Confirmed Minutes of the 81st Meeting of the Advisory Council on the Environment held on 18 December at 2:30 p.m.

Present:

Mr. Peter H. Y. WONG, GBS, JP (Chairman)
Mr. Barrie COOK
Mr. Paul C. H. FAN, JP
Professor Anthony HEDLEY, BBS, JP
Professor Peter HILLS
Dr. HO Kin-chung
Professor LAM Kin-che
Mr. Edwin LAU
Mr. Joseph LAU Man-wai, JP
Mr. LIN Chaan-ming
Dr. NG Cho-nam
Mr. Otto L. T. POON
Ms Iris TAM
Miss Alex YAU
Mr. Plato YIP
Mr. Donald TONG (Secretary)

Absent with Apologies:

Mr. CHAN Kwok-wai, JP
Miss Ann CHIANG
Mr. Clement CHEN
Dr. LEONG Che-hung, JP
Mr. PAO Ping-wing, JP
Mr. Michael J. D. RUSHWORTH

In Attendance:

Mr. Paul TANG	Acting Secretary for the Environment and Food
Mr. Kim SALKELD	Deputy Secretary (B), Environment and Food Bureau (EFB)
Mr. Rob LAW	Director of Environmental Protection
Mr. Raymond CHIU	Assistant Director (Technical Services), Planning Department (PlanD)
Mr. C C LAY	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Mrs. Pauline LING	Chief Information Officer, EFB
Miss Petula POON	Chief Executive Officer (B), EFB
Miss Natalia LEUNG	Senior Information Officer, EPD
Miss Cora SO	Executive Officer (B), EFB

In Attendance for Agenda Item 3 :

Mr. Hans BAKKER	Commercial Director, Airport Authority (AA)
Mr. B S CHOW	General Manager, Aviation Support Services, AA
Mr. Amin EBRAHIM	Manager, Aviation Support Services, AA
Mr. Bill ROBERTS	Senior Project Engineer, AA
Mr. Martin PUTNAM	Environmental Scientist, AA

In Attendance for Agenda Item 4 :

Mr. Howard CHAN	Principal Assistant Secretary (C), EFB
Mr. C K WONG	Deputy Director, Highways Department (HyD)
Mr. S M LI	Assistant Commissioner (Urban), Transport Department (TD)
Mr. Elvis AU	Assistant Director (Environmental Assessment and Noise), EPD
Mr. K S CHAN	Principal Environmental Protection Officer, EPD

In Attendance for Agenda Item 5 :

Mr. K K LING	District Planning Officer (Hong Kong), PlanD
Mr. Thomas WONG	Town Planner, PlanD
Mr. I K S LO	Acting Senior Engineer (Housing & Planning), Transport Department (TD)
Mr. T Y LAU	Senior Engineer, Territory Development Department
Mr. K M CHAN	Senior Engineer, HyD
Mr. Alex LIU	Senior Engineer (Technical Services)3, HyD

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Action

In response to the Chairman's regards for Mrs. Lily Yam, Mr. Paul Tang said that Mrs. Yam had already been discharged from the hospital and would be back to work around mid-January. On Mrs. Yam's behalf, Mr. Tang expressed gratitude towards the hard work and the contribution of the Chairman and Members, in particular the advice of the EIA Subcommittee on environmental issues. As regards the appointment of Council members, Mr. Tang said the Bureau would soon get in touch with Members to discuss the arrangements for the next term. The Council might need to consider its terms of reference next year once the plans for the Sustainable Development Council were clearer.

Action

Agenda Item 3 : Progress on Investigations into the Locations of Permanent Aviation Fuel Receiving Facility for Hong Kong International Airport
(ACE Paper 38/2000)

11. The Chairman welcomed Messrs. Hans Bakker, B S Chow, Amin Ebrahim, Bill Roberts and Martin Putnam of the Airport Authority (AA) to the meeting. Using a power point presentation, Messrs. Chow, Roberts, and Putnam briefed Members on the progress of the site search for the permanent aviation fuel receiving facility (PAFRF) for the Airport. Mr. Chow said the Airport Authority would be more than happy to arrange a visit to the three proposed sites for Members so that they could gain better understanding of the various options. The three proposed sites were Tuen Mun West, Tuen Mun Area 38 and Sham Shui Kok. Of these, the Airport Authority indicated a preference for Tuen Mun Area 38, based primarily on the fact that the facility could be constructed by 2005 at this site.

12. The Chairman asked and Mr. Roberts affirmed that the findings of the Hazard Assessment Study Update (the Study Update) concluded that the risk related to the use of the Ma Wan Channel for transportation of aviation fuel in ocean going tankers, which was assessed to be unacceptable in 1993, could now be reduced to "As Low As Reasonably Practicable". The main reason leading to this was the introduction of the vessel traffic control measures by the Marine Department at the Ma Wan Channel. The AA's findings had also been reviewed by the Government which confirmed that there were unlikely to be additional insurmountable problems in allowing large aviation fuel vessels to pass through Ma Wan Channel. In particular, Mr. Law advised in an answer to the Chairman that the results of the Study Update had been accepted by EPD. In view of the radical change of circumstances, the Chairman asked that a copy of such study/advice be made available to Members. EPD

13. Mr. Barrie Cook declared that he had an interest in the discussion item as one of his group companies had submitted a proposal to the AA and the Government regarding aviation fuel supply. Considering that a site farther away from Hong Kong would create less environmental problems to the territory, Mr. Cook asked if locations outside Hong Kong waters had been explored. In response, Mr. Chow said that as far as AA was aware, the Government would like to exhaust all possible locations within Hong Kong waters first before considering options outside the Hong Kong boundary. Therefore the AA was now actively examining the three feasible options as presented to the Council.

Action

14. Prof. Lam requested that the EIA report to be submitted to Council should include figures of the Study Update. In response to Prof. Lam's question on whether the number of vessel accidents in the Ma Wan Channel had dropped, Mr. Roberts said that the vessel traffic control measures were implemented in 1995. According to his understanding, there had not been any accidents since then, and subject to the view of Marine Department, it appeared that the vessel traffic control measures were working very effectively.

15. Prof. Anthony Hedley was concerned about the safety of people living in and students going to schools in the vicinity of the PAFRF because there was a residential district adjacent to Tuen Mun Area 38 and a planned school area near Sham Shui Kok. Mr. Roberts advised that the nearest residents to Tuen Mun Area 38 were in fact several kilometers away from the proposed site. Mr. Roberts also said that there were precedents in locating fuel farms in the vicinity of populated areas e.g. the 170,000 m^3 aviation fuel tank farm at the was surrounded by various facilities with the Cathay Pacific City being less than 1 km away. Mr. Roberts assured Prof. Hedley that the actual risk in risk hazard terms would be within the acceptable range.

16. Dr. Ng Cho-nam queried if it would be necessary to build fuel tanks on the PAFRF since there were already sufficient tanks at the Airport. Mr. Amin Ebrahim explained that at present, the fuel was transported from Singapore to Tsing Yi first and then taken by barges to East Sha Chau whereas in future the fuel would be transported from Singapore to the PAFRF direct. More tanks would be needed then. Dr. Ng pointed out that the tanks at Tsing Yi would be left idle and he cautioned that that might affect the fuel price level. The Chairman commented that this was unlikely because aviation fuel only constituted a small proportion of the total fuel used in Hong Kong.

17. In reply to Dr. Ng's further enquiry, Mr. Roberts said that the jetty of the PAFRF would be about twice as big as that of East Sha Chau.

18. In response to Mr. Plato Yip's questions, Mr. Roberts said that the growth in marine traffic in Ma Wan Channel had been taken into account during the risk assessment and confirmed that the Tang Lung Chau Dangerous Goods Anchorage was not included in the risk assessment as it could not accommodate large ocean going vessels used for transporting aviation fuel. In response to Mr. Yip's question on whether there were any options that could avoid using the Ma Wan Channel, Mr. Roberts said that the region south of Lantau had been looked at in the search of possible locations for PAFRF but none had been found environmentally and commercially acceptable for installing fuel storage facilities and pipelines for pumping fuel to the Airport.

Action

19. Ms. Iris Tam asked whether strategic road links like the North Lantau Expressway and the Railway Link would be taken into account in the detailed EIA study. Mr. Roberts said that all facilities within the radius of the PAFRF would be evaluated and checked in the EIA process.

20. The Chairman asked and Mr. Raymond Chiu replied that the Government would not be able to decide in the next two years whether Tuen Mun West, which was earmarked for port development, could be released for the construction of PAFRF.

21. In response to Mr. Edwin Lau's enquiry, the Chairman clarified that the Council would advise the Government on the best option for PAFRF from the environmental point of view but the Government and the Executive Council would have to take into account other factors such as economic and social considerations, before making a final decision.

22. In response to Miss Alex Yau's enquiry, Mr. Roberts said that the pipelines would be 500mm in diameter and would be buried at 3m below the seabed and covered with materials for protection from dragging anchors. The design of the pipelines might be subject to finalisation depending on the findings of the EIA study.

23. The Chairman speculated that in future there would be a vehicle tunnel linking Tuen Mun and the Airport, and asked if AA had considered its possible impact on their proposal. Mr. Roberts said that AA would take any future developments into account during the EIA process and that techniques were available, such as directional drilling, by which such developments could be minimised, if necessary.

24. Dr. Ng suggested the AA consider giving permanent funding to support the operation of the East Sha Chau Marine Park. Mr. Ebrahim said that AA had an agreement with the Government that the former would pay for the operation cost of East Sha Chau Marine Park until PAFRF was in place. Mr. C C Lay supplemented that AFCD would seek additional funding if necessary to meet the operational cost of the Marine Park. Miss Yau was of the opinion that AA should share the cost because the environment at East Sha Chau could not be restored even after PAFRF was built. Mr. Bakkar advised that AA would take note of this request.

Action

25. The Chairman thanked the presentation team for updating the Council and would wish to be kept posted of major developments in the future. The Chairman also indicated that based on the above discussion, ACE had no objection to AA continuing further exploration of these three site options.

Agenda Item 4 : Measures to Address Traffic Noise Impact of Existing Roads
(ACE Paper 39/2000)

26. The Chairman welcomed the presentation team from EFB, Highways Department, Transport Department and EPD to the meeting. Mr. Howard Chan briefed Members on the measures to address traffic noise impact of existing roads.

27. The Chairman was glad that new measures would be taken to tackle chronic noise problems and was interested to know how the Government would prioritize the implementation programme. In reply, Mr. Howard Chan said that the Administration's initial thinking was to implement the measures by phases in the order of the noise exposure levels and the number of people affected.

28. Prof. Lam welcomed the new measures but said that there was still room for improvement. He pointed out that some countries imposed noise limit control during daytime and at night whereas Hong Kong only had restrictions in the daytime. Furthermore, the current method on measuring noise exceedances did not take into account duration of the noise impact. He also noticed that according to the Technical Memorandum(TM) of EIA Process, there was no requirement for a project proponent to implement any mitigation measures for a new road if the predicted noise level increase was less than 1dB(A). He was concerned that if the existing noise level had already reached the noise limit of 70dB(A) and more new roads were to be constructed, the cumulative noise impact would be huge if no action would be taken. As regards the low noise surfacing material used on resurfaced roads, Prof. Lam asked whether the 3dB(A) noise reduction capability of the material would be gradually lost over time. As people were more sensitive to road noise during nighttime, Prof. Lam encouraged the use of traffic management control to tackle the problem at source.

ADVISORY COUNCIL ON THE ENVIRONMENT ACE 香港環境諮詢委員會

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(ACE Paper 38/2000)
For information

PROGRESS ON INVESTIGATIONS INTO THE LOCATION OF PERMANENT AVIATION FUEL RECEIVING FACILITY FOR HONG KONG INTERNATIONAL AIRPORT

PURPOSE

The purpose of the paper is to update Members on the current position regarding the search for a suitable site for a permanent aviation fuel receiving facility for Hong Kong International Airport.

2. Members are invited to note that:

(a) This paper has been prepared in response to Members' request for an update on the current position.

(b) The Authority decided in 1999 not to pursue East of Soko Islands and Kau Yi Chau sites;

(c) The site search had failed to find any suitable site in Hong Kong Waters, other than north of Lantau.

(d) The Authority decided to focus its effort north of Lantau and thus the transit of large aviation fuel vessels through Ma Wan Channel was revisited by conducting a quantitative risk assessment study update.

(e) Results have shown that the societal and individual risks associated with the transit of aviation fuel in large tankers through Ma Wan Channel can now be reduced to ALARP. It is therefore believed that the Ma Wan Channel can be transited by large aviation fuel tankers;

(f) As a result, the Authority in conjunction with Government has re-evaluated all possible options north of Lantau and is now focussing on 3 sites , namely Tuen Mun West , Tuen Mun Area 38 and Sham Shui Kok and seeks Members' views on these options;

(g) Item (d) and (e) above are the reasons why little progress has been made in identifying a feasible site for the permanent aviation fuel receiving facility since the Authority last reported to ACE in 1998.

(h) It is anticipated that the permanent aviation fuel receiving facility will be operational between year 2005 and 2007 depending on the site selected; and

(i) The Aviation Fuel Receiving Facility (AFRF) at Sha Chau will remain under interim use, but will revert to an emergency back-up facility once the permanent facility is available.

BACKGROUND

Site Search since September 1998

3. The Authority last updated Members on the issue in September 1998 (ACE Paper 40/98). At that time it was decided not to pursue the two options south of Lantau due to their potential environmental impact, high cost, long time frame and operationally inferior facilities.

4. The position thus reached in early 1999 was effectively:

(a) Options south of Lantau had been ruled out; and

(b) Tuen Mun West had been earmarked by the Authority as a potential site.

5. At that time the Authority, in the absence of a suitable site, sought Government's views on the way forward. It was determined that it would be worthwhile, due to change in circumstances, to revisit the question of risk to life associated with Ma Wan Channel being used for the transit of large aviation fuel tankers. The risk assessment update consultancy was awarded in early 2000.

Ma Wan Channel Hazard Assessment Study

6. The outcome of the previous (1993) Ma Wan Channel Hazard Assessment Study was that the use of the Channel for ocean-going aviation fuel tankers did not gain Government support. The reason for this was that the transit of large tankers through the Channel exhibited levels of risk that could not at that time be mitigated to a level as low as reasonably practicable (ALARP). Options which did not involve the use of the Channel (i.e. south of Lantau) were considered feasible at that time, and therefore options north of Lantau were shelved.

7. The risk assessment update took note of changes since the 1993 Study, which include the introduction of vessel traffic control through the Channel and the introduction of restrictions to transit of vessels during periods of low visibility. The study update concluded that the societal and individual risks associated with the transit of aviation fuel in large tankers through Ma Wan Channel can now be reduced to ALARP, and are therefore acceptable.

8. Government Departments including EPD, MD and EMSD reviewed the study update and concluded in October 2000 that there were no insurmountable problems in allowing large aviation fuel vessels to transit Ma Wan Channel subject to detailed assessment of mitigation measures to show compliance with ALARP risk guideline. Thus, sites north of Lantau making use of Ma Wan Channel, which were excluded in the 1993 Study, are now available for reinvestigation.

Possible Options

9. Three options have emerged, determined jointly with Government. They are located in Tuen Mun West, Tuen Mun Area 38 and Sham Shui Kok, as shown on the plan in Attachment 1. All sites are on Government land/water.

10. As soon as one of these options is selected, it would be subject to full EIA. Currently it is expected that a final decision on a site will be taken in 2001.

11. For **Tuen Mun West**, Government would take at least two years to decide whether this option is available for the aviation fuel facility as the site is earmarked for port development. A study by Government will commence late next year. If a green light is given in 2002, reclamation and construction of the aviation fuel facility would only be completed by around 2009. This option therefore does not meet the Authority's time frame. However, if Government were to delink it from the port development study, which covers about 200 ha, and separately offer a small part of the site (6 ha) to the Authority, the facility could be completed around 2007.

12. **Sham Shui Kok** poses similar problems. It also requires reclamation. The earliest completion date for this option is 2007.

13. In terms of timeframe, **Tuen Mun Area 38** appears to be a better option, as it could be completed as early as 2005. The area is currently earmarked for the 4th Industrial Estate Development. The total available area is 40 ha, of which about half has already been reclaimed. The Authority is now working with Government to investigate the possibility of using about 6 ha of the reclaimed land for the aviation fuel facility.

14. AA would consult ACE during the EIA process.

Environmental Issues at Tuen Mun West, Sham Shui Kok and Tuen Mun Area 38

15. The proposed aviation fuel facility is classified as a "Designated Project" under the EIA Ordinance and an environmental permit is required prior to project commencement for either of the three options.

16. It is expected that items to be covered in the EIA will be largely similar for each of the three options identified, albeit with different emphasis on certain items dependent on location. Common areas to be addressed would include noise (including underwater noise), air, visual impact, risk to life, water quality and marine ecological impacts covering both the construction and operational phases. Aviation fuel spill modelling and forecasting studies might also be required.

17. A key issue is the potential impact on marine mammal population and this aspect will be fully addressed for the selected option. The design and construction methodology proposed for jetty construction is of key concern and this will be carefully considered. Cumulative impacts arising from all proposed developments in the vicinity of each option will also be considered, as will the construction and operational impacts of proposed pipeline routes. Two alternative pipeline routing options would be considered at the EIA stage for either of the Tuen Mun options, one connecting directly to the existing facility at Sha Chau (reducing the requirement for new submarine pipeline by 50%), and one extending to the western side of the airport.

18. The Authority would be mindful of the impacts on the marine park when assessing the feasibility of the various options.

19. Based on an initial understanding of each of these potential impacts, and the likely mitigation measures required, it is anticipated that none of the three options should present any insurmountable problems within the context of a full EIA, bearing in mind the Authority's previous construction and operational experience of the AFRF at Sha Chau.

20. Nevertheless, the environmental benefits and disbenefits of the three options will be compared and carefully considered in the selection of a preferred option. There will be public consultation on the selected site within the EIA process.

Other Studies and Approvals required for Tuen Mun West, Sham Shui Kok and Tuen Mun Area 38

21. Other studies and approvals for the three options are expected to be similar, viz, Marine Traffic Impact Assessment, and for meeting requirements under OZP in compliance with the Town Planning Ordinance and the Foreshore and Seabed Ordinance.

Performance of Environmental Mitigation Measures in Place at Sha Chau

22. Members are advised that the AFRF at Sha Chau continues to function very well. Operational mitigation measures continue to be implemented in full by AFSC Operations Limited with all activities regularly audited by the Authority's environmental team. Mitigation measures include:

(a) enforcement of a zero discharge policy for solid and liquid wastes from the AFRF at Sha Chau;

(b) maintenance of a comprehensive spill response capability, including regular staff training as well as combined spill response training exercises involving EPD's Marine Pollution Control Unit, AFCD, FSD and other Statutory Authorities; and

(c) continued use of dedicated fuel vessels with enhanced manoeuvrability and piloted by crews briefed on 'dolphin friendly' operations in a Marine Park.

23. Members may also wish to know that two additional six-month phases of dolphin monitoring have been completed by AFSC Operations Limited's consultants in waters around the operational facility. The most recent study concluded that estimates of dolphin abundance do not show any decreasing trend in north Lantau waters and dolphin populations now appear to be stable in the area (Attachment 2).

24. The Authority also recently commissioned an assessment of underwater noise levels in waters around Sha Chau in order to confirm whether the noise performance of aviation fuel delivery vessels meets the requirements stipulated by the Authority. The study concluded that the stipulation is being met (Attachment 3).

25. The Authority will continue to pay for the operating costs of the Lung Kwu Chau and Sha Chau Marine Park, until the AFRF at Sha Chau reverts to an emergency back-up facility.

The Way Forward

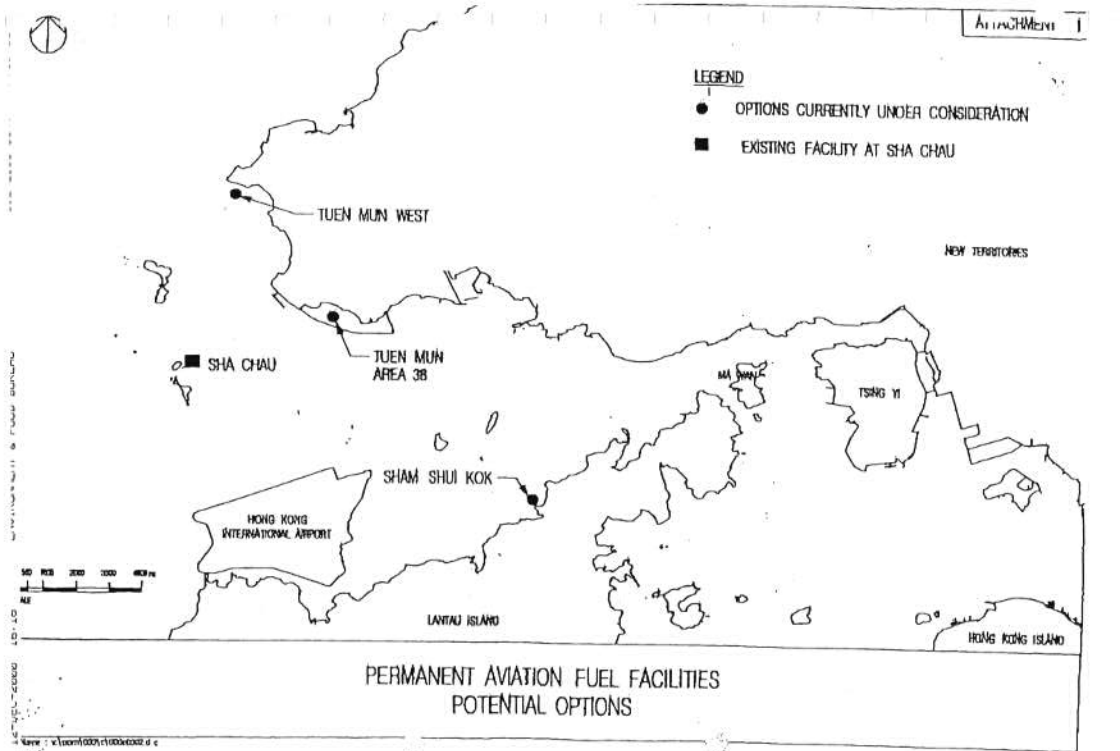
26. The Authority remains committed to expediting completion of a permanent aviation fuel facility.

27. Selection of a site will be from the three options, namely, Tuen Mun West, Sham Shui Kok and Tuen Mun Area 38. Environmental merits and demerits of each of these options will be a major consideration in the selection. A decision on the selection of a site is expected in year 2001.

28. As soon as the site is selected, the Authority will inform Members of the time frame for completion of the project, aiming to fast track it, so that the AFRF at Sha Chau can revert to an emergency back-up facility as soon as possible.

Airport Authority
December 2000

ATTACHMENT 1



PERMANENT AVIATION FUEL FACILITIES
POTENTIAL OPTIONS

Attachment 2

DOLPHIN MONITORING STUDIES FOR AVIATION FUEL RECEIVING FACILITY AT SHA CHAU

Background

Surveys to assess abundance and trends in numbers of Indo-Pacific Hump-backed dolphins (*Sousa chinensis*) north of Lantau Island have been conducted continuously since November 1995. Study efforts were done initially by Thomas Jefferson under contract to the Airport Authority and subsequently by Thomas Jefferson under contract to the AFCD undertaking a two-year project with the goal of providing scientific information for use in the long-term conservation and management of the population occurring in HK waters.

The 1995 AFRF EIA identified the potential impacts of the Sha Chau facility on the dolphins and recommended that monitoring of dolphins should be undertaken prior to, during and after AFRF construction in order to identify any trends in abundance resulting from these works or from the subsequent operation of the completed facility. Although the AFRF monitoring efforts were undertaken for this specific reason, monitoring results were also used in the AFCD project. Several phases of monitoring were undertaken in conjunction with the Sha Chau works as follows:-

Pre-construction Phase	15 Nov 95 – 10 Feb 96
Piling Phase	11 Feb 96 – 2 Sep 96
On-jetty Construction Phase	3 Sep 96 – 10 Jun 97
Near-completion Phase	11 Jun 97 – 30 June 98
Operational Phase A	1 July 98 – 14 Oct 99
Operational Phase B	15 Oct 99 – 20 Apr 00

The purpose of the most recent phases of monitoring was to assess the numbers and distribution of dolphins near the AFRF at Sha Chau during routine operations.

North Lantau Dolphin Abundance Trends

North Lantau abundance estimates for the main study showed an apparent decreasing trend until winter/spring of 1997/1998. The estimate at this time was well below all other estimates, both before and after. It appears that dolphin numbers in the main survey area dropped at this time period, corresponding to the period immediately following the intensive percussive piling period. It is probable that dolphins may have avoided this area due to the loud noise associated with the piling work (even with a noise attenuating bubble curtain in place during all piling activity), thereby resulting in an apparent overall decline in the number of dolphins in the North Lantau area.

Operational Dolphin Monitoring Results

There appears to have been a large influx of dolphins back into the area during the final two periods of construction phase dolphin monitoring. The two periods of operational monitoring which have been undertaken show that dolphin abundance appears to have stabilised and no significant trend is apparent.

Conclusions

In conclusion, estimates of dolphin abundance in the North Lantau area for the operational phase study periods are similar to those from time periods preceding the noisy piling phase, and there is now no evidence of a decreasing trend. Abundance of dolphins in the North Lantau area appears to have stabilised.

UNDERWATER SOUNDS NEAR THE AVIATION FUEL RECEIVING FACILTIY AT SHA CHAU: RELEVANCE TO DOLPHINS

Background

The Airport Authority commissioned an assessment of underwater noise levels in waters around Sha Chau in mid-1999, with the objective to assess whether the aviation fuel vessels radiate underwater sounds at spectrum levels greater than 110db re 1 $\mu Pa^2/Hz$ at frequencies above 300 Hz and distances greater than 300 m. It is a requirement of the Airport Authority that the aviation fuel vessels should not radiate underwater sounds at these levels because it is believed that humpbacked dolphins and finless porpoises are not very sensitive to sounds below 300 Hz.

This study was undertaken in November 1999 by Dr. Bernd Würsig of Texas A & M University and Dr. Charles Greene of Greeneridge Sciences, Inc. A paper on their findings has been submitted to the Journal "Marine Environmental Research".

Methodology

Würsig and Greene took calibrated sound recordings over a four-day period from a quiet, anchored boat at distances 80 to 2000m from aviation fuel delivery activities at the Aviation Fuel Receiving Facility (AFRF). From the recordings, 143 sections were selected for analysis. Narrowband spectral densities on the sound pressures were computed, and one-third octave band levels were derived for centre frequencies from 10 to 16,000 Hz. Broadband levels, viz. 10 to 20,000 Hz, were also computed.

Results and Conclusions

Results showed that the underwater area around Sha Chau is normally noisy, with the lowest broadband levels measured corresponding to those expected during a sea storm (sea state 6). This background noise is believed to come largely from heavy vessel traffic in the Urmston Road to the north-east of Sha Chau and from vessels in the Pearl River Estuary to the west. The spectrum levels at 300Hz and higher frequencies of sounds from tankers arriving, departing, or off-loading at the AFRF were less than 110dB re 1 $\mu Pa^2/Hz$ even at distances of 200m or less. Therefore, the Airport Authority requirement is being met by these aviation fuel vessels.

HAZARD ASSESSMENT STUDY UPDATE

Background

A 1993 Hazard Assessment Study undertaken by ERM identified vessel movements through the Ma Wan Channel as a key issue, particularly in respect of the consequences of an accident resulting in discharge of aviation fuel, subsequent ignition and related risks.

The outcome of the study was that the use of the Channel for ocean-going aviation fuel tankers did not gain Government support. The reason for this was that the transit of large tankers through the Channel exhibited levels of risk that could not at that time be mitigated to a level as low as reasonably practicable (ALARP).

Study Update

The primary objective of this Hazard Assessment Study Update was an assessment of the risks associated with the transport of aviation fuel through the Ma Wan Channel in large ocean going vessels, in order to identify if associated risks were still likely to represent an insurmountable obstacle to pursuing options in North Lantau waters for a facility for permanent fuel supply to the airport.

Specific Objectives of the QRA were to identify all hazards associated with the transport, transhipment and pumping of aviation fuel, to estimate associated levels of risk following Hong Kong risk guidelines, and to identify and evaluate risk reduction measures.

The study was undertaken by Mouchel/DNV and was designed to be consistent with the methodology adopted for the 1996 Hydrocarbons Transport QRA Study. The analysis of marine transport was consistent with the Marine Department MARADS Study supplemented by the more recent Sham Tseng Reclamation Study.

Because of projected increases in marine traffic, demand for aviation fuel and population, three cases were modelled: 2004, 2011 and 2040. A number of key appropriate assumptions were made for the purposes of the QRA, consistent with those adopted in the 1996 Study.

Conclusions and Recommendations

In contrast to the conclusions reached following previous studies, the risk related to the use of the Ma Wan Channel for transport of aviation fuel in ocean going tankers can be reduced to As Low As Reasonably Practicable (ALARP), and therefore is now acceptable from the perspective of the risk related to transit of aviation fuel through the Ma Wan Channel.

Conclusions reached in previous studies (1993 and 1996) have been shown by this Study Update to be overly conservative because a number of factors have changed in the intervening period. The main changes are:

(a) Introduction of the traffic management improvements to navigation through Ma Wan Channel such as specific rules of passage; prioritised shipping movements; tidal window restrictions; improved communications; restrictions during poor visibility; advance notice to vessel traffic control centre; patrol vessel; and requirement for a pilot to be on board. As a result of these improvements, the risk has now been substantially reduced.

(b) The double handling of aviation fuel at Tsing Yi would be eliminated (in contrast to the current method of delivery of fuel to Sha Chau).

(c) An improved understanding of the consequences of a pool fire has resulted in an assumption that the only population affected will be that within the radius of the pool fire.

Mitigation measures recommended by this study are as follows:

(a) Requirement of double hull for all vessels.

(b) Fuel tankers to transit Ma Wan Channel on a 24-hour basis to reduce the number of other vessels in the vicinity during the passage of aviation fuel vessels. This would reduce the potential for accidents.

Government Departments Review of Study Update

Government Departments including EPD, MD and EMSD reviewed the Study Update and concluded in October 2000 that there were not likely to be any additional insurmountable problems in allowing large aviation fuel vessels to transit Ma Wan Channel.