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EXECUTIVE SUMMARY

The proposed “Yau Tong Bay – Decommissioning of Shipyard Sites” (hereinafter referred to as “the Project”) is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) Schedule 2 and is governed by the Environmental Permit No. EP-409/2010. The Project aims to demolish the past and existing shipyards and their building structures and marine structures and decontaminate identified contaminated spots.

The demolition works of the building structures on land commenced on 21 November 2011 and was completed in September 2012. According to the Project Proponent, the marine structures will not be demolished.

The impact Environmental Monitoring and Audit (hereinafter referred to as “EM&A”) programme for the Project commenced on 21 November 2011. The EM&A works was suspended from November 2012 for the captioned Project and the EM&A works has been resumed on 28 October 2013. The impact EM&A programme includes daytime construction noise and water quality monitoring, soil remediation works monitoring and auditing and site auditing. The remediation method statement was approved by the EPD on 20 December 2013. The soil remediation works commenced on 23 December 2013.

This report documents the findings of EM&A works conducted between 1 and 31 October 2014.

As informed by the Contractor, the major construction activities carried out in the reporting period were:

- Backfill to Zones T35C;and
- Disposal of contaminated soil in Zone T32E to the South East New Territories (SENT) Landfill.

A summary of monitoring and audit activities conducted in the reporting period is listed below:

Daytime noise monitoring	2 sessions
Water quality monitoring	0 session
Environmental site inspection	5 sessions

Breaches of Action and Limit Levels for Daytime Construction Noise

No Action Level exceedance was recorded since no construction noise related complaint was received in the reporting period. No Limit Level exceedance of construction noise was recorded in the reporting period.

Breaches of Action and Limit Levels for Water Quality

Water quality monitoring was not conducted in the reporting period as the demolition of marine structures has not yet commenced. No Action/Limit Level exceedance of water quality was recorded in the reporting period.

Environmental Complaint, Non-compliance, Notification of Summons and Successful Prosecution

No complaint, non-compliance, notification of summons and successful prosecution was received in the reporting period.

Reporting Change

There was no reporting change required in the reporting period.

Future Key Issues

Key issues to be considered in the coming month include:

- Proper storage and labeling of oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Proper maintenance of all drainage facilities and wheel washing facilities on site;
- Dust suppression from excavation activities and haul road traffic; and
- Tree protective measures for all retained trees.

行政摘要

「油塘灣-船廠拆卸工程」(以下簡稱「本工程項目」)是一項被臚列於環境影響評估條例(第 499 章)附表 2 中的指定工程項目並受到環境許可證編號 EP-409/2010 所管制。本工程項目的主要目的是要拆除位於油塘灣的舊有和現有的船廠及其建築物和海事結構，以及處理指定的已受污染點。

船廠陸上建築物的拆卸工程於二零一一年十一月二十一日展開，並於二零一二年九月完工。根據工程項目倡議人，海上結構將不會被拆除。

本工程項目的施工期間環境監察及審核計劃亦由二零一一年十一月二十一日開始。由二零一二年十一月起，本工程項目之施工期間環境監察與審核工作暫停，並於二零一三年十月二十八日恢復。施工期間環境監察與審核計劃包括：日間建築噪音監測，水質監測，已受污染泥復育工作的監察與審核及工地審核巡查。環保署在二零一三年十二月二十日批准了土地整治方法聲明。土壤修復工程於二零一三年十二月二十三日開始。

本報告記錄了於二零一四年十月一日至十月三十一日期間所進行的環境監察與審核工作。

根據承建商提供的資料，在上述的期間的主要建築活動為：

1. 在區域 T35C 的回填，以及
2. 在新界東南堆填區處置區域 T32E 的污染土壤。

在上述的期間有下列次數的監察及審核活動進行：

日間建築噪音監測	2 次
水質監測	0 次
環境巡查	5 次

違反監測標準

日間建築噪音

在上述的期間沒有收到有關建築噪音的投訴，所以噪音監測結果皆符合行動水平。在上述的期間的所有日間建築噪音監測結果皆符合極限水平。

水質

因為相關的海事結構拆除工程仍未開始，故沒有水質監測在上述的期間進行。因此，沒有違反水質行動水平和極限水平的記錄。

有關收到的環境的投訴，傳票及檢控

在上述的期間沒有收到有關環境的投訴，傳票及檢控。

報告修訂

本報告期間並沒有修訂報告。

預計要注意的事項

- 正確保存油類和化學品;
- 化學廢物和廢物管理;
- 正確保養所有排水設施和車輪清洗設施;
- 抑制從發掘活動和運輸道路交通的灰塵;和
- 對保留樹木的保護措施。

1 INTRODUCTION

1.1 Background

- 1.1.1. The Project Site of “Yau Tong Bay-Decommissioning of Shipyard Sites” (hereinafter referred to as “the Project”) is located along the shore of Yau Tong Bay (which is also known as Kwun Tong Tsai Wan) in East Kowloon within the Kwun Tong District and the Project Site together with its adjacent land is zoned Comprehensive Development area (“CDA”) on the Approved Cha Kwo Ling, Yau Tong, Lei Yue Mun Outline Zoning Plan (OZP) No. S/K15/19. It faces Victoria Harbour to the southwest and is bounded by the Eastern Harbour Crossing Ventilation Building to the west, Cha Kwo Ling Road to the north and east, and Ko Fai Road to the south. The site is also adjacent to the former Yau Tong Industrial Area, which is at present mainly occupied by obsolete industrial buildings.
- 1.1.2. The Project is a designated project and is governed by the Environmental Permit No. EP-409/2010 (hereinafter referred to as “the EP”).
- 1.1.3. Major works to be undertaken in the Project include:-
- Demolition of past and existing shipyard and building structures;
 - Demolition of marine structure of shipyards; and
 - Decontamination of identified contaminated spots.
- 1.1.4. For the decommissioning of past and existing shipyard lots, there is a total of 39 Marine Lots along the shore of Yau Tong Bay are under the control of the Project Proponent (Main Wealth Development Limited) and covered in this Project. These 39 lots (or the ‘concerned lots’) ,with a total area of over 1 hectare (ha), as listed below and highlighted in **Figure 1**, are hereinafter referred to as the ‘Project Site’. The land uses for the Project Site were industrial and various including shipyards, timber yards, sawmills and concrete batching plants.
- YTML No. 1
 - YTMLs No. 5-14
 - YTML No. 15
 - YTMLs No. 19-24
 - YTMLs No. 27-38
 - YTMLs No. 41-46
 - YTML No. 54
- 1.1.5. Main Wealth Development Limited (the Project Proponent) has commissioned AECOM Asia Company Limited as the Engineer of the Project and Kin Wing Construction Co., Ltd was commissioned as the Decontamination Contractor of the Project (hereafter referred to as “the Contractor”).
- 1.1.6. AECOM Asia Company Limited was appointed to undertake the Environmental Team (hereafter referred to as “ET”) services for implementation of all the Environmental Monitoring and Audit (hereafter referred to as “EM&A”) works under the Project. Mott MacDonald Hong Kong Limited and Nature & Technologies (HK) Limited act as the Independent Environmental Checker (hereafter referred to as “IEC”) and Independent Environmental Auditor (hereafter referred to as “IEA”) for the Project respectively.
- 1.1.7. According to the updated programme, the demolition works of the Project commenced on 21 November 2011. Hoarding and demolition works for the building structures on land of the Project were completed in September 2012. The remediation method statement was approved by the EPD on 20 December 2013. The soil remediation works commenced on 23 December 2013.
- 1.1.8. In accordance with the updated Environmental Monitoring and Audit Manual (hereinafter referred to as “the EM&A Manual”) of the Project, there is a need of an impact EM&A programme including daytime construction noise and water quality monitoring, soil remediation works monitoring and auditing and site auditing. The impact EM&A Programme

for the Project commenced on 21 November 2011. The EM&A works was suspended from November 2012 for the captioned Project and the EM&A works has been resumed on 28 October 2013.

1.2 Scope of Report

- 1.2.1 This is the twenty-fifth monthly EM&A Report for the Project “Yau Tong Bay – Decommissioning of Shipyard Sites”. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Project from 1 to 31 October 2014.

1.3 Project Organization

- 1.3.1 The project organization structure is shown in **Appendix A**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Name	Telephone	Fax
Project Proponent (Main Wealth Development Limited)	Gregory Chan	2908 8679	2562 0029
Engineer (AECOM Asia Co. Ltd.)	Edward Poon	3922 9000	3922 9797
Decontamination Contractor (Contractor) (Kin Wing Construction Co., Ltd)	Lee Kam Hung	2717 9139	2725 9316
Independent Environmental Checker (IEC) (Mott MacDonald Hong Kong Limited)	Terence Kong	2828 5919	2827 1823
Independent Environmental Auditor (IEA) (Nature & Technologies (HK) Limited)	Gabriel Lam	2877 3122	2511 0922
Environmental Team Leader (ETL) (AECOM Asia Co. Ltd.)	Y T Tang	3922 9393	3922 9797

1.4 Summary of Construction Works

- 1.4.1 The demolition works of the building structures on land commenced on 21 November 2011 and was completed in September 2012. According to the Project Proponent, the marine structures will not be demolished.
- 1.4.2 The remediation method statement was approved by the EPD on 20 December 2013. The soil remediation works commenced on 23 December 2013. A revised version of Supplementary CAR for the underground tank at YTML 6-11 and a revised version of Soil Remediation Report (Batch 1, which cover YTML 1, 5, 6-11, 12, 13-14, 54, 19-21, 22A, 22B, 22RP and 23-24) have been submitted on 6 October 2014 and 14 October 2014 respectively.
- 1.4.3 As informed by the Contractor, the major construction activities carried out in the reporting period were:
- Backfill to Zones T35C; and
 - Disposal of contaminated soil in Zone T32E to the South East New Territories (SENT) Landfill.
- 1.4.4 The general layout plan of the Project site is shown in **Figure 1**.
- 1.4.5 The latest Construction Programme is shown in **Appendix B**.
- 1.4.6 The environmental mitigation measures **implementation** schedule are presented in **Appendix C**.

1.5 Summary of EM&A Programme Requirements

- 1.5.1 The EM&A programme required environmental monitoring for daytime construction noise and water quality, soil remediation works monitoring and auditing and environmental site inspections for air quality, water quality, noise, waste management and landscape and visual impact. The EM&A requirements for each parameter described in the following sections include:-
- All monitoring parameters;
 - Monitoring schedules for the reporting month and forthcoming months;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plan;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirement in contract documents.

2 NOISE MONITORING

2.1 Monitoring Requirements

2.1.1 In accordance with the EM&A Manual, impact noise monitoring was conducted for at least once per two weeks at designated noise monitoring stations during the construction phase of the Project. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

2.2 Monitoring Equipment

2.2.1 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 2.1**.

Table 2.1 Noise Monitoring Equipment

Equipment	Brand and Model
Integrated Sound Level Meter	Rion NL-31 (00320528)
Acoustic Calibrator	Rion NC-73 (10307223)

2.3 Monitoring Locations

2.3.1 Monitoring stations NM1 to NM3 were set up at the proposed locations in accordance with the EM&A Manual.

2.3.2 **Figure 2** shows the locations of the monitoring stations. **Table 2.2** describes the details of the monitoring stations.

Table 2.2 Locations of Impact Noise Monitoring Stations

Monitoring Station	Location	Description
NM1	Yau Lai Estate Hong Lai House	1m from the exterior of the roof top façade of the building
NM2	S.K.H. Yau Tong Kei Hin Primary School	1m from the exterior of the roof top façade of the building
NM3	C.C.C. Kei Faat Primary School (Yau Tong)	1m from the exterior of the roof top façade of the building

2.4 Monitoring Parameters and Frequency

2.4.1 **Table 2.3** summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

Table 2.3 Noise Monitoring Parameters, Frequency and Duration

Parameter	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. L_{eq} , L_{10} and L_{90} would be recorded.	At least once per two weeks

2.5 Monitoring Methodology

2.5.1 Monitoring Procedure

- (a) Façade measurements were made at all monitoring locations.
- (b) The battery condition was checked to ensure the correct functioning of the meter.
- (c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:-
 - (i) frequency weighting: A
 - (ii) time weighting: Fast
 - (iii) time measurement: $L_{eq(30\text{-minutes})}$ during non-restricted hours i.e. 07:00 – 1900 on normal weekdays; $L_{eq(5\text{-minutes})}$ during restricted hours i.e. 19:00 – 23:00 and 23:00 – 07:00 of normal weekdays, whole day of Sundays and Public Holidays
- (d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (e) During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

2.5.2 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

2.6 Monitoring Schedule for the Reporting Period

- 2.6.1 The schedule for environmental monitoring in October 2014 is provided in **Appendix F**.

2.7 Monitoring Results

2.7.1 The monitoring results for noise are summarized in **Table 2.4** and the monitoring data is provided in **Appendix G**.

Table 2.4 Summary of Noise Monitoring Results in the Reporting Period

	Average, dB(A), L_{eq} (30 mins)	Range, dB(A), L_{eq} (30 mins)	Limit Level, dB(A), L_{eq} (30 mins)
NM1	62.9	62.8 – 63	75
NM2	64.7	64.0 – 65.3	70 [#]
NM3	62.6	64.4 – 66.4	70 [#]

Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

2.7.2 No Action Level exceedance was recorded since no construction noise related complaint was received in the reporting period.

2.7.3 No Limit Level exceedance was recorded at all monitoring stations in the reporting month.

2.7.4 Major noise sources during the noise monitoring included construction activities of the Project, construction activities by other contracts and nearby traffic noise.

2.7.5 The event action plan is annexed in **Appendix H**.

3 WATER QUALITY MONITORING

3.1 Monitoring Status

- 3.1.1 Water quality monitoring was not conducted in the reporting period as demolition of marine structures was not commenced.

4 LAND CONTAMINATION

4.1 Monitoring Status

- 4.1.1 The remediation method statement was approved by the EPD on 20 December 2013. The soil remediation works were commenced on 23 December 2013.
- 4.1.2 Cement Solidification and Stabilization was commenced on 21 January 2014 and biopile remediation was commenced on 24 March 2014. Monitoring works has been conducted accordingly. Biopile treatment and Cement Solidification and Stabilization has been completed in September 2014 and the treated soil was being used for backfilling.

4.2 Excavation Progress

- 4.2.1 4.2.1 Excavation for all contaminated soil requiring biopile and/or cement solidification treatment has been completed in zones T19A, T22BA, T22BB, T32C, T32D, T32E, T35C, T36A, A1, A2, A3, A4, A5, R1, R2, R3, R4, R5, R6, R7 and R8. Soil in zone T32D, which required landfill disposal, has not been excavated yet and will be excavated in later phase. Cement solidification and stabilization have been completed for soils excavated from zones T19A, T22BA, T22BB, T32C, T36A, A1, A3, A4, A5, R5, R6, R7 and R8 in previous months. All the soil requiring biopiling treatment has been transferred to the biopile and the biopiling treatment was commenced on 24 March 2014. The biopile and cement solidification progress are presented in Section 4.3.
- 4.2.2 Verification sampling has been conducted according to the corresponding CAR/RAPs ((a) Appendix 7C – Remediation Action Plan for Yau Tong Bay Marine Lots in the Reclamation of Yau Tong Bay Final EIA Report (January 2002); (b) Yau Tong Bay - Decommissioning of Shipyard Sites - Contamination Assessment Report and Remediation Action Plan (YTML 1, 6-11, 15, 28, 29, 38 and 41-43; (c) Yau Tong Bay – Decommissioning of Shipyard Sites - Supplementary Contamination Assessment Report and Remediation Action Plan for Previously Inaccessible Lots (YTML 27, 44, 45-46, 54 and Underground Oil Tank at YTML 6-11)) to define the contamination extent. The excavation extends for all the zones have been confirmed in May, according to the verification sampling results. The locations of the contamination zones are shown in **Figure 4** and the finalized excavation extent of the contaminated zones are indicated in **Figures 5 to 12**. The excavation extent of each zone is summarized in **Table 4.1**.

Table 4.1 Excavation Extent of Contaminated Zones

Zone	Depth		Area of Contaminated Zone (m ²)	Volume of Contaminated Soil (m ³)	Treatment Method
	(mbgl)	(m)			
T19A	0.5-2	1.5	95	143	Cement S/S
T22BA	0-2.5	2.5	102	254	Cement S/S
T22BB	1.5-3	1.5	166	249	Cement S/S
T32C	1.5-3.5	2	87	174	Cement S/S
T32D	0.5-1.5	1	79	79	Landfill disposal
T32E (outer)	0-1.5	1.5	517	817	Biopile
T32E (inner)	0-3	3	166	497	Landfill disposal

Zone	Depth		Area of Contaminated Zone (m ²)	Volume of Contaminated Soil (m ³)	Treatment Method
	(mbgl)	(m)			
T35C	0-2.5	2.5	571	1433	Biopile
T36A	0-1.5	1.5	70	104	Cement S/S
A1	0-1	1	25	25	Cement S/S
A2	1-2.35	1.35	35	47	Biopile
A3	2.35-4.95	2.6	30	79	Cement S/S
A4	1-2.45	1.45	39	56	Cement S/S
A5	1.4-2.55	1.15	45	52	Cement S/S
R1	0-1	1	25	25	Biopile
R2	0-1	1	30	30	Biopile
R3	0-3.95	3.95	25	99	Biopile
R4	0-1	1	25	25	Biopile
R5	0-1	1	28	28	Cement S/S
R6	2.7-4.15	1.45	25	36	Cement S/S
R7	3.1-4.55	1.45	28	40	Cement S/S
R8	2.5-4.45	1.95	25	49	Cement S/S

Note:
Cement S/S: Cement Solidification and Stabilization

4.2.3 Independent Environmental Auditor (IEA) has conducted spot check sampling for biopile progress monitoring on 15 August 2014. The testing results of the IEA samples and the corresponding verification/monitoring samples collected since December 2013 are summarized in **Table 4.2**.

Table 4.2 Results of Spot-check Samples and Corresponding Verification Samples

Parameters			Lead (Dutch B Standard) (mg/kg)	TPH (Dutch B Standard) (µg/kg)					PCR(RBRG) (µg/kg)		SVOC (RBRG) (µg/kg)	TCLP (mg/kg)
			Lead	C6-C9	C10-C14	C15-C28	C29-C36	Total TPH	C9-C16	C17-C35	Bis(2-ethylhexyl) phthalate	Lead
Limit of Reporting (LOR)			1	2	50	100	100	252	200	500	5	0.1
Standard limits			150	-	-	-	-	1,000	2,240	10,000	30	0.75
Zone ID	Sampling ID	Sampling Date										
T22B A	T22BA.4.1/SW/ 0.75	4/12/2013	131	-	-	-	-	-	-	-	-	-
	T22BA.4.1/SW/ 0.75/IEA*	4/12/2013	112	-	-	-	-	-	-	-	-	-
R3	R3.1-R3.2/ SW/2.475	19/12/2013	-	-	-	-	-	-	299	9,030	-	-
	R3.1-R3.2/ SW/2.475/IEA*	19/12/2013	-	-	-	-	-	-	266	9,270	-	-
T35C	T35C.56/SW/ 1.25	9/1/2014	-	<2	<50	<100	<100	<252	-	-	-	-
	T35C.56/SW/ 1.25/IEA*	9/1/2014	-	<2	<50	<100	<100	<252	-	-	-	-
R5	R5/TCLP	22/1/2014	-	-	-	-	-	-	<0.1	<0.1	-	<0.1
	R5/TCLP/IEA*	22/1/2014	-	-	-	-	-	-	<0.1	<0.1	-	<0.1
T32E	T32E/B/5	24/2/2014	-	<2	<50	<100	<100	<252	-	-	-	-
	T32E/B/5/IEA*	24/2/2014	-	<2	<50	<100	<100	<252	-	-	-	-

Parameters			Lead (Dutch B Standard) (mg/kg)	TPH (Dutch B Standard) (µg/kg)					PCR(RBRG) (µg/kg)		SVOC (RBRG) (µg/kg)	TCLP (mg/kg)
			Lead	C6-C9	C10-C14	C15-C28	C29-C36	Total TPH	C9-C16	C17-C35	Bis(2-ethylhexyl) phthalate	Lead
Limit of Reporting (LOR)			1	2	50	100	100	252	200	500	5	0.1
Standard limits			150	-	-	-	-	1,000	2,240	10,000	30	0.75
Zone ID	Sampling ID	Sampling Date										
T19A	T19A/TCLP.2	14/3/2014	-	-	-	-	-	-	-	-	-	<0.1
	T19A/TCLP.2/IEA*	14/3/2014	-	-	-	-	-	-	-	-	-	<0.1
Biopile	BP6/T1	23/4/2014	-	-	-	-	-	-	-	-	<5	-
	BP6/T1/IEA*	23/4/2014	-	-	-	-	-	-	-	-	<5	-
Biopile	BP2/T2	19/5/2014	-	-	-	-	-	-	-	-	52.2	-
	BP2/T2/IEA*	19/5/2014	-	-	-	-	-	-	-	-	9.71	-
Biopile	BP2/T4	17/6/2014	-	-	-	-	-	-	-	-	15.4	-
	BP2/T4/IEA*	17/6/2014	-	-	-	-	-	-	-	-	15.9	-
Biopile	BP11(CA)/1	7/7/2014	-	<2	<50	<100	<100	<252	-	-	-	-
	BP11(CA)/1/IEA*	7/7/2014	-	<2	<50	<100	<100	<252	-	-	-	-
Biopile	BP27(CA)/1	25/7/2014	-	<2	<50	1070	1540	2662	-	-	-	-
	BP27(CA)/1/IEA*	25/7/2014	-	<2	55	1350	1960	3367	-	-	-	-
Biopile	BP33(CA)/2	15/8/2014	-	<2	<50	265	251	568	-	-	-	-
	BP33(CA)/2/IEA*	15/8/2014	-	<2	<50	221	232	505	-	-	-	-

Note:

*: Spot check samples collected by IEA

-: The parameter is not being tested in the corresponding sample.

The data exceeding relevant remediation target is indicated in **bold and underlined**

4.3 Cement Solidification / Stabilization and Biopiling Progress

- 4.3.1 The cement solidification treatments have been completed in May for all the required zones (T19A, T22BA, T22BB, T32C, T36A, A1, A3, A4, A5, R5, R6, R7, and R8) except A2 and a portion of T32E (outer). All monitoring samples of the soil from zones T19A, T22BA, T22BB, T32C, T36A, A1, A3, A4, A5, R5, R6, R7 and R8 treated by cement solidification have met the remediation target of the Toxicity Characteristic Leaching Procedure (TCLP) and Unconfined Compressive Strength (UCS) tests. The treated soil was used to backfill the excavation zones on site.
- 4.3.2 Since the soil from zone A2 is contaminated with bis-(2-ethylhexyl)phthalate and lead and soil from zone T32E (outer) is contaminated with TPH and lead, biopiling treatment is required and cement solidification will be conducted after biopiling treatment has been completed. The biopiling treatment of soil from zones A2 and T32E (Outer) had been completed and the treated soil from these two zones were treated by cement solidification treatments in September 2014. TCLP and UCS tests of monitoring samples from cement solidified soil from zones A2 and T32E (outer) was conducted in September and the results are summarised in **Table 4.4** and **Table 5.5**.
- 4.3.3 The set up of the biopiling facility has been completed in March. Excavated soil from zones A2, R1, R2, R3, R4, T32E and T35C have been transferred to the facility and piled up as indicated in **Figure 13**. The biopiling treatment has been completed in July, while the final closure assessment has been completed in August. As of 31 August 2014, all biopile monitoring results and final closure assessment results have been received and presented in the August 2014 monthly report.

4.4 Landfill Disposal Progress

- 4.4.1 PCB contaminated soil in zone T32D and T32E (inner) are subject to landfill disposal. The soils are packed and sealed in impermeable containers with proper labels. The containers with the contaminated soil are then collected by a licensed chemical waste collector. Sun Base Environmental Service Limited is commissioned by the contractor as the licensed chemical waste collector to collect and transfer the contaminated soil from the Site to the South East New Territories (SENT) Landfill. 171,000 kg (approximately 126m³) was transported to SENT in this month. In accumulation, 481,750 kg (approximately 336m³) of contaminated soil has been transported to SENT as of 31 October 2014. The corresponding trip tickets were annexed in **Appendix L**.

4.5 Monitoring Testing Results

Excavation

- 4.5.1 In accumulation, 408 verification samples have been collected to determine the excavation extent of contaminated soil. As of 30 April 2014, the results for all the 408 verification samples were received and presented in the April 2014 monthly report. According to the test results, the excavation extents for all the contaminated zones have been verified and all excavation works on site is completed. The excavation extent of each zone is presented in **Table 4.1** and **Figure 5** to **12**.

Cement Solidification / Stabilization (S/S)

- 4.5.2 The Cement Solidification / Stabilization procedures for all contaminated zones were completed in September. A total of 47 sets of monitoring samples (for TCLP & UCS test) have been collected since the commencement of cement solidification. As of 31 May 2014, all TCLP and UCS test results (except zones A2 and T32E (outer)) have been received and presented in the May 2014 monthly report. The testing results show that all the cement treated soils have met the relevant treatment targets. 3 sets and 2 sets of monitoring samples for TCLP and UCS tests have been collected for zones A2 and T32E (outer) respectively in September. The results of these tests are summarised in **Table 4.4** and **Table 4.5**.
- 4.5.3 According to the CAR/RAPs (a) *Yau Tong Bay - Decommissioning of Shipyard Sites - Contamination Assessment Report and Remediation Action Plan (YTML 1, 6-11, 15, 28, 29, 38 and 41-43* and (b) *Yau Tong Bay - Decommissioning of Shipyard Sites Supplementary Contamination Assessment Report and Remediation Action Plan for Previously Inaccessible Lots (YTML 27, 44, 45-46, 54 and Underground Oil Tank at YTML 6-11)*, QA/QC samples are required for every 20 samples collected for TCLP tests for the soil of A- and R- zones. 2 sets of QA/QC samples have been collected since the commencement of cement solidification / stabilization. The results have been received and presented in the May 2014 monthly report. All testing parameters of the QA/QC samples are found below the reporting limit. Procedures for sample collection and preparation are considered acceptable.

Bioremediation

- 4.5.4 Biopiling treatment was commenced on 24 March 2014. Progress monitoring samples are required for every 20m³ contaminated soils from zones R1-R4 and A2 per month; and every 360m³ soils from zones T32E and T35C per fortnight. The sampling plan for biopile monitoring is summarized in **Table 4.3**. In total, 20 sampling locations were identified for the biopile as indicated in **Figure 13** and monitoring samples are taken from these locations according to the abovementioned schedule. As of 31 August 2014, all biopile monitoring results have been received and presented in the August 2014 monthly report. The testing results show that all biopile treated soils have met the relevant treatment targets.
- 4.5.5 Bioremediation system closure assessment will be conducted once satisfactory results are obtained during progress monitoring. Soil samples will be taken for every 20m³ soils from

zones R1-R4 and A2; and every 76.5m³ soils from zones T32E and T35C for closure assessment. The closure assessment monitoring sampling plan and location are indicated in **Table 4.3** and **Figure 14**. As of 31 August 2014, all bioremediation system closure assessment results have been received and presented in the August 2014 monthly report. The testing results show that all biopile treated soils have met the relevant treatment targets.

According to the CAR/RAPs as listed in Section 4.5.3, QA/QC samples are required for every 20 samples collected for monitoring tests for the soil of A- and R- zones. 3 sets of QA/QC sample have been collected since the commencement of biopiling treatment. The results of these 3 sets have been reported in May and September monthly report. Among the received results, all testing parameters of the QA/QC samples are found below the reporting limit. Procedures for sample collection and preparation are considered acceptable.

Table 4.3 Sampling Plan for Bioremediation Progress Monitoring

Zone	Volume of Soil (m ³)	Progress Monitoring			Closure Assessment
		Minimum No. of samples required	Sampling Frequency	Respective Samples	Minimum No. of samples required
R1, R2, & R4 #	80	4	Monthly	BP1-BP4	4
R3	99	5	Monthly	BP14-BP19*	5
A2	47	3	Monthly	BP5, BP6, BP6A	3
T35C	1433	4	Fortnightly	BP7-BP10	19
T32E	817	3	Fortnightly	BP11-BP13	11

Note:

The soil volume of R1, R2 and R4 are 25m³, 30m³ and 25m³ respectively.

* BP19 is an extra sample taken by the Contractor.

Table 4.4 Results of TCLP Test of Cement S/S Treated Soil

Parameter			RBRG TCLP (Lead) (mg/L)
LOR (mg/L)			0.1
Treatment Target Limit (mg/L)			<0.75
Zone ID	Sample ID	Date of Sampling	
A2	A2/TCLP 1	18/9/2014	<0.1
	A2/TCLP 2	18/9/2014	<0.1
	A2/TCLP 3	19/9/2014	<0.1
T32E	T32E/TCLP 1	24/9/2014	<0.1
	T32E/TCLP 2	25/9/2014	<0.1

Table 4.5 Results of UCS Test of Cement S/S Treated Soil

Parameter			RBRG UCS (kPa)
LOR (mg/L)			0.5
Treatment Target Limit (mg/L)			>1
Zone ID	Sample ID	Date of Sampling	
A2	A2/UCS 1	18/9/2014	2.2
	A2/UCS 2	18/9/2014	1.7
	A2/UCS 3	19/9/2014	1.8
T32E	T32E/UCS 1	24/9/2014	2
	T32E/UCS 2	25/9/2014	2.5

5 ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1 Site Inspection

5.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. In the reporting period, 5 site inspections were carried out on 3, 9, 17, 20 and 27 October 2014 respectively. On 30 October 2014, a joint site inspection was carried out by the ET, IEC and IEA.

5.1.2 The environmental site inspection summary is provided in **Appendix I**.

5.1.3 Particular observations during the site inspection are described below:-

Air Quality

5.1.4 Regular spraying of water has been maintained for areas not covered by water sprinklers. (Reminder)

5.1.5 The stockpile of bioremediated soil has been transferred for backfilling or cement S/S. The impervious sheet has been temporarily removed during the transferring process.

Noise

5.1.6 No adverse observation was identified in the reporting period.

Water Quality

5.1.7 No adverse observation was identified in the reporting period.

Land Contamination

5.1.8 No spot check sampling was conducted in October 2014. An ET-IEC-IEA joint EM&A site walk was conducted on 30 October 2014.

Chemical and Waste Management

5.1.9 The contaminated soil to be disposed of to the landfill (as chemical wastes) is filled in labelled drums or bags, and temporary stored inside a truck's tank provided by a licensed chemical waste collector. The chemical waste collector then collects the tank and disposes of the contaminated soil to the landfill at a regular time interval (Reminder).

Landscape and Visual Impact

5.1.10 No adverse observation was identified in the reporting period.

Miscellaneous

5.1.10 No adverse observation was identified in the reporting period.

5.1.11 The Contractor has rectified observations as identified during environmental site inspections in the reporting month. Follow-up inspections on the status on the provision of mitigation measures will be conducted to ensure all identified items are mitigated properly.

5.2 Advice on the Solid and Liquid Waste Management Status

- 5.2.1 The Contractor had submitted the application form for registration as a chemical waste producer for the Project.
- 5.2.2 As advised by the Contractor, 77m³ of soil (of which 0m³ was artificial hard material) was excavated on site; it will be either mixed with cement or transferred to biopile for treatment. No general refuse was generated on site and disposed of at the SENT Landfill. 757m³ of inert C&D materials were reused on site. 126m³ of excavated soil was disposed of at the SENT Landfill. No metals, paper/cardboard packaging or plastics were generated and collected by the registered recycling collectors.
- 5.2.3 The Contractor is advised to properly maintain on-site C&D materials, wastes collection, and sorting and recording systems. The Contractor is also advised to maximize the reuse / recycling of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.2.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage areas on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.3 Environmental Licenses and Permits

- 5.3.1 The environmental licenses and permits for Stage 1 of the Project and valid in the reporting month is summarized in **Table 5.1**.

Table 5.1 Summary of Environmental Licensing and Permit Status

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		Remarks
			From	To	
EIAO	Environmental Permit	EP-409/2010	10/01/2011	N/A	Yau Tong Bay – Decommissioning of Shipyard Sites
WDO	Chemical Waste Producer Registration	5213-290-K2822-04	22/10/2013	N/A	Whole Construction Site
WDO	Billing Account for Disposal of Construction Waste	7018469	N/A	N/A	Whole Construction Site
APCO	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	365200	02/10/2013	N/A	Whole Construction Site

5.4 Implementation Status of Environmental Mitigation Measures

- 5.4.1 In response to the site audit findings, the Contractor carried out corrective actions.
- 5.4.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix C**. Many recommended mitigation measures were implemented properly.

5.5 Summary of Exceedances of the Environmental Quality Performance Limit

- 5.5.1 No Action Level exceedance was recorded since no construction noise related complaint was received in the reporting period.
- 5.5.2 No Limit Level exceedance of construction noise was recorded in the reporting period.
- 5.5.3 Water quality monitoring was not conducted in the reporting period as the demolition of marine structures has not yet commenced. No Action/Limit Level exceedance of water quality was recorded in the reporting period.

5.6 Summary of Complaints, Non-compliances, Notification of Summons and Successful Prosecutions

- 5.6.1 The Environmental Complaint Handling Procedure is annexed in **Figure 3**.
- 5.6.2 No environmental complaint, non-compliance, notification of summons and prosecution was received in the reporting period.
- 5.6.3 Cumulative statistics on complaints, non-compliance, notifications of summons and successful prosecutions are summarized in **Appendix J**.

6 FUTURE KEY ISSUES

6.1 Construction Programme for the Coming Months

6.1.1 The proposed major construction works for the Project in November and December 2014 include:-

- Backfill to the outstanding zones T35C and T32D;
- Excavation of Zone T32D; and
- Disposal of contaminated soil in Zone T32E and T32D to SENT.

6.2 Key Issues for the Coming Month

- Proper storage and labeling of oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Proper maintenance of all drainage facilities and wheel washing facilities on site;
- Dust suppression from excavation activities and haul road traffic; and
- Tree protective measures for all retained trees.

6.3 Monitoring Schedule for the Coming Month

6.3.1 The tentative schedule for environmental monitoring in November 2014 is provided in **Appendix F**.

7 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

7.1 Comments on Mitigation Measures

7.1.1 According to the environmental site inspections performed in the reporting month, the following comments are provided:-

Air Quality Impact

- Regular spraying of water should be maintained for areas not covered by water sprinklers.
- The stockpile of bioremediated soil has been transferred for backfilling or cement S/S. The impervious sheet should be put back after the transferring process.
- Since the cement for solidification process was mixed with soil and water once it is debagged, the dust generated in de-bagging and mixing process should be minimised.

Construction Noise Impact

- Nil.

Water Quality Impact

- Nil.

Chemical and Waste Management

- Nil.

Landscape and Visual Impact

- Nil.

Miscellaneous

- Nil.
- The Contractor has rectified observations as identified during environmental site inspections in the reporting month. Follow-up inspections on the status on the provision of mitigation measures will be conducted to ensure all identified items are mitigated properly.

7.2 Recommendations on EM&A Programme

7.2.1 The impact noise monitoring programme ensured that any environmental impact to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. The weekly site inspection and soil remediation monitoring and auditing ensured that all the environmental mitigation measures recommended in the EIA report were effectively implemented.

7.2.2 The EM&A programme effectively monitored the environmental impacts from the construction activities and no particular recommendation was advised for the improvement of the programme.

7.3 Conclusions

- 7.3.1 Noise monitoring was carried out 2 times in the reporting period.
- 7.3.2 No Action Level exceedance was recorded since no construction noise related complaint was received in the reporting period.
- 7.3.3 No Limit Level exceedance of construction noise was recorded in the reporting period.
- 7.3.4 Water quality monitoring was not conducted in the reporting period as the demolition of marine structures has not yet commenced. No Action/Limit Level exceedance of water quality was recorded in the reporting period.
- 7.3.5 Environmental site inspection was carried out 4 times in October 2014. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audits.
- 7.3.6 No environmental complaint, non-compliance, notification of summons and prosecution was received in the reporting period.