

Permanent Aviation Fuel Facility (EP-262/2007/B)

Twelfth Quarterly Environmental Monitoring and Audit Report – October 2009 to December 2009

26 January 2010

Environmental Resources Management

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Twelfth Quarterly Environmental Monitoring and Audit Report
October 2009 to December 2009**

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| For and on behalf of Environmental Resources Management |
| Approved by: Craig A Reid |
| Signed:  |
| Position: Environmental Team Leader |
| Date: 26 January 2010 |

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EXECUTIVE SUMMARY

The construction works for the Permanent Aviation Fuel Facility resumed on 9 July 2007. This **twelfth** quarterly Environmental Monitoring and Audit (EM&A) report presents the EM&A work carried out during the period from **1 October to 31 December 2009** in accordance with the *EM&A Manual*.

Breaches of all Action and Limit Levels

Water quality monitoring during dredging activities (13 November to 11 December 2009) recorded no exceedance of Action or Limit Levels for Bottom Dissolved Oxygen (DO). There were no exceedances of Limit levels for Depth-averaged Turbidity during the reporting period but on 18 November and 3 December, there were exceedances of Action Levels at four stations for Depth-averaged Turbidity. Exceedances of Depth-averaged DO were recorded on 13, 14, 15, 17, 21 and 23 November. Exceedances of Depth-averaged Suspended Solids were recorded on 15, 17, 18 and 19 November, and 3 and 5 December.

Following a review of data in accordance with the procedures specified in the *EM&A Manual*, all these exceedances were considered to be due to natural fluctuation rather than the Project Works.

Complaint Log

No environmental complaints were received during the reporting period.

Notifications of any Summons and Successful Prosecutions

No environmental summons or prosecutions were received in this reporting period.

Reporting Changes

There were no reporting changes in the reporting period.

Future Key Issues

- Dust release and suppression; and
- Backfilling of rock armour over the pipelines..

Leighton Contractors (Asia) Limited (LCAL) has appointed ERM-Hong Kong, Limited (ERM) as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the Permanent Aviation Fuel Facility (the Project) during construction works.

The construction works for PAFF commenced in November 2005 based upon the previous EIA (EIAO Register Number AEIAR-062-2002) conducted and the Environmental Permit EP-139/2002 granted on the 28 August 2002. Due to minor changes to the detailed layout of the site and the site boundary, application for Variation to the Environmental Permit (VEP) (VEP-133/2004) was submitted to the Director of Environmental Protection (DEP) for approval. The variation to the EP (EP-139/2002/A) was granted by EPD in February 2004.

The decision by EPD to grant the above Environmental Permit was, however, subject to a Judicial Review. The Judicial Review sided in the favour of the DEP, as did the subsequent Judgement from the Court of Appeal from the High Court for Judicial Review in March 2005. However, the DEP's decision to grant the EP was quashed by the Judgement of the Court of Final Appeal of July 2006.

The construction works were stopped following the Judgement of the Court of Final Appeal of July 2006. As such, in order to continue with the construction of the project, the project went through the statutory procedures under the EIAO again with a new design in order to obtain an environmental permit. The revised EIA was submitted in 2007 and the environmental permit (EP-262/2007) was granted in May 2007. *EP-262/2007* has been amended to *EP262/2007/A* and issued by the EPD on 30 November 2007. A further Variation to the Environmental Permit has been approved to allow dredging works to continue until March 2008. As such, *EP-262/2007/A* has been amended to *EP-262/2007/B* and issued by the EPD on 27 February 2008.

The construction works and EM&A requirements resumed on 9 July 2007 following the latest requirements of the *EP-262/2007* and *EM&A Manual*. Details regarding the EM&A requirements and changes should refer to the updated EM&A Manual. For the marine works, all piling activities were completed before the previous suspension of construction works in 2006.

1.1

PURPOSE OF THE REPORT

This is the **twelfth** quarterly EM&A Report which summarizes the monitoring results and audit findings for the EM&A programme during the reporting period from **1 October** to **31 December 2009**.

1.2 **KEY CONTACT INFORMATION**

Key contact information of the Project is presented in *Table 1.1*.

Table 1.1 *Contact Information*

| Name | Position | Telephone | Facsimile | E-mail |
|---|--|------------------|------------------|---------------------------------|
| Airport Authority Hong Kong – Environmental Permit Holder | | | | |
| Anthony Wong | Assistant General Manager Aviation Logistics | 2183 3099 | 2824 2786 | anthony.wong@hkairport.com |
| Contractor – Leighton (Asia) Construction Limited | | | | |
| Brian Gillon | Project Director | 2823 1111 | 2529 8784 | brian.gillon@leightonasia.com |
| Boyd Merrett | Project Manager | 2404 8900 | 2404 0081 | boyd.merrett@leightonasia.com |
| Franchisee’s Site Representative – ECO Aviation Fuel Development Limited | | | | |
| Philip Siu | Franchisee’s Site Representative | 2963 2820 | 2563 6311 | philip.siu@towngas.com |
| Environmental Team – ERM-Hong Kong Limited | | | | |
| Craig Reid | Environmental Team Leader | 2271 3000 | 2723 5660 | craig.reid@erm.com |
| Independent Environmental Checker – Hyder Consulting Limited | | | | |
| Roger Leung | Independent Environmental Checker | 2911 2233 | 2805 5028 | roger.leung@hyderconsulting.com |

2 ENVIRONMENTAL STATUS

2.1 PROJECT AREA

The project area is in Area 38 of Tuen Mun and the pipelines are located at Urmston Road between Tuen Mun Area 38 and Sha Chau. The site is illustrated in *Annex A*.

2.2 ENVIRONMENTAL SENSITIVE RECEIVERS

No air and noise sensitive receivers were identified close to the project area. However, water sensitive receivers and ecological sensitive receivers were identified in the EIA study, and are shown in *Annex B*.

2.3 MAJOR CONSTRUCTION ACTIVITIES

A summary of the major works undertaken in this reporting period is shown in *Table 2.1*. Initial marine dredging operations were completed on 23 January 2009. Due to pipeline repairs, dredging works were resumed on 13 November 2009 and completed on 11 December 2009. *Table 2.2* presents the cumulative quantity of excavated materials during marine dredging operations. Daily and cumulative dredging production rates between September 2008 and December 2009 are illustrated in *Figure 2.1*.

Table 2.1 Summary of Works Undertaken During the Reporting Period

| Area | Works undertaken |
|--------------------------|--|
| Tuen Mun Area 38 | <ul style="list-style-type: none">• Tank Farm, Roof Truss and Bund Wall Construction• Permanent Drainage Construction• Operational & Fire Services Buildings Construction• Jetty Works (Non-piling)• Pre-Commission and Commissioning Activities for Phase 1a (the first four tanks) |
| Submarine Pipeline Route | <ul style="list-style-type: none">• Riser connections at seawall and Sha Chau• Backfilling and placing of rock armour over the pipelines• Dredging operations |

Table 2.2 Cumulative Quantity of Excavated Materials

| Type of Excavated Materials | Period Bulk Volume (m ³) | Cumulative Bulk Volume (m ³) |
|---|--------------------------------------|--|
| <i>From 17 December 2007 to 31 March 2008</i> | | |
| Contaminated Mud | 71,564 | 71,564 |
| Uncontaminated Mud | 123,953 | 123,953 |
| <i>From 1 September 2008 to 23 January 2009</i> | | |
| Contaminated Mud | 0 | 71,564 |

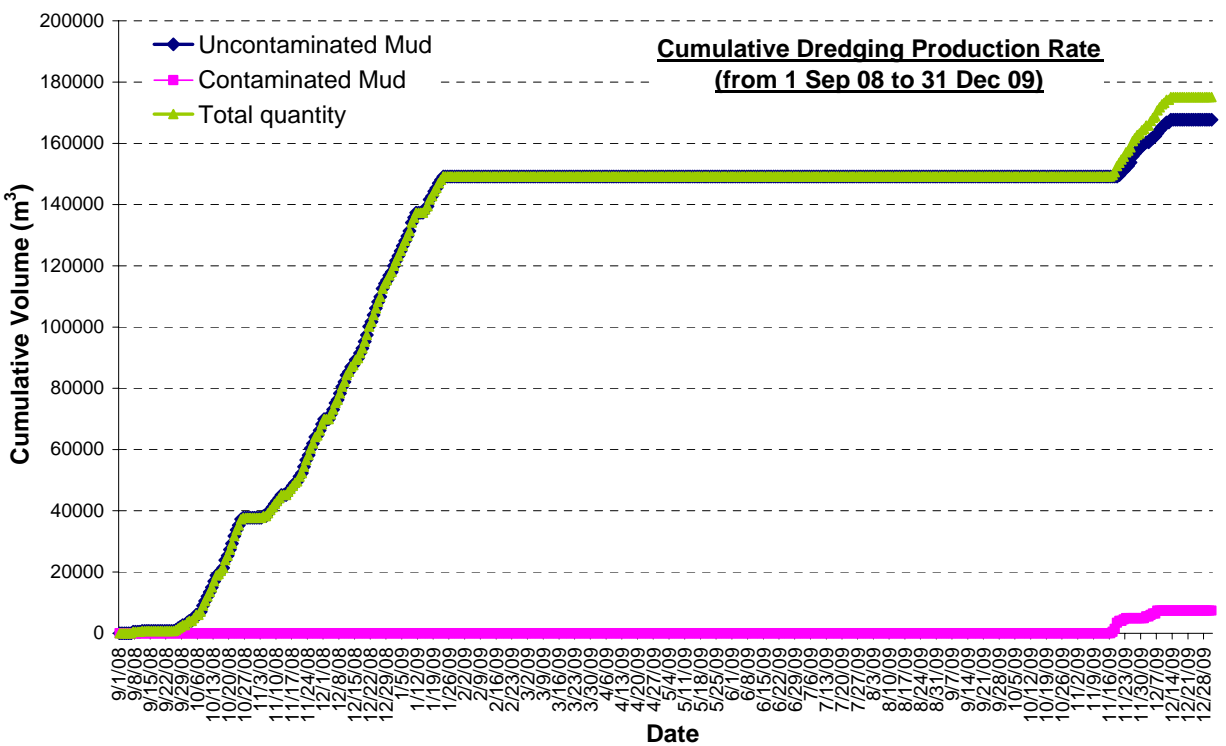
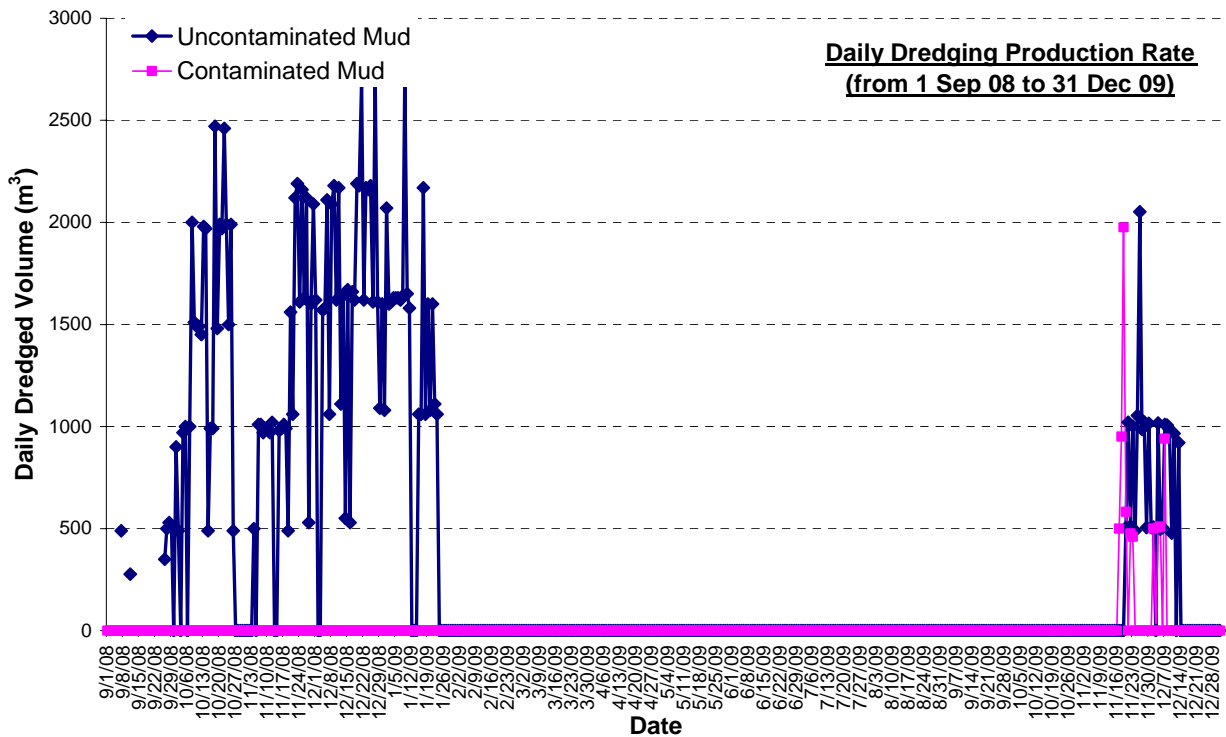


Figure 2.1 Daily and cumulative volumes (m³) of excavated materials (both contaminated and uncontaminated mud) from 1 September 2008 to 31 December 2009.



| Type of Excavated Materials | Period Bulk Volume (m ³) | Cumulative Bulk Volume (m ³) |
|--|--------------------------------------|--|
| Uncontaminated Mud | 149,147 | 273,100 |
| <i>From 13 November 2009 to 11 December 2009</i> | | |
| Contaminated Mud | 7,399 | 78,963 |
| Uncontaminated Mud | 18,561 | 291,661 |

2.4 MONITORING SCHEDULE OF THE REPORTING PERIOD

Daily water quality monitoring was carried out during dredging activities during the reporting period from 13 November 2009 to 11 December 2009. The water quality monitoring schedule for November and December 2009 is presented in *Annex C*.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since July 2007 is presented in *Table 2.3*.

Table 2.3 Summary of Environmental Licensing, Notification and Permit Status

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|---|---------------------------------|--------------------|--|
| Environmental Permit | <i>EP-262/2007/B</i> | Throughout Project | Issued on 27 February 2008 (<i>EP-262/2007/A</i> on 30 November 2007, <i>EP-262/2007</i> issued on 31 May 2007, <i>EP-139/2002</i> originally granted on 28 August 2002 and <i>EP-139/2002/A</i> granted on 24 February 2004 were superseded) |
| Chemical Waste Producer Registration | <i>WPN 5111-421-L2174-25</i> | Throughout Project | Issued on 10 November 2005 |
| Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation | <i>H2104/UI1D/5542/DC/DH/PL</i> | Throughout Project | Notification on 6 July 2007 |

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|---|------------------|--------------------------------------|--|
| Construction Noise Permit | GW-RW0676-07 | 21 December 2007 to 19 June 2008 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans and generators |
| | GW-RW0677-07 | 21 December 2007 to 29 February 2008 | For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan |
| | GW-RW0678-07 | 21 December 2007 to 18 June 2008 | For marine jetty works including concrete pump derrick barges, hand-held grinders, generators, air compressors, boring machines, water pumps, tug boat, grout mixers and grout pumps |
| | GW-RW0094-08 | 1 March to 31 March 2008 | For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan |
| | GW-RW0312-08 | 04 July 2008 to 22 December 2008 | For marine jetty works including concrete pump derrick barges, hand-held grinders, generators, air compressors, boring machines, water pumps, tug boat, grout mixers and grout pumps |
| | GW-RW0313-08 | 04 July 2008 to 19 December 2008 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans and generators |

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|-----------------------------------|--------------|--------------------------------------|--|
| | GW-RW0373-08 | 1 August 2008 to 20 January 2009 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans, generators, stirrer, jet chisel, water jet machine and dehumidifier |
| | GW-RW0368-08 | 1 September to 30 November 2008 | For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan |
| | GW-RW0054-09 | 16 February 2009 to 5 August 2009 | For land-based and marine works including passenger launch, winch, welding machine, grinder, generator, power pack, tug boat, crane, air compressor, roller, hoist and derrick barge |
| | GW-RW0261-09 | 3 July 2009 to 3 November 2009 | For land-based and marine works including derrick barge, grinder, crane, tug boat, drill, welding machine, hopper barge, motor sampan, air compressor |
| | GW-RW0299-09 | 21 July 2009 to 20 January 2010 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans, generators, stirrer, jet chisel, water jet machine and dehumidifier etc |

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|-----------------------------------|--------------------|--|--|
| | GW-RW0459-09 | 26 October 2009 to 28 February 2010 | For marine dredging operation including air compressors, derrick barge, tug boat, mobile crane, hand-held grinder, generator, hand-held drill, winch, welding machine, motor sampan, grab dredger hopper barge etc |
| Marine Dumping Permit | EP/MD/08-064 | 13 December 2007 to 29 February 2008 | For Type 1 – Open Sea Disposal |
| | EP/MD/08-065 | 13 December 2007 to 12 January 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/08-071 | 13 January 2008 to 12 February 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/08-090 | 3 March to 31 March 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/08-091 | 3 March to 31 March 2008 | For Type 1 – Open Sea Disposal |
| | EP/MD/09-018 | 1 September to 30 September 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/09-032 | 1 October to 31 October 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/09-017 | 1 September to 30 November 2008 | For Type 1 – Open Sea Disposal |
| | EP/MD/09-039 | 1 December 2008 to 31 January 2009 | For Type 1 – Open Sea Disposal |
| | EP/MD/10-041 | 11 November 2009 to 31 December 2009 | For Type 1 – Open Sea Disposal |
| | EP/MD/10-042 | 11 November 2009 to 10 December 2009 | For Type 1 – Open Sea Disposal (Dedicated Site) & Type 2 – Confined Marine Disposal |
| Wastewater Discharge License | EP760/421/011399/1 | 15 March 2006 to 31 March 2011 | Issued on 15 March 2006 |

2.6

COMMUNITY LIAISON GROUP MEETING

According to the EP requirements, a Community Liaison Group (CLG) was established within three months after commencement of construction of the Project. The major duty of the CLG is to advise on and monitor the proper design, construction and operation of the Project. The CLG comprises representatives from Airport Authority, members of Tuen Mun community and academics. Whereas previously the CLG would meet quarterly,

following their last meeting on 13 September 2009, it was agreed to meet every six months. Therefore, during the reporting period, no meetings were organised by the CLG. Details of the CLG (including Membership and its Terms of Reference) and the meeting minutes can be found on the Project website (<http://www.paffhk.com>).

2.7 SUMMARY OF NON-COMPLIANCE WITH THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

Water quality monitoring during dredging activities (13 November to 11 December 2009) recorded no exceedance of Action or Limit Levels for Bottom Dissolved Oxygen (DO). There were no exceedances of Limit levels for Depth-averaged Turbidity during the reporting period but on 18 November and 3 December, there were exceedances of Action Levels at four stations for Depth-averaged Turbidity. Exceedances of Depth-averaged DO were recorded on 13, 14, 15, 17, 21 and 23 November. Exceedances of Depth-averaged Suspended Solids were recorded on 15, 17, 18 and 19 November, and 3 and 5 December.

A summary of the exceedances occurring during the reporting period is shown in *Table 2.4* and a description of the actions taken following these non-compliances is detailed in *Section 3.2*.

Table 2.4 *Summary of Exceedances of Action and Limit Levels Recorded during the Reporting Period*

| Date | Parameter | Monitoring Stations | |
|-------------|----------------------------|---------------------|---|
| | | Mid-Ebb Tide | Mid-Flood Tide |
| 13 Nov 2009 | DO (Depth-averaged) | | IMO1*, IMO3*, IMO4* |
| | SS (Depth-averaged) | | IMO4* |
| 14 Nov 2009 | DO (Depth-averaged) | IMO1, MPB1, MPB2 | IMO1, IMO2, IMO3, IMO4, MPB1*, MPB2*, MP* |
| 15 Nov 2009 | DO (Depth-averaged) | MPB1, MPB2, MP | IMO1*, IMO2, IMO3, IMO4, MPB2 |
| | SS (Depth-averaged) | MP | IMO2*, IMO3, IMO4* |
| 17 Nov 2009 | DO (Depth-averaged) | MPB1 | IMO1*, IMO2*, MP |
| | SS (Depth-averaged) | MPB1*, MPB2, MP* | IMO1*, MPB1*, MPB2*, MP* |
| 18 Nov 2009 | Turbidity (Depth-averaged) | IMO5*, MPB2* | IMO5*, MPB2* |
| | SS (Depth-averaged) | MPB1*, MPB2 | MPB1* |
| 19 Nov 2009 | SS (Depth-averaged) | MPB2* | IMO1*, IMO6*, MPB2* |
| 21 Nov 2009 | DO (Depth-averaged) | IMO5*, IMO6* | IMO6 |
| | SS (Depth-averaged) | MPB1* | |
| 23 Nov 2009 | DO (Depth-averaged) | | IMO5* |
| 3 Dec 2009 | Turbidity (Depth-averaged) | | IMO5*, MPB1*, MPB2*, MP* |
| | SS (Depth-averaged) | MPB1 | IMO5, IMO6*, MPB1, MPB2, MP |
| 5 Dec 2009 | SS (Depth-averaged) | | IMO5, IMO6 |

*Note: Action Level but not Limit Level exceedance

2.8 *SUMMARY OF ENVIRONMENTAL COMPLAINTS*

No environmental complaint was received during the reporting period. A statistical summary of environmental complaints since project commencement is presented in *Annex D*.

2.9 *SUMMARY OF ENVIRONMENTAL SUMMONS*

No summons was received in this reporting period. A statistical summary of legal proceeding since project commencement is presented in *Annex D*.

3.1 PREVIOUS ENVIRONMENTAL DEFICIENCIES AND FOLLOW-UP ACTIONS

As no environmental complaints were received over the last reporting period, no follow-up action was required.

Weekly site inspections were carried out by the ET on 7, 14, 21 and 28 October, 6, 12, 19 and 26 November, and 2, 10, 18, 23 and 30 December 2009. Overall, the site was in good orderly manner and no non-compliances were found. Environmental deficiencies and follow-up actions/ mitigation measures were identified during the inspections and summarised in *Table 3.1*.

Table 3.1 *Environmental Deficiencies (Observations) from Site Inspections during Reporting Period*

| Reporting Month | Observation | Follow-up Action |
|-----------------|--|--|
| October 2009 | Much of the Tank Farm area was unpaved. | The Contractor was reminded to regularly water the unpaved areas to avoid dust generation. |
| | Black smoke was seen being emitted from a barge sitting offshore of the Jetty area. | The Contractor was advised to inspect or service the engine as soon as possible. |
| | The exposed slope surfaces at excavation site near the main entrance were not sufficiently covered. | The Contractor was reminded to cover exposed surfaces by tarpaulin or planting vegetation to avoid dust generation. |
| | Water was found leaking from Tank 11. | The Contractor was reminded to ensure the water drained adequately and was not left to accumulate in stagnant pools. |
| | A stagnant pool of water was observed underneath the dehumidifier leading into Tank 8, and the hose leading from the dripping pipe was not leading to a drain. | The Contractor was advised to fill in the stagnant water pool and to ensure the hose from the pipe led to a drain. |
| | Mosquito larvae were observed in the sediment tanks near the middle entrance (to Phase 1a). | The Contractor was advised to cover the sediment tanks as soon as possible. |
| | The sea water near the Jetty area was turbid, which might have been due to sediment disturbance from the propeller of the barge operating in the shallow area. | Since the operation was temporary and the disturbance was localised, no remedial action was advised. |

| Reporting Month | Observation | Follow-up Action |
|-----------------|---|--|
| | Water was observed in the bunding around the diesel tank and the generator respectively, in the workshop area. | The Contractor was advised to clear the water immediately. |
| | Cleaning of Tank 11 caused water to collect at its base. | The Contractor was advised to clear or backfill the water as soon as the cleaning was completed. |
| | The paper recycling bin near the main office area was starting to overflow. | The Contractor was advised to empty the bin and put the spare, new recycling bins out around the site. |
| | The labels on the drums in the chemical waste storage area were observed to be damaged or absent. | The Contractor was advised to renew the labels. |
| | Painting material without proper receptacles was found near the sediment tank near the middle entrance (to Phase 1a). | The Contractor was advised to clear this into the chemical waste storage area as soon as possible. |
| | Scattered pieces of debris were found around the Tank Farm and Jetty areas. | The Contractor was advised to collect all debris and dispose of it appropriately. |
| | Black plastic bags and hosepipes were found deposited in the chemical waster storage area by Tank 10. | The Contractor was advised to clear these to the appropriate place as soon as possible. |
| | No fire extinguisher was found next to the generator by Tank 10. | The Contractor was reminded to put a fire extinguisher next to the generator as soon as possible. |
| November 2009 | The air compressor near the Jetty area was found without a label or drip tray. The air compressor was evidently not yet in operation. | The Contractor was advised to ensure the air compressor had the correct label and a drip tray before starting operation. |
| | The CNP permit showing at the main site entrance showed an expiry date of 3 November 2009. | The Contractor was advised to put up the new permit that had been obtained. |
| | The sediment tanks near the middle entrance (to Phase 1a) were left uncovered and a possible breeding ground for mosquitoes. | The Contractor was advised to cover the sediment tanks as soon as possible. |
| | A pipe connection on the path leading from the main to the middle entrance was found to be leaking. | The Contractor was asked to fix the connection as soon as possible. |

| Reporting Month | Observation | Follow-up Action |
|-----------------|--|---|
| | Water was observed in the bunding around the generator in the Workshop area and in the drip tray of the diesel drum near the Workshop area. | The Contractor was advised to clear this water immediately. |
| | A thin oil film was observed on the seawater by the jetty. Water coming out of the drainage system appeared clean and it was concluded that the oil film was probably not resulting from the PAFF site. | No action necessary. |
| | Dirty water was found behind the painting area by Tank 8. | The Contractor was advised to clear the water as soon as possible. |
| | Scattered pieces of debris were found around the Tank Farm areas, a stockpile of debris and construction waste were found just inside the middle entrance to the site, and wire debris was found behind a lorry by Tank 10. Black plastic bags and hosepipes were also found deposited in the chemical waster storage area by Tank 10. | The Contractor was advised to collect all debris and dispose of it appropriately. |
| | A temporary paint area had been set up by Tank 8. | The Contractor was advised to check the set-up of the paint area near Tank 8 to ensure it was safe and there was no contamination of the surrounding area. They were also advised to ensure that all empty paint cans were stored in the chemical waste facility. |
| | The dredging barge was inspected and there were insufficient waste receptacles. | The Contractor was advised to ensure that rubbish bins were provided on all levels of the barge, and that they were of adequate capacity. |
| | Oil was identified in the drip tray around the generator aboard the grab dredger and there was an open plastic bucket of oil near the generator. | The Contractor was advised to clear the drip tray immediately and cover the plastic bucket. |
| | The electric hazard label on the generator aboard the grab dredger was illegible. | The Contractor was advised to arrange for a new sign to be put in place. |

| Reporting Month | Observation | Follow-up Action |
|-----------------|--|--|
| December 2009 | A sediment plume was observed in the run-off drainage near the Jetty area. | The Contractor was advised to settle the run-off via a sediment tank before being discharged. |
| | Water was observed in the drip tray of the diesel drum outside the workshop area and in the air compressor by Tank 11. | The Contractor was advised to clear all this water as soon as practicable. |
| | The bunding round the generator in the workshop area was found to have a pipe leaking water from inside to outside. | The Contractor was advised to bung the pipe as soon as possible. |
| | The drainage system was not in operation as the sediment tanks had been removed due to the construction works. | The Contractor was advised to reinstate the sediment tanks and restore the drainage system as soon as possible as there had been some rain recently and there was some surplus water onsite. |
| | General refuse had accumulated without receptacles in the tank farm area and debris in black plastic bags was found near the Jetty Area. | The Contractor was advised to remove and store all refuse in proper containers and to place black plastic bags of debris in a skip or remove them as soon as possible. |
| | Empty paint cans were found in the chemical waste storage area. Drums with no labels and no drip trays were also found near the office block. | The Contractor was advised to place the empty paint cans in black plastic bags and label them appropriately and to label the drums and place them in drip trays. |
| | The painting subcontractor's chemical waste disposal trip tickets for disposal of their empty paint cans were not available for inspection. | The Contractor was advised to follow this up with the subcontractor as soon as possible to make them available. |
| | The chemical waste storage by Tank 8 and by the offices was found to be full, some waste was observed outside the storage facility and a dead rat was also found under the black plastic bags. | The Contractor was advised to clear the waste to a designated chemical waste area as soon as possible, and then get the waste cleared by a licensed collector immediately. |
| | Some oil stains were found on the floor inside the bunded area of the machinery on the grab dredger. | The Contractor was advised to clear the oil as soon as possible. |
| | Two oil drums were found on the grab dredger without drip trays. | The Contractor was advised to put the drums inside a trip tray as soon as possible. |

| Reporting Month | Observation | Follow-up Action |
|-----------------|---|---|
| | Waste receptacles on the grab dredger were found to be of inadequate capacity. | The Contractor was advised to provide larger waste receptacles as soon as possible. |
| | A leaking diesel pump was found on the grab dredger, with a plastic bucket below it to catch the drips. | The Contractor was advised to get the pump fixed as soon as possible. |
| | A small amount of soil was observed outside the vehicle entrance on the site access road. | The Contractor was advised to clean it as soon as possible and to implement wheel-wash procedures properly. |
| | A water pipe connection and another hosepipe behind Tank 11 were found to be leaking and producing stagnant pools of water. | The Contractor was asked to fix the leaking water and clear/fill the stagnant water as soon as possible. |

The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

3.2

DESCRIPTION OF ACTIONS TAKEN IN EVENT OF NON-COMPLIANCE AND DEFICIENCY REPORTING

Water quality monitoring during dredging activities (13 November to 11 December 2009) recorded no exceedance of Action or Limit Levels for Bottom Dissolved Oxygen (DO). There were no exceedances of Limit levels for Depth-averaged Turbidity during the reporting period but on 18 November and 3 December, there were exceedances of Action Levels at four stations for Depth-averaged Turbidity. Exceedances of Depth-averaged DO were recorded on 13, 14, 15, 17, 21 and 23 November. Exceedances of Depth-averaged Suspended Solids were recorded on 15, 17, 18 and 19 November and 3 and 5 December.

A summary of the exceedances recorded during the reporting period is shown in *Table 2.4 of Section 2.7* and graphical representations of the results are presented in *Annex F*. Descriptions of the actions taken following identification of non-compliance are discussed below.

Although dredging operations were undertaken during the reporting period, on examination of the results, it was concluded that all the exceedances described above were unlikely to be caused by the Project for the following reasons:

- Not all parameters showed the same trend of exceedance results at the same stations at the same tide (eg on 3 December there were exceedances of Depth-averaged Turbidity and Suspended Solids at various stations, but there were no exceedances of Bottom or Depth-averaged DO at any station throughout the day).

- Exceedances were found at monitoring stations upstream and downstream of dredging vessels that were not in operation (e.g. exceedance of Action Level of depth-averaged DO on 13 November 2009 at IMO3 and IMO4). The values were comparable to exceedances found at stations upstream and downstream of operational dredging vessels on the same day (eg exceedance of Action Level of depth-averaged DO on 13 November 2009 at IMO1).
- There have been incidents in the past in this area where exceedances have occurred despite the dredger not being in operation (eg 10 Feb 2008, exceedance in SS despite no dredging work; 17 and 22 Dec 2007, 4 and 5 Jan 2008, 6 and 10 Feb 2008, exceedances in Turbidity despite no dredging work).

Although the measured levels of Suspended Solids were particularly high at MPB1 on 3 December 2009, MPB1 station was located far away from the dredging operation at the time. As mentioned previously, there have also been incidents in the past in this area where exceedances have occurred despite the dredger not being in operation, it was concluded that the exceedances were unlikely to be due to the project works.

As per the requirements of the *EM&A Manual*, incidents were notified to the Franchisee's Site Representative, the Contractor and the Independent Environmental Checker upon identification of an exceedance.

3.3

IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The implementation status of environmental mitigation measures and requirements as stated in the *EIA Report*, *Environmental Permits* and *EM&A Manual* during the reporting period is summarized in *Annex E*.

4 ENVIRONMENTAL MONITORING

4.1 AIR AND NOISE

Air and Noise monitoring is not required for the project.

4.2 WATER QUALITY

In accordance to the *EM&A Manual*, water quality monitoring was carried out during dredging activities, which commenced on 13 November 2009 and were completed on 11 December 2009. QA/QC reports for Suspended Solids testing and monitoring results have been presented in 37th and 38th *Monthly EM&A Reports*. Graphical presentations of the monitored parameter during the reporting period are included in *Annex F*.

Results of the monitoring demonstrated that all measured Bottom Dissolved Oxygen (DO) levels were compliant with the Action and Limit Levels specified in the *EM&A Manual*. Concentrations of Depth-averaged Turbidity were also all compliant with Limit levels but exceeded Action Levels on two days, 18 November and 3 December, at four stations. Exceedances of Depth-averaged DO were recorded on 13, 14, 15, 17, 21 and 23 November. Exceedances of Depth-averaged Suspended Solids were recorded on 15, 17, 18 and 19 November and 3 and 5 December. A review of the above exceedances concluded that they were not attributable to the Project works and were likely due to natural variation (see *Section 3.2* for further details).

4.3 POPs MONITORING

Biweekly monitoring of water samples was conducted for Persistent Organic Pollutants (POPs) analysis and during the reporting period on 25 November and 8 December. Total PCBs, PAHs and DDTs were all below detection limits. Monitoring results and QA/QC reports for POPs testing have been presented in 37th and 38th *Monthly EM&A Reports*.

4.4 WASTE MANAGEMENT

According to EP *Condition 3.3*, the Contractor's revised Waste Management Plan (Revision 5) (WMP), which has been certified by the ET and IEC, was submitted to the EPD on 5 November 2008.

4.5 CULTURAL HERITAGE

The *Watching Brief Report*, verified by the Independent Environmental Checker, was submitted to the EPD and AMO on 9 May 2008.

4.6 *LANDSCAPE AND VISUAL*

According to the EIA report and EM&A Manual, mitigation measures and site inspection are required during the landscaping/ planting works. The berm/landscaping bund was habilitated by vegetation which has grown during the project suspension period.

The weekly site inspections included general audits on landscape and visual issues to ensure that the site was in orderly and acceptable manner.

4.7 *LAND CONTAMINATION, HAZARD TO LIFE AND FUEL SPILL RISK*

The ET and IEC verified updated design audit plan which was submitted to the EPD on 7 November 2007.

Weekly site inspections covered the waste management aspects which included measures to prevent land contamination by chemical wastes.

4.8 *ECOLOGY*

Dolphin Visual Monitoring

In accordance to *EM&A Manual*, dolphin monitoring was undertaken during dredging activities from 13 November 2009 to 11 December 2009.

During the reporting period, a total of eight dolphin sightings were recorded. Four sightings were recorded outside the exclusion zone while four sightings were recorded within the zone. Five sightings occurred during dredging, but only one occurred of these occurred within the exclusion zone. No action was considered necessary should dolphins are sighted within the zone during dredging according to the *EM&A Manual*. The sighting locations and field records are presented in *Annex G*.

4.9 *EM&A MANUAL*

The *EM&A Manual* for the Project has been updated by the ET to include the detailed arrangements of setting up a Community Liaison Group, carrying out design audit, and monitoring of Persistent Organic Pollutants (POPs) during construction of the Project. The revised *EM&A Manual*, which has been verified by the IEC, was submitted to the EPD on 1 April 2009.

4.10 *BASELINE WATER QUALITY MONITORING*

The *Final Baseline Monitoring Report* was submitted to the EPD on 20 February 2008 and placed under the EIAO register.

5 *FUTURE KEY ISSUES AND CONCLUSION*

5.1 *KEY ISSUES FOR THE NEXT REPORTING PERIOD*

Key issues to be considered in the next reporting period will be:

- dust release and suppression; and
- backfilling of rock armour over pipelines.

5.2 *IMPACT PREDICTION FOR THE NEXT REPORTING PERIOD*

Provided that environmental mitigation measures including good on-site practises are properly implemented, no unacceptable adverse environmental impacts are expected.

5.3 *WORKS AND MONITORING SCHEDULE FOR THE NEXT REPORTING PERIOD*

Work programme for the next reporting period includes:

- backfilling and placing of rock armour works;
- riser connections at Sha Chau;
- jetty platform works (non-piling);
- site works (construction works for tank farm drainages, bund wall, security wall, emergency vehicle access road etc); and,
- commissioning activities for Phase 1a (the first four tanks).

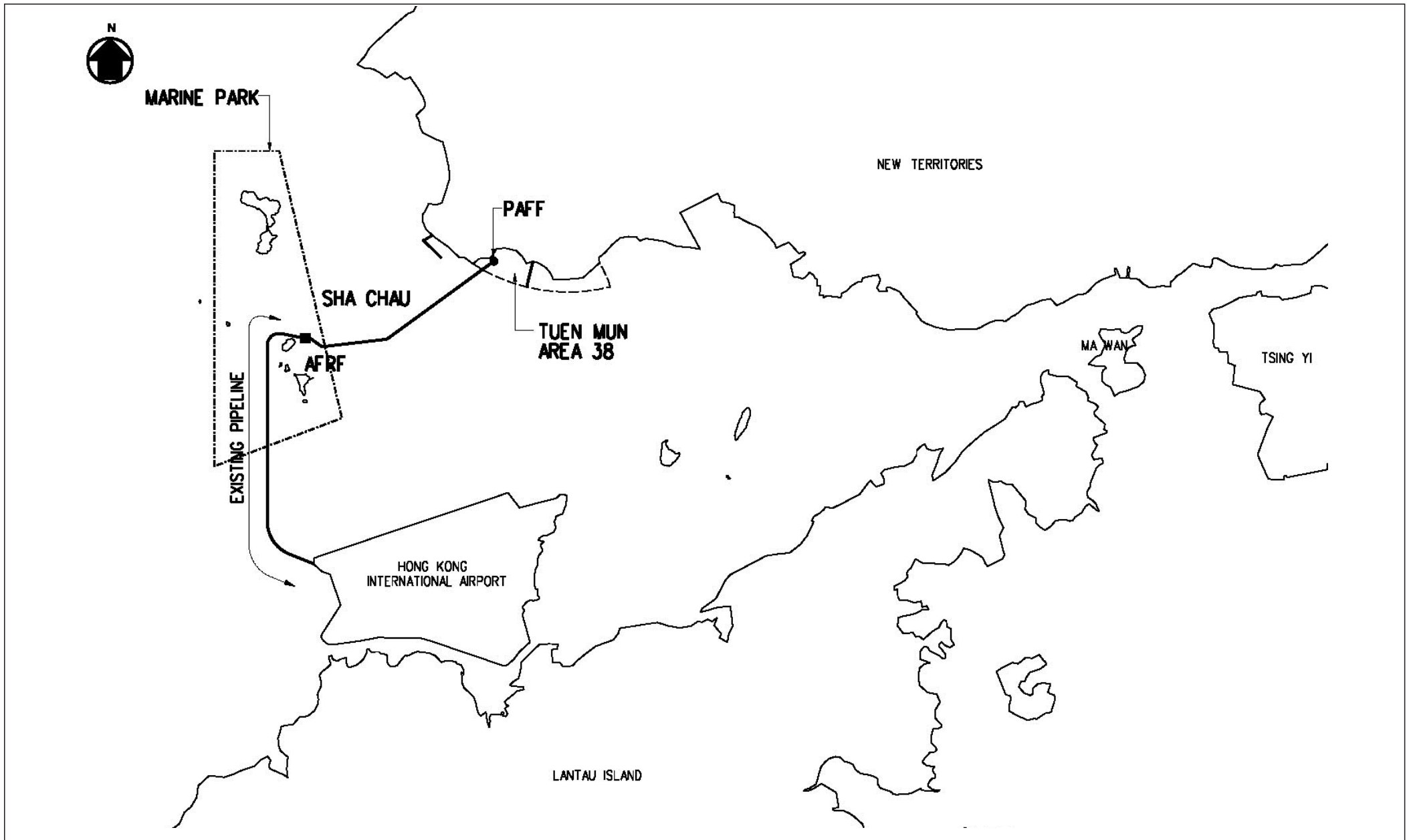
Weekly site inspections will be undertaken in accordance with the *EM&A Manual*.

5.4 *CONCLUSION*

The EM&A works were conducted throughout the construction period and the relevant monitoring was conducted in accordance with the EP's requirements. Mitigation measures were used to minimise the environmental impacts, where appropriate. Some environmental deficiencies were observed during the site inspections and the Contractor implemented corrective action to mitigate the issues. Overall, the site was in an orderly manner.

Annex A

Project Location



Annex A

Location of PAFF

FILE: 0018105bb1
DATE: 12/11/2007






Environmental
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Management



Annex B

Water Quality and Ecological Sensitive Receivers

KEY

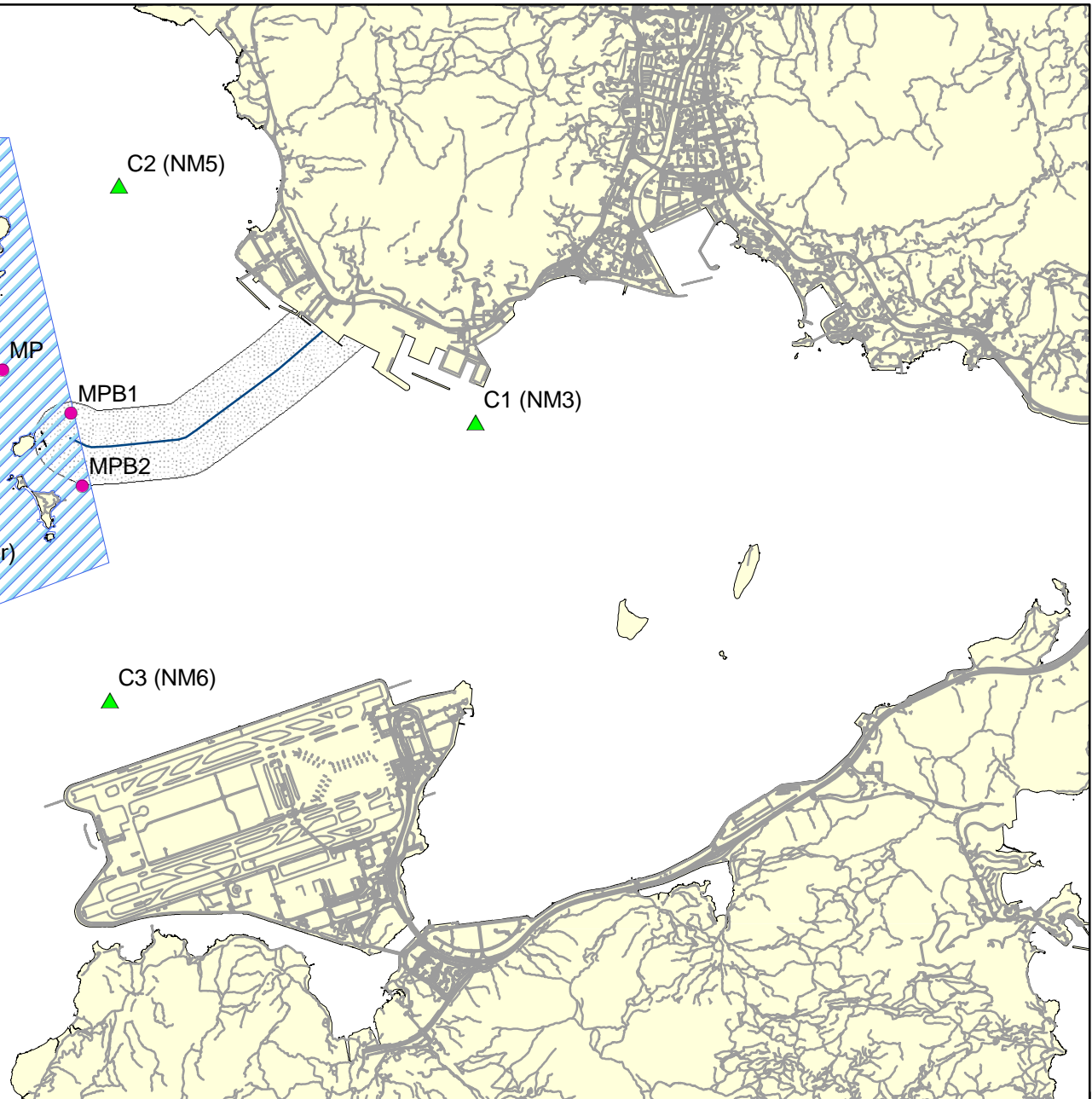
-  Control Stations
-  Impact Stations
-  Marine Park
-  Proposed Pipeline
-  Potential IMO1 & IMO2 Monitoring Zone

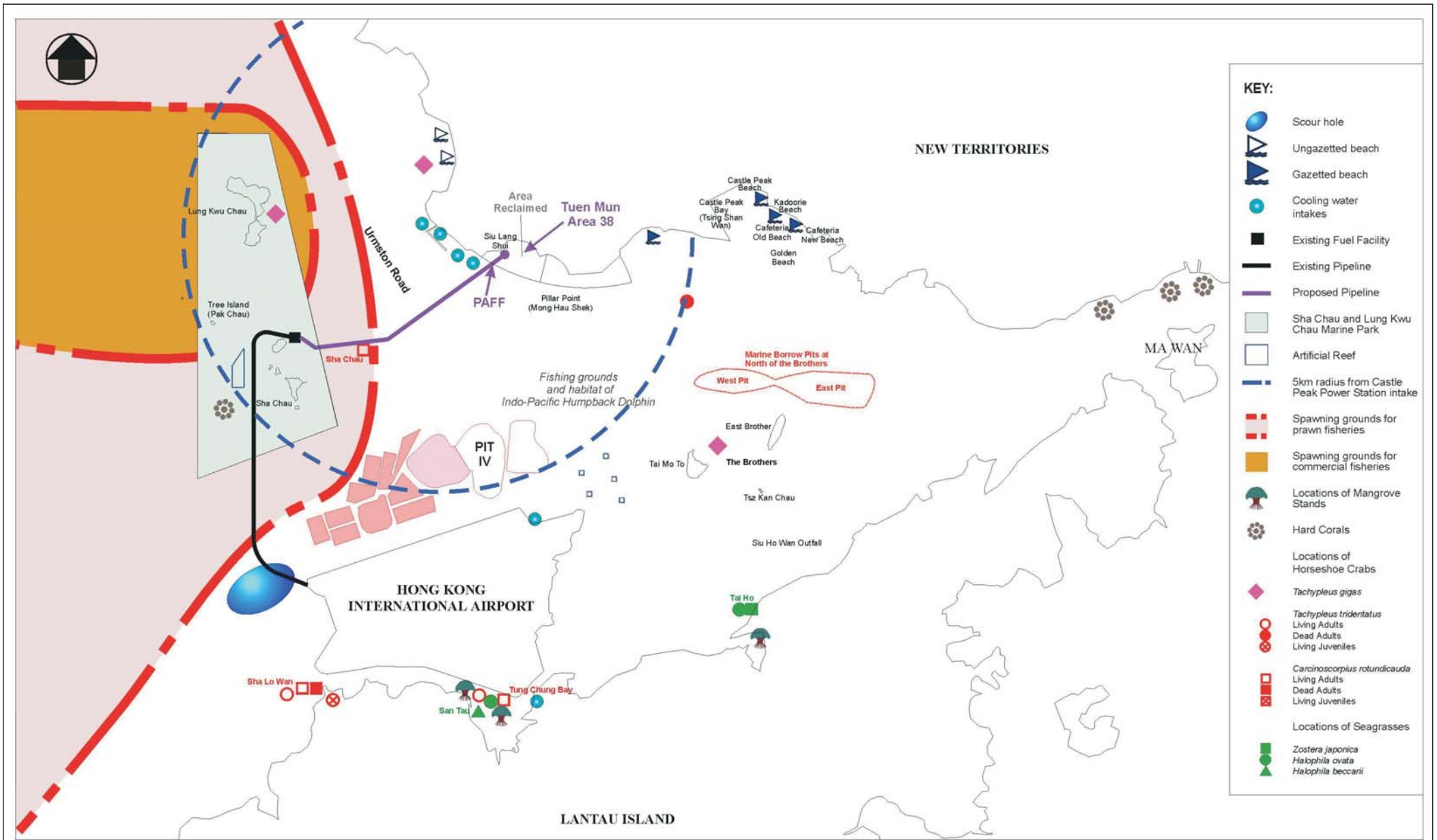
Marine Park
(Water Sensitive Receiver)

C2 (NM5)

C1 (NM3)

C3 (NM6)





Annex B

Water Quality and Ecological Sensitive Receivers

FILE: C2475aa
DATE: 12/11/2007

(Source : PAFF for Hong Kong International Airport EIA, Mouchel 2002)

Environmental
Resources
Management



Annex C

Water Quality Monitoring Schedule for the Reporting Period

Impact Water Quality Monitoring Schedule for November 2009

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------------------------------|----------------------------------|---------------------------------|--|---------------------------------|----------------------------------|----------------------------------|
| 1-Nov | 2-Nov | 3-Nov | 4-Nov | 5-Nov | 6-Nov | 7-Nov |
| | | | | | | |
| 8-Nov | 9-Nov | 10-Nov | 11-Nov | 12-Nov | 13-Nov | 14-Nov |
| | | | | | Mid-Ebb 10:08 Mid-Flood 16:24 | Mid-Ebb 11:00 Mid-Flood 16:54 |
| 15-Nov | 16-Nov | 17-Nov | 18-Nov | 19-Nov | 20-Nov | 21-Nov |
| Mid-Ebb 11:49 Mid-Flood 17:24 | Mid-Flood 7:03 Mid-Ebb 12:34 | Mid-Flood 7:52 Mid-Ebb 13:14 | Mid-Flood 8:38 Mid-Ebb 13:52 | Mid-Flood 9:21 Mid-Ebb 14:28 | Mid-Flood 10:04 Mid-Ebb 15:02 | Mid-Flood 10:48 Mid-Ebb 15:33 |
| 22-Nov | 23-Nov | 24-Nov | 25-Nov | 26-Nov | 27-Nov | 28-Nov |
| Mid-Flood 11:36 Mid-Ebb 15:57 | Mid-Ebb 4:28 Mid-Flood 16:48 | Mid-Ebb 5:09 Mid-Flood 17:33 | Mid-Ebb 5:55 Mid-Flood 14:19 (POP SAMPLING) | Mid-Ebb 6:55 Mid-Flood 14:48 | Mid-Ebb 8:10 Mid-Flood 15:16 | Mid-Ebb 9:16 Mid-Flood 15:42 |
| 29-Nov | 30-Nov | | | | | |
| Mid-Ebb 10:16 Mid-Flood 16:11 | Mid-Ebb 11:07 Mid-Flood 16:42 | | | | | |

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