

**Table J1** *Cumulative Statistics on Exceedances*

<b>Monitoring Parameters</b>	<b>Action/Limit Level</b>	<b>Total No. recorded in this reporting quarter</b>	<b>Total No. recorded since project commencement</b>
1-Hr TSP	Action	0	26
	Limit	0	2
24-Hr TSP	Action	0	5
	Limit	0	1
Water Quality	Action	0	6
	Limit	0	1
Impact Dolphin Monitoring	Action	2	5
	Limit	0	0

**Table J2** *Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions*

<b>Reporting Period</b>	<b>Cumulative Statistics</b>		
	<b>Complaints</b>	<b>Notifications of Summons</b>	<b>Successful Prosecutions</b>
This Reporting Period (Jun 2014 to Aug 2014)	0	0	0
Total No. received since project commencement	1	0	0

Email  
message

Environmental  
Resources  
Management

*To* ENVIRON - Hong Kong, Limited (ENPO)

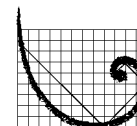
*From* ERM- Hong Kong, Limited

*Ref/Project number* Contract No. HY/2012/08 Tuen Mun-Chek Lap  
Kok Link-Northern Connection Sub-sea Tunnel  
Section

*Subject* Notification of Exceedance for Impact Dolphin  
Monitoring

*Date* 6 November 2014

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25 Westlands Road  
Quarry Bay, Hong Kong  
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Facsimile: (852) 2723 5660  
E-mail: jovy.tam@erm.com



**ERM**

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Dear Sir or Madam,

Please find attached the Notification of Exceedance (NOE) of the following  
Log no.:

0212330\_Jun2014/Aug2014\_dolphin\_STG&ANI\_NEL  
0212330\_Jun2014/Aug2014\_dolphin\_STG&ANI\_NWL

A total of two action level exceedances were recorded in the quarterly impact  
dolphin monitoring data between June 2014 and August 2014.

Regards,

A handwritten signature in black ink, appearing to be 'Jovy Tam', written in a cursive style.

Mr Jovy Tam  
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08

TUEN MUN – CHEK LAP KOK LINK –  
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Impact Dolphin Monitoring  
Notification of Exceedance

Log No.	0212330_Jun2014/Aug2014_dolphin_STG&ANI_NEL 0212330_Jun2014/Aug2014_dolphin_STG&ANI_NWL [Total No. of Exceedances = 2]	
Date	June 2014 to August 2014 (monitored) 27 October 2014 (results received by ERM)	
Monitoring Area	Northeast Lantau (NEL) and Northwest Lantau (NWL)	
Parameter(s) with Exceedance(s)	Quarterly encounter rate of dolphin sightings (STG) Quarterly encounter rate of total number of dolphins (ANI)	
Action Levels	North Lantau Social cluster	NEL: STG < 4.2 & ANI < 15.5 or NWL: STG < 6.9 & ANI < 31.3
Limit Levels		NEL: STG < 2.4 & ANI < 8.9 and NWL: STG < 3.9 & ANI < 17.9
Recorded Levels	NEL	STG = 0.4 & ANI = 1.7
	NWL	STG = 4.7 & ANI = 17.5
	Two Action Level Exceedances are recorded in the quarterly impact dolphin monitoring at NEL and NWL between June 2014 and August 2014. The exceedances were reported in the approved <i>Tenth Monthly EM&amp;A Report</i> dated 11 September 2014.	
Statistical Analyses	<p>Further to the review of the available and relevant dolphin monitoring data in the EM&amp;A under this Contract, statistical analyses were conducted as follows:</p> <ul style="list-style-type: none"> <li>A two-way ANOVA with repeated measures and unequal sample size was conducted using Period (2 levels: baseline vs impact – present quarter, June to August 2014) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and present impact monitoring quarter. By setting <math>\alpha = 0.1</math> as the significance level in the statistical tests, significant difference in STG (<math>p = 0.0199</math>) and in ANI (<math>p = 0.0597</math>) between Period were detected.</li> <li>A two-way ANOVA with repeated measures and unequal sample size was conducted using Cumulative Period (2 levels: baseline vs impact – cumulative quarters*, December 2012 to August 2014) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and cumulative impact monitoring quarters. By setting <math>\alpha = 0.1</math> as the significance level in the statistical tests, significant difference in STG (<math>p = 0.0037</math>) and in ANI (<math>p = 0.0013</math>) between Cumulative Period and Location were detected.</li> </ul> <p>*Note: The commencement date under <i>Contract No. HY/2012/08</i> is 1 November 2013.</p>	
Works Undertaken (in the monitoring quarter)	<p>In the quarter between June 2014 and August 2014, the major marine works under <i>Contract No. HY/2012/08</i> included:</p> <ul style="list-style-type: none"> <li>Dredging works at Portion N-C</li> <li>Vertical seawall and sloping seawall constructions at Portions N-B and N-C</li> <li>Reclamation Filling at Portions N-A and N-B</li> <li>Marine sheet piling for box culvert extension at Portion N-A</li> </ul>	

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedances are considered not caused by the Project, in view of the following:</p> <ul style="list-style-type: none"> <li>• The <i>Monitoring of Marine Mammals in Hong Kong Waters (2013 – 14)</i> <sup>(1)</sup> reported that dolphin usage and traveling activities to the northern side of the airport (dolphin traveling corridor) are affected by frequent high-speed ferry traffic from Sky Pier (not related to this project), which is likely a contributing factor for the decrease in dolphin abundances in NEL.</li> <li>• As per the findings from the EIA report (Section 8.11.9), the major influences on the CWD are marine traffics, dredging works and reclamation/filling works. The Contractor has implemented the marine traffic control as per the requirements in the EP-354/2009/B and the updated EM&amp;A Manual. Likewise, dredging works were undertaken within the working rate described in the EP and the approved EIA Report by a closed grab dredger with silt curtains being deployed throughout the dredging period. Filling works were undertaken within 200m leading seawall throughout the filling period and the working rate described in the EP and the approved EIA Report were strictly followed. After reviewing of the dredging and filling records, the dredging and filling rates in this quarter are below the maximum working rate described in the EP. During this quarter of dolphin monitoring, no adverse impact on CWD due to the activities under this Contract was observed.</li> <li>• According to the findings of the approved EIA report (Section 8.11.9), dredging and filling works are expected to increase the level of suspended solids (SS) in the vicinity waters of the project, which would lead to indirect loss of prey availability and increase in level of bioaccumulative contaminants in CWD. According to the findings in the quarterly water monitoring results between June and August 2014, the impact mean level of SS (Mid-ebb: 4.2 mg/L; Mid-flood: 4.1 mg/L) in this quarter is well below of the baseline mean level of SS (Mid-ebb: 10.0 mg/L; Mid-flood: 10.3 mg/L). This would imply that no unacceptable impact on SS levels was associated with the marine works under this Contract, and thus no indirect impacts on marine habitat quality due to change in water quality is observed in this Contract.</li> <li>• Seasonal variation in individual ranging pattern which has been well documented in the literatures <sup>(2) (3)</sup>.</li> </ul>
<b>Actions Taken/ To Be Taken</b>	<p>With reference to the site inspection records in this quarter, the respective marine ecological mitigation measures (including 250 m dolphin exclusion zone, passive acoustic monitoring, underwater acoustic decoupling plan and marine traffic control) have been implemented properly by the Contractor throughout the marine works period. No immediate additional action is considered necessary. The ET will monitor for future trends in exceedance(s).</p>
<b>Remarks</b>	<p>The results of impact water quality and impact dolphin monitoring, the status of implemented marine ecological mitigation measures are documented in the approved <i>Eighth to Tenth EM&amp;A Monthly Reports</i>.</p>

(1) Hung SKY (2014). Prepared for AFCD. Available from:

[http://www.afcd.gov.hk/english/conservation/con\\_mar/con\\_mar\\_chi/con\\_mar\\_chi\\_chi/con\\_mar\\_chi\\_chi.html](http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/con_mar_chi_chi.html)

(2) Jefferson & Hung (2010) A review of the status of the Indo-Pacific Humpback Dolphin (*Sousa chinensis*) in Chinese Waters. *Aquatic Mammals* (30): 149 – 158.

(3) Chen et al., (2010) Distribution, abundance, and individual movements of Indo-Pacific humpback dolphins (*Sousa chinensis*) in the Pearl River Estuary, China. *Mammalia* (74): 117 – 125.