 in the office of HKPA.

VI. Date of Next Meeting

27. The meeting adjourned at 6:10 p.m. The date of the next meeting would be announced in due course.

The minutes of the meeting were confirmed on 12 July 2018.

Distribution list

Chairman, PAC
Members, PAC
SMO/VTC, MD
MO/Pilotage, MD

Committee Unit
Marine Department
Ref.: L/M No. (18) in HQ/COM 928/29 (27)



香港特別行政區政府
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Proposed Pilotage Dues for Mirs Bay Pilotage Services



Pilotage service in Mirs Bay

Background

- The waters of Hong Kong shall be a pilotage area.
----section 10B of the Pilotage Ordinance Cap. 84
- This is of no exception to the waters of Mirs Bay within Hong Kong boundary.



The proposed pilotage due

Standard due---Part 1 of Schedule of Cap 84D

- Applicable
- Unchanged
- No argument



Additional pilotage due

Considerations

- to cater for specific type of pilotage services including long distance pilotage jobs, such as Tolo Harbour, off and beyond Ngan Chau, Pearl Island or Black Point.
- Mirs Bay water is connected with Tolo Channel, it is therefore sensible to derive the Mirs Bay additional pilotage dues by mirroring the dues charged for Tolo Harbour pilot station.



Additional pilotage due for Tolo Harbour

- An additional pilotage due of \$4200 shall be payable for any pilotage service performed, where a pilot is required to board a ship or disembark from a ship at Tolo Harbour-----paragraph 8 of Part II of Cap 84D



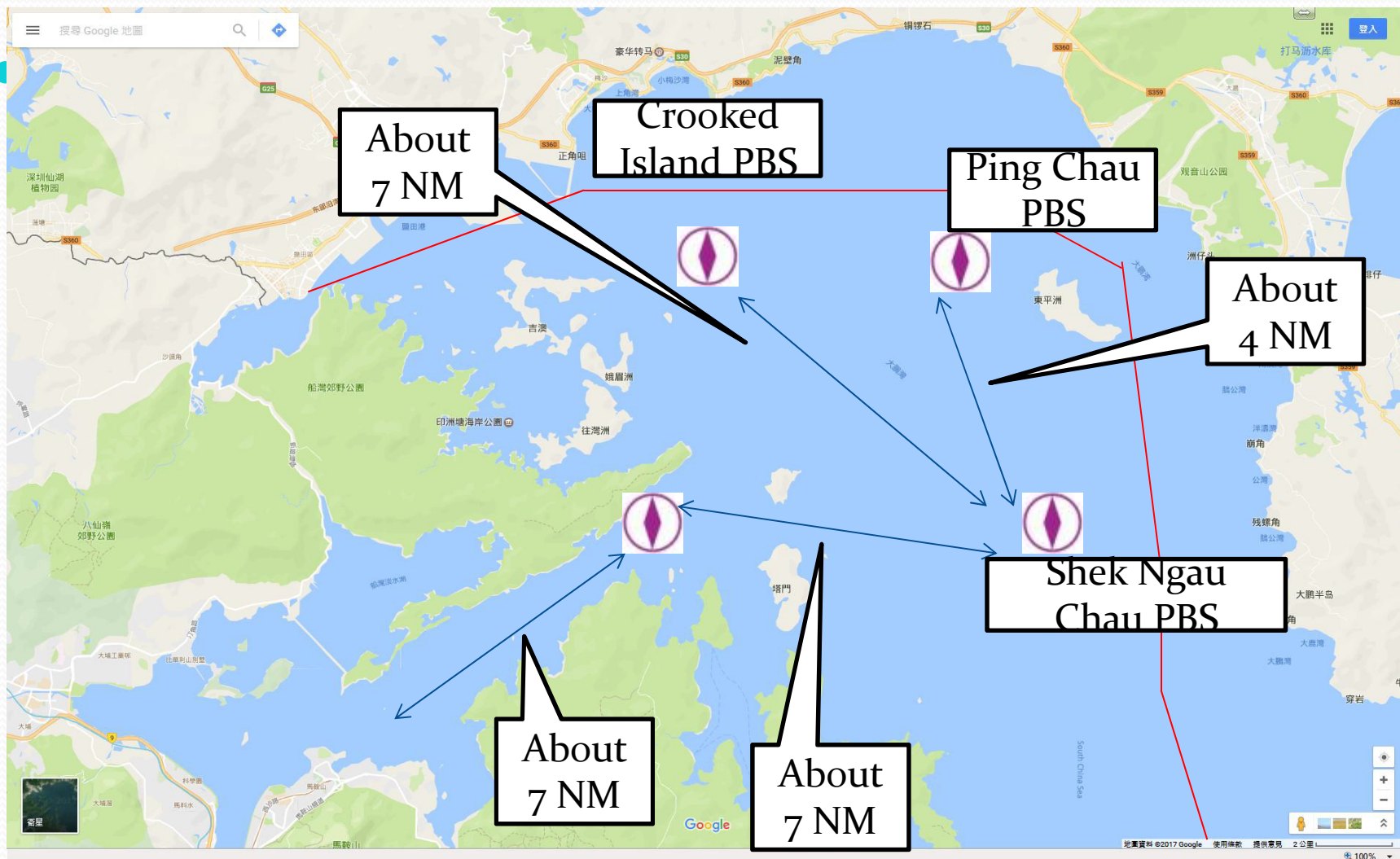
The 3 endorsed Pilot Boarding Stations in Mirs Bay

a.	Area off Shek Ngau Chau	Latitude Longitude	22°29.700' north 114°26.540' east
b.	Area off Crooked Island	Latitude Longitude	22°33.500' north 114°20.200' east
c.	Area off Ping Chau	Latitude Longitude	22°32.800' north 114°23.600' east



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The 3 endorsed Pilot Boarding Stations in Mirs Bay





Tug cost

- the general rough sea condition of Mirs Bay,
- MD supports the view that tug is necessary for safety reason
- Use of tug for boarding /disembarking of pilots in other ports is quite a common practice
- As provided by HKPA, the lowest available tug cost is HK\$15,900
- This cost should be equally shared on the two pilot stations involved in the pilotage voyage in Mirs Bay.



Proposed additional due for the 3 PBSs

Item	HK\$
Additional pilotage dues for Shek Ngau Chau (SNC) pilot station, i.e. \$4,200 + \$7,950 (50% of tug cost)	\$12,150
Additional pilotage dues for Crooked Island (CI) pilot station, i.e. \$4,200 + \$7,950 (50% of tug cost)	\$12,150
Additional pilotage dues for Ping Chau (PC) pilot station, i.e. \$2,400 + \$7,950 (50% of tug cost)	\$10,350



Two items proposed by the HKPA for consideration

- A pilotage due of HK4,700 shall be payable if the engagement of a pilot is cancelled within 3 hours before the last stated time of a requirement for pilotage services in Mirs Bay;
- An additional pilotage due of \$300 shall be payable if the requirement of pilotage services in Mirs Bay is altered within 4 to 5 hours of the last stated time of requirement



Review to the tug cost

- the HKPA should explore the feasibility and practicability of employing purpose-built pilot launches for safe boarding and disembarkation of pilots in Mirs Bay;
- the associated tug cost should be reviewed not more than 2 years after provisioning of pilotage service in Mirs Bay be commissioned.



Implementation

- After consultation with the PAC, MD would commence the administrative process for legislative amendment to amend Schedule 2 to the Pilotage Ordinance Cap.84 and the Schedule to the Pilotage (Dues) Order Cap.84D. It is anticipated that the legislative process could be completed in the first half of 2018.



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Thank you!

Comments on PAC Paper No. 8/2017 from HKPA

Para. 5

In order to provide members with a full picture of HKPA's views, it is suggested that our detailed comments (sent on 24 November 17) on MD's consolidated proposal be appended to the PAC paper as Annex III.

Para. 6

The use of 95,497 GT as a reference for calculating the pilotage dues is debatable as this is not the average GT of vessels that are subject to compulsory pilotage transiting the area. Based on a sample of 540 vessels collected in May 2017, the average GT is 80,000. This figure is more representative and should therefore be used to compute the indicative new standard pilotage dues, which is \$9,700 (i.e. \$4,700 + \$5,000). As a matter of fact, the actual average GT should be less than 80,000 after taking into account those smaller Chinese vessels which are exempted from Yantian pilotage.

Para. 7-12

We are of the view that setting of the Mirs Bay additional pilotage due by mirroring the Tolo Harbour additional dues is not appropriate because of the difference in sea conditions and remoteness. The working conditions in Mirs Bay is a far cry from well-sheltered Tolo Harbour and thus expose the pilots to higher risks of injury and stress. Due to the remoteness of the locality, emergency backup and rescue thereat would not be readily available and the necessary assistance required in the event of an incident would be unduly prolonged.

Although the Tolo Harbour additional pilotage due had been revised in 2016, the increase of \$700 (equivalent to 20% of \$3,500 set 19 years ago) only allows the recovery of a fraction of the cumulative inflation between 1998 to 2016. This level of dues was reluctantly accepted by HKPA based on goodwill and low frequency of pilotage service currently required in the area. Indeed, HKPA proposed a 100% increase in Tolo Harbour additional pilotage due at the last revision. Therefore, if the Tolo Harbour additional pilotage due is to

be used as a reference, its level should be adjusted to fully recover the cumulative inflation.

The methodology put forth by MD does not take into account the time spent by a pilot to travel to/from the base at Science Park after pilot operation which takes more than 1.5 hours. Pilotage operation is a time-intensive work and the time taken by pilots is one of the most significant elements in the pilotage charges. Hence, transport time spent by a pilot should not be excluded in calculating the appropriate level of additional dues.

A table indicating the existing working hours at Tolo harbour compared with the future Mirs Bay operation is appended below.

	<u>Existing Pilotage Order at Tolo Harbour</u>	<u>MD's consolidated proposal at Mirs Bay</u>	<u>Differences</u>
Total working hours based on Science Park	2 hrs	4.67 hrs	+ 134%
<u>Standard Pilotage Dues</u>			
\$10,668 (i.e. \$4,700 + \$5,968)	\$10,668	\$10,668	
<u>Additional Pilotage Dues</u>			
Additional due for Tolo Harbour	\$4,200		
Additional due for SNC		\$12,150	
Additional due for CI		\$12,150	
Less Tug cost		-\$15,900	
Total	\$14,868	\$19,068	+ 28.2%

The level of remuneration (28.2%) proposed by MD is unreasonable and unjustifiable in terms of the additional time, expenses and risks taken by pilots. Notwithstanding the above, HKPA maintains the view that the amount of \$41,538 as presented in the 4th meeting be adopted as the additional pilotage due for Mirs Bay. This is based on the methodology used by HKSLA with Science Park being used as a base.

Proposed ship simulation system for training and assessment by HKPA

Introduction

As a result of the ever increasing usage of ship simulator, it is proposed that a full mission ship simulation system should be set up by HKPA for training and assessment purpose in order to comply with the pilot's licensing and examination requirement.

Background

2. Although there is no stipulated requirement in the Pilotage Ordinance, it has always been HKPA's in-house requirement for pilots to undertake simulation training prior to their advancement in each class. A prototype ship simulator was installed in HKPA for this purpose decades ago. With the establishment of a full mission ship simulator in the Marine Department Training Centre, Stonecutters in 2000, dedicated simulation training program for apprentice pilots were designed and conducted in the centre by HKPA as a new initiative for pilotage training especially under uncommon environmental and traffic conditions. More recently, simulation training for all classes of pilots are now taken place at Mardep's Training Centre.

3. As a result of the new demarcation of classes of pilots which has recently been implemented, coupled with the current refresher simulation training for senior pilots, the requirement for ship simulation sessions has been greatly increased. The use of ship simulator for training and assessment has also been incorporated in Mardep's pilotage training requirement lately.

Ship Simulation System

4. The provision of an in-house ship simulator will enable HKPA to implement their training plan with more flexibility. It will allow better time management and scheduling to meet pilot's advancement in terms of training and assessment requirement. Furthermore, it will also be used for reproducing accident scenarios from which the pilot concerned as well as all other pilots will be benefitted by revisiting the incident. Simulation trials on new ship types and pilotage operation are then able to be conducted in-house while reviewing and fine tuning the berthing guidelines.

5. A full mission ship simulation system is therefore proposed to be installed at HKPA. Following a tendering procedure, one of the renowned ship simulator suppliers will be contracted to provide a simulation system based on HKPA's requirement. Part of the conference room in HKPA will be converted to accommodate the ship simulation system which comprises a single bridge with standard conning and navigational equipment, and a visual system with a horizontal angle of 180 degree. A separated instructor station with monitoring, recording and replaying capability will also be installed. Details of the technical specification are contained in the Appendix.

Simulator Instructors

6. A team of dedicated HKPA coaches will be formed for conducting simulation training. Prior simulation instructor training will be provided to the team to ensure their familiarity of the simulation system as well as competency as a simulation instructor. In general, all these coaches should have at least 7 years pilotage experience with 3 years as coaches.

Implementation

7. Subject to the agreement in principle of PAC members for using the HKPA proposed in-house ship simulator for various training and assessment purpose in relation to the advancement of various classes of pilots, the tendering procedure will take place in three months time. If everything runs smoothly, the installation of the full system will be completed by middle of next year.

8. All the provided ship models will be tested by HKPA's senior pilots to ensure their realism in terms of maneuverability. Full set of exercise scenarios for various classes of pilots will then be prepared and submitted to Mardep for prior approval. During the initial stage of conducting simulation exercise, Mardep and PAC members are invited to monitor the progress and offer their valuable comments to ensure future simulation training and assessment are acceptable to Mardep in terms of quality and professionalism.

Technical Specification of proposed full mission ship simulator

Visual System

Five to seven panels of 50-60 inch LCD monitor will be mounted to create a visual system of 180 degree. The resolution should not be less than 1920 x 1080 to produce crisp and clear image.

Conning and Equipment Consoles

Steering wheel, telegraph and standard conning equipment and display will be provided to mimic a real ship bridge. A radar and ECDIS console will also be equipped. A binoculars viewing panel and an anchoring control panel will be included.

Instructor Station

A separated instruction station will be established on the other side of the room for preparation of exercise scenarios and monitoring of simulation exercises. With recorded and saved exercises, the instructor is able to replay the exercise at a desired speed during debriefing.

Exercise Areas

All berths which require pilotage operation will be provided with detailed graphic. All navigable waterways will be reproduced realistically with accurate placement of aids to navigation.

Ship Models

Ship models will be tailor-made to tie in with the classification of pilots. Appropriate amount of target ships will also be provided in the system to create realistic local traffic condition. Tug force will be induced to simulate tug operations.

Sound System

A 5.1 channel surround sound system will be provided to reproduce the noise onboard the bridge of a vessel as well as sound signals generated by other vessels nearby.

Environmental Condition

Localized environment conditions such as wind, current, rain and visibility changes will be made available for simulation exercise. Time of the day can also be selected by instructor to suit various training objectives.

Shipboard Emergency

Emergency onboard ship can be created for crisis management training. These include but not limit to engine and steering gear failure, malfunction of navigational equipment and erroneous reading of position fixing devices etc.