China Harbour Engineering Company Limited

Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works – Stage V Phase II B

Monthly Environmental Monitoring and Audit Report for October 2012

(Version 2.0)

Certified By	Chuppit
_	(Environmental Team Leader)
REMARKS:	

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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EXECUTIVE SUMMARY

Introduction

- This is the 28th monthly Environmental Monitoring and Audit (EM&A) Report 1. prepared by Cinotech Consultants Limited for DSD Contract no. DC/2009/09 "Construction of Tai Po Sewage Treatment Works – Stage V Phase IIB". This report documents the findings of EM&A Works conducted in October 2012.
- 2. The major site activities undertaken in the reporting month included:
 - Cable ducting works;
 - Construction of Aeration Tanks, Mixed Liquor Channel, Flow Meter Chamber FMC2B;
 - Construction of concrete plinths for Combined Heat and Power Generator and Waste Gas-burner at Stage I/II Works;
 - Excavation for Sludge Digestion Tank No. 3 and FC9B;
 - Finishing works at proposed Switch Room, Decanting Chamber, Chemical & Oil Store and Existing SAS Thickening House;
 - Installation of DN1500 Air Main, DN900 Sewage Pipe and Irrigation System;
 - Installation of FRP cover, cat-ladder and hand-railing at Decanting Chamber; •
 - Installation of Steel Bridges, Open Mesh Flooring, Aluminium Handrailing at Aeration Tanks & Primary Sedimentation Tank;
 - Landscaping works;
 - Laying DN700 and DN500 pipes to FC11B & FC12B; •
 - Modification works at Central Building Complex, Chlorination House and Chemical House:
 - Proof-drilling for piles at FC9B; and
 - Sealing openings at Sludge Draw-off Chamber No. 4 temporarily for T&C of FC11B & FC12B

Environmental Monitoring and Audit Works

- Environmental monitoring and audit works for the Project were performed regularly as 3. stipulated in the Final EM&A Manual and the results were checked and reviewed. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
- 4. Summary of the events and action taken in the reporting month is tabulated in **Table I**.

Table I

Summary Table for Events Recorded in the Reporting Month

Donomotor	No. of Exceedance No. of Events				Action Taken
Parameter	Action Level	Limit Level	Due to this Project	Action Taken	
1-hr TSP	0	0	0	N/A	
24-hr TSP	0	0	0	N/A	
Noise	0	0	0	N/A	

5. In the reporting month, excavation works were undertaken within the 250m Consultation Zone of Shuen Wan Landfill. Landfill gas monitoring was performed by the Safety Officer of the Contractor. All the measured results were complied with the Limit Levels.

Environmental Licenses and Permits

6. Environmental related licenses/permits granted to the Project include the Environmental Permit (EP) for the Project, the Discharge Licence, Construction Noise Permit and the Waste Disposal (Chemical Waste) Licence.

Key Information in the Reporting Month

7. Summary of key information in this reporting month is tabulated in **Table II**.

Table IISummary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Domonia
Event	Number	Nature	Action Taken	Status	Remark
Complaint received	0		N/A	N/A	
Changes to the assumptions and key construction / operation activities recorded	0		N/A	N/A	
Status of submissions	1	Monthly EM&A Report (September 2012)	Submitted to EPD on 24 th October 2012 (EP condition 3.4)	N/A	
under EP	1	Quarterly EM&A Report (July 2012 - September 2012)	Submitted to EPD on 24 th October 2012 (EP condition 3.4)	N/A	
Notifications of any summons & prosecutions	0		N/A	N/A	

Future Key Issues

- 8. Major site activities for the coming two months will include:
 - Cable ducting works;
 - Construction of concrete plinths for Combined Heat and Power Generator and Waste Gas-burner at Stage I/II Works;
 - Construction of DN1000 scum pipe between RAS Pumping Station and FMC2B;
 - Construction of MLC and Foam Removal Chamber;
 - Construction of FMC2B and Sludge Digestion Tank No. 3;
 - Construction of Water Reclamation Facility for RO Plant;
 - Drainage and Excavation works;
 - Excavation for FC9B;
 - Finishing works for Gas Transfer House, proposed Switch Room, Decanting Chamber and Chemical & Oil Store;
 - Installation of Cat-ladders, Handrailings and Steel Bridges;
 - Installation of DN1500 air main & DN900 sewage pipeline;
 - Installation of Irrigation System;
 - Landscaping works;
 - Modification works at Chlorination House into Gas Transfer Station; and
 - Piling works at MCL & Sludge Draw-off Chamber No. 3.

9. The future environmental concerns are air quality, noise impacts, waste management and surface runoff from construction works.

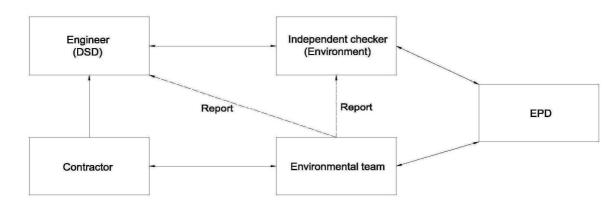
1 INTRODUCTION

Background

- 1.1 Tai Po Sewage Treatment Works (TPSTW) is located within the Tai Po Industrial Estate. It currently comprises four Stages: I, II, IVA and IVB works. The TPSTW - Stage V aims to upgrade the existing STW to provide additional sewage treatment capacity from the present design flow of 88,000 m³/day to 130,000 m³/day to meet the demands of both the existing and future developments, and to meet the revised discharge license requirements.
- 1.2 The TPSTW Stage V, Phase I and Phase II are Designated Projects under the Environmental Impact Assessment Ordinance (Cap. 449) with the same EIAO Register No. AEIAR 081/2004. A study of environmental impact assessment (EIA) was undertaken to evaluate various environmental impacts associated with the works within these two Designed Projects. An EIA Report as well as an Environmental Monitoring and Audit (EM&A) Manual were approved by the Environmental Protection Department (EPD) on 28 October 2004.
- 1.3 The Stage V works will be implemented in 2 phases. The design capacities of Phase I and Phase II works are 100,000 m³/d and 130,000 m³/d respectively. An Environmental Permit (EP) No. EP-265/2007 was issued on 22 March 2007 for the TPSTW Stage V Phase II to the Drainage Services Department (DSD) as the Permit Holder. The project "Tai Po Sewage Treatment Works Stage V Phase IIB" formed part of the Phase II works, includes additional secondary treatment process units (1 primary clarifier; 3 bioreactors and 2 final clarifiers) in TPSTW for its future extended plant design capacity of 120,000 m³/day. A master construction programme of the Project is provided in Appendix N. A site layout plan is provided in Figure 1.1. The construction activities of the Project commenced on 3 July 2010.
- 1.4 Cinotech Consultants Ltd. was commissioned by the Contractor as the Environmental Team (ET) to undertake the EM&A works for the Project. Dr. Priscilla CHOY of Cinotech Consultants Ltd. was appointed as the ET Leader as per the Condition 2.1 of the EP. Ove Arup and Partners Hong Kong Limited. was appointed as the IEC under Condition 2.2 of the EP. This is the 28th monthly EM&A report summarizing the EM&A works for the Project in October 2012.

Project Organizations

- 1.5 Different parties with different levels of involvement in the project organization include:
 - Project Proponent / Engineer's Representative (ER) Drainage Services Department
 - Environmental Team (ET) Cinotech Consultants Ltd.
 - Independent Environmental Checker (IEC) Ove Arup and Partners Hong Kong Limited
 - Contractor China Harbour Engineering Company Ltd.
- 1.6 The responsibilities of respective parties are detailed in Section 1.10 of the Final EM&A Manual of the Project.
- 1.7 The Project Organization during Construction Phase



1.8 The key contacts of the Project are shown in Table 1.1.

Party	Role	Name	Position	Phone No.	Fax No.
		Mr. LAI cheuk-ho	Chief Engineer	2594 7500	
DSD	SP Division	Mr. IP Shu-kuen	Senior Engineer	2594 7502	2827 8700
		Mr. TSANG Lap-kei	Engineer	2594 7459	
		Dr. Priscilla CHOY	ET Leader	2151 2089	
Cinotech Enviror Team	Environmental Team	Mr. Ken CHENG	Project Coordinator and Audit Team Leader	2151 2077	3107 1388
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087	
Independent		Mr. Coleman NG	Independent Environmental Checker	2268 3097	2965 6402
Arup Environmental Checker	Mr. Lawrence KAN	Assistant to Independent Environmental Checker	2268 3212	2865 6493	
		Mr. TK CHEUNG	Project Manager	9863 2954	
CHEC	Civil Contractor	Mr. Aaron AU	Site Agent	6345 0754	2603 6899
		Mr. Jason TSE	Environmental Officer	9320 3608]

Table 1.1 **Key Project Contacts**

Construction Programme

1.9 The site activities undertaken in the reporting month were:

- Cable ducting works;
- Construction of Aeration Tanks, Mixed Liquor Channel, Flow Meter Chamber FMC2B;
- Construction of concrete plinths for Combined Heat and Power Generator and Waste Gas-burner at Stage I/II Works;
- Excavation for Sludge Digestion Tank No. 3 and FC9B;
- Finishing works at proposed Switch Room, Decanting Chamber, Chemical & Oil Store and Existing SAS Thickening House;
- Installation of DN1500 Air Main, DN900 Sewage Pipe and Irrigation System;
- Installation of FRP cover, cat-ladder and hand-railing at Decanting Chamber;
- Installation of Steel Bridges, Open Mesh Flooring, Aluminium Handrailing at Aeration Tanks & Primary Sedimentation Tank;
- Landscaping works;
- Laying DN700 and DN500 pipes to FC11B & FC12B; •
- Modification works at Central Building Complex, Chlorination House and Chemical House:
- Proof-drilling for piles at FC9B; and

• Sealing openings at Sludge Draw-off Chamber No. 4 temporarily for T&C of FC11B & FC12B.

Summary of EM&A Requirements

- 1.10 The EM&A programme requires construction phase air quality and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
 - All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the project EIA study final report; and
 - Environmental requirements in contract documents.
- 1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.
- 1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise as well as audit works for the Project in the reporting month.

2 AIR QUALITY MONITORING

Monitoring Requirements

- 2.1 Monitoring of 1-hour and 24-hour Total Suspended Particulates (TSP) was conducted to monitor the air quality during construction phase. Appendix A shows the established Action/Limit Levels for the environmental monitoring works.
- 2.2 In accordance with Section 2.30 of the EM&A Manual, a baseline checking of ambient TSP levels shall be carried out every six months at each monitoring station, when no dusty works activities are in operation. The number and location of monitoring stations and parameters shall be reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

Monitoring Locations

2.3 Impact air quality monitoring was conducted at the 3 monitoring stations, as shown in **Figure 1.2**. **Table 2.1** describes the locations of the air quality monitoring stations.

Monitoring Stations	Description	Location of Measurement
CAM1	Government Staff Quarters	Rooftop
CAM2	Hung Hing Printing Centre	On the site boundary just next to the Hung Hing Printing Centre
CAM3	Talcon Industrial Ltd.	On the site boundary just next to Talcon Industrial Ltd.

Table 2.1Locations for Air Quality Monitoring

Monitoring Equipment

2.4 **Table 2.2** summarizes the equipment used for the air quality monitoring.

Table 2.2Air Quality Monitoring Equipment

Equipment	Model and Make	Qty.
	Graseby GMW 2310 HVS, Model GS-2310105-1, Serial no. 10239 and 0810	2
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no. 1704	1
Calibrator	Thermo Andersen.; Model no. G25A Serial no. 1536	1

Monitoring Parameters, Frequency and Duration

2.5 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period.

Monitoring Stations	Parameter	Duration	Period	Frequency
CAM1, CAM2 and CAM3	1-hour TSP	1 hour	During daytime period	3 times / 6-day
	24-hour TSP	24 hours	24 hours	Once / 6-day

Table 2.3Impact Dust Monitoring Parameters, Frequency and Duration

Monitoring Methodology and QA/QC Procedure

Instrumentation

2.6 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

HVS Installation

- 2.7 The following guidelines were adopted during the installation of HVS:
 - Sufficient support was provided to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The samplers were more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filters Preparation

- 2.8 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd., was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.
- 2.9 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than \pm 3 °C; the relative humidity (RH) was < 50% and not variable by more than \pm 5%. A convenient working RH was 40%.
- 2.10 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

2.11 Operating/analytical procedures for the TSP monitoring were highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet after sampling.
- After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than $\pm 3^{\circ}$ C; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

- 2.12 The following maintenance/calibration was required for the HVS:
 - The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
 - Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix B**.
 - The HVS calibration orifice will be calibrated annually.

Results and Observations

- 2.13 In the reporting month, 1-hr TSP monitoring was carried out as schedule at each designated monitoring station on 13 occasions. 24-hr TSP monitoring was carried out as scheduled at each designated monitoring station on 6 occasions. The monitoring schedule was updated and is shown in **Appendix C**. The weather during the monitoring sessions was mainly sunny and cloudy.
- 2.14 All measured 1-hr and 24-hr TSP levels were below the Action/Limit Levels. No exceedance was recorded in the reporting month.
- 2.15 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices D** and **E**, respectively.

	- Por	ing month			
Paramete r	Minimum µg/m ³	Maximum μg/m ³	Average μg/m ³	Action Level, μg/m ³	Limit Level, μg/m ³
1-hr TSP (CAM1)	54	208	127	315	500
24-hr TSP (CAM1)	65	81	73	171	260
1-hr TSP (CAM2)	77	225	155	336	500
24-hr TSP (CAM2)	74	109	93	177	260
1-hr TSP (CAM3)	88	227	162	344	500
24-hr TSP (CAM3)	86	107	97	192	260

Table 2.4Summary Table of Air Quality Monitoring Results during the
reporting month

2.16 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Station	Major Pollution Source
CAM1 – Government Staff Quarters	Road Traffic Dust
CAM2 – Hung Hing Printing Centre	Road Traffic Dust and Excavation
CAM3 – Talcon Industrial Ltd.	Road Traffic Dust and Excavation

3 NOISE MONITORING

Monitoring Requirements

- 3.1 Noise monitoring was conducted in accordance with the EM&A Manual. Appendix A shows the established Action and Limit Levels for the environmental monitoring works.
- 3.2 The number and location of monitoring stations and parameters shall be reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

Monitoring Locations

3.3 Noise monitoring was conducted at one designated monitoring station as presented in **Table 3.1**. **Figure 1.2** shows the locations of the monitoring station.

Table 3.1Location of Noise Monitoring Station

Monitoring Station	Description	Location of Measurement
NM1	Government Staff Quarters	The corridor at the first floor.

Monitoring Equipment

3.4 **Table 3.2** summarizes the noise monitoring equipment model being used.

Table 3.2Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVANTEK - SVAN 957	3
Calibrator	SVANTEK - SV30A	2
Wind Speed Anemometer	Vane Anemometer, Model AZ8904 (Serial no. 974835)	1

Monitoring Parameters, Frequency and Duration

3.5 **Table 3.3** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.3Noise Monitoring Parameters, Frequency and Duration

Station	Parameter	Period	Frequency
NM1	$L_{eq}(30 \text{ min.})$ (L ₁₀ and L ₉₀ were also recorded as supplementary information)	0700-1900 hrs. on normal weekdays	Once a week

3.6 If construction works are extended to include works during the hours of 1900 - 0700, additional weekly impact monitoring would be carried out during evening and night-time works. Applicable permits under NCO have been obtained by the Contractor. The details of the Construction Noise Permit can be referred to **Table 5.1**.

Monitoring Methodology and QA/QC Procedures

Field Monitoring

- 3.7 The monitoring procedures are as follows:
 - The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
 - The battery condition was checked to ensure good functioning of the meter.
 - Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 30 minutes
 - Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
 - The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
 - Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
 - At the end of 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.

Maintenance and Calibration

- 3.8 Maintenance and Calibration procedures were as follows:
 - The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
 - The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix B**.

Results and Observations

- 3.9 In the reporting month, noise monitoring during non-restricted hours was conducted as scheduled at the designated location on 5 occasions. As advised by the Contractor, no construction activities will be undertaken during restricted hours as such noise monitoring during restricted hours was omitted. The noise monitoring schedule is provided in **Appendix C**.
- 3.10 The details of the monitoring results and graphical presentations are shown in **Appendix F**. The weather during the monitoring sessions was mainly sunny and fine.
- 3.11 No Action/Limit Level exceedance for construction noise monitoring was recorded in

the reporting month.

Table 3.4	Summary Table of Noise N	Monitoring Results during the Reporting Month

Parameter	Minimum L _{eq} (30min) dB(A)	Maximum L _{eq} (30min) dB(A)	Average L _{eq} (30min) dB (A)	Action Level	Limit Level
NM1	67.2	71.4	69.8	When one documented complaint is received	75dB(A)

3.12 According to our field observations, the major noise source identified at the designated air quality monitoring stations are as follows:

Station	Major Noise Source
NM1 – Government Staff Quarters	Road Traffic
	Construction of Main Site

4 LANDFILL GAS MONITORING

Monitoring Requirements

4.1 In accordance with Section 6 of the EM&A Manual, monitoring of landfill gas is required for construction works within the 250m Consultation Zone of Shuen Wan Landfill (the Consultation Zone). This Section reports the results of landfill gas measurements performed by the Safety Officer of the Contractor. Appendix A shows the Limit Levels for the monitoring works.

Monitoring Parameters and Frequency

- 4.2 The parameters for Landfill gas monitoring include Percentage of Combustible Gas (Methane), Carbon dioxide and Oxygen.
- 4.3 The Landfill gas monitoring is carried out before the entry of concern zone by the Contractor in the morning and afternoon.

Monitoring Locations

- 4.4 Monitoring of oxygen, methane and carbon dioxide was performed for excavations at 1m depth or more within the Consultation Zone. In this reporting month, the area required to be monitored for landfill gas are shown below and **Figure 1.3** shows the landfill gas monitoring locations.
 - Aeration Tank;
 - DN 900 Sewage Pipe;
 - DN1500 Airmain;
 - FC10B;
 - FC8B;
 - FC9B;
 - FMC1B; and
 - FMC2B.

Remark:

Excavation works of 1m depth or more at FC7B, FC11B&12B, Dewatering House, Pipe 300, 600 and 900 Excavation Trench has been completed.

Monitoring Equipment

4.5 **Table 4.1** summarizes the equipment employed by the Contractor for the landfill gas monitoring.

Table 4.1Landfill Gas Monitoring Equipment

Equipment	Model and Make	Quantity
Intrinsically safe, portable gas detector	Crowcon Custodian CDL Portable Gas Detector (Serial No. 24800 37076)	1

Results

4.6 In the reporting month, landfill gas monitoring was carried out by the Contractor at the aforesaid locations on total 384 occasions. No Action/Limit Level exceedance for Landfill gas monitoring was recorded in the reporting month. The monitoring results are provided in **Appendix G**.

5 ENVIRONMENTAL AUDIT

Site Audits

- 5.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 5.2 Site audits were conducted on 4th, 12th, 18th and 25th October 2012 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 12th October 2012. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 5.2**.

Review of Environmental Monitoring Procedures

5.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

Air Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

Noise Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

Landfill Gas Monitoring

• The Contractor has checked the condition of the equipment before monitoring to ensure the reliability.

Status of Environmental Licensing and Permitting

5.4 All permits/licenses obtained for the Project are summarized in **Table 5.1**.

Тя	ble	5	1
1 a	DIC	J.	

Summary of Environmental Licensing and Permit Status

	Valid	Period	riod	
Permit / License No.	From	То	- Details	Status
Environmental Permi	it (EP)			
EP-265/2007	22/3/2007	N/A	 Expansion and upgrading of existing <u>Tai Po Sewage Treatment Works from</u> <u>100,000 m³/day to 130,000 m³/day</u>: (a) additional secondary treatment process units(1 primary clarified; 3 bioreactors and 2 final clarifiers); (b) reconstruction of 4 existing final clarified; (c) provision of ultraviolet disinfection facilities; (d) additional sludge treatment facilities; and (e) ancillary works to existing treatment facilities. 	Valid
Consruction Noise Pe	rmit (CNP)			l
GW-RN0512-11	01/01/12	30/06/12	Use of powered mechanical equipment for carrying out construction work at 7 Dai Kwai Street, Tai Po Industrial Estate, Tai Po, N.T. during 0000 – 2400 hours on general holidays (including Sundays), 0000 – 0700 hours and 1900 – 2400 hours on any day not being a general holiday.	Expired
GW-RN0299-12	01/07/12	30/12/12	Use of powered mechanical equipment for carrying out construction work at 7 Dai Kwai Street, Tai Po Industrial Estate, Tai Po, N.T. during 0000 – 2400 hours on general holidays (including Sundays), 0000 – 0700 hours and 1900 – 2400 hours on any day not being a general holiday.	Valid
Discharge Licence				
WT00007782-2010	25/10/10	31/10/15	Discharge of industrial trade effluent: <i>Water Control Zone</i> : Tolo Harbour and Channel <i>Discharge Points</i> : Communal drain for the carriage of surface drainage water	Valid
Waste Disposal (Cher	nical Waste)			
WPN : 5213-727-C2397-16	09/07/10	End of Project	Disposal of Chemical Waste including spent oil, lubricating oil, diesel oil and methanol, surplus paint, thinner	Valid

Status of Waste Management

5.5 The Construction and Demolition (C&D) materials generated in the reporting month were mainly inert C&D waste and C&D waste. The quantities of waste generated in this reporting month are summarized in **Appendix L**. No chemical waste was generated in the reporting month.

Implementation Status of Environmental Mitigation Measures

- 5.6 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix K**.
- 5.7 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 5.2**.

Parameters	Date	Observations and Recommendations	Follow-up
12 Oct 2012		Reminder: Discharge wastewater at the sedimentation tank near FC11B was observed silty and should be cleared up.	The observation was observed improved/rectified by the Contractor during the audit session on 18 Oct 2012.
Water Quality	25 Oct 2012	Sedimentation tank should be provided near FMC1B for removal of sand and silt in wastewater from construction site before discharge.	Follow-up action is needed in the next reporting month.
	25 Oct 2012	Sand and silt accumulated at the sedimentation tank near FC11B should be removed.	Follow-up action is needed in the next reporting month.
	21 Sep 2012	<u>Reminder:</u> Water spray on unpaved haul road regularly to avoid dust generation.	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.
	27 Sep 2012	<u>Reminder:</u> Dusty stockpile not in use should be covered by tarpaulin.	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.
	27 Sep 2012	<u>Reminder:</u> Sand and silt accumulated on the roadside near Dewatering House should be removed.	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.
Air Quality	4 Oct 2012	<u>Reminder:</u> Dusty materials should be covered on Chemical House.	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.
	18 Oct 2012	<u>Reminder:</u> Sand and dusty materials on the haul roads inside TPSTW should be removed.	Follow-up action is needed in the next reporting month.
18 Oct 201 18 Oct 201		<u>Reminder:</u> Dusty materials at Chemical House should be removed to avoid dust generation.	Follow-up action is needed in the next reporting month.
		<u>Reminder:</u> Unpaved areas should be watered regularly to avoid dust generation.	The observation was observed improved/rectified by the Contractor during the audit session on 25 Oct 2012.
Noise	N/A	N/A	N/A
Waste / Chemical Management	6 Sep 2012	Fuel leakage was observed from PME near Dewatering House. The mud on contaminated area should be properly disposed as chemical wastes.	The observation was observed improved/rectified by the Contractor during the audit session on 4 Oct 2012.

 Table 5.2
 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
	27 Sep 2012	Reminder: Oil stain was observed near sludge digestion tank.	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.
	4 Oct 2012	<u>Reminder:</u> Chemical stocks in PST5 should be stored and manage properly at designated area	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.
	12 Oct 2012	<u>Reminder:</u> Litter and debris at Chemical House should be removed.	The observation was observed improved/rectified by the Contractor during the audit session on 18 Oct 2012.
	18 Oct 2012	<u>Reminder:</u> Oil stain near A-tank should be removed.	The observation was observed improved/rectified by the Contractor during the audit session on 25 Oct 2012.
	18 Oct 2012	<u>Reminder:</u> Cements accumulated on the roadside near A-tank should be removed and disposed properly.	The observation was observed improved/rectified by the Contractor during the audit session on 25 Oct 2012.
	25 Oct 2012	<u>Reminder:</u> Oil stain was observed near FMC1B and it should be removed.	Follow-up action is needed in the next reporting month.
Permit/Licen ses	27 Sep 2012	Reminder: Construction Noise Permit posted at site entrance should be updated.	The observation was observed improved/rectified by the Contractor during the audit session on 12 Oct 2012.

Summary of Exceedances

5.8 No exceedance of monitoring results was recorded in the reporting month. Summary of exceedance is provided in **Appendix H**.

Implementation Status of Event Action Plans

5.9 The Event Action Plans for air quality, construction noise and landfill gas monitoring are presented in **Appendix J**. No exceedance was recorded and thus no action was required to be implemented.

Summary of Complaint and Prosecution

- 5.10 No environmental related complaint, prosecution or notification of summons was received in the reporting month.
- 5.11 There was no environmental complaint, prosecution or notification of summons received since the Project commencement. The Complaint Log is attached in **Appendix M**.

6 FUTURE KEY ISSUES

- 6.1 Key issues to be considered in the coming month include:
 - Effluent discharge generated from surface runoff;
 - Dust generated from excavation works, backfilling works and stockpile of dusty materials;
 - Maintenance of de-silting facilities and drainage system, such as U-channels;
 - Accumulation of stagnant water in the site areas; and
 - Accumulation of C&D waste and general waste on site.

Monitoring Schedule for the Next Month

6.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix C**.

Construction Program for the Next Month

- 6.3 A tentative construction programme is provided in **Appendix N**. The major construction activities in the coming month will include:
 - Cable ducting works;
 - Construction of concrete plinths for Combined Heat and Power Generator and Waste Gas-burner at Stage I/II Works;
 - Construction of DN1000 scum pipe between RAS Pumping Station and FMC2B;
 - Construction of MLC and Foam Removal Chamber;
 - Construction of FMC2B and Sludge Digestion Tank No. 3;
 - Construction of Water Reclamation Facility for RO Plant;
 - Drainage and Excavation works;
 - Excavation for FC9B;
 - Finishing works for Gas Transfer House, proposed Switch Room, Decanting Chamber and Chemical & Oil Store;
 - Installation of Cat-ladders, Handrailings and Steel Bridges;
 - Installation of DN1500 air main & DN900 sewage pipeline;
 - Installation of Irrigation System;
 - Landscaping works;
 - Modification works at Chlorination House into Gas Transfer Station; and
 - Piling works at MCL & Sludge Draw-off Chamber No. 3.

7 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 7.1 Environmental monitoring and audit works were conducted in the reporting month. Site inspections were conducted on a weekly basis. The results were reviewed and checked.
- 7.2 No exceedance of monitoring results was recorded in the reporting month.
- 7.3 There was no environmental complaint, prosecution or notification of summons received.

Recommendations

7.4 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Impact

- Avoid accumulation of stagnant water on site.
- Avoid blockage of gully inlets and ensure proper protection of the gully from ingress of sandy water.
- Ensure proper use and maintenance of the de-silting facilities.
- Maintain sand bags placed along the u-channel at good condition and replace the broken bags.
- Provide sediment tank for settling runoff prior to disposal.
- Remove and settle out sand and silt at wheel washing facilities regularly.

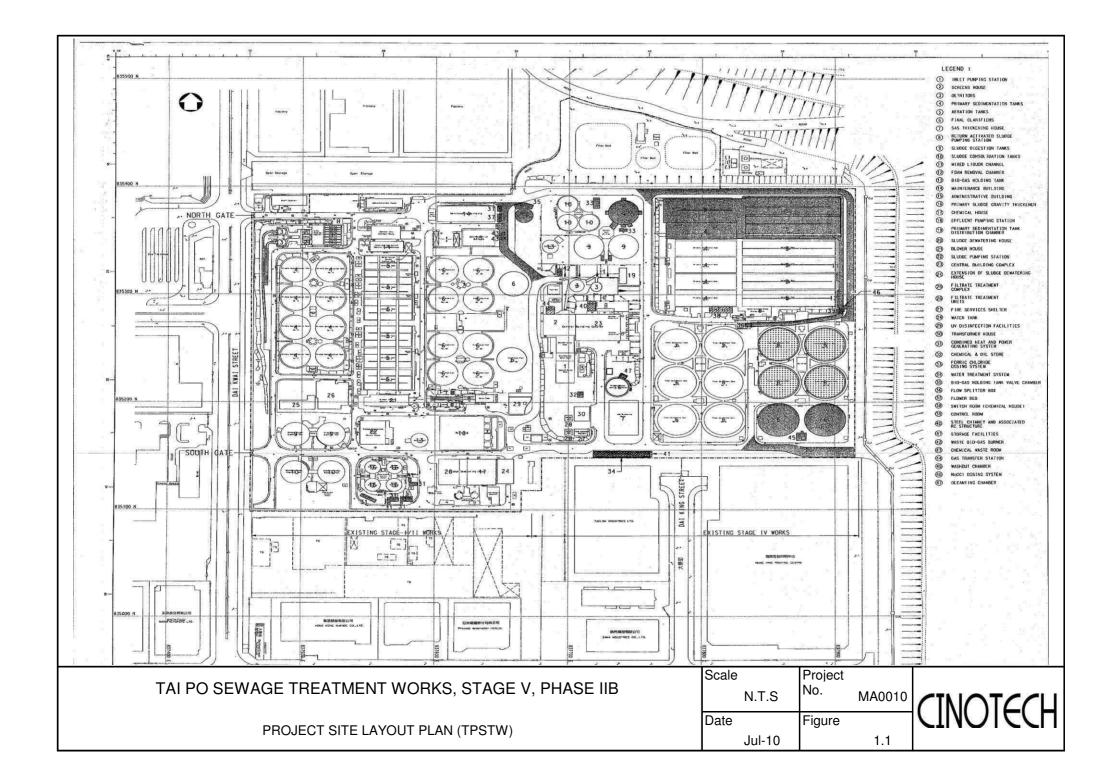
Dust Impact

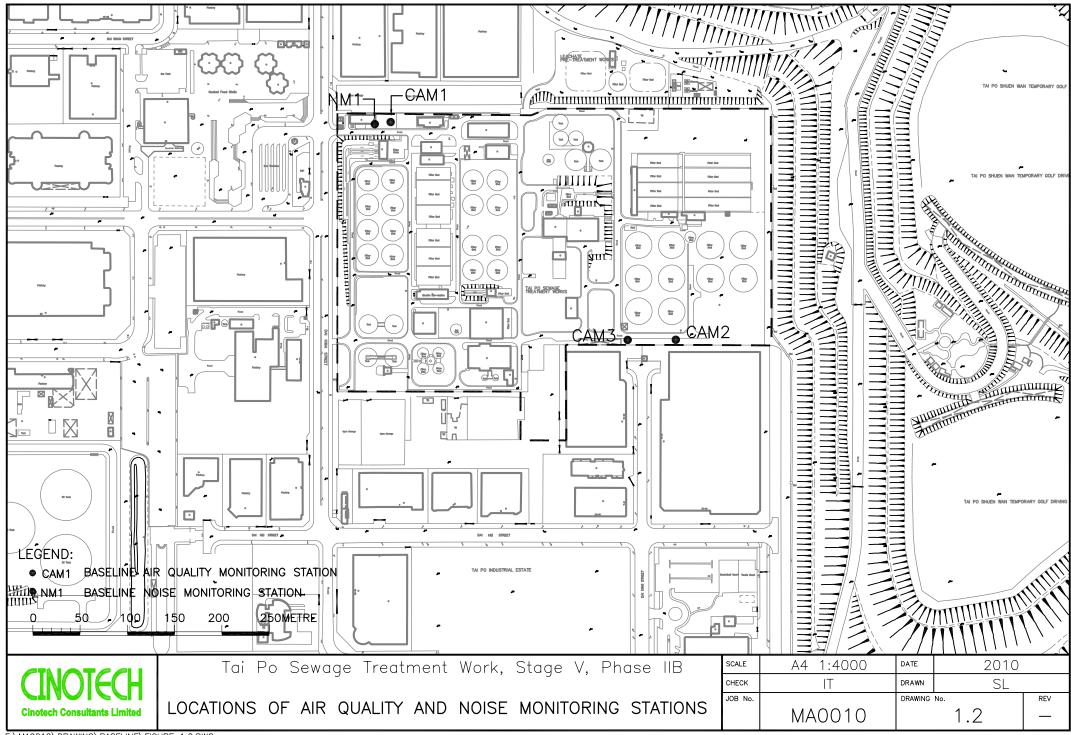
- Cover the excavated dusty materials or stockpile of dusty materials by impervious sheeting, or spray water on the dusty materials so as to maintain entire surface wet.
- Remove fugitive dusty material on the haul road periodically.
- Spray with water on the surface of concrete breaking and dry dust haul road.

Waste / Chemical Management

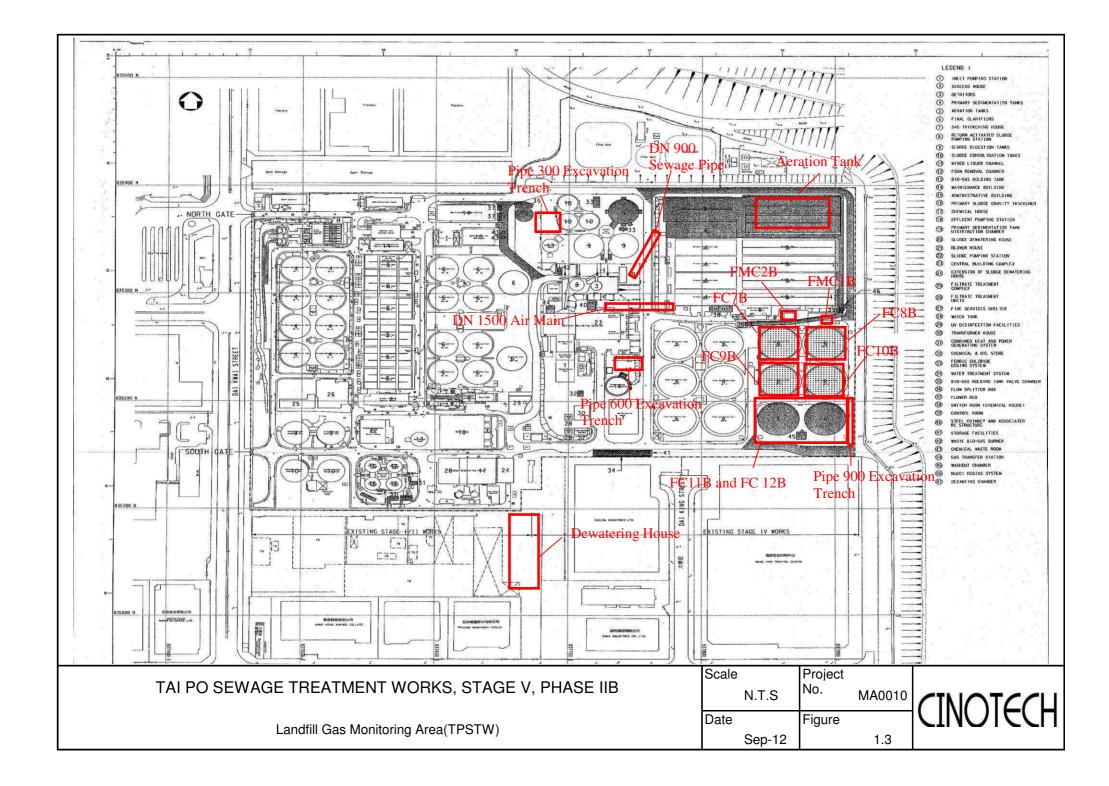
- Avoid and check for any accumulation of waste materials or rubbish on site.
- Avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment.
- Provide drip tray with adequate capacity and maintain well for equipment and chemical waste.
- Provide proper rubbish bins / skips for waste collection.

FIGURES





F:\MA0010\DRAWING\BASELINE\FIGURE 1.2.DWG



APPENDIX A ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

<u>1-Hour TSP</u>

Location	Action Level, μg/m ³	Limit Level, µg/m ³
CAM1	315	
CAM2	336	500
CAM3	344	

24-Hour TSP

Location	Action Level, μg/m ³	Limit Level, µg/m ³
CAM1	171	
CAM2	177	260
CAM3	192	

Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays		75 dB(A)
0700-2300 hrs on holidays; and 1900- 2300 hrs on all other days	When one documented complaint is received	70* dB(A)
2300-0700 hrs of next day		55* dB(A)

Notes:

* The Area Sensitivity Rating for Station NM1 is taken as C, due to the nearby industrial area, according to Table 1 of EPD's Technical Memorandum on Noise from Construction Work other than Percussive Piling.

<u>Landfill Gas</u>

Parameter	Limit Level	Action
	<19%	Ventilate to restore oxygen to >19%
Oxygen	<18%	Stop works Evacuate personnel / prohibit entry Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. >0.5% by volume)	Post "No Smoking" signs Prohibit hot works Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. >1% by volume)	Stop works Evacuate personnel / prohibit entry Increase ventilation to restore methane to $<10\%$
	>0.5%	Ventilate to restore carbon dioxide to <0.5%
Carbon Dioxide	>1.5%	Stop works Evacuate personnel / prohibit entry Increase ventilation to restore carbon dioxide to <0.5%

APPENDIX B COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. <u>MA0010/37/0046</u>

Station	CAM1 - Govern	nent Staff Quarter Operator:		WK			
Date:	7-Sep-12				6-Nov-12		
Equipment No.:	A-01-37			Serial No.	1704		
					······		
			Ambient		1		
Temperati	ire, Ta (K)	302.2	Pressure, Pa	ı (mmHg)		762.2	
	· · · · ·	Orif	ice Transfer Sta	andard Inform	ation		· · · · ·
Equipm	ent No.:	A-04-01	Slope, mc				-0.0432
Last Calibr	ation Date:	9-Oct-11		mc x Qstd + I	oc = [ΔH x (Pa/76)] ^{1/2}
Next Calibr	ration Date:	8-Oct-12		Qstd = {[ΔH	x (Pa/760) x (298	/Ta)] ^{1/2} -bc}	/ me
		•					
			Calibration of	TSP Sampler		19. A	
Calibration		Orfic	e			HVS	
Point	ΔH (orifice), in. of water	[ΔH x (Pa/760)	x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	∆W (HVS), in. of oil	[ΔW x (Pa/7	60) x (298/Ta)] ^{1/2} Y- axis
11	11.9	3.4	3	61.16	8.3		2.87
2	9.8	3.1	1	55.57	6.7		2.57
3	7.5	2.7	2	48.71	5.0	· · · · · · · · · · · · · · · · · · ·	2.22
4	5,1	2.2	5	40.30	3.3		1.81
5	3.2	1.7	8	32.08	1.9		1.37
Slope , mw = Correlation c	oefficient* =	0.999), check and recalil	9	Intercept, bw :	-0.264	9	
		·	Set Point C	alculation			
		urve, take Qstd = 4 : "Y" value accordi					
		mw x Qs	$d + bw = (\Delta W)$	x (Pa/760) x (2	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (mv	$v \ge Qstd + bw)^2 \ge x$	(760 / Pa) x (1	°a / 298) =	3.78		
Remarks:							
Conducted by: Checked by:	1	Signature:	Kwe	<u>10</u>		Date: Date:	7/9/12 7 September 3012

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0010/A40/0046

Station	CAM2 - Hung H	Iing Printing Centre		Operator:	WK		
Date:	7-Sep-12		Next Due Date:				
Equipment No.:	A-01-40				10239		
							· · · · · · · · · · · · · · · · · · ·
			Ambient	Condition			
Temperatur	re, Ta (K)	302.2	Pressure, P	a (mmHg)		762.2	
n. 1.				tandard Inform	1	·	
Equipme		A-04-01	Slope, mc 0.0568			Intercept, be -0.0	
Last Calibra Next Calibra		9-Oct-11	me x Qstd + be = [ΔH x (Pa/760) x (298/Ta)] ^{1/2} Qstd = {[ΔH x (Pa/760) x (298/Ta)] ^{1/2} -be} / me				
ivext Calibra	ition Date:	8-Oct-12		$Qsta = \{ [\Delta H] \}$	x (Pa/760) x (298	/1a)] -bc} /	mc ,
		<u>·</u>	^{alibration} o	f TSP Sampler		. :	
		Orfice		i tor Sampler		HVS	
Calibration Point	ΔH (orifice),		(000 /T)) ^{1/2}	Qstd (CFM)	ΔW		60) x (298/Ta)] ^{1/2} Y-
i viit	in. of water	[ΔH x (Pa/760) x	(298/Ta)] ⁷⁷	X - axis	(HVS), in. of oil		axis
1	11.8	3.42		60.90	8.1		2.83
2	9.6	3.08		55.01	6.5		2.54
3	7.4	2.71		48.39	5.0		2.22
4	5.2	2.27		40.69	3,2		1.78
5	3.3	1.81		32.57	2.0		1.41
3y Linear Regre Slope , mw =	ession of Y on X 0.0508			Intercept, bw -	-0.257	18	
Correlation co		0.9994		intercept, bit	-01207	<u> </u>	
), check and recalibra	ate.	-			
			Set Point C	Calculation			
rom the TSP Fie	ld Calibration Cu	urve, take Qstd = 43	CFM				
rom the Regressi	ion Equation, the	"Y" value according	g to				
		muu v Ootd	1 have - 7 ANV	x (Pa/760) x (2	00 (T-1) ^{1/2}		
		mw x Qstu	$+ DW = [\Delta W]$	x (Pa/700) x (2)	98/1a)]		
Therefore, Set	Point; W = (mv	$x = x + bw^2 x (7)^2$	760 / Pa) x ('	Ta / 298) =	3.75		
				•			
emarks:							
_							
	1. 1.		1				
		Signature:	X(wi	<u>n'</u>		Date:	719/12
Checked by:	12-5	Signature:				Date:	7 September a

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. <u>MA0010/35/0046</u>

Station	CAM3 - Talcor	Industrial Ltd	Operator:		WK		
Date:	7-Sep-12		Next Due Date:		6-Nov-12		
Equipment No.:	A-01-35		-	Serial No.	0810		
·							
ļ	······································		Ambient	Condition	·		
Temperatu	ire, Ta (K)	302.2	Pressure, Pa	(mmHg)		762.2	
f							
	T		rifice Transfer Sta	1	1		
Equipm	1	A-04-01	Slope, mc	Slope, mc 0.0568 Intercept, bc -0.04 mc x Qstd + bc = $[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$			-0.0432
Last Calibr		9-Oct-11					
Next Calibr	ration Date:	8-Oct-12		Qstd = $\{ \Delta H $	x (Pa/760) x (298	/[a)[** -be} /	me
··· ·		•					
	T	<u>^</u>	Calibration of	15r Sampler	ľ	111/0	
Calibration	ΔH (orifice),		fice	Qstd (CFM)	ΔW	HVS	60) x (298/Ta)] ^{1/2} Y-
Point	in. of water	[ΔH x (Pa/76	0) x (298/Ta)] ^{1/2}	X - axis	(HVS), in. of oil		axis
1	11.8	3	3,42	60.90	8.0		2.81
2	9.8	3	3.11	55.57	6.5		2.54
3	8.0	2	2,81	50.28	5.1		2.25
4	5.1	2	2.25	40.30	3.2		1.78
5	3.2	1 1	.78	32.08	1.9		1.37
By Linear Regr Slope , mw = Correlation c *If Correlation C	0.0498 oefficient* =		997	ntercept, bw	-0.231	1	
			Set Point C	alculation			
From the TSP Fi	ield Calibration C	Curve, take Qstd =	43 CFM				
From the Regres	sion Equation, th	e "Y" value accor	ding to				
		muu x C	$2 \text{ std} + \text{bw} = [\Delta W]$	(Da/760) v ()	09/Ta)1/2		
		IIIW X Q	ζεία - υν [Δνι λ	(1 <i>al</i> 700) X (2	90/1 a)j		
Therefore, Set Point; $W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = 3.68$							
Remarks:							
Conducted by: <u>WK. 7ang</u> Signature: <u>MWAN</u> Date: <u>719/12</u> Checked by: <u>12</u> Signature: <u>Date: 7 September 0.</u>							



WELLAB LIMITED Rms 816, 1516 & 1701, Technology Park, 18 On Lai Street, Shatin, N.T, Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

2013-05-01

1 of 1

TEST RÉPORT

APPLICANT:	Cinotech Consultants Limited Room 1710, Technology Park,	Test Report No.: Date of Issue:	C/12/120501 2012-05-02
		Date Received:	2012-05-01
		Date Tested:	2012-05-01
		Date Completed:	2012-05-02

Next Due Date:

Page:

ATTN:

Mr. W.K Tang

Certificate of Calibration

Item for calibration:

I	Description	: RS232 Integral Vane Digital Anemometer
Ν	Manufacturer	: AZ Instrument
N	Model No.	: AZ8904
S	Serial No.	: 974835
E	Equipment No.	: A-03-03
nditio	ns:	
F	Room Temperature	: 23 degree Celsius
		

Test conditions:

Room Temperature	: 23 degree Celsi
Relative Humidity	: 67%
Pressure	: 101.2 kPa

Methodology:

The anemometer has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

	Reference Set Point	Instrument Readings
Measuring Air Velocity, m/s	2.00	2.00
Temperature, °C	21.0	21.0

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager

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TEST REPORT

DescriptionCalibration OrificeSerial No.1536Model No.G25ADate9 October 2011

Manufacturer Temperature,Ta (K) Pressure, Pa (mmHg) Thermo Andersen 298 762.3

Plate	Diff.Vol (m ³)	Diff.Time (min)	Diff.Hg (mm)	Diff.H ₂ O (in.)
1	1.00	1.3760	3.4	2.00
2	1.00	0.9740	6.4	4.00
3	1.00	0.8730	7.9	5.00
4	1.00	0.8320	8.6	5.50
5	1.00	0.6890	12.8	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9985	0.7257	1.4163
0.9946	1.0211	2.0030
0.9926	1.1370	2.2394
0.9917	1.1919	2.3487
0.9861	1.4313	2.8326
Y axis= SQR	T[H ₂ O(Pa/760))(298/Ta)]

Qstd Slope (m) = <u>2.00766</u> Intercept (b) = <u>-0.04318</u>

Coefficient(r) = 0.99999

Va	(X axis) Qa	(Y axis)
0.9955	0.7235	0.8842
0.9916	1.0181	1.2505
0.9896	1.1336	1.3981
0.9887	1.1884	1.4664
0.9832	1.4270	1.7685
Y axis= SQRT[H ₂ O(Ta/Pa)]		

 $AXIS = SQRT[H_2O(Ta/Pa)]$ Oa Slope (m) = 1.25716

va Siope (m)	= <u>1.25716</u>
Intercept(b)	= <u>-0.02696</u>
Coefficient (r)	= <u>0.99999</u>

CALCULATIONS

Vstd=Diff. Vol[(Pa-Diff.Hg)/760](298/Ta) Qstd=Vstd/Time Va=Diff.Vol[(Pa-Diff.Hg)/Pa] Qa=Va/Time

For subsequent flow rate calculations: Qstd=l/m{[SQRT($H_2O(Pa/760)(298/Ta))$]-b} Qa=l/m{[SQRT $H_2O(Ta/Pa)$]-b}

> PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

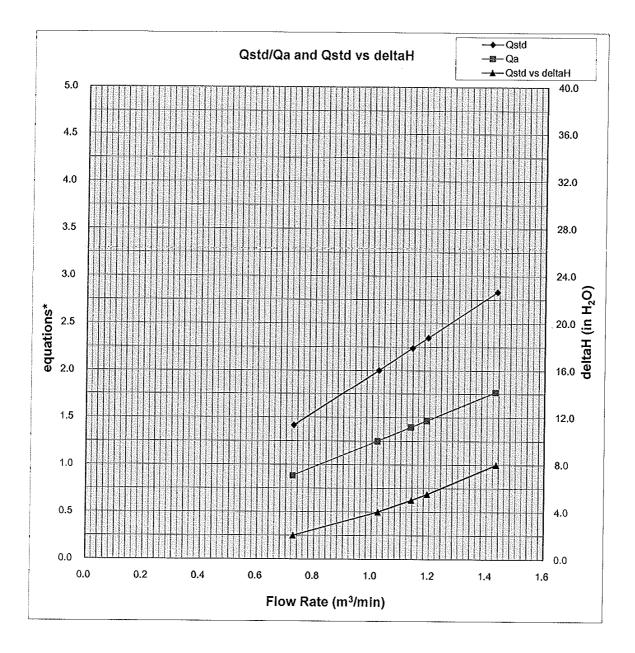
atick (le

PATRICK TSE Laboratory Manager

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TEST REPORT



Y-axis equations:

Qstd series: SQRT[△H(Pa/Pstd)(Tstd/Ta)]

Qa series: SQRT[Δ H(Ta/Pa)]

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TEST REPORT

APPLICANT: Cinotech Consultants Limited Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	C/N/120120/v1
Date of Issue:	2012-05-21
Date Received:	2012-01-20
Date Tested:	2012-01-20
Date Completed:	2012-01-21
Next Due Date:	2013-01-20
Page:	1 of 1

ATTN:

Mr. W. K. Tang

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05
s:	

Test conditions:

Room Temperatre **Relative Humidity** : 21 degree Celsius : 52%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

Remark: 1)This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager

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TEST REPORT

APPLICANT:Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong KongTest Report No.:
Date of Issue:
Date Received:
Date Tested:
Date Commission

-
-

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description: 'SVANTEK' Integrating Sound Level MeterManufacturer: SVANTEKModel No.: SVAN 957Serial No.: 21459Microphone No.: 43676Equipment No.: N-08-08s:

Test conditions:

Room Temperatre Relative Humidity : 22 degree Celsius : 67%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



TEST REPORT

APPLICANT:Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong KongTest Rep
Date of Is
Date of Is
Date Rec

a di kana ana ana ana ana ana ana ana ana an	· · · · · · · · · · · · · · · · · · ·
Test Report No.:	C/N/120901/3
Date of Issue:	2012-09-02
Date Received:	2012-09-01
Date Tested:	2012-09-01
Date Completed:	2012-09-02
Next Due Date:	2013-09-01
Page:	1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperatre Relative Humidity : 22 degree Celsius : 67%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



TEST REPORT APPLICANT: Cinotech Consultants Limited Test Report No.: C/N/120921/1 Room 1710, Technology Park, Date of Issue: 2012-09-22 18 On Lai Street, Date Received: 2012-09-21 Shatin, NT, Hong Kong Date Tested: 2012-09-21 Date Completed: 2012-09-22 Next Due Date: 2013-09-21 ATTN: Mr. W.K. Tang Page: 1 of 1 Item for calibration: Description : Acoustical Calibrator Manufacturer : SVANTEK Model No. : SV30A Serial No. : 10929 Equipment No. : N-09-01 **Test conditions:** Room Temperatre : 24 degree Celsius **Relative Humidity** : 56% Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager

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	TEST	REPOR	T	
APPLICANT			Test Report No.:	C/N/111008/1
	Room 1710, Technology	Park,	Date of Issue:	2011-10-10
	18 On Lai Street,		Date Received:	2011-10-08
	Shatin, NT, Hong Kong		Date Tested:	2011-10-08
			Date Completed:	2011-10-10
			Next Due Date:	2012-10-09
ATTN:	Mr. Henry Leung		Page:	1 of 1
Item for calibi	ration:			
	Description	: Acoustica	l Calibrator	
	Manufacturer	: SVANTE	K	
	Model No.	: SV30A		
	Serial No.	: 24803		
	Equipment No.	: N-09-03		
Test condition	s:			
	Room Temperatre	: 22 degree	Celsius	
	Relative Humidity	: 62%		
Methodology:				
	The Sound Level Calibrate documented procedures and			

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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PATRICK TSE Laboratory Manager

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TEST REPORT Cinotech Consultants Limited APPLICANT: Test Report No.: C/N/121005/1 Room 1710, Technology Park, Date of Issue: 2012-10-07 18 On Lai Street, Date Received: 2012-10-05 Date Tested: Shatin, NT, Hong Kong 2012-10-05 Date Completed: 2012-10-07 Next Due Date: 2013-10-06 ATTN: Mr. W.K. Tang Page: 1 of 1 Item for calibration: Description : Acoustical Calibrator Manufacturer : SVANTEK Model No. : SV30A Serial No. :24803 Equipment No. : N-09-03 **Test conditions:** Room Temperatre : 23 degree Celsius **Relative Humidity** : 64%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	$114.0 \pm 0.1 \mathrm{dB}$

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager

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APPENDIX C ENVIRONMENTAL MONITORING SCHEDULE

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct
		24 hr TSP		1 hr TSP	1 hr TSP Noise	
7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct
	1 hr TSP Noise		1 hr TSP		1 hr TSP	
	24 hr TSP					24 hr TSP
14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct
		1 hr TSP	1 hr TSP Noise	1 hr TSP		
					24 hr TSP	
21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct
	1 hr TSP Noise		1 hr TSP		1 hr TSP	
				24 hr TSP		
28-Oct	29-Oct	30-Oct	31-Oct			
	1 hr TSP Noise	1 hr TSP				
			24 hr TSP			

Contract No. DC/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Impact Air Quality and Noise Monitoring Schedule for October 2012

Contract No. DC/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Tentative Impact Air Quality and Noise Monitoring Schedule for November 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Nov	2-Nov	3-Nov
				1 hr TSP		
4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov
	1 hr TSP Noise	24 hr TSP	1 hr TSP		1 hr TSP	
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
	1 hr TSP Noise 24 hr TSP	1 hr TSP		1 hr TSP		24 hr TSP
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
	1 hr TSP Noise	1 hr TSP		1 hr TSP	24 hr TSP	
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	
	1 hr TSP Noise	1 hr TSP		24 hr TSP		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

APPENDIX D 1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix D - 1-hour TSP Monitoring Results

Station CAM1 Government Staff Quarters

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
4-Oct-12	10:30	Sunny	299.3	761.0	3.1109	3.1206	0.0097	18211.1	18212.1	1.0	1.22	1.22	1.22	73.3	132
5-Oct-12	09:00	Sunny	299.1	763.1	3.1117	3.1224	0.0107	18212.1	18213.1	1.0	1.22	1.22	1.22	73.4	146
8-Oct-12	09:00	Sunny	299.3	763.6	3.1746	3.1899	0.0153	18213.1	18214.1	1.0	1.22	1.22	1.22	73.4	208
10-Oct-12	14:00	Sunny	301.4	760.4	3.0788	3.0869	0.0081	18238.1	18239.1	1.0	1.22	1.22	1.22	73.1	111
12-Oct-12	09:00	Sunny	298.3	763.1	3.1602	3.1708	0.0106	18239.1	18240.1	1.0	1.23	1.23	1.23	73.5	144
16-Oct-12	10:45	Sunny	298.9	764.9	3.2060	3.2110	0.0050	18264.1	18265.1	1.0	1.23	1.23	1.23	73.5	68
17-Oct-12	09:00	Sunny	299.1	763.8	3.1167	3.1230	0.0063	18265.1	18266.1	1.0	1.22	1.22	1.22	73.5	86
18-Oct-12	09:00	Cloudy	295.5	765.9	3.1363	3.1485	0.0122	18266.1	18267.1	1.0	1.23	1.23	1.23	74.0	165
22-Oct-12	10:00	Sunny	299.3	765.8	3.1552	3.1592	0.0040	18291.1	18292.1	1.0	1.23	1.23	1.23	73.5	54
24-Oct-12	13:00	Sunny	299.6	763.1	3.1791	3.1838	0.0047	18292.1	18293.1	1.0	1.22	1.22	1.22	73.4	64
26-Oct-12	09:00	Cloudy	298.1	764.1	3.0718	3.0853	0.0135	18317.1	18318.1	1.0	1.23	1.23	1.23	73.6	183
29-Oct-12	09:00	Cloudy	298.3	764.5	3.0751	3.0827	0.0076	18318.1	18319.1	1.0	1.23	1.23	1.23	73.6	103
30-Oct-12	09:00	Rainy	296.3	762.3	3.0704	3.0845	0.0141	18319.1	18320.1	1.0	1.23	1.23	1.23	73.7	191
														Min	54
															000

Max 208 Average 127

Station CAM2

Heng Hing Printing Centre

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
4-Oct-12	10:30	Sunny	299.3	761.0	3.0958	3.1095	0.0137	27385.2	27386.2	1.0	1.23	1.23	1.23	73.7	186
5-Oct-12	09:00	Sunny	299.1	763.1	3.0932	3.1098	0.0166	27386.2	27387.2	1.0	1.23	1.23	1.23	73.8	225
8-Oct-12	09:00	Sunny	299.3	763.6	3.1001	3.1147	0.0146	27387.2	27388.2	1.0	1.23	1.23	1.23	73.8	198
10-Oct-12	14:00	Sunny	301.4	760.4	3.1579	3.1671	0.0092	27412.2	27413.2	1.0	1.22	1.22	1.22	73.4	125
12-Oct-12	09:00	Sunny	298.3	763.1	3.0829	3.0960	0.0131	27413.2	27414.2	1.0	1.23	1.23	1.23	73.9	177
16-Oct-12	10:45	Sunny	298.9	764.9	3.1789	3.1861	0.0072	27438.2	27439.2	1.0	1.23	1.23	1.23	73.9	97
17-Oct-12	09:00	Sunny	299.1	763.8	3.1616	3.1681	0.0065	27439.2	27440.2	1.0	1.23	1.23	1.23	73.8	88
18-Oct-12	09:00	Cloudy	295.5	765.9	3.1378	3.1541	0.0163	27440.2	27441.2	1.0	1.24	1.24	1.24	74.3	219
22-Oct-12	10:00	Sunny	299.3	765.8	3.1838	3.1895	0.0057	27465.2	27466.2	1.0	1.23	1.23	1.23	73.9	77
24-Oct-12	13:00	Sunny	299.6	763.1	3.0787	3.0867	0.0080	27466.2	27467.2	1.0	1.23	1.23	1.23	73.7	108
26-Oct-12	09:00	Cloudy	298.1	764.1	3.1763	3.1921	0.0158	27491.2	27492.2	1.0	1.23	1.23	1.23	73.9	214
29-Oct-12	09:00	Cloudy	298.3	764.5	3.0929	3.1011	0.0082	27492.2	27493.2	1.0	1.23	1.23	1.23	73.9	111
30-Oct-12	09:00	Rainy	296.3	762.3	3.1075	3.1210	0.0135	27493.2	27494.2	1.0	1.23	1.23	1.23	74.1	182
														Min	77
														Max	225

155

Average

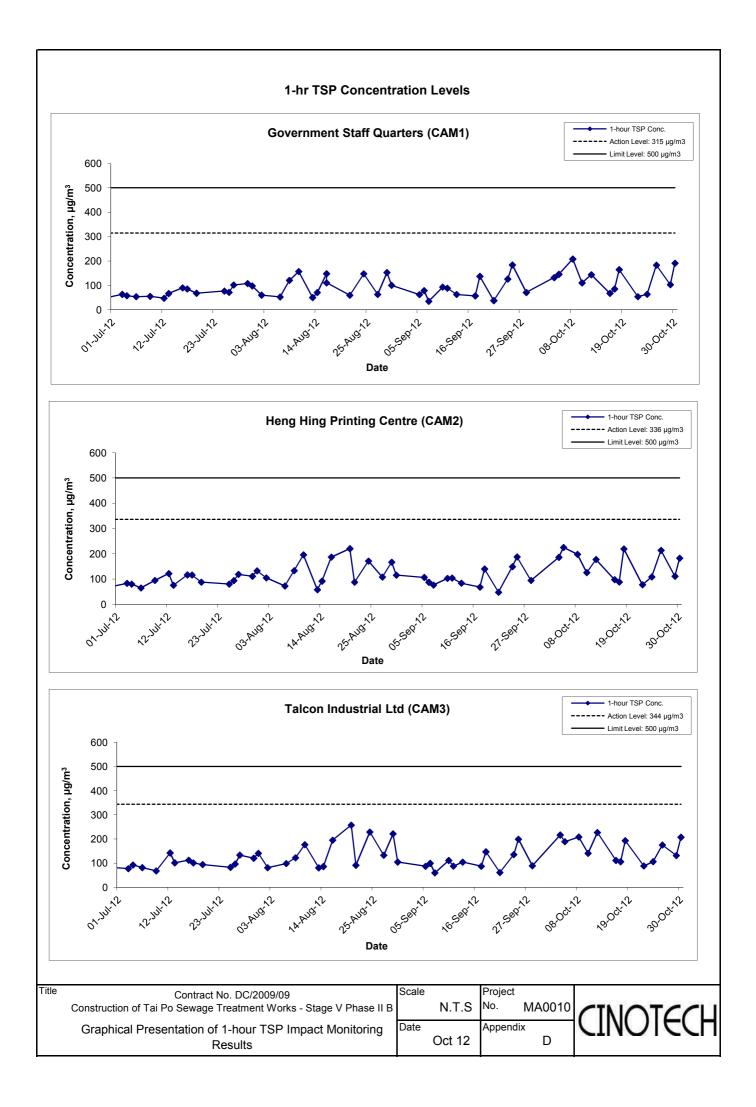
Appendix D - 1-hour TSP Monitoring Results

Station CAM3

Talcon Industrial Ltd

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
4-Oct-12	10:30	Sunny	299.3	761.0	3.0941	3.1100	0.0159	20626.9	20627.9	1.0	1.22	1.22	1.22	73.4	217
5-Oct-12	09:00	Sunny	299.1	763.1	3.1013	3.1152	0.0139	20627.9	20628.9	1.0	1.22	1.22	1.22	73.5	189
8-Oct-12	09:00	Sunny	299.3	763.6	3.1050	3.1203	0.0153	20628.9	20629.9	1.0	1.22	1.22	1.22	73.5	208
10-Oct-12	14:00	Sunny	301.4	760.4	3.1054	3.1157	0.0103	20653.9	20654.9	1.0	1.22	1.22	1.22	73.1	141
12-Oct-12	09:00	Sunny	298.3	763.1	3.1070	3.1237	0.0167	20654.9	20655.9	1.0	1.23	1.23	1.23	73.6	227
16-Oct-12	10:45	Sunny	298.9	764.9	3.0662	3.0744	0.0082	20679.9	20680.9	1.0	1.23	1.23	1.23	73.6	111
17-Oct-12	09:00	Sunny	299.1	763.8	3.1693	3.1771	0.0078	20680.9	20681.9	1.0	1.23	1.22	1.23	73.5	106
18-Oct-12	09:00	Cloudy	295.5	765.9	3.1233	3.1376	0.0143	20681.9	20682.9	1.0	1.23	1.23	1.23	74.0	193
22-Oct-12	10:00	Sunny	299.3	765.8	3.1140	3.1205	0.0065	20706.9	20707.9	1.0	1.23	1.23	1.23	73.6	88
24-Oct-12	13:00	Sunny	299.6	763.1	3.0788	3.0866	0.0078	20707.9	20708.9	1.0	1.22	1.22	1.22	73.4	106
26-Oct-12	09:00	Cloudy	298.1	764.1	3.1079	3.1208	0.0129	20732.9	20733.9	1.0	1.23	1.23	1.23	73.6	175
29-Oct-12	09:00	Cloudy	298.3	764.5	3.1327	3.1424	0.0097	20733.9	20734.9	1.0	1.23	1.23	1.23	73.6	132
30-Oct-12	09:00	Rainy	296.3	762.3	3.0024	3.0177	0.0153	20734.9	20735.9	1.0	1.23	1.23	1.23	73.8	207
														Min	88

Min 88 Max 227 Average 162



APPENDIX E 24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 24-hour TSP Monitoring Results

Station CAM1 Government Staff Quarters

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m³)
2-Oct-12	Sunny	300.3	761.1	3.0952	3.2216	0.1264	18187.1	18211.1	24.0	1.22	1.22	1.22	1757.5	72
8-Oct-12	Sunny	300.9	763.3	3.0922	3.2295	0.1373	18214.1	18238.1	24.0	1.22	1.22	1.22	1758.3	78
13-Oct-12	Cloudy	299.1	765.1	3.3492	3.4638	0.1146	18240.1	18264.1	24.0	1.23	1.23	1.23	1764.7	65
19-Oct-12	Sunny	297.6	766.3	3.1309	3.2560	0.1251	18267.1	18291.1	24.0	1.23	1.23	1.23	1769.9	71
25-Oct-12	Sunny	298.7	765.4	3.0835	3.2257	0.1422	18293.1	18317.1	24.0	1.23	1.23	1.23	1766.0	81
31-Oct-12	Sunny	291.1	765.5	3.1849	3.3113	0.1264	18320.1	18344.1	24.0	1.24	1.24	1.24	1786.4	71
													Min	65
													Max	81
													Average	73

Station CAM2

Heng Hing Printing Centre

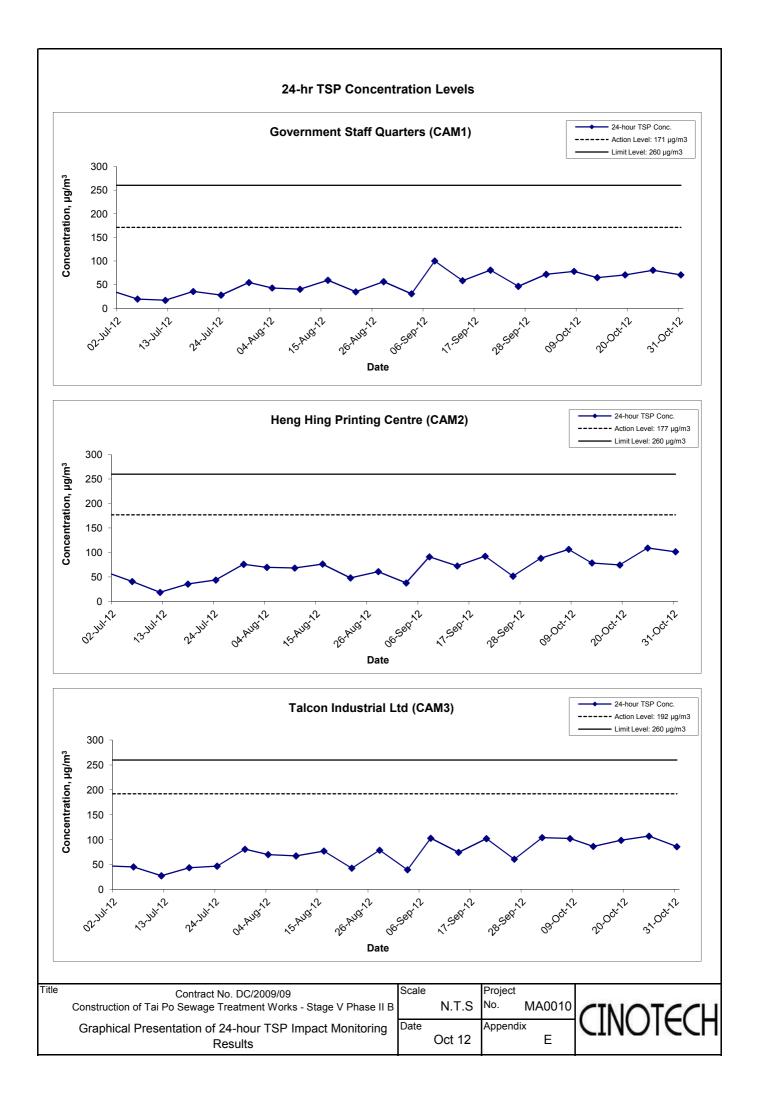
Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m³)
2-Oct-12	Sunny	300.3	761.1	3.2751	3.4308	0.1557	27361.2	27385.2	24.0	1.23	1.23	1.23	1765.7	88
8-Oct-12	Sunny	300.9	763.3	3.0984	3.2862	0.1878	27388.2	27412.2	24.0	1.23	1.23	1.23	1766.4	106
13-Oct-12	Cloudy	299.1	765.1	3.1310	3.2702	0.1392	27414.2	27438.2	24.0	1.23	1.23	1.23	1772.9	79
19-Oct-12	Sunny	297.6	766.3	3.0915	3.2239	0.1324	27441.2	27465.2	24.0	1.24	1.23	1.23	1778.1	74
25-Oct-12	Sunny	298.7	765.4	3.1160	3.3095	0.1935	27467.2	27491.2	24.0	1.23	1.23	1.23	1774.2	109
31-Oct-12	Sunny	291.1	765.5	3.0431	3.2251	0.1820	27494.2	27518.2	24.0	1.25	1.25	1.25	1794.7	101
			-			-							Min	74
													Max	109
													Average	93

Station CAM3

Talcon Industrial Ltd

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m³)
2-Oct-12	Sunny	300.3	761.1	3.1615	3.3445	0.1830	20602.9	20626.9	24.0	1.22	1.22	1.22	1758.2	104
8-Oct-12	Sunny	300.9	763.3	3.1470	3.3268	0.1798	20629.9	20653.9	24.0	1.22	1.22	1.22	1759.0	102
13-Oct-12	Cloudy	299.1	765.1	3.1056	3.2580	0.1524	20655.9	20679.9	24.0	1.23	1.23	1.23	1765.5	86
19-Oct-12	Sunny	297.6	766.3	3.2005	3.3752	0.1747	20682.9	20706.9	24.0	1.23	1.23	1.23	1770.7	99
25-Oct-12	Sunny	298.7	765.4	3.1097	3.2989	0.1892	20708.9	20732.9	24.0	1.23	1.23	1.23	1766.8	107
31-Oct-12	Sunny	291.1	765.5	3.1089	3.2624	0.1535	20735.9	20759.9	24.0	1.24	1.24	1.24	1787.5	86
													Min	86
													Max	107

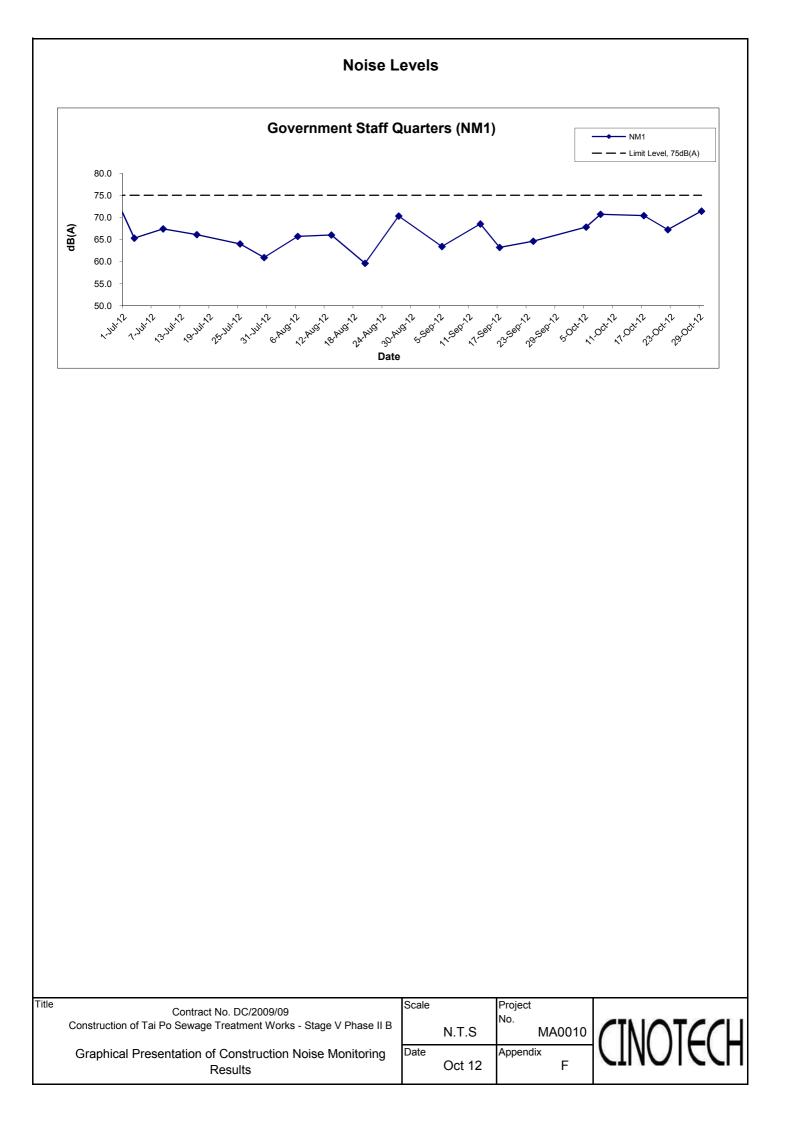
Average 97



APPENDIX F NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - Noise Monitoring Results

Location NM1 - Government Staff Quarters									
Dete	ate Time	T '		dE	3 (A) (30-min)				
Date		Weather	L _{eq}	L ₁₀	L ₉₀				
5-Oct-12	09:10	Sunny	67.8	70.2	65.0				
8-Oct-12	09:05	Sunny	70.7	71.9	68.9				
17-Oct-12	11:00	Cloudy	70.4	72.8	69.3				
22-Oct-12	09:00	Sunny	67.2	69.4	64.3				
29-Oct-12	14:45	Cloudy	71.4	72.7	68.6				
		Average	69.8	71.4	67.2				
		Minimum	67.2	69.4	64.3				
		Maximum	71.4	72.8	69.3				



FC8B	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8:45 AM 1:45 PM 8:45 AM 1:45 PM	79.1 79.1 <t< th=""><th>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</th><th>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</th><th>Oxygen (%) 20.9</th></t<>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Oxygen (%) 20.9
	4-Oct-12 4-Oct-12 5-Oct-12 6-Oct-12 6-Oct-12 8-Oct-12 9-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9
	4-Oct-12 5-Oct-12 6-Oct-12 6-Oct-12 8-Oct-12 9-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM 1:45 PM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	5-Oct-12 5-Oct-12 6-Oct-12 6-Oct-12 8-Oct-12 9-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	5-Oct-12 6-Oct-12 8-Oct-12 8-Oct-12 9-Oct-12 9-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	6-Oct-12 6-Oct-12 8-Oct-12 9-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	6-Oct-12 8-Oct-12 9-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM 1:45 PM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	8-Oct-12 8-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM	79.1 79.1	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	8-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM 1:45 PM	79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9
	9-Oct-12 9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9
	9-Oct-12 10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1	0 0 0 0 0 0 0	0 0 0 0 0 0	20.9 20.9 20.9 20.9 20.9 20.9 20.9
	10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1 79.1 79.1 79.1 79.1 79.1	0 0 0 0 0 0	0 0 0 0	20.9 20.9 20.9 20.9 20.9
	10-Oct-12 10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1 79.1 79.1 79.1	0 0 0 0	0 0 0	20.9 20.9 20.9 20.9 20.9
	10-Oct-12 11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1 79.1 79.1	0 0 0	0 0 0	20.9 20.9
	11-Oct-12 11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1 79.1 79.1	0 0 0	0	20.9 20.9
	11-Oct-12 12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM 1:45 PM 8:45 AM	79.1 79.1 79.1	0 0	0	20.9
	12-Oct-12 12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM 1:45 PM 8:45 AM	79.1 79.1	0		
	12-Oct-12 13-Oct-12 13-Oct-12 15-Oct-12	1:45 PM 8:45 AM	79.1		ů	20.9
	13-Oct-12 13-Oct-12 15-Oct-12	8:45 AM		0	0	20.9
	13-Oct-12 15-Oct-12		79.1	0	0	20.9
	15-Oct-12	1110 1111	79.1	0	0	20.9
		8:45 AM	79.1	0	0	20.9
	15 000 12	1:45 PM	79.1	0	0	20.9
	16-Oct-12	8:45 AM	79.1	0	0	20.9
	16-Oct-12	1:45 PM	79.1	0	0	20.9
	17-Oct-12	8:45 AM	79.1	0	0	20.9
	17-Oct-12	1:45 PM	79.1	0	0	20.9
	18-Oct-12	8:45 AM	79.1	0	0	20.9
	18-Oct-12	1:45 PM	79.1	0	0	20.9
	19-Oct-12	8:45 AM	79.1	0	0	20.9
	19-Oct-12	1:45 PM	79.1	0	0	20.9
	20-Oct-12	8:45 AM	79.1	0	0	20.9
	20-Oct-12	1:45 PM	79.1	0	0	20.9
	22-Oct-12	8:45 AM	79.1	0	0	20.9
	22-Oct-12	1:45 PM	79.1	0	0	20.9
	24-Oct-12	8:45 AM	79.1	0	0	20.9
	24-Oct-12	1:45 PM	79.1	0	0	20.9
	25-Oct-12	8:45 AM	79.1	0	0	20.9
	25 Oct 12 25-Oct-12	1:45 PM	79.1	0	0	20.9
	26-Oct-12	8:45 AM	79.1	0	0	20.9
	26-Oct-12	1:45 PM	79.1	0	0	20.9
	27-Oct-12	8:45 AM	79.1	0	0	20.9
	27-Oct-12	1:45 PM	79.1	0	0	20.9
	29-Oct-12	8:45 AM	79.1	0	0	20.9
	29-Oct-12	1:45 PM	79.1	0	0	20.9
	30-Oct-12	8:45 AM	79.1	0	0	20.9
		1:45 PM	79.1	0	0	20.9
	30-OCI-12	8:45 AM	79.1	0	0	20.9
	30-Oct-12 31-Oct-12		79.1	0	0	20.9

Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
FC9B	3-Oct-12	9:00 AM	79.1	0	0	20.9
	3-Oct-12	2:00 PM	79.1	0	0	20.9
	4-Oct-12	9:00 AM	79.1	0	0	20.9
	4-Oct-12	2:00 PM	79.1	0	0	20.9
	5-Oct-12	9:00 AM	79.1	0	0	20.9
	5-Oct-12	2:00 PM	79.1	0	0	20.9
	6-Oct-12	9:00 AM	79.1	0	0	20.9
	6-Oct-12	2:00 PM	79.1	0	0	20.9
	8-Oct-12	9:00 AM	79.1	0	0	20.9
	8-Oct-12	2:00 PM	79.1	0	0	20.9
	9-Oct-12	9:00 AM	79.1	0	0	20.9
	9-Oct-12	2:00 PM	79.1	0	0	20.9
	10-Oct-12	9:00 AM	79.1	0	0	20.9
	10-Oct-12	2:00 PM	79.1	0	0	20.9
	11-Oct-12	9:00 AM	79.1	0	0	20.9
	11-Oct-12	2:00 PM	79.1	0	0	20.9
	12-Oct-12	9:00 AM	79.1	0	0	20.9
	12-Oct-12	2:00 PM	79.1	0	0	20.9
	13-Oct-12	9:00 AM	79.1	0	0	20.9
	13-Oct-12	2:00 PM	79.1	0	0	20.9
	15-Oct-12	9:00 AM	79.1	0	0	20.9
	15-Oct-12	2:00 PM	79.1	0	0	20.9
	16-Oct-12	9:00 AM	79.1	0	0	20.9
	16-Oct-12	2:00 PM	79.1	0	0	20.9
	17-Oct-12	9:00 AM	79.1	0	0	20.9
	17-Oct-12	2:00 PM	79.1	0	0	20.9
	18-Oct-12	9:00 AM	79.1	0	0	20.9
	18-Oct-12	2:00 PM	79.1	0	0	20.9
	19-Oct-12	9:00 AM	79.1	0	0	20.9
	19-Oct-12	2:00 PM	79.1	0	0	20.9
	20-Oct-12	9:00 AM	79.1	0	0	20.9
	20-Oct-12 20-Oct-12	2:00 PM	79.1	0	0	20.9
	20-Oct-12 22-Oct-12	9:00 AM	79.1	0	0	20.9
	22-Oct-12 22-Oct-12	2:00 PM	79.1	0	0	20.9
	22-Oct-12 24-Oct-12	9:00 AM	79.1	0	0	20.9
	24-Oct-12	2:00 PM	79.1	0	0	20.9
	25-Oct-12	9:00 AM	79.1	0	0	20.9
	25-Oct-12	2:00 PM	79.1	0	0	20.9
	26-Oct-12	9:00 AM	79.1	0	0	20.9
	26-Oct-12	2:00 PM	79.1	0	0	20.9
	27-Oct-12	9:00 AM	79.1	0	0	20.9
	27-Oct-12	2:00 PM	79.1	0	0	20.9
	29-Oct-12	9:00 AM	79.1	0	0	20.9
	29-Oct-12	2:00 PM	79.1	0	0	20.9
	30-Oct-12	9:00 AM	79.1	0	0	20.9
	30-Oct-12	2:00 PM	79.1	0	0	20.9
	31-Oct-12	9:00 AM	79.1	0	0	20.9
	31-Oct-12	2:00 PM	79.1	0	0	20.9

Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
FC10B	3-Oct-12	9:15 AM	79.1	0	0	20.9
	3-Oct-12	2:15 PM	79.1	0	0	20.9
	4-Oct-12	9:15 AM	79.1	0	0	20.9
	4-Oct-12	2:15 PM	79.1	0	0	20.9
	5-Oct-12	9:15 AM	79.1	0	0	20.9
	5-Oct-12	2:15 PM	79.1	0	0	20.9
	6-Oct-12	9:15 AM	79.1	0	0	20.9
	6-Oct-12	2:15 PM	79.1	0	0	20.9
	8-Oct-12	9:15 AM	79.1	0	0	20.9
	8-Oct-12	2:15 PM	79.1	0	0	20.9
	9-Oct-12	9:15 AM	79.1	0	0	20.9
	9-Oct-12	2:15 PM	79.1	0	0	20.9
	10-Oct-12	9:15 AM	79.1	0	0	20.9
	10-Oct-12	2:15 PM	79.1	0	0	20.9
	11-Oct-12	9:15 AM	79.1	0	0	20.9
	11-Oct-12	2:15 PM	79.1	0	0	20.9
	12-Oct-12	9:15 AM	79.1	0	0	20.9
	12-Oct-12	2:15 PM	79.1	0	0	20.9
	13-Oct-12	9:15 AM	79.1	0	0	20.9
	13-Oct-12	2:15 PM	79.1	0	0	20.9
	15-Oct-12	9:15 AM	79.1	0	0	20.9
	15-Oct-12	2:15 PM	79.1	0	0	20.9
	16-Oct-12	9:15 AM	79.1	0	0	20.9
	16-Oct-12	2:15 PM	79.1	0	0	20.9
	17-Oct-12	9:15 AM	79.1	0	0	20.9
	17-Oct-12	2:15 PM	79.1	0	0	20.9
	18-Oct-12	9:15 AM	79.1	0	0	20.9
	18-Oct-12	2:15 PM	79.1	0	0	20.9
	19-Oct-12	9:15 AM	79.1	0	0	20.9
	19-Oct-12	2:15 PM	79.1	0	0	20.9
	20-Oct-12	9:15 AM	79.1	0	0	20.9
	20-Oct-12	2:15 PM	79.1	0	0	20.9
	22-Oct-12	9:15 AM	79.1	0	0	20.9
	22-Oct-12	2:15 PM	79.1	0	0	20.9
	24-Oct-12	9:15 AM	79.1	0	0	20.9
	24-Oct-12	2:15 PM	79.1	0	0	20.9
	25-Oct-12	9:15 AM	79.1	0	0	20.9
	25-Oct-12	2:15 PM	79.1	0	0	20.9
	26-Oct-12	9:15 AM	79.1	0	0	20.9
	26-Oct-12	2:15 PM	79.1	0	0	20.9
	27-Oct-12	9:15 AM	79.1	0	0	20.9
	27-Oct-12	2:15 PM	79.1	0	0	20.9
	29-Oct-12	9:15 AM	79.1	0	0	20.9
	29-Oct-12	2:15 PM	79.1	0	0	20.9
	30-Oct-12	9:15 AM	79.1	0	0	20.9
	30-Oct-12	2:15 PM	79.1	0	0	20.9
	31-Oct-12	9:15 AM	79.1	0	0	20.9
	31-Oct-12	2:15 PM	79.1	0	0	20.9

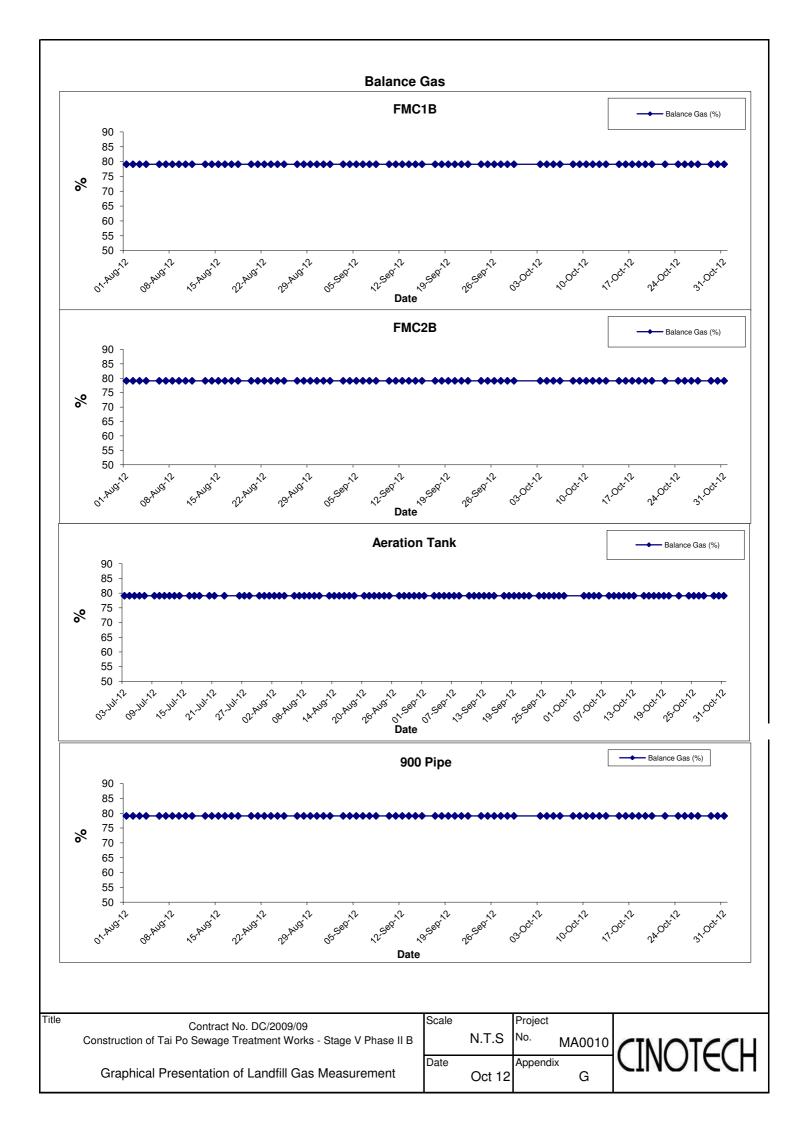
Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
Aeration Tank	3-Oct-12	8:00 AM	79.1	0	0	20.9
	3-Oct-12	1:00 PM	79.1	0	0	20.9
	4-Oct-12	8:00 AM	79.1	0	0	20.9
	4-Oct-12	1:00 PM	79.1	0	0	20.9
	5-Oct-12	8:00 AM	79.1	0	0	20.9
	5-Oct-12	1:00 PM	79.1	0	0	20.9
	6-Oct-12	8:00 AM	79.1	0	0	20.9
	6-Oct-12	1:00 PM	79.1	0	0	20.9
	8-Oct-12	8:00 AM	79.1	0	0	20.9
	8-Oct-12	1:00 PM	79.1	0	0	20.9
	9-Oct-12	8:00 AM	79.1	0	0	20.9
	9-Oct-12	1:00 PM	79.1	0	0	20.9
	10-Oct-12	8:00 AM	79.1	0	0	20.9
	10-Oct-12	1:00 PM	79.1	0	0	20.9
	11-Oct-12	8:00 AM	79.1	0	0	20.9
	11-Oct-12	1:00 PM	79.1	0	0	20.9
	12-Oct-12	8:00 AM	79.1	0	0	20.9
	12-Oct-12	1:00 PM	79.1	0	0	20.9
	13-Oct-12	8:00 AM	79.1	0	0	20.9
	13-Oct-12	1:00 PM	79.1	0	0	20.9
	15-Oct-12	8:00 AM	79.1	0	0	20.9
	15-Oct-12	1:00 PM	79.1	0	0	20.9
	16-Oct-12	8:00 AM	79.1	0	0	20.9
	16-Oct-12	1:00 PM	79.1	0	0	20.9
	17-Oct-12	8:00 AM	79.1	0	0	20.9
	17-Oct-12	1:00 PM	79.1	0	0	20.9
	18-Oct-12	8:00 AM	79.1	0	0	20.9
	18-Oct-12	1:00 PM	79.1	0	0	20.9
	19-Oct-12	8:00 AM	79.1	0	0	20.9
	19-Oct-12	1:00 PM	79.1	0	0	20.9
	20-Oct-12	8:00 AM	79.1	0	0	20.9
	20-Oct-12	1:00 PM	79.1	0	0	20.9
	22-Oct-12	8:00 AM	79.1	0	0	20.9
	22-Oct-12	1:00 PM	79.1	0	0	20.9
	24-Oct-12	8:00 AM	79.1	0	0	20.9
	24-Oct-12	1:00 PM	79.1	0	0	20.9
	25-Oct-12	8:00 AM	79.1	0	0	20.9
	25-Oct-12	1:00 PM	79.1	0	0	20.9
	25 Oct 12 26-Oct-12	8:00 AM	79.1	0	0	20.9
	26-Oct-12	1:00 PM	79.1	0	0	20.9
	20-Oct-12 27-Oct-12	8:00 AM	79.1	0	0	20.9
	27-Oct-12 27-Oct-12	1:00 PM	79.1	0	0	20.9
	27-Oct-12 29-Oct-12	8:00 AM	79.1	0	0	20.9
	29-Oct-12 29-Oct-12	1:00 PM	79.1	0	0	20.9
	30-Oct-12	8:00 AM	79.1	0	0	20.9
	30-Oct-12 30-Oct-12	1:00 PM	79.1	0	0	20.9
	31-Oct-12	8:00 AM	79.1	0	0	20.9
	31-Oct-12	1:00 PM	79.1	0	0	20.9

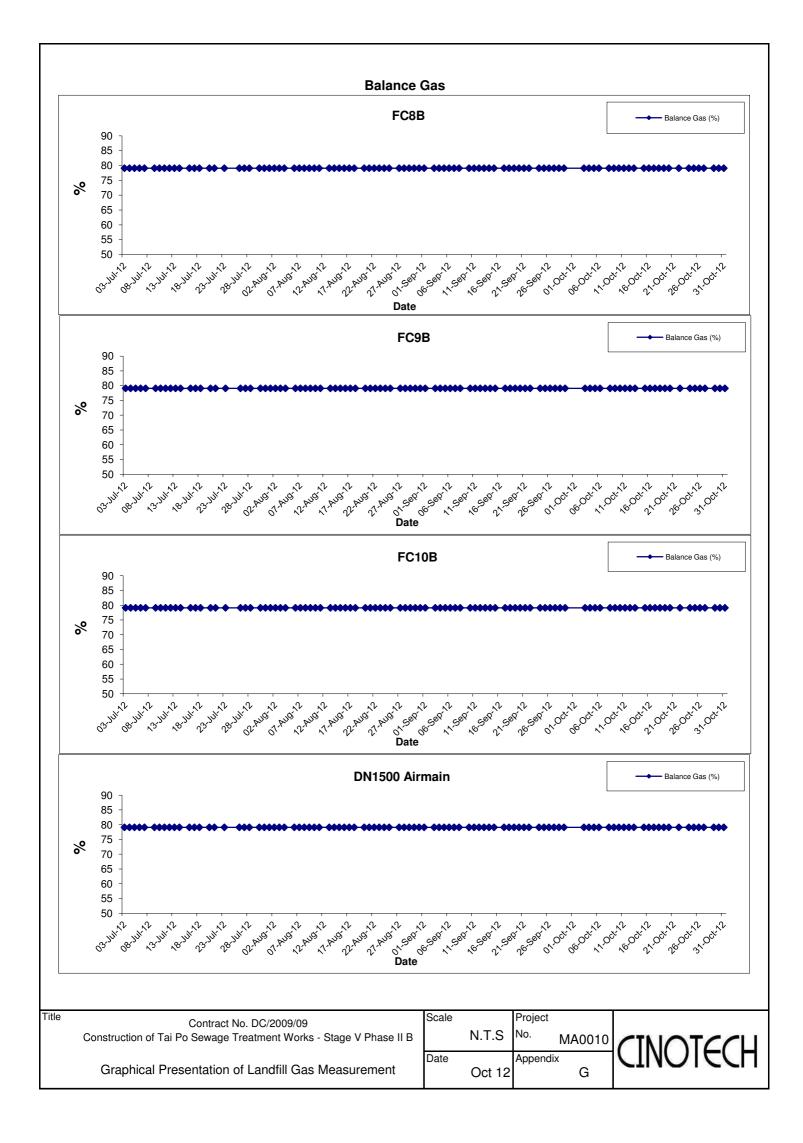
Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
000 Pine	3-Oct-12	8:30 AM	79.1	0	0	20.9
900 Pipe	3-Oct-12	1:30 PM	79.1	0	0	20.9
	4-Oct-12	8:30 AM	79.1	0	0	20.9
	4-Oct-12	1:30 PM	79.1	0	0	20.9
	5-Oct-12	8:30 AM	79.1	0	0	20.9
	5-Oct-12	1:30 PM	79.1	0	0	20.9
	6-Oct-12	8:30 AM	79.1	0	0	20.9
	6-Oct-12	1:30 PM	79.1	0	0	20.9
	8-Oct-12	8:30 AM	79.1	0	0	20.9
	8-Oct-12	1:30 PM	79.1	0	0	20.9
	9-Oct-12	8:30 AM	79.1	0	0	20.9
	9-Oct-12	1:30 PM	79.1	0	0	20.9
	10-Oct-12	8:30 AM	79.1	0	0	20.9
	10-Oct-12	1:30 PM	79.1	0	0	20.9
	11-Oct-12	8:30 AM	79.1	0	0	20.9
	11-Oct-12	1:30 PM	79.1	0	0	20.9
	12-Oct-12	8:30 AM	79.1	0	0	20.9
	12-Oct-12	1:30 PM	79.1	0	0	20.9
	13-Oct-12	8:30 AM	79.1	0	0	20.9
	13-Oct-12	1:30 PM	79.1	0	0	20.9
	15-Oct-12	8:30 AM	79.1	0	0	20.9
	15-Oct-12	1:30 PM	79.1	0	0	20.9
	16-Oct-12	8:30 AM	79.1	0	0	20.9
	16-Oct-12	1:30 PM	79.1	0	0	20.9
	17-Oct-12	8:30 AM	79.1	0	0	20.9
	17-Oct-12	1:30 PM	79.1	0	0	20.9
	18-Oct-12	8:30 AM	79.1	0	0	20.9
	18-Oct-12	1:30 PM	79.1	0	0	20.9
	19-Oct-12	8:30 AM	79.1	0	0	20.9
	19-Oct-12	1:30 PM	79.1	0	0	20.9
	20-Oct-12	8:30 AM	79.1	0	0	20.9
	20-Oct-12	1:30 PM	79.1	0	0	20.9
	22-Oct-12	8:30 AM	79.1	0	0	20.9
	22-Oct-12	1:30 PM	79.1	0	0	20.9
	24-Oct-12	8:30 AM	79.1	0	0	20.9
	24-Oct-12	1:30 PM	79.1	0	0	20.9
	25-Oct-12	8:30 AM	79.1	0	0	20.9
	25-Oct-12	1:30 PM	79.1	0	0	20.9
	26-Oct-12	8:30 AM	79.1	0	0	20.9
	26-Oct-12	1:30 PM	79.1	0	0	20.9
	27-Oct-12	8:30 AM	79.1	0	0	20.9
	27-Oct-12	1:30 PM	79.1	0	0	20.9
	29-Oct-12	8:30 AM	79.1	0	0	20.9
	29-Oct-12	1:30 PM	79.1	0	0	20.9
	30-Oct-12	8:30 AM	79.1	0	0	20.9
	30-Oct-12	1:30 PM	79.1	0	0	20.9
	31-Oct-12	8:30 AM	79.1	0	0	20.9
	31-Oct-12	1:30 PM	79.1	0	0	20.9

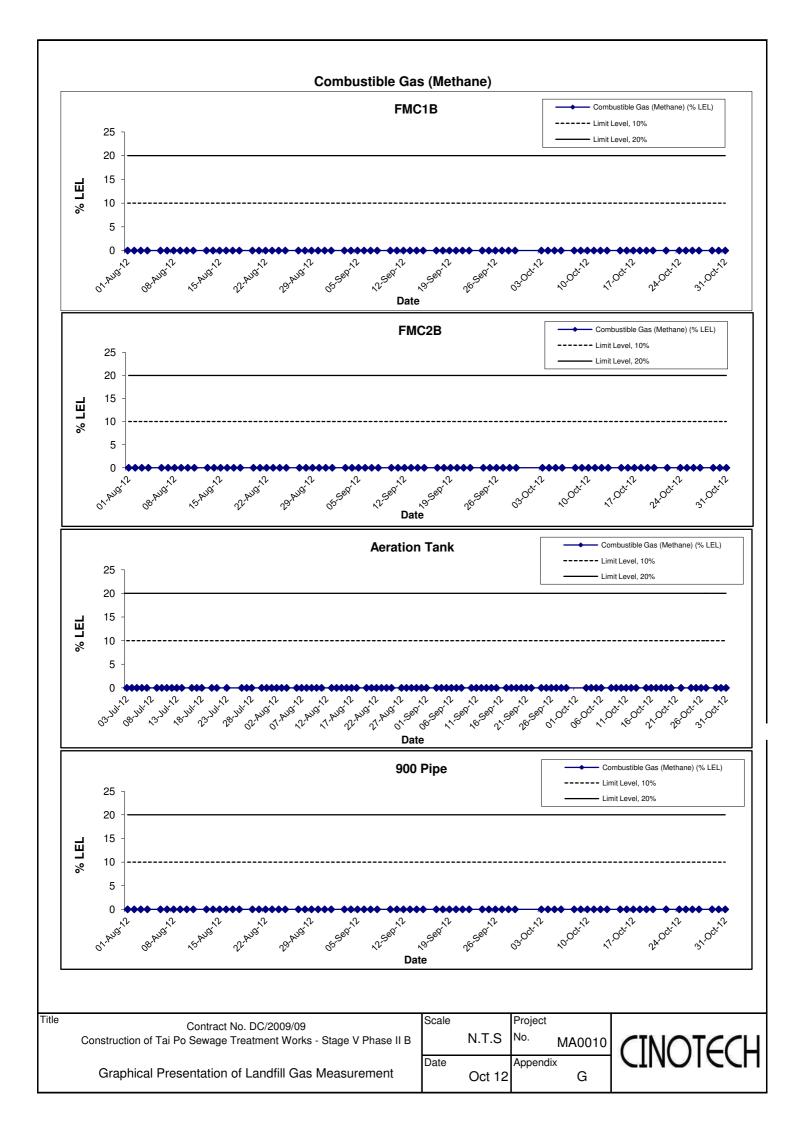
Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
DN 1500 Air Main	3-Oct-12	8:15 AM	79.1	0	0	20.9
DN 1300 Ali Mali	3-Oct-12	1:15 PM	79.1	0	0	20.9
	4-Oct-12	8:15 AM	79.1	0	0	20.9
	4-Oct-12	1:15 PM	79.1	0	0	20.9
	5-Oct-12	8:15 AM	79.1	0	0	20.9
	5-Oct-12	1:15 PM	79.1	0	0	20.9
	6-Oct-12	8:15 AM	79.1	0	0	20.9
	6-Oct-12	1:15 PM	79.1	0	0	20.9
	8-Oct-12	8:15 AM	79.1	0	0	20.9
	8-Oct-12	1:15 PM	79.1	0	0	20.9
	9-Oct-12	8:15 AM	79.1	0	0	20.9
	9-Oct-12	1:15 PM	79.1	0	0	20.9
	10-Oct-12	8:15 AM	79.1	0	0	20.9
	10-Oct-12	1:15 PM	79.1	0	0	20.9
	11-Oct-12	8:15 AM	79.1	0	0	20.9
	11-Oct-12	1:15 PM	79.1	0	0	20.9
	12-Oct-12	8:15 AM	79.1	0	0	20.9
	12-Oct-12	1:15 PM	79.1	0	0	20.9
	13-Oct-12	8:15 AM	79.1	0	0	20.9
	13-Oct-12	1:15 PM	79.1	0	0	20.9
	15-Oct-12	8:15 AM	79.1	0	0	20.9
	15-Oct-12	1:15 PM	79.1	0	0	20.9
	16-Oct-12	8:15 AM	79.1	0	0	20.9
	16-Oct-12	1:15 PM	79.1	0	0	20.9
	17-Oct-12	8:15 AM	79.1	0	0	20.9
	17-Oct-12	1:15 PM	79.1	0	0	20.9
	18-Oct-12	8:15 AM	79.1	0	0	20.9
	18-Oct-12	1:15 PM	79.1	0	0	20.9
	19-Oct-12	8:15 AM	79.1	0	0	20.9
	19-Oct-12	1:15 PM	79.1	0	0	20.9
	20-Oct-12	8:15 AM	79.1	0	0	20.9
	20-Oct-12	1:15 PM	79.1	0	0	20.9
	22-Oct-12	8:15 AM	79.1	0	0	20.9
	22-Oct-12	1:15 PM	79.1	0	0	20.9
	24-Oct-12	8:15 AM	79.1	0	0	20.9
	24-Oct-12	1:15 PM	79.1	0	0	20.9
	25-Oct-12	8:15 AM	79.1	0	0	20.9
	25-Oct-12	1:15 PM	79.1	0	0	20.9
	26-Oct-12	8:15 AM	79.1	0	0	20.9
	26-Oct-12	1:15 PM	79.1	0	0	20.9
	27-Oct-12	8:15 AM	79.1	0	0	20.9
	27-Oct-12	1:15 PM	79.1	0	0	20.9
	29-Oct-12	8:15 AM	79.1	0	0	20.9
	29-Oct-12	1:15 PM	79.1	0	0	20.9
	30-Oct-12	8:15 AM	79.1	0	0	20.9
	30-Oct-12	1:15 PM	79.1	0	0	20.9
	31-Oct-12	8:15 AM	79.1	0	0	20.9
	31-Oct-12	1:15 PM	79.1	0	0	20.9

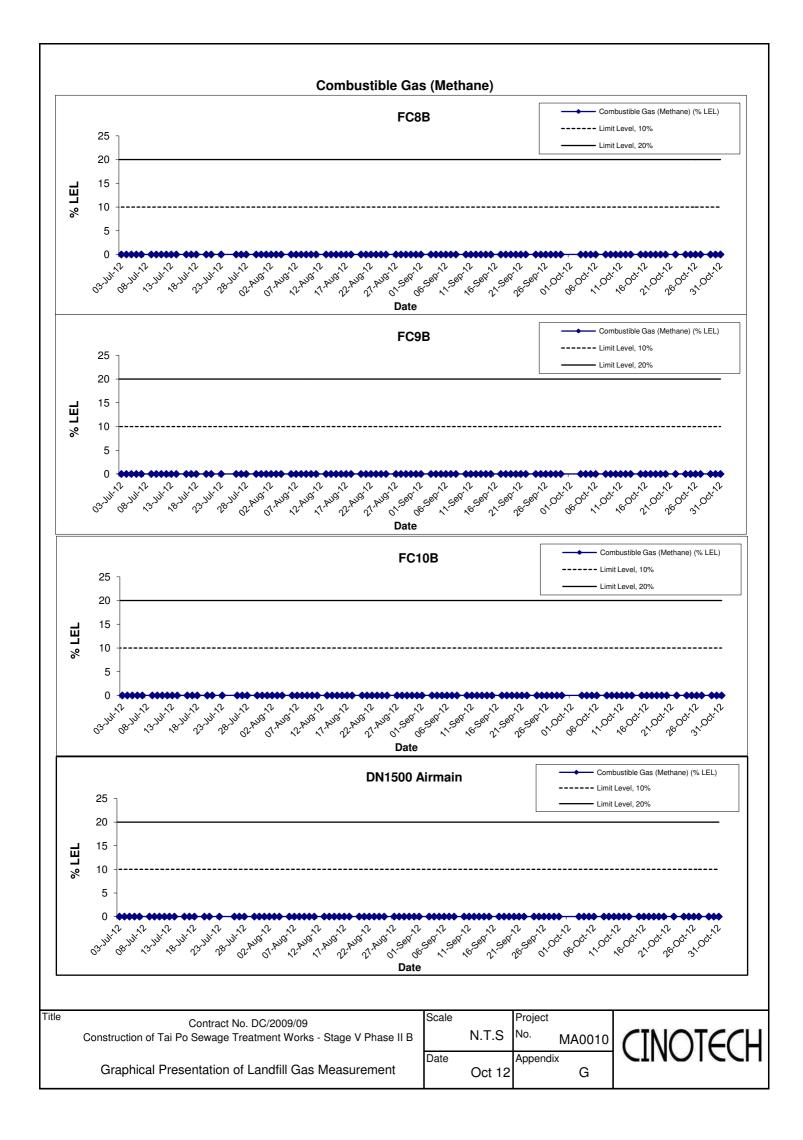
Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
FMC 1B	3-Oct-12	9:30 AM	79.1	0	0	20.9
FWIC IB	3-Oct-12	2:30 PM	79.1	0	0	20.9
	4-Oct-12	9:30 AM	79.1	0	0	20.9
	4-Oct-12	2:30 PM	79.1	0	0	20.9
	5-Oct-12	9:30 AM	79.1	0	0	20.9
	5-Oct-12	2:30 PM	79.1	0	0	20.9
	6-Oct-12	9:30 AM	79.1	0	0	20.9
	6-Oct-12	2:30 PM	79.1	0	0	20.9
	8-Oct-12	9:30 AM	79.1	0	0	20.9
	8-Oct-12	2:30 PM	79.1	0	0	20.9
	9-Oct-12	9:30 AM	79.1	0	0	20.9
	9-Oct-12	2:30 PM	79.1	0	0	20.9
	10-Oct-12	9:30 AM	79.1	0	0	20.9
	10-Oct-12	2:30 PM	79.1	0	0	20.9
	11-Oct-12	9:30 AM	79.1	0	0	20.9
	11-Oct-12	2:30 PM	79.1	0	0	20.9
	12-Oct-12	9:30 AM	79.1	0	0	20.9
	12-Oct-12	2:30 PM	79.1	0	0	20.9
	13-Oct-12	9:30 AM	79.1	0	0	20.9
	13-Oct-12	2:30 PM	79.1	0	0	20.9
	15-Oct-12	9:30 AM	79.1	0	0	20.9
	15-Oct-12	2:30 PM	79.1	0	0	20.9
	16-Oct-12	9:30 AM	79.1	0	0	20.9
	16-Oct-12	2:30 PM	79.1	0	0	20.9
	17-Oct-12	9:30 AM	79.1	0	0	20.9
	17-Oct-12	2:30 PM	79.1	0	0	20.9
	18-Oct-12	9:30 AM	79.1	0	0	20.9
	18-Oct-12	2:30 PM	79.1	0	0	20.9
	19-Oct-12	9:30 AM	79.1	0	0	20.9
	19-Oct-12	2:30 PM	79.1	0	0	20.9
	20-Oct-12	9:30 AM	79.1	0	0	20.9
	20-Oct-12	2:30 PM	79.1	0	0	20.9
	22-Oct-12	9:30 AM	79.1	0	0	20.9
	22-Oct-12	2:30 PM	79.1	0	0	20.9
	24-Oct-12	9:30 AM	79.1	0	0	20.9
	24-Oct-12	2:30 PM	79.1	0	0	20.9
	25-Oct-12	9:30 AM	79.1	0	0	20.9
	25-Oct-12	2:30 PM	79.1	0	0	20.9
	26-Oct-12	9:30 AM	79.1	0	0	20.9
	26-Oct-12 26-Oct-12	2:30 PM	79.1	0	0	20.9
	27-Oct-12	9:30 AM	79.1	0	0	20.9
	27-Oct-12	2:30 PM	79.1	0	0	20.9
	29-Oct-12	9:30 AM	79.1	0	0	20.9
	29-Oct-12	2:30 PM	79.1	0	0	20.9
	30-Oct-12	9:30 AM	79.1	0	0	20.9
	30-Oct-12	2:30 PM	79.1	0	0	20.9
	31-Oct-12	9:30 AM	79.1	0	0	20.9
	31-Oct-12	2:30 PM	79.1	0	0	20.9

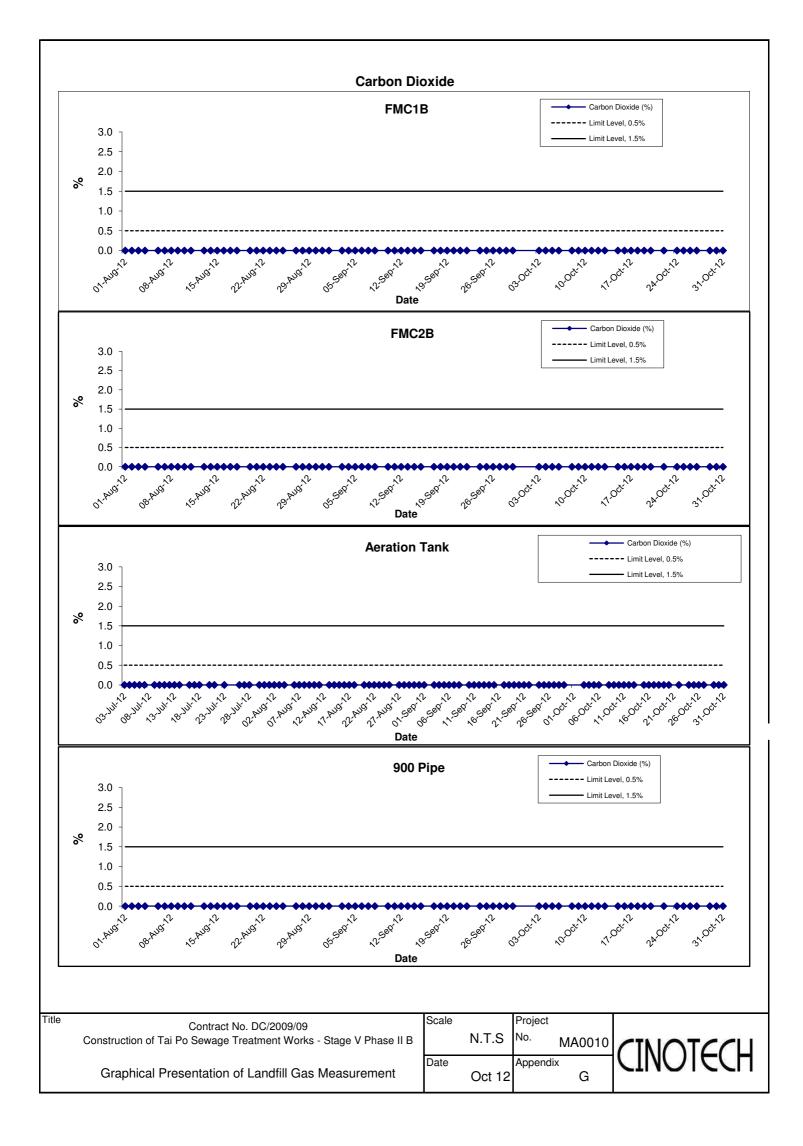
Location	Date of Measurement	Sampling time	Balance gas (%)	Combustible Gas (Methane) (% LEL)	Carbon dioxide (%)	Oxygen (%)
FMC 2B	3-Oct-12	9:45 AM	79.1	0	0	20.9
TWIC 2B	3-Oct-12	2:45 PM	79.1	0	0	20.9
	4-Oct-12	9:45 AM	79.1	0	0	20.9
	4-Oct-12	2:45 PM	79.1	0	0	20.9
	5-Oct-12	9:45 AM	79.1	0	0	20.9
	5-Oct-12	2:45 PM	79.1	0	0	20.9
	6-Oct-12	9:45 AM	79.1	0	0	20.9
	6-Oct-12	2:45 PM	79.1	0	0	20.9
	8-Oct-12	9:45 AM	79.1	0	0	20.9
	8-Oct-12	2:45 PM	79.1	0	0	20.9
	9-Oct-12	9:45 AM	79.1	0	0	20.9
	9-Oct-12	2:45 PM	79.1	0	0	20.9
	10-Oct-12	9:45 AM	79.1	0	0	20.9
	10-Oct-12	2:45 PM	79.1	0	0	20.9
	11-Oct-12	9:45 AM	79.1	0	0	20.9
	11-Oct-12	2:45 PM	79.1	0	0	20.9
	12-Oct-12	9:45 AM	79.1	0	0	20.9
	12-Oct-12	2:45 PM	79.1	0	0	20.9
	13-Oct-12	9:45 AM	79.1	0	0	20.9
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	15-Oct-12	9:45 AM	79.1	0	0	20.9
	15-Oct-12	2:45 PM	79.1	0	0	20.9
	16-Oct-12	9:45 AM	79.1	0	0	20.9
	16-Oct-12	2:45 PM	79.1	0	0	20.9
	17-Oct-12	9:45 AM	79.1	0	0	20.9
	17-Oct-12	2:45 PM	79.1	0	0	20.9
	18-Oct-12	9:45 AM	79.1	0	0	20.9
	18-Oct-12	2:45 PM	79.1	0	0	20.9
	19-Oct-12	9:45 AM	79.1	0	0	20.9
	19-Oct-12	2:45 PM	79.1	0	0	20.9
	20-Oct-12	9:45 AM	79.1	0	0	20.9
	20-Oct-12	2:45 PM	79.1	0	0	20.9
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	22-Oct-12	2:45 PM	79.1	0	0	20.9
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	24-Oct-12	2:45 PM	79.1	0	0	20.9
	25-Oct-12	9:45 AM	79.1	0	0	20.9
	25-Oct-12	2:45 PM	79.1	0	0	20.9
	25 Oct 12 26-Oct-12	9:45 AM	79.1	0	0	20.9
	26-Oct-12	2:45 PM	79.1	0	0	20.9
	20-Oct-12 27-Oct-12	9:45 AM	79.1	0	0	20.9
	27-Oct-12 27-Oct-12	2:45 PM	79.1	0	0	20.9
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	29-Oct-12 29-Oct-12	2:45 PM	79.1	0	0	20.9
	30-Oct-12	9:45 AM	79.1	0	0	20.9
	30-Oct-12	2:45 PM	79.1	0	0	20.9
	31-Oct-12	9:45 AM	79.1	0	0	20.9
	31-Oct-12	2:45 PM	79.1	0	0	20.9

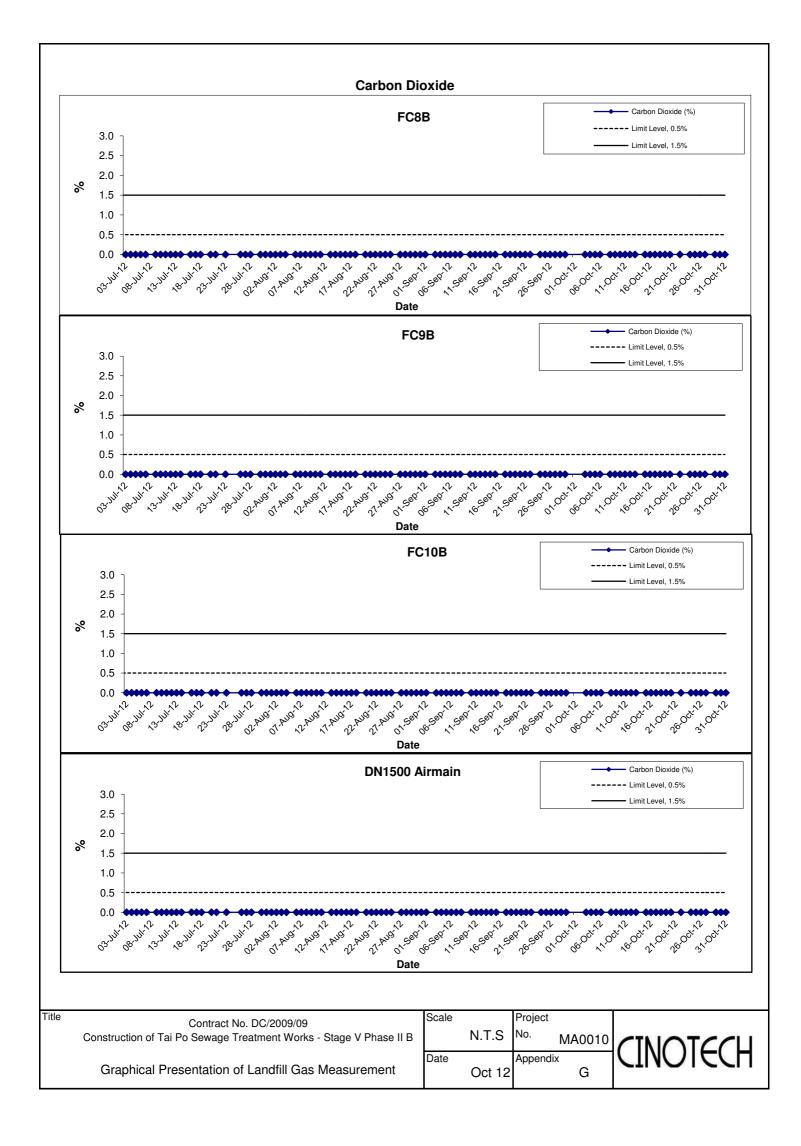


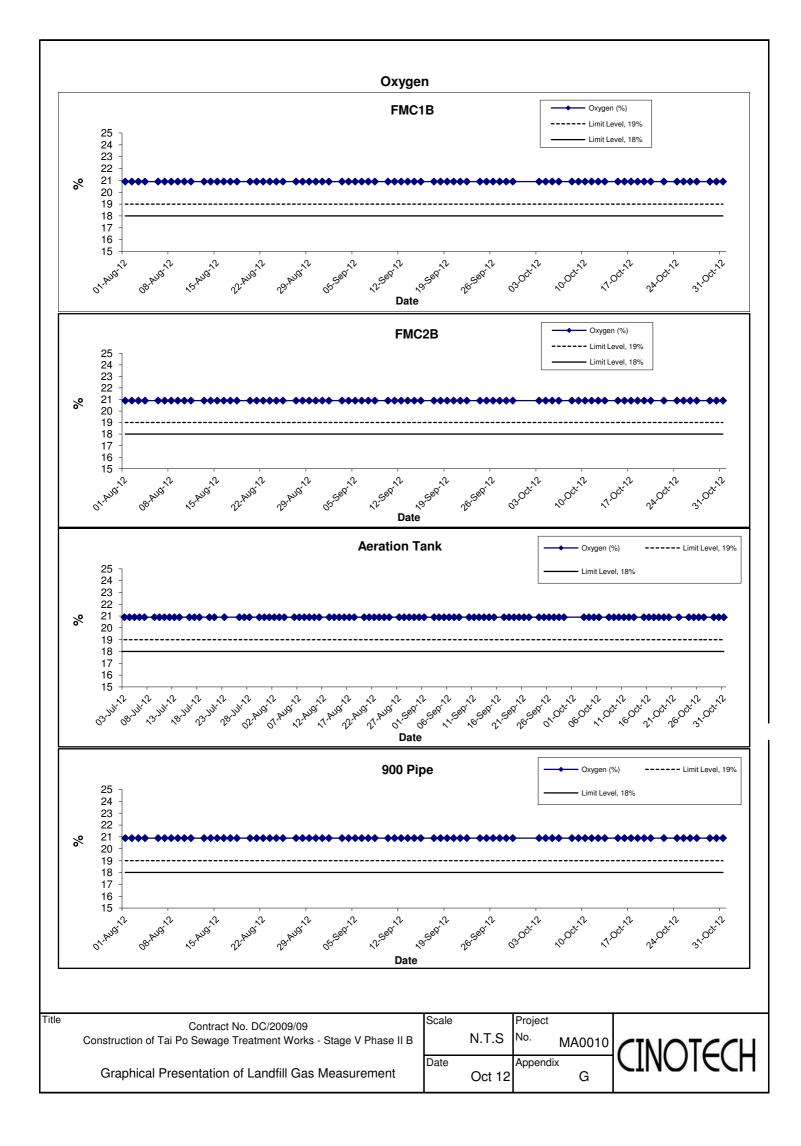


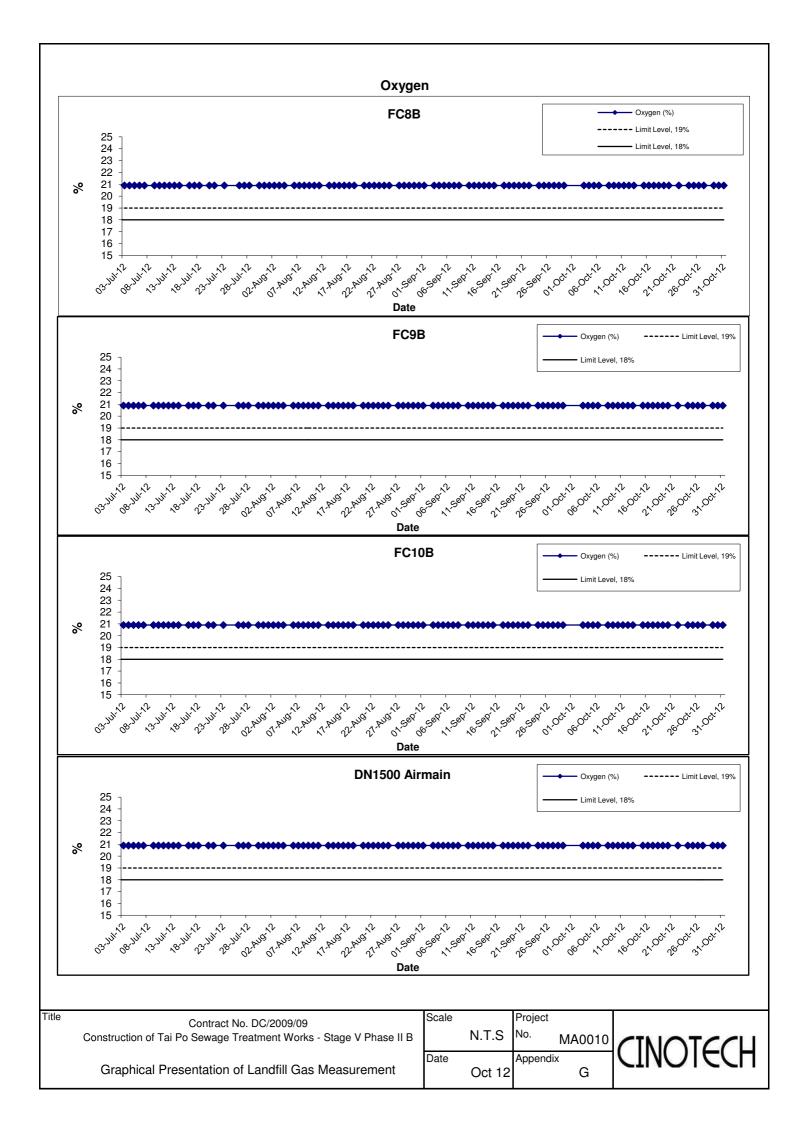












APPENDIX H SUMMARY OF EXCEEDANCE

APPENIDX H – SUMMARY OF EXCEEDANCE

Reporting Month: October 2012

- a) Exceedance Report for 1-hr TSP (NIL)
- b) Exceedance Report for 24-hr TSP (NIL)
- c) Exceedance Report for Construction Noise (NIL)
- d) Exceedance Report for Landfill Gas (NIL)

APPENDIX I SITE AUDIT SUMMARY

nspection Information	
Checklist Reference Number	121004
Date	4 October 2012 (Thursday)
Time	09:30-10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	=

Ref. No.	Remarks/Observations	Related Item
	Part B - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part C - Air Quality	
120921-R02	• Unpaved haul road should be watered regularly to suppress dust generation.	C6
120927-R04	• Dusty stockpile not in use should be covered by tarpaulin.	C7
120927-R05	• Sand and silt accumulated on the roadside near Dewatering House should be removed.	C3
121004-R02	• Dusty materials should be covered on Chemical House.	C7
	Part D – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part E - Waste / Chemical Management	
121004-R01	• Chemical stocks in PST5 should be stored and manage properly at designated area	E2i.
	Part F - Permit / Licenses	
120927-R03	Construction Noise Permit posted at site entrance should be updated.	F2
	Part G - Reminder	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:120927), follow-up action is needed for the item 120921-R02, 120927-R03, 120927-R04 and 120927-R05 in the next site inspection.	

	Name	Signature	Date
Recorded by	Ken Cheng	Cin	4 October 2012
Checked by	Dr. Priscilla Choy	NI	4 October 2012

Inspection Information

Checklist Reference Number	121012
Date	12 October 2012 (Friday)
Time	10:05-10:45

Ref. No.	Non-Compliance	Related Item
		No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
121012-R02	• Discharge wastewater at the sedimentation tank near FC11B was observed silty and should be cleared up.	B5iv.
	Part C - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part E - Waste / Chemical Management	
121012-R01	• Litter and debris at Chemical House should be removed.	E1iii.
	Part F - Permit / Licenses	
	No environmental deficiency was identified during the site inspection.	
	Part G - Reminder	
	No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:121004), all environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ken Cheng	Ven	12 October 2012
Checked by	Dr. Priscilla Choy	Twi	12 October 2012

Inspection Information	
Checklist Reference Number	121018
Date	18 October 2012 (Thursday)
Time	10:00-11:00

Ref. No.	Non-Compliance	Related Item
		No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part C - Air Quality	
121018-R01	• Sand and dusty materials on the haul roads inside TPSTW should be removed.	C3&C5
121018-R02	• Dusty materials at Chemical House should be removed to avoid dust generation.	C7
121018-R03	• Unpaved areas should be watered regularly to avoid dust generation.	C6
	Part D – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part E - Waste / Chemical Management	
121018-R04	• Oil stain near A-tank should be removed.	E2ii.
121018-R05	 Cements accumulated on the roadside near A-tank should be removed and disposed properly. 	E4ii.
	Part F - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Reminder	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:121012), all environmental	
	deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ken Cheng	Fen	18 October 2012
Checked by	Dr. Priscilla Choy	NZ	18 October 2012

Inspection Information						
Checklist Reference Number	121025					
Date	25 October 2012 (Thursday)					
Time	10:00-10:35					

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
121025-001	 Sedimentation tank should be provided near FMC1B for removal of sand and silt in wastewater from construction site before discharge. 	B5i.
121025-002	• Sand and silt accumulated at the sedimentation tank near FC11B should be removed.	B5iv.
	Part C - Air Quality	
121018-R01 121018-R02	 Sand and dusty materials on the haul roads inside TPSTW should be removed. Dusty materials at Chemical House should be removed to avoid dust generation. 	C3&C5 C7
	Part D – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part E - Waste / Chemical Management	
121025-R03	• Oil stain was observed near FMC1B and it should be removed.	E7i.
	Part F - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Reminder	
	• No environmental deficiency was identified during the site inspection.	
	Others	
· · · · · · · · · · · · · · · · ·	• Follow-up on previous audit section (Ref. No.:121018), follow up action is needed for items 121018-R01 and 121018-R02 and to be reviewed in next site inspection.	

	Name	Signature	Date	
Recorded by	Ken Cheng	Kin	25 October 2012	
Checked by	Dr. Priscilla Choy	NT	25 October 2012	

APPENDIX J EVENT ACTION PLANS

APPENDIX J (1) – Event Action Plan for Air Quality Monitoring (Construction Phase)

EVENT		ACTIO	N	
EVENI	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. 	 Check monitoring data submitted by ET; Check Contractor's working method. 	1. Notify Contractor.	 Rectify any unacceptable practice; Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	 Identify source; Inform IC(E) and ER; Advise the ER on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and ER; If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	 Confirm receipt of notification of exceedance in writing; Ensure remedial measures properly implemented. 	 Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform Contractor, IEC, ER, and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	 Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	 Notify IEC, ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	 Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	 Confirm receipt of notification of exceedance in writing; Notify Contractor; In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX J (2) – Event Action Plan for Construction Noise Monitoring (Construction Phase)

EVENT		ACT	TION	
EVENI	ET	IEC	ER	CONTRACTOR
ACTION LEVEL	 Notify IEC and Contractor; Carry out investigation; Report the results of investigation to the IEC, ER and Contractor; Discuss with the Contractor and formulate remedial measures; Increase monitoring frequency to check mitigation effectiveness. 	 Review the analyzed results submitted by the ET; Review the propose d remedial measures by the Contractor and advise the ER accordingly; Supervise the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Require Contractor to propose remedial measures for the analyzed noise problem; Ensure remedial measures are properly implemented. 	 Submit noise mitigation proposals to IEC; Implement noise mitigation proposals.
LIMIT LEVEL	 Identify source; Inform IEC, ER, EPD and Contractor; Repeat measurements to confirm findings; Increase monitoring frequency; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Inform IEC, ER and EPD the causes and actions taken for the exceedances; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	 Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Require Contractor to propose remedial measures for the analysed noise problem; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX J (3) – Event Action Plan for Landfill Gas Monitoring (Construction Phase)

Parameter	Limit Level	Action Required
Oxygen	<19%	Ventilate to restore oxygen to >19%
	<18%	Stop works;
		Evacuate personnel / prohibit entry;
		Increase ventilation to restore oxygen to $> 19\%$
Methane	>10% LEL (i.e. >0.5% by volume)	Post "no smoking signs;
		Prohibit hot works;
		Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. >1% by volume)	Stop works;
		Evacuate personnel / prohibit entry;
		Increase ventilation to restore methane to <10% LEL
Carbon Dioxide	>0.5%	Ventilate to restore carbon dioxide to <0.5%
	>1.5%	Stop works;
		Evacuate personnel / prohibit entry;
		Increase ventilation to restore carbon dioxide to $<0.5\%$

APPENDIX K UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

Type of Impact	Recommended Mitigation Measures	Status
Air Quality	Dust mitigation measures stipulated in <i>the Air Pollution Control (Construction Dust) Regulation</i> shall be incorporated to control dust emission. Notice shall be given to authority prior to commencing of work	V
Noise	Use of quiet PME	N/A
	 Good Site Practice Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; Mobile plant, if any, should be sited as far from NSRs as possible; Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities. 	V
Water Quality	The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted to minimize the potential water quality impacts from construction site runoff and various construction activities. The recommendation to install perimeter drains to collect site runoff and to properly treat the runoff by settlement tank/treatment system shall apply to all sites including those for mainlaying works. Minimum distances of 100 m should be maintained between the discharge points of construction site runoff and the existing WSD saltwater intake at Tai Po.	N
	A discharge licence needs to be applied from EPD for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies with all the standards listed in the TM. Reuse and recycling of the treated effluent can minimize water consumption and reduce the effluent discharge volume. The beneficial uses of the treated effluent may include dust suppression, wheel washing and general cleaning. Monitoring of the discharge quality of treated effluent should be part of the Environmental Monitoring and Audit (EM&A) programme. Detailed effluent sampling programme for water quality control during construction phase should be submitted to EPD, AFCD and WSD for approval prior to commencement of the construction works.	V
	The construction programme should be properly planned to minimize soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimize dust emission. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all time. The stockpiles of materials should be placed in the locations away from any stream courses so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. It is suggested that haul roads should be paved with concrete and the temporary access roads are protected using crushed stone or gravel, wherever practicable. Wheel washing facilities should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.	V
	Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment. It is recommended to clean the construction sites on a regular basis.	N

APPENDIX K – Updated Environmental Mitigation Implementation Schedule (During Construction Phase)

Type of Impact	Recommended Mitigation Measures	Status
	It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should not be less than 30 m from any watercourse. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis. The construction workers can also make use of the existing toilet facilities within the TPSTW as necessary.	\checkmark
	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. Implementation of environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.	V
	It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	V
	Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken with the areas appropriately equipped to control these discharges.	V
	 Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport Chemical waste containers should be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents. Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	V
	Marine water quality monitoring should be carried out under emergency condition or during maintenance of the THEES tunnel to verify the findings of the water quality modelling. It is recommended that the maintenance of the THEES tunnel, if unavoidable, should be conducted during winter season or low flow periods and to avoid the "blooming" season of algae (normally from April to June) if practicable. Details of the monitoring requirements are specified in the EM&A Manual.	N/A

Type of Impact	Recommended Mitigation Measures	Status
Waste Management	 Good site practices during the construction activities include: Nomination of approved personnel, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. Training of site personnel in proper waste management and chemical waste handling procedures. Provision of sufficient waste disposal points and regular collection for disposal. Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. A Waste Management Plan shall be prepared and this WMP shall be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details. In order to monitor the disposal of C&D materials at landfills and public filling areas, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may make reference to WBTC No. 21/2002 for details. A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed. 	V
	 Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. To encourage collection of aluminum cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force. Any unused chemicals or those with remaining functional capacity shall be recycled. Maximize the use of reusable steel formwork to reduce the amount of C&D material. Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimize the quantity of waste to be disposed of to landfill. Proper storage and site practices to minimize the potential for damage or contamination of construction materials. Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering 	√
	<i>General Refuse</i> General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.	V
	Construction & Demolition (C&D) Material C&D material generated from the site formation and demolition works shall be sorted on-site into inert C&D material (i.e. public fill) and C&D waste. In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material comprising fill material shall be reused on-site as backfilling material as far as practicable. C&D waste, such as wood, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process.	V

Type of Impact	Recommended Mitigation Measures	Status
	<i>Bentonite Slurry</i> Bentonite slurries used in construction works should be reconditioned and reused wherever practicable. Residual used bentonite slurry should be disposed of from the site as soon as possible. The Contractor should explore alternative disposal outlets for the residual used bentonite slurry and disposal at landfill should be the last resort.	N/A
Landfill Gas Hazard	All personnel who work on the site and all visitors to the site should be aware of the possibility of ignition of gas in the vicinity of excavations. Safety notices should be displayed at prominent position around the site. Adequate fire extinguisher equipment and fire resistant clothing should be made available on site.	V
	Service runs within the consultation zone should be designated as "special routes" and utilities companies should be informed of this and should implement precautionary measures.	\checkmark
	 Precautionary measures to minimize landfill gas hazard during excavation: No smoking or burning shall be allowed No worker shall work alone at any time in the confined space or any excavation trenches Construction equipment shall be equipped with a vertical exhaust at least 0.6 m above ground level and /or with a park arrestors Electrical motors and electrical extension cords shall be explosive-proof or intrinsically safe Permit to Work procedures to be adopted for welding, flame cutting or other hot works in trenches or confined spaces Forced ventilation if working in a trench deeper than 1 m Close all valves immediately after piping assembly or conduiting construction. For the large diameter pipes, pipe end shall be capped on one side. Forced ventilation shall also be provided before commissioning of the pipeline and staff entering and working in it Routine monitoring shall be conducted in all excavations to ensure the works shall be included in the Safety Plan Monitoring shall be conducted at the cracks on the ground floor during ground-works construction 	1
	 Where there are any temporary site offices, or any other buildings which have enclosed spaces with the capacity to accumulate landfill gas, then they should either: be located on an area which has been proven to be free of landfill gas (by survey with portable gas detectors) and monitored manually by the Safety Officer or an approved wand appropriately qualified person to ensure that hazardous concentration of landfill gas does not occur; or be raised clear of the ground. If buildings are raised clear of the ground, a minimum, clear separation (as measured from the highest point on the ground surface to the underside of lowest floor joist) should be 500mm 	V

Note: $\sqrt{-}$ Compliance of mitigation measures X - Non-compliance of mitigation measures N/A - Not applicable

APPENDIX L WASTE GENERATION IN THE REPORTING MONTH Name of Department: DSD

Contract No.: DC/2009/09

(Notes: The following Waste Flow Table should be used for contracts either not included under the Pay for Safety and Environment Scheme or exempted from the full requirement for environmental management)

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Month		Actual Quantities	of Inert C&D Mat	erials Generated	Monthly		Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastic (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
Jan	3.18	0	0	3.17	0.01	0	1.2	0	0	0	0.01
Feb	1.26	0	0	1.26	0	0	0.8	0	0	0	0.005
Mar	0.002	0	0	0	0.002	0.023	0.6	0	0	0	0.002
Apr	0	0	0	0	0	0	0	0	0	0	0.003
May	1.212	0	1.2	0	0.012	0	0	0	0	0	0.011
June	1.304	0	1.3	0	0.004	0	0	0	0	0	0.012
Sub-total	6.958	0	2.5	4.43	0.028	0.023	2.6	0	0	0	0.043
July	0.004	0	0	0	0.004	0	0	0	0	0	0.007
Aug	2.816	0	0	0	2.816	0	0	0	0	0	0.011
Sept	0.876	0	0	0	0.876	0.015	0	0	0	0	0.003
Oct	0.786	0	0.31	0	0.476	0	0.8	0.2	0	0	0.023
Nov											
Dec											
Total	11.440	0	2.81	4.43	4.2	0.038	3.4	0.2	0	0	0.087

Waste Flow Table

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

APPENDIX M COMPLAINT LOG

APPENDIX M – COMPLAINT LOG

Reporting Month: October 2012

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A	N/A

Remarks: No environmental complaint was received in the reporting month.

APPENDIX N CONSTRUCTION PROGRAMME

្រ ព័	Description	Orig Ea	arly tart	Early Finish	Total Float	
12025	Base Slab of FC11B	22 1900		09NOV10		FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
12030	Structural Wall for FC11B	35 10NC		14DEC10		Structural Wall for FC11B
12040	Watertightness Test for FC11B	20 15DE		03JAN11		Watertightness Test for FC11B
12050	Concrete Coating for FC11B	10 09JA		18JAN11	10d	Goncrete Coating for FC11B
12060	Backfilling for FC11B	20 04JA		23JAN11	0	► Backfilling for FC11B
Ripéline	Works					
13010	DN700 DI Pipe % FC12B & extg chamber	50 1900	<u>ጉ</u> ፐ1በ	07DEC10	52d	DN700 DI Pipe % FC12B & extg chamber
13020	DN700 DI Pipe % FC11B & extg chamber	50 10NC		29DEC10	30d	► Marine DN700 DI Pipe % FC12B & extg chamber
13030	Sludge Drawoff Chamber (C1B~C4B) & Pipework	30 23DE		21JAN11	7d	Sludge Drawoff Chamber (C1B~C4B) & Pipework
13040	Sludge Drawoff Chamber C5B & Pipework	15 14JA		28JAN11	0	Sludge Drawoff Chamber (C1B~C4B) & Pipework
13050	Cable Ducting at Sludge Dewatering House	150 30M/		26AUG10	155d	Cable Ducting at Sludge Dewatering House
	of Works			2040010	1.1200	Cable Ducling at Sludge Dewatering House
	Works					
4	Notification from Engineer					
20010	Section II of Works	90 29JA		28APR11	0	Notification from Engineer
		460 28FE		01JUN12	90d	→ Se
	Removal of extg Final Clarifier FC9 & FC10	25 28FE		24MAR11	···0	Removal of extg Final Clarifier FC9 & FC10
	Pre-drilling Works for FC9B & FC10B (18 nos)	45 25MA		08MAY11	0	Pre-drilling Works for FC9B & FC10B (18 nos)
	Removal of extg Final Clarifier FC7 & FC8	25 25MA		18APR11	20d	► Removal of extg Final Clarifier FC7 & FC8
	Pre-drilling Works for FC7B & FC8B (18 nos)	45 09MA		22JUN11	0	Pre-drilling Works for FC7B & FC8B (18 nos)
	Socketted H-piling (80 nos)	120 23JU		200CT11	0	Socketted H-piling (80 nos)
	Proof Drilling for Socketted H-pile (4 nos)	28 2100		17NOV11	0	Proof Drilling for Socketted H-p
	Load Test for extg Steel Pile (4 nos)	28 2100	T11	17NOV11	0	Load Test for extg Steel Pile (4
	Load Test for Socketted H-pile (1 no)	14 18NC		01DEC11	183d	► I Load Test for Socketted H-pil
	Pre-drilling Works for Washout Chamber (4 nos)	14 23JU	N11	06JUL11	7d	→ Image Pre-drilling Works for Washout Chamber (4 nos)
	Mini-piling for Washout Chamber (10 nos)	90 07JU	L11	040CT11	7d	Mini-piling for Washout Chamber (10
	Load Test for Mini-pile (1 no)	14 0500	T11	180CT11	7d	Load Test for Mini-pile (1 no)
contraction and a part	IIIELNO FC78 IO FC108					
	Excavation for FC10B	15 18NC	V11	02DEC11	0	► WE Excavation for FC10B
	Pile Head Construction for FC10B	20 03DE	C11	22DEC11	0	Pile Head Construction for
21050	Base Slab for FC10B	22 23DE		13JAN12	30d	Base Slab for FC10B
21060	Structural Wall for FC10B	35 14JA		17FEB12	30d	Structural Wall for
21070	Watertightness Test for FC10B	20 18FE		08MAR12	45d	Valitation
21080	Concrete Coating for FC10B	10 09MA		18MAR12	45d	→ Bit Concrete Coa
	Excavation for FC9B			17DEC11	.00 5d	► Excavation for FC9B
21110	Pile Head Construction for FC9B			11JAN12	0	Pile Head Construction
21120	Base Slab for FC9B			02FEB12	5d	
	Structural Wall for FC9B		·[.	08MAR12	5d	Base Slab for FC9B
21140	Watertightness Test for FC9B			28MAR12	35d	Structural Wall
	Concrete Coating for FC9B					
	Evenuetter (ECOD			07APR12	35d	
	Pile Head construction for FC8B	15 18DE			10d	Excavation for FC8B
		20 12JAN			0	Pile Head construction
	Base Slab for FC8B Structural Wall for FC8B	22 01FEE			25d	Base Slab for FC
	Watertightness for FC8B			28MAR12	25d	Structural W
		20 29MA	· · · [·		25d	The second s
	Concrete Coating for FC8B	10 18APF			25d	
	Excavation for FC7B	15 02JAN		16JAN12	15d	Excavation for FC7B
	Pile Head Construction for FC7B	20 01FEE		20FEB12	0	Pile Head Constru
	Base Slab for FC7B	22 21FEE		13MAR12	0	Base Slab for I
	Structural Wall for FC7B	35 14MA	R12	17APR12	0	
04070 IN	Watertightness Test for FC7B	20 18APF	12	07MAY12	0	→ Bat Watert
	Concrete Coating for FC7B	10 08MA	(12	17MAY12	15d	- → ⊠ Conc
21280 (Constant of the Anti-				
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21280 (ipeline W 22010 E	Vorks	15 19OCT 30 03NOV			7d 7d	
21280 (2010 E 22010 F 22020 F	Vorks Excavation for Washout Chamber	15 19OCT 30 03NOV 30 03DEC	/11 (02DEC11	7d 7d 7d	Excavation for Washout Chamber

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China Harbour Engineering Co. Ltd. TPSTW Stage 5 Phase 2B 056

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Project r	ev-Date					
531	Possession of Site		)	28JAN10	1155d	Possession of Site
	Completion of Section I of Works (365d)	0		28JAN11		Completion of Section 1 of Works (365d)
1992	Completion of Section II of Works (460d)	0	)	01JUN12	330d	-⊷ Complet
	Completion of Section III of Works (670d)	0	)	28DEC11	486d	► Completion of Section III of Wo
953	Completion of Section IV of Works (365d)	0	)	28JAN11	820d	Completion of Section IV of Works (365d)
<ul> <li>Additional and a second se</li></ul>	Completion of Section V of Works (1185d)	0		27APR13	0	
inc.	Site Clearance	30	29JAN10	27FEB10		Site Clearance
8.9	Contractor Site Office Set-up		28FEB10	28APR10		
	Engineer's Accommodation	- + · · ·	28FEB10	28APR10		► Engineer's Accommodation
1040	Initial Survey		29JAN10	29MAR10		Initial Survey
222	Condition Survey	.60	29JAN10	29MAR10	2d	
	Environmental Baseline Monitoring	14	30MAR10	12APR10	1111d	Environmental Baseline Monitoring
La contra a	Ion for Approval and a second s		6.54.54.44			
200	Engineer's Green Roof					Engineer's Green Roof
22.1 ·	Excavation and Lateral Support (ELS) Project Signboard		29APR10	28MAY10	-	Excavation and Lateral Support (ELS)
66.	Pile Load Test Set-up		29APR10 30MAR10	28MAY10		→ ■ Project Signboard
	Falsewk & Fwk for Pile Cap		29MAY10		90d	File Load Test Set-up Falsewk & Fwk for Pile Cap
	Falsewk & Fwk for Wall Structure		28JUN10	27JUL10	90d	► Falsewk & Fwk for Wall Structure
2070	Falsewk & Fwk for Top Slab	30	28JUL10	26AUG10	840d	Falsewk & Fwk for Tcp Slab
12	Multi-part Cover	45	27AUG10	10OCT10	840d	Multi-part Cover
82	FRP Handrail, Stair & Floor		110CT10			FRP Handrail, Stair & Floor
缺	FRP Cover Aluminium Flooring		110CT10			FRP Cover
03	Green Roof System at Sludge Dewatering House		25NOV10		840d	Aluminium Flooring
	Green Roof System at Transformer House		29APR10 29APR10		310d 1035d	Green Roof System at Sludge Dewatering House →
	abrication & Delivery		ZOAFINIO		10350	
	Casing for Mini-pile	55	29APR10	22JUN10	173d	Casing for Mini-pile
3020	Casing for Socketted H-pile		28FEB10	23APR10	0	Casing for Socketted H-pile
	Steel Member for Socketted H-pile	55	28FEB10	23APR10	0	Steel Member for Socketted H-pile
23	DI Water Pipe Puddle & Tee		29JAN10	27JUL10	90d	Martin Dina Duddla 9 Taa
56 C	DI Water Pipeline		29JAN10			
3060 Section I o	Steel Member for Shelter	60	29JAN10	29MAR10	1125d	Steel Member for Shelter
	ORS					
Contraction of the second	Section I of Work	365 *	29JAN10	28 14111	0	Section I of Work
1	Pre-drilling Works (18 nos)				0	Pre-drilling Works (18 nos)
	Preliminary Socketted H-pile		24APR10	30APR10	0	► Preliminary Socketted H-pile
	Load Test for Preliminary Pile	14	01MAY10	14MAY10	· ·· 0	- > the Load Test for Preliminary Pile
	Socketted H-piling (56 nos)	84	15MAY10	06AUG10	0	Socketted H-piling (56 nos)
	Proof Drilling (4 nos)		07AUG10	20AUG10	0	Proof Drilling (4 nos)
	Load Test for Main Pile (1 no)		07AUG10	20AUG10		Load Test for Main Pile (1 no)
	Removal of DN525 & DN900 conc. pipe	45	04JUL10	17AUG10	164d	Rémoval of DN525 & DN900 conc. pipe
R.	Excavation for FC12B		21AUG10	10SEP10		Francisco for EC40B
S	Pile Head Construction for FC12B		11SEP10	27SEP10	0	
§	Base Slab of FC12B		180CT10	180CT10	4d 7d	Base Slab of FC12B
§	Structural Wall for FC12B		<u> </u>	22NOV10	70	Structural Wall for FC12B
₩ <b></b>	Watertightness Test for FC12B	1	23NOV10	12DEC10	7d	Watertightness Test for FC12B
11050	Concrete Coating for FC12B			27DEC10	32d	Goncrete Coating for FC12B
<u></u>	Backfilling for FC12B	20	13DEC10	01JAN11	7d	► Backfilling for FC12B
()	Excavation for 11B			01OCT10	0	Excavation for 11B
12020	Pile Head Construction for FC11B	17	02OCT10	180CT10	0	Pile Head Construction for FC11B
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2010         Pre-dring for 751X, A75-477 (41 not)         108         234/010         Pre-dring for 751X, A75-477 (41 not)         108           3140         Predring for Model Lucz Channel (8 not)         7         8889710         2026710         0           3140         Predring for Model Lucz Channel (8 not)         7         8889710         2026710         0           3140         Predring for Model Lucz Channel (8 not)         7         8889710         2026710         0           3140         Predring for State (1 regints)				0	>				Section III of Works
1999         Providing for Xioung (Kioung (Kio				0	i <b>►⊠</b> iSite	e Clearar	Ce		
32142         Preliming Societation Lipping or BDS 128, CPU 0         2282PT0         0           30105         Load Text for Preliming Societation Lipping for PS15, ATS-AT7 (174 no.)         3010         Load Text for Preliming Societation Lipping for PS15, ATS-AT7 (174 no.)           30106         Load Text for Preliming Societation Lipping for PS15, ATS-AT7 (174 no.)         3010         Load Text for Preliming Societation Lipping for PS15, ATS-AT7 (174 no.)           30106         Load Text for Preliming Societation Lipping for PS15, ATS-AT7 (174 no.)         14 22UUH1         Load Text for PS15, ATS-AT7 (174 no.)           30108         Load Text for PS15, ATS-AT7 (174 no.)         14 22UUH1         Load Text for PS15, ATS-AT7 (174 no.)           30108         Load Text for Societation Lipping for PS15, ATS-AT7 (174 no.)         14 22UUH1         Load Text for PS15, ATS-AT7 (174 no.)           30108         Load Text for Societation Lipping for PS15, ATS-AT7 (174 no.)         19 200EC10         2205           30108         Load Text for Societation Lipping for PS15, ATS-AT7 (174 no.)         19 20EC10         2205           30109         Load Text for Societation Lipping for PS15, ATS-AT7 (174 no.)         14 20EC10         2205           30109         Load Text for Societation Lipping for PS15, ATS-AT7 (174 no.)         14 20EC10         2205           30100         Load Text for Mode Lippor Channel (2 no.)         14 20EC10         220				0			Pre-drilling for PST5,	AT5~AT7 (41 nos)	
Statts         User Tak for Presiminary Sockated Hole         14         2558/100         1000000000000000000000000000000000000				0			en <u>ante esta</u> en la serie de la seconda <b>en la seconda</b> en la seconda en		
3010         Socketted H-plang for PSTS, ATA-AT7 (74 mog)         202         Ford Find Find Find Find Find Find Find Fin				0				· · · · · · · · · · · · · · · · · · ·	
19/170       Prod Dilling Zar PSTS A ATS-AT7 (4 ros)       14       22/2/11       Prod Dilling for Status 4 Plan (2 ros)       Prod Dilling for Status 4 Plan (2 ros)         30100       Load Test for Sockated H-plan (2 ros)       16       22/2/2 ros       Prod Dilling for Status 4 Plan (2 ros)       Prod Dilling for Status 4 Plan (2 ros)         30100       Load Test for Sockated H-plan (2 ros)       16       22/2 ros       Prod Dilling for Status 4 Plan (2 ros)       Prod Dilling for Status 4 Plan (2 ros)         30202       Ford Dilling for Status 4 Plan (2 ros)       16       30/2/2 ros       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for Status 4 Plan (1 ros)         30202       Ford Dilling for Status 4 Plan (1 ros)       14       30/2/2 ros       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for Status 4 Plan (1 ros)         30202       Ford Dilling for Status 4 Plan (1 ros)       14       30/2/2 ros       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for Status 4 Plan (1 ros)         30202       Ford Dilling for Status 4 Plan (2 ros)       14       32/2/2 ros       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for Status 4 Plan (1 ros)         30202       Ford Dilling for Status 4 Plan (2 ros)       16       32/2/2 ros       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for Status 4 Plan (1 ros)       Prod Dilling for				0					for PETE ATE ATE (174 mon)
30100       Low Text for Sockettid Hyper (2 mor)       14       27.00011       00         30100       Preddings Sudge Digention Tank (1 mo)       15       105.000       22.000         30200       Sockated Hyper (2 mor)       00       10001000       22.000         30200       Sockated Hyper (2 mor)       00       10001000       22.000         30200       Sockated Hyper (2 mor)       10       20.000       12.000110       22.000         30201       Law Text For Subge Digestion Tank (1 mo)       14       20.000       12.000110       20.000000000000         30202       Prediminary Mine (1 for Mode Lupur Channel (2 mor)       14       20.00000000000000000000000000000000000			·	. 0					
3010         Pre-defining for Studies Digestion Tank (f no.)           30200         Pre-defining for Studies Digestion Tank (f no.)           30210         Pre-defining for Studies Digestion Tank (f no.)           30210         Pre-defining for Studies Digestion Tank (f no.)           30210         Pre-defining for Studies Digestion Tank (f no.)           30220         Pre-defining for Mixed Lipser Channel (f no.)           30220				0					
93020         Socketted H-pling for SD Tark (2P nos)         90 00CT0         2255C10         2256           93021         Nock (2P nos)         90 00CT0         2255C10         2256           93021         Nock (2P nos)         90 00CT0         2255C10         2256           93021         Nock (2P nos)         90 00CT0         2255F10         2256F10         2256F	30190 Pre-drilling for Sludge Digestion Tank (6 nos)			225d	• • • • • • • • • • • • • • • • • • •				
30210       Proof Drilling for Studge Digention Tank (1 no)       7       3002010       0.004,N111       2324         30210       Pred Drilling for Studge Digention Tank (1 no)       14       302201       Pred Drilling for Studge Digention Tank (1 no)         30210       Pred Drilling for Studge Digention Tank (1 no)       14       302201       Pred Drilling for Studge Digention Tank (1 no)         30220       Pred Drilling for Studge Digention Tank (1 no)       14       302281       Pred Drilling for Studge Digention Tank (1 no)         30220       Pred Drilling for Studge Digention Tank (1 no)       12       22528PH1       884         30220       Pred Drilling for Studge Digention Tank (2 no)       12       2254PH11       14         30220       Pred Drilling for Studge Digention Tank (1 no)       12       2254PH11       14         30220       Pred Drilling for Studge Digention Tank (2 no)       12       254PH11       14         30220       Pred Drilling for Studge Digention Tank (1 no)       16       254PH11       14       104         30220       Pred Drilling for Studge Digention Tank (1 no)       16       254PH11       14       104       104       104       104       104       104       104       104       104       104       104       104       104       <	30200 Socketted H-piling for SD Tank (29 nos)						Southern Southern	cketted H-piling for SD Tank (29 nos)	
30215         Load Test for Shdige Digestion Tank (1 no)         141 300EC10         152.4111         2286           2022         Preliminary Miniple for Mixed Luque Channel (7 no)         144 235EP10         30020         114 300EC11         114 466         114 466         114 300EC11         114 466         114 300EC11         114 466         114 300EC11         114 466         114 300EC11         114 466         114 300EC111         114 300EC111         114 300EC111         114 300EC111         114 300EC111         114 300EC111         114 300EC1							Pr Pr	oof Drilling for Sludge Digestion Tank (1	no)
3/222       Predminsy Man-pilling for Mixed Liquor Channel       11 (2528) F007 (2011)         3/224       Load Test for Mixed Liquor Channel (1 no)       14 (2587H)       688d       Image: State (1 no)         3/224       Load Test for Mixed Liquor Channel (2 nos)       14 (2587H)       688d       Image: State (1 no)         3/225       Proof Dilling for Mixed Liquor Channel (2 nos)       14 (2587H)       10MAY11       104         3/226       Proof Dilling for Mixed Liquor Channel (2 nos)       14 (2587H)       10MAY11       104         3/226       Proof Dilling for Mixed Liquor Channel (2 nos)       14 (2587H)       2804H)       Proof Dilling for Mixed Liquor Channel (2 nos)         3/227       Pre-dilling for Bio-gas Holding Tank (1 no)       7 (581H)       12 (258 PDH)       258 PDH)       258 PDH       258 PD				225d				oad Test for Sludge Digestion Tank (1 nd	)
3020         Min-pints for Meed Liquer Channel (79 nos.)         200 (70CTT0         24APR11         110AV111         3020         Prod Diling for Mixed Liquer Channel (7 nos.)         120APR11         110AV111         111AV111         1111AV1111         111AV111         111AV						<u>.</u>	Preliminary Mini-	pile for Mixed Liquor Channel	
30200       Preof Drilling for Mixed Liquor Channel (1 no)       7       22APR11       GMM211       The Preof Drilling for Mixed Liquor Channel (1 no)         30200       Lead Ter K Mixed Liquor Channel (2 no)       14       24APR11       GMM211       The Preof Drilling for Mixed Liquor Channel (2 no)         30201       Preof Drilling for Mixed Liquor Channel (2 no)       22 24PR11       154U11       154U11       154U11         30202       Preof Drilling for Mixed Liquor Channel (2 no)       22 24PR11       154U11       154U111       154U111       154U1							Load Test for M	lini-pile (1 no)	
30200       Load Test for Model Liguor Channel (2 nos)       14 24APR11       00004711       004         30207       Prode/ling for Bio-gas Holding Tank (12+6 nos)       22502       Prode/ling for Bio-gas Holding Tank (12+6 nos)       2202         30209       Prode/ling for Bio-gas Holding Tank (12+6 nos)       2224PR11       143UN11       1450         30209       Prode/ling for Bio-gas Holding Tank (12+6 nos)       2224PR11       143UN11       1450         30209       Prode/ling for Bio-gas Holding Tank (12+6 nos)       2212PR11       143UN11       1450         30200       Pile Held for AT58 AT6       30 13UUL1       00AUG11       0       0       0         30200       Pile Held for AT58 AT6       30 120CT11       280CT11       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0									
30270       Pre-drilling for Biogas Holding Tark (12+0 no.)       10 [165EP10]       255EP10       2500         30280       Min-Initig for Biogas Holding Tark (12+0 no.)       7 [16JUN11]       1440       1440         30280       Fred Drilling for Biogas Holding Tark (12+0 no.)       7 [16JUN11]       22JUN11]       1440         30280       Fred Drilling for Biogas Holding Tark (12+0 no.)       7 [16JUN11]       22JUN11]       1440         30280       Fred Drilling for Biogas Holding Tark (12+0 no.)       7 [16JUN11]       22JUN11]       1440         30280       File Head for AT5 & AT6 (22 nos.)       14 [10AUG11]       0									
30280       Mini-pling for Biogas Holding Tark (12+8 nog)       25 26APR11       140001         20280       4Proof Diffing for Biogas Holding Tark (12+8 nog)       74 FAUJUN1 12 201UN11       1450         20280       4Proof Diffing for Biogas Holding Tark (12+8 nog)       74 FAUJUN1 12 201UN11       1450         20100       Excavation for ATS & AT6       30 11UUL11       06AUG11       0         20120       Pile Head for ATS & AT6       30 11UUL11       06AUG11       0         31020       Pile Head for ATS & AT6       30 280CH1 240U11       22         31030       Pile Cap for ATS & AT6       30 280CH1 240U11       32d         31040       Biogas Holding Tark (12+8 nog)       30 280CH1 240U11       32d         31050       Structural Wal for ATS & AT6       30 280CH1 240U11       32d         31060       Excavation for Efflaunt Chamber       10 24AUG11       32d         31070       Pile Head for Effluent Chamber       20 02NU11       102SEP11       65d         31000       Pile Cap for F156 AT7       20 2AUG11       00SEP11       73d         31100       Pile Head for F156 AT7       20 2AUG11       00SEP11       73d         31100       Pile Head for F156 AT7       20 2AUG11       00SEP11       73d         3		· ···							r Channel (2 nos)
30290       Proof Drilling to Bio-gas Holding Tank (1 no)       7       FLUNH1       1467         30100       Excavation for ATS & AT6       30       11UUL11       09AUG11       0         31010       Excavation for ATS & AT6       30       11UUL11       09AUG11       0         31010       Excavation for ATS & AT6       30       11UUL11       09AUG11       0         31022       Pile Head for ATS & AT6       30 SSEP11       250       03SEP11       260         31020       Viel Head for ATS & AT6       50 SSEP11       262       03SEP11       262         31000       Excavation for FIltuent Chamber       10       10AUA11       284       44         31000       Viel Head for ATS & AT6       27       28       28       10AUA12       284         31000       Viel Head for ATS & AT6       10       10AUA11       324       10AUA11       284       10AUA11       284         31000       Excavation for Effluent Chamber       10       10AUA11       344       10       10AUA11       344       <					· · · · · · · · · · · · · · · · · · ·				
Bill of Exclusion parts & Art B       30       11JUL11       08AUG11       0         30100       Exclusion for ATS & ATB       30       11JUL11       08AUG11       0         30100       Exclusion for ATS & ATB       30       11JUL11       08AUG11       0         30100       Exclusion for ATS & ATB       30       11JUL11       08AUG11       0         30102       Exclusion for ATS & ATB       30       3028 (Bit Att B)       0       0         30102       Exclusion for ATS & ATB       30       3028 (Bit Att B)       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0								Proof Drilling for Bi	a-cas Holding Tank (12+0 hos)
31020       Pile Head for AT5 & AT6 (22 nos)       14       10AUCT 1       23AUGT 1       0         31020       Pile Head for AT5 & AT6 (26 nos remained)       53       03SEP11       23AUGT 1       0         31020       Pile Head for AT5 & AT6 (26 nos remained)       53       03SEP11       23AUGT 1       0         31020       Pile Op for AT5 & AT6       30       28OCT11       23AUGT 1       0         31040       Structural Wail for AT5 & AT6       60       26NOT11       3AUA12       32d         31060       Excavation for Effluent Chamber       10       10AUGT 1       03AUGT 1       03SEP11       23G         31070       Pile Head for AT5 & AT6       11       14AN12       30AN12       32d       30G       Pile Head for Effluent Chamber       10       10AUGT 1       03SEP11       02SEP11       03       03SEP11       02SEP11       03SEP11       02SEP11<	Primary Sedimentation Tank & Aeration Tank					<u> </u>			
31020 Pile Head for AT5 & AT6 (22 nos)       14       10AUG11       22AUG11       0         31025       Pile Head for AT5 & AT6 (36 nos remained)       36       035EP11       25COT11       0         31020       Pile Cap for AT5 & AT6       30       26CCT11       24NOV11       32d         31020       Pile Cap for AT5 & AT6       50       26NOV11       13AN12       32d         31020       Pile Cap for AT5 & AT6       50       26NOV11       13AN12       32d         31020       Pile Cap for AT5 & AT6       50       26NOV11       13AN12       32d         31020       Pile Cap for AT5 & AT6       17       14AN12       32d       14       10AUG11       12AUG11       32d         31020       Pile Cap for Filise IChamber       10       10AUG11       13AUG11       23d       14       10AUG11       13AUG11       12AUG11       13AUG11       13D       14       10AUG11       12AUG11       12AUG11 <t< td=""><td></td><td>30 11JUL11 (</td><td>09AUG11</td><td>0</td><td></td><td></td><td></td><td>Excavation</td><td>for AT5 &amp; AT6</td></t<>		30 11JUL11 (	09AUG11	0				Excavation	for AT5 & AT6
31025       Pile Head for ATS & AT6 (66 nos remained)       50 035CP11       260CT11       240CV11       324         31030       Pile Cap for ATS & AT6       30       260CT11       240CV11       324         31040       Bit Cap for ATS & AT6       30       260CT11       240CV11       324         31040       Bit Cap for ATS & AT6       17       14JAN12       324         31060       Excavation for Effluent Chamber       10       10AUG11       324         31000       Pile Cap for ATS & AT6       17       14JAN12       324         31000       Pile Cap for AT5 & AT6       17       14JAN12       324         31000       Pile Cap for Effluent Chamber       10       10AUG11       1982EP11       66         31000       Top Sibs & Upstand Wall of Effluent Chamber       30       202NVU11       10NV11       73d         31100       Top Sibs & Upstand Wall of Effluent Chamber       30       202AUG11       08SEP11       46         31100       Excavation for PST5 & AT7       20       20AUG11       08SEP11       76         31100       Vatural Wall of Effluent Chamber       30       20ZVV11       10NV11       72         31100       Vatural Mall of PST5 & AT7       50       2	31020 Pile Head for AT5 & AT6 (22 nos)	14 10AUG11 2	23AUG11	0	en de la companya de La companya de la comp				그는 것 같은 것 같
31300       Pile Cap for ATS & ATE       30       2800CT1       2400V11       32d         31040       Structural Wall for ATS & ATE       60       2500V11       13JAN12       32d         31050       Waterhess Test for ATS & ATE       60       2500V11       13JAN12       32d         31060       Excavation for Effluent Chamber       10       10AUG11       44JAN12       30JAN12       32d         31070       Pile Head for Effluent Chamber       10       104JAUG11       02SEP11       02SEP11       0         31080       Structural Wall for Effluent Chamber       10       02AUG11       03SEP11       02SEP11       0         31080       Structural Wall for Effluent Chamber       40       03SEP11       02SEP11       10 NOV11       73d         31100       Watertighness for Effluent Chamber       15       02DEC11       16DC11       77d         31120       Excavation for PST5 & ATT       20 20AUG1       03EEP11       47d       0       03000       File Flaghting Main       Image Pile Head for PST5 & AT7       10       22 20CT1       14PE12       0       Image Pile Head for PST5 & AT7       10       Pile Cap for PST5 & AT7       11       Pile Cap for PST5 & AT7       Image Pile Head for PST5 & AT7       11       Pile Cap for P	31025 Pile Head for AT5 & AT6 (86 nos remained)			0		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.			
31040       Structural Wall for AT 5% AT6       50 (25NOV11 1 13JAN12 32d)         31050       Waterinses Test for AT6       17   4JAN12 32d         31050       Waterinses Test for AT6       17   4JAN12 32d         31060       Diversion for Effluent Chamber       10 [0AUG11 1 BAUG11 4d]         31070       Pile Head for Effluent Chamber       10 [0AUG11 1 BAUG11 4d]         31080       Pile Cap for Effluent Chamber       20 03SEP11 2SEP11 65d         31080       Pile Cap for Effluent Chamber       30 02NOV11 012ES11 77d         31000       Structural Wall for Effluent Chamber       30 02NOV11 01EC11 73d         31100       Dispatand Wall of Effluent Chamber       15 02DEC11 10EDC11 77d         31120       Excavation for PS15 & AT7       20 20AUG11 08SEP11 47d         31120       Excavation for PS15 & AT7       30 27NOV11 02         31140       Pile Head for PS15 & AT7       30 27NOV11 02         31140       Pile Cap for PS15 & AT7       30 27NOV11 02         31185       Diversion of DN80 Fire Fighting Main       60 01JUL 10 29AUG10 242d         31170       Excavation for SD13 (20 nos)       20 22 AUG11 1225d         31180       Pile Head Construction for SD13 (20 nos)       20 22 AUG11 225d         31180       Pile Head Construction for SD13 (20 nos)       20 20 20 ZFEB11		30 26OCT11 2	24NOV11	32d					
31050       Wateriness Test for ATS & AT6       17       14JAN12       30JAN12       32d         31060       Excavation for Effluent Chamber       10       10AJJG11       19AUG11       4d         31070       Pile Head for Effluent Chamber       10       10AJJG11       19AUG11       25EP11       0         31080       Excavation for Effluent Chamber       20       03SEP11       22SEP11       0         31080       Treatmand       20       03SEP11       22SEP11       0         31080       Treatmand       30       02NVU1       10EEC11       73d         31100       Top Slab & Upstand Wall of Effluent Chamber       40       23SEP11       47d         31100       Top Slab & Upstand Wall of Effluent Chamber       15       20AUC11       16DEC11       77d         31120       Nateringhiness for Effluent Chamber       15       20AUC11       28DEC11       7de       17de		50 25NOV11 1	I3JAN12	32d		1949-940			Structural Wall for AT5 & AT6
31070       Pile Head for Effluent Chamber       10       10000       10000       10000       10000       10000       10000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       100000       1000000       1000000       1000000       1000000       1000000       1000000       1000000       10000000       100000000       100000000       10000000000       1000000000000000000000000000000000000		· · · · · · · · · · · · · · · · · · ·		32d					₩ Watertness Test for AT5 &
31080       Pile Cap for Effluent Chamber       20       2035EP11       252EP11       650         31090       Structural Wall for Effluent Chamber       40       235EP11       650         31100       Top Slab & Upstand Wall of Effluent Chamber       30       02NOV11       773         31100       Top Slab & Upstand Wall of Effluent Chamber       30       02NOV11       773         31100       Top Slab & Upstand Wall of Effluent Chamber       16       02DEC11       736         31110       Watertightness for Effluent Chamber       16       02DEC11       736         31110       Watertightness for SFfluent Chamber       16       02DEC11       260CV11       0         31120       Excavation for PST5 & AT7       20       20AUG11       08SEP11       47d         31130       Structural Wall of PST5 & AT7       50       27DEC11       14FEB12       0         31160       Watertightness Test for PST5 & AT7       17       15EEB12       0       15EEB12       0         31160       Diversion of DN80 Fire Fighting Main       60       01JUL10       29AUG10       242d       15EEB12       0         31180       Diversion of SUdge Digestion Tank No.3 (SDT3)       20       02FEFB11       2256       Excavation for S			••••	4d					
31090       Structural Wall for Effluent Chamber       42       235EP11       0100/11       73d         31100       Top Slab & Upstand Wall of Effluent Chamber       30       02NOV11       010EC11       73d         31110       Watertightness for Effluent Chamber       30       02NOV11       01DEC11       73d         31110       Watertightness for Effluent Chamber       16       02EC11       16DEC11       77d         31120       Excavation for PST5 & AT7       20       20AUG11       08SEP11       47d         31120       Excavation for PST5 & AT7       30       27NOV11       28DEC11       16DEC11       0         31130       Pile fead for PST5 & AT7       30       27NOV11       28DEC11       16DEC11       0         31140       Pile fead for PST5 & AT7       50       27DEC11       14FEB12       0         31150       Structural Wall for Effluent for S15 & AT7       10       27DEC11       14FEB12       0         31160       Watertightness Test for PST5 & AT7       10       27DEC11       14FEB12       0         31170       Excavation for Studge Digestion Tank No.3 (SDT3)       20       13AN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20<				0					
31100       Top Slab & Upstand Wall of Effluent Chamber       10       2020U11       010DC11       73d         311100       Watertightness for Effluent Chamber       15       02DC11       10DC11       73d         311100       Excavation for PST5 & AT7       20       20AUG11       08EPE11       47d         31120       Excavation for PST5 & AT7       20       20AUG11       08EPE11       47d         31130       Pile Head for PST5 & AT7       30       27DC11       14FEB12       0         31140       Pile Cap for PST5 & AT7       30       27DC11       14FEB12       0         31160       Structural Wall for PST5 & AT7       50       27DEC11       14FEB12       0         31170       Excavation for SDT3 & AT7       50       27DEC11       14FEB12       0         31170       Excavation for SDT3 (29 nos)       20       02FEB11       27AW11       225d         31180       Pile Head Construction for SDT3       30       22FEB11       23MAR11       225d       Excavation for SUdge Digestion Tank No.3 (SDT3)       30         31200       Structural Wall for SDT3       30       22FEB11       23MAR11       225d       Excavation for SUdge Digestion Tank No.3 (SDT3)         31200       Structural Wall									
31110.       Watertightness for Effluent Chamber       15       02DEC11       16DEC11       77d         31120.       Excavation for PST5 & AT7       20       20AUG11       08SEP11       47d         31130.       Pile Head for PST5 & AT7       20       20AUG11       08SEP11       47d         31130.       Pile Head for PST5 & AT7       32       26OCT11       26NV11       0         31140.       Pile Cap for PST5 & AT7       50       27NOV11       26DEC11       0         31150.       Structural Wall for PST5 & AT7       50       27DEC11       14FEB12       0         31165.       Diversion of DN80 Fire Fighting Main       60       01JUL10       22AUG10       242d         31170.       Excavation for SUdge Digestion Tank No.3 (SDT3)       20       102FEB11       225d         31180.       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       23MAR11       225d         31200.       Structural Wall for SDT3       30       24HAR11       225d       Structural Wall for SDT3       SDT3         31210.       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d       Structural Wall for SDT3       SDT3         31210.       Inclined Top Slab for SDT3       45 </td <td></td> <td></td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td></td> <td></td> <td></td>			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				
31120       Excavation for PST5 & AT7       20       20AUG11       08SEP11       47d         31130       Pile Head for PST5 & AT7       30       226OCT11       26NOV11       0         31140       Pile Cap for PST5 & AT7       30       27NOV11       26DEC11       0         31150       Structural Wall for PST5 & AT7       50       27DEC11       14FEB12       0         31160       Watertightness Test for PST5 & AT7       50       27DEC11       14FEB12       0         31160       Diversion of DN80 Fire Fighting Main       60       01U10-0       29AUG10       242d         31170       Excavation for SD13 (29 nos)       20       02FEB11       21FEB11       225d         31180       Structural Wall for SDT3       30       24MAR11       225d       Excavation for SUdge Digestion Tank No.3 (SDT3)         31190       Base Slab for SDT3       30       24MAR11       225d       Excavation for SDT3 (29 nos)         31200       Structural Wall for SDT3       30       24MAR11       225d       Excavation for SDT3         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         atate       27APR13       45       23APR11       06JUN11       225d						1			
31130       Pile Head for PSTS & AT7 (51 nos)       32 2600011       2000011       440         31140       Pile Cap for PSTS & AT7       30 27NOV11       2600011       0         31140       Pile Cap for PSTS & AT7       30 27NOV11       2600011       0         31150       Structural Wall for PSTS & AT7       50 27DEC11       14FEB12       0         31165       Diversion of DN80 Fire Fighting Main       60 01JUL10       29AUG10       242d         31170       Excavation for Sludge Digestion Tank No.3 (SDT3)       20 13JAN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20 02FEB11       21FEB11       225d         31120       Structural Wall for SDT3       30 22FEB11       215HEB11       225d         31200       Structural Wall for SDT3       30 24MAR11       225d       File Head Construction for SDT3 (29 nos)         31210       Inclined Top Stab for SDT3       30 24MAR11       225d       File Head File Top Stab for SDT3         31210       Inclined Top Stab for SDT3       30 24MAR11       225d       File Head File Top Stab for SDT3         31210       Inclined Top Stab for SDT3       45 23APR11       06JUN11       225d         31210       Inclined Top Stab for SDT3       45 23APR11		·				in seco			
31140       Pile Cap for PST5 & AT7       30       27NOV11       26DEC11       0         31150       Structural Wall for PST5 & AT7       50       27DEC11       14FEB12       0         31160       Watertightness Test for PST5 & AT7       17       15FEB12       02MAR12       0         31160       Diversion of DN80 Fire Fighting Main       60       01JUL10 * 29AUG10       242d         31170       Excavation for Sludge Digestion Tank No.3 (SDT3)       20       13JAN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       21FEB11       225d         31120       Structural Wall for SDT3       30       22FEB11       23MAR11       225d       Excavation for Sludge Digestion Tank No.3 (SDT3)         31120       Inclined Top Slab for SDT3       30       24MAR11       22APR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11				4/d					ion for PST5 & AT7
31150       Structural Wall for PST5 & AT7       50       2/DEC11       14FEB12       0         31160       Watertightness Test for PST5 & AT7       17       15FEB12       02MAR12       0         31160       Diversion of DN80 Fire Fighting Main       60       01JUL10*       29AUG10       242d         31170       Excavation for Sludge Digestion Tank No.3 (SDT3)       20       13JAN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       21FEB11       225d         31120       Structural Wall for SDT3       30       22FEB11       23MAR11       225d         31120       Structural Wall for SDT3       30       24MAR11       225d         31200       Structural Wall for SDT3       30       24MAR11       225d         31210       Inclined Top Slab for SDT3       30       24MAR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Structural Wall for SDT3				0					
31160       Watertightness Test for PST5 & AT7       17       15FEB12       02MAR12       0         31165       Diversion of DN80 Fire Fighting Main       60       01JUL10       29AUG10       242d         31170       Excavation for Sludge Digestion Tank No.3 (SDT3)       20       13JAN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       21FEB11       225d         31190       Base Slab for SDT3       30       22FEB11       23MAR11       225d         31120       Structural Wall for SDT3       30       22FEB11       23APR11       225d         31210       Inclined Top Slab for SDT3       30       24MAR11       225d       Base Slab for SDT3         31210       Inclined Top Slab for SDT3       45       23APR11       225d       Base Slab for SDT3         31210       Inclined Top Slab for SDT3       45       23APR11       225d       Base Slab for SDT3         31200       Structural Wall for SDT3       45       23APR11       225d       Base Slab for SDT3         31210       Inclined Top Slab for SDT3       45       23APR11       225d       Base Slab for SDT3         Base Slab for SDT3       5       23APR11       06JUN11 <t< td=""><td></td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td> -  -   <b></b></td></t<>				0					-  -   <b></b>
31165       Diversion of DN80 Fire Fighting Main       60       01JUL10*       29AUG10       242d         31170       Excavation for Sludge Digestion Tank No.3 (SDT3)       20       13JAN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       21FEB11       225d         31190       Base Slab for SDT3       30       22FEB11       23MAR11       225d         31200       Structural Wall for SDT3       30       24MAR11       22APR11       225d         31210       Inclined Top Slab for SDT3       30       24MAR11       22APR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         ata date       29JAN10       Early bar       Early bar       Early bar       Early bar         To adate       06APR10       Start milestone point       Start milestone point       Start milestone point       ZaAPR1				0					
31170       Excavation for Sludge Digestion Tank No.3 (SDT3)       20       13JAN11       01FEB11       225d         31180       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       21FEB11       225d         31190       Base Slab for SDT3       30       22FEB11       23MAR11       225d         31200       Structural Wall for SDT3       30       24MAR11       225d         31210       Inclined Top Slab for SDT3       30       24MAR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         att date       29JAN10       Progress bar       Progress bar       Progress bar         at date       29JAN10       Start milestone point       Fromwarea Sucteors Inc.       TPSTW Stage 5 Phase 2B	31165 Diversion of DN80 Fire Fighting Main			242d		2063/26570	'- Diversion of DN80 Fi	re Fighting Main :	
31180       Pile Head Construction for SDT3 (29 nos)       20       02FEB11       21FEB11       225d         31190       Base Slab for SDT3       30       22FEB11       23MAR11       225d         31200       Structural Wall for SDT3       30       24MAR11       225d         31210       Inclined Top Slab for SDT3       30       24MAR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         at date       29JAN10       Early bar       Forgress bar       Inclined Top Slab for SDT3         at date       29JAN10       Critical bar       Critical bar       Structural bar         Start milestone point       Start milestone point       Start milestone point       TPSTW Stage 5 Phase 2B									10.3 (SDT3)
31190       Base Slab for SDT3       30       22FEB11       23MAR11       225d         31200       Structural Wall for SDT3       30       24MAR11       22APR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         31210       Inclined Top Slab for SDT3       5       5       7       7         31210       Inclined Top Slab for SDT3       6       5       7       7       7         31210       Inclined Top Slab for SDT3       6       7       7       7       7       7       7         31210       Inclined Top Slab for SDT3       7       7       7       7       7       7       7       <						1			
31200       Structural Wall for SDT3       30       24MAR11       22APR11       225d         31210       Inclined Top Slab for SDT3       45       23APR11       06JUN11       225d         and te       29JAN10       Early bar       Early bar       Early bar         ish date       29JAN10       Critical bar       Critical bar         of a date       29JAN10       Start milestone point       Critical bar		30 22FEB11 2	3MAR11	225d	· · • • • • • • • • • • • • • • • • • •		1 1 1	Base Slab for SDT3	
art date       29JAN10         hish date       27APR13         ta date       29JAN10         n date       06APR10         ge number       3A         Vermavera Systems Inc.       Start milestone point				225d		1		Structural Wall for SDT3	
ish date       27APR13         ta date       29JAN10         n date       06APR10         ge number       3A         V       Start milestone point	31210 Inclined Top Slab for SDT3	45 23APR11 0	6JUN11	225d					SDT3
a date       29JAN10         n date       06APR10         re number       3A         Start milestone point    China Harbour Engineering Co. Ltd. TPSTW Stage 5 Phase 2B	Early Dar								
In date 06APR10 Ige number 3A Primavera Systems Inc. Start milestone point	ata date 29JAN10 Progress bar				Ch	ina U	arhour Engine	ring Co. 1 td	
Primavera Systems Inc. Start milestone point	n date 06APR10 Summary bar				Un				(
	Primavera Systems Inc. Start milestone point					IP	SIW Stage 5 Pl	nase 2B	
	Finish milestone point								

I SEP OCT NOV DEC N300 DI Pipe to FC		.2 APR MAY JUN	D13 JUL AVG SEP	OCT NOV DEC	
2B ng Station Pipe N600 & DN800 Slu or Sludge Pipe	dge Pipe				
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AT7 PST5 & AT7	·				
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Act Description	Orig Early Early	Total	tang ang tang tang tang tang tang tang t	2010
31220 Watertightness Test for SDT3	Dur Start Finish	Float	FEB MAR APR MA	Y JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG S
31220 Watertightness Test for SDT3 31230 Air Tightness Test for SDT3	20 07JUN11 26JUN11	248d		Watertightness Test for SDT3
31240 Excavation for Mixed Liguor Channel (MLC)	2 27JUN11 28JUN11			Air Tightness Test for SDT3
31250 Pile Cap for MLC	30 25MAY11 23JUN11 60 24JUN11 22AUG11	88d		Excavation for Mixed Liquor Channel (MLC)
31260 Structural Wall for MLC	60 23AUG11 210CT11			
31265 Watertightness Test for MLC			4 1	Structural Wall for MLC
31270 Excavation for Bio-gas Holding Tank Support	15 220CT11 05NOV11 10 24JUN11 03JUL11		-	Watertightness Test for MLC
31280 Pile Cap for Tank Support & Valve Chamber		144d		
31290 Structural Wall for Valve Chamber	30 04JUL11 02AUG11 40 03AUG11 11SEP11		-	→  Pile Cap for Tank Support & Valve Chamber
31300 Watertightness Test for Valve Chamber	15 12SEP11 26SEP11			Structural Wall for Valve Chamber
Pipeline Works	13 123EF11 203EF11	158d		→ ■ Watertightness Test for Valve Chamber
32005 Pipework for PST5, AT5 ~ AT7	120 13JAN11 12MAY11			Pipework for PST5. AT7
32010 Pipework Connection to AT5 & AT6	10 14JAN12 23JAN12			
32020 Pipework for Effluent Chamber	19 02DEC11 20DEC11			Pipework Connection to AT5 & A
32030 Pipework Connection to PST5 & AT7	15 15FEB12 29FEB12		·	► Image: Second
32040 Pipework for SDT3	45 07JUN11 21JUL11	2d 225d		Pipework Connection to PS
32060 Pipework for MLC	45 220CT11 05DEC11	_		Pipework for SDT3
32070 Pipework for Valve Chamber	29 12SEP11 100CT11			► Pipework for MLC
Modification // Removal Works		1440		► ► Pipework for Valve Chamber
33010 Removal of extg Control Room	30 25APR11 24MAY11	88d		
33020 Modification of extg Chemical House for SwitchRM	30 25APR11 24MAY11		· •	Removal of extg Control Room
33030 Modification of extg Flow Splitter Box	30 25MAY11 23JUN11	253d		Modification of extg Flow Splitter Box
33040 Modification of extg Aeration Tanks	60 25NOV11 23JAN12	233d 39d		
33050 Modification of extg Effluent Launder	60 25NOV11 23JAN12	39d		Modification of extg Aeration Tar     Modification of extg Effluent Lau
33060 Shelter for NaOCI Dosing System	60 09MAY11 07JUL11	224d		Shelter for NaOCI Dosing System
33070 Watertightness Test for NaOCI Dosing Shelter	15 08JUL11 22JUL11	224d		✓ ► Solution Nacion Dosing System
33080 Modification of Primin. Sludge Gravity Thickener	30 15JUN10 * 14JUL10	113d		Modification of Primin. Sludge Gravity Thickener
Section IV of Works				
Drilling Works				
40010 Section IV of Works	365 29JAN10 28JAN11	0		Section IV of Works
40015 Diversion of DN600 Concrete Pipe	45 01JUN10 * 15JUL10	49d		Diversion of DN600 Concrete Pipe
40110 Pre-drilling for Decanting Chamber (1 no)	7 16JUL10 22JUL10	49d		Pre-drilling for Decanting Chamber (1 no)
40120 Mini-piling for Decanting Chamber (4 nos)	28 23JUL10 19AUG10		an a	Mini-piling for Decanting Chamber (4 nos)
40130 Proof Drilling (4 nos)	28 20AUG10 16SEP10	49d		Proof Drilling (4 nos)
40140 Load Test for Mini-pile (1 no)	14 20AUG10 02SEP10		and a second second and second se and second se	Evad Test for Mini-pile (1 no)
40140 Load Test for Mini-pile (1 no) Structural Works			the second s	
41010 Excavation for Decanting Chamber	10 17SEP10 26SEP10	49d		Excavation for Decanting Chamber
41020 Pile Cap for Decanting Chamber	20 27SEP10 16OCT10		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pile Cap for Decanting Chamber
41030 Structural Wall for Decanting Chamber	30 170CT10 15NOV10			Structural Wall for Decanting Chamber
41040 Top Slab for Decanting Chamber	20 16NOV10 05DEC10	54d		Top Slab for Decanting Chamber
41050 Excavation for Chemical & Oil Store	10 27SEP10 06OCT10	49d		Excavation for Chemical & Oil Store
41060 Base Slab for Chemical & Oil Store	15 07OCT10 21OCT10	49d		Base Slab for Chemical & Oil Store
41070 Structural Wall for Chemical & Oil Store	30 22OCT10 20NOV10	49d		Structural Wall for Chemical & Oil Store
41080 Top Slab for Chemical & Oil Store	20 21NOV10 10DEC10	~	1	Top Slab for Chemical & Oil Store
41090 Valve Chamber & Conc. Plinth at PSGT Stage I/II	120 03SEP10 31DEC10			Valve Chamber & Conc. Plinth at PSGT Stage I/II
Modification // Removal Works				
43010 Removal of Chemical Waste Room	30 01JUN10 * 30JUN10	362d		Removal of Chemical Waste Room
43020 Removal of Flower Bed	20 01JUL10 20JUL10	362d		Removal of Flower Bed
43025 Removal of Waste Bio-gas Burner	30 02JUL10 * 31JUL10	121d		Removal of Waste Bio-gas Burner
43030 Removal of Chimney & Associated RC Structure	60 01AUG10 29SEP10	121d		Removal of Chimney & Associated RC Structure
43040 Removal of Storage Facilities	30 28JUN10 27JUL10	65d	· I 4	→ Semoval of Storage Facilities
43050 Shelter for Water Treatment System	120 28JUL10 24NOV10	65d		Shelter for Water Treatment System
43070 Shelter for FeCI3 Dosing System	60 01JUN10 * 30JUL10	76d		Shelter for FeCl3 Dosing System
43080 Watertightness Test for FeCl3 Dosing Shelter	16 31JUL10 15AUG10	76d		Watertightness Test for FeCI3 Dosing Shelter
43090 Steelwork for FeCl3 Dosing Shelter	30 16AUG10 14SEP10	76d		Steelwork for FeCl3 Dosing Shelter
43100 Removal of FeCI3 Dosing System	60 15SEP10 13NOV10	76d		Removal of FeCl3 Dosing System
Stat data 00 IANI40				
Start date 29JAN10 Early bar				

29JAN10 27APR13 29JAN10 06APR10 Start date Finish date Early bar Data date Critical bar Run date Page number 4A c Primavera Systems, Inc.

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- Summary bar Start milestone point
 Finish milestone point

# China Harbour Engineering Co. Ltd. TPSTW Stage 5 Phase 2B

Date 05FEB10 07APR10	Revision 0 1		Checked WML AA	Approved TKC TKC	
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5 & AT6	•				
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Act OID	Description	Orig Early Dur Start	Early Finish	Total Float		2011 UG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB M	2012
43110	Modification of Central Blg Complex	150 01JUN10	* 280CT10	92d		Modification of Central Blg Complex	AN AFR MAT JOIL JOE AUG JI
43120	Modification of SAS Thickening House	120 15JUN10		48d		Modification of SAS Thickening House	
43130	Modification of Primary Sludge Thickener	60 13OCT10	11DEC10	48d		Modification of Primary Sludge Thickener	
43140	Modification of Filtrate Treatment Plant	120 01JUL10		92d		Modification of Filtrate Treatment Plant	
43150	Modification of Chlorination House	150 15JUL10	11DEC10	48d	539233	Modification of Chlorination House	
43160	Floor Opening at Service Tower Building (16 nos)	30 01JUN10	* 30JUN10	92d	Floor	Opening at Service Tower Building (16 nos)	······································
43165	S S Louvre at Inlet Works at Stage IV	60 01JUL10	29AUG10	92d		S S Louvre at Inlet Works at Stage IV	
43170	Covered Walkway at Sludge Dewatering House	60 30AUG10	280CT10	92d		Second Walkway at Sludge Dewatering House	
Road-8	Draginage Works						
42010		120 21JUL10	17NOV10	362d		Road & Drainage Works in Portion A	
42020	Road & Drainage Works along MLC	135 16SEP10	28JAN11	0		Road & Drainage Works along MLC	
A COMPANY AND A COMPANY A	/ of Works						
Sc 882	aping Works				-		· · ·
50010		1185 29JAN10	27APR13	0			
50110		60 29JAN10	29MAR10	20d	Tree Survey		
50120		90 30MAR10	27JUN10	20d	Tree Tree	Fransplanting & Felling Tree	
50130	Establishment Works to Transplanted Tree	365 28JUN10	27JUN11	670d		Establishment Works to Transplante	d Tree
50140	Landscaping Softworks	650 28JUN10	07APR12	20d			Landscaping Softwork
50150	Establishment Works to Softworks	650 28JUN11	07APR13	20d			
50160	Irrigation System for Green Roof at TPSTW	120 28JUN10	250CT10	310d		Irrigation System for Green Roof at TPSTW	
50170	Green Roof at Sludge Dewatering System	120 26OCT10	22FEB11	310d		Green Roof at Sludge Dewatering System	
50180	Green Roof at Transformer House	120 23FEB11	22JUN11	310d		Green Roof at Transformer House	
50190	Establishment Works to Green Roof	365 23JUN11	21JUN12	310d			Establishm
15 M							
51010		60 05JUL10 '	02SEP10	28d	And the second sec	Removal of Waste Bio-burner at PSGT Stage I/II	
51020	Road & Drainage Works	120 26OCT11	22FEB12	430d			oad & Drainage Works
\$ 51030	Cable Ducting and Drawpits	350 01APR12	16MAR13	42d			

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China Harbour Engineering Co. Ltd. **TPSTW Stage 5 Phase 2B** 

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