Jardine Engineering Corporation Ltd.

Contract No. DE/2009/09
Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

Environmental Monitoring and Audit Final Report

(Version 2.0)

Certified By _____
(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.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY

Introduction

1. This is the Final Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for Contract No. DE/2009/09 "Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B" (the Project). This report documents the findings of EM&A Works of the Project.

2. The construction was commenced in May 2011. The major construction activities were completed on 5th March 2015, and the ongoing activities were mainly Testing and Commissioning Works which do not involve the use of Power Mechanical Equipment (PME). The Proposal of Termination of EM&A Programme was submitted on 17th March 2015 and approved by EPD on 2nd April 2015 as to be terminated on 31st March 2015.

3. The construction activities undertaken in the construction period were:

- Cable laying works
- Pipe works
- Installation of E&M equipments for FC, New Ferric Chloride Dosing Compound, CBC, SAS Thickening House, Aeration Tanks, Primary Sedimentation Tanks, Filtrate Treatment Plant, New Gas Transfer Station, New Air Blower, RAS Pump, Pipe Gallery
- Installation of Bio-Gas Holder, Bio-Gas Burner, new Sludge Dewatering System, new Sludge Feed Pump, Screw Pump
- Screeding works for FC
- Dismantling works
- BS & FS Installation Works
- Testing and Commissioning Works

Environmental Monitoring Works

4. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event/Action Plans and environmental complaint handling procedures were also checked.

5. The implementation of the environmental mitigation measures and environmental complaint handling procedures were also checked.

6. Summary of the event and action taken in the construction period is tabulated in **Table I**.

Table I Summary Table for Events Recorded Due to the Project

Parameter	No. of Exceedances due to the Project	
	Action Level	Limit Level
1-hr TSP	0	0
24-hr TSP	0	0
Noise	0	0
Landfill Gas	N/A	0

1-hour TSP Monitoring

7. 1-hour TSP monitoring at CAM 1, 2 and 3 was conducted as scheduled in the Project.

8. No Action/Limit Level exceedance was recorded for 1-hr TSP monitoring due to the Project throughout the whole Project.

24-hour TSP Monitoring

9. 24-hour TSP monitoring at CAM 1, 2 and 3 was conducted as scheduled in the Project.

10. No Action/Limit Level exceedance was recorded for 24-hr TSP monitoring due to the Project throughout the whole Project.

Construction Noise

11. Construction Noise monitoring located at NM1 was conducted in accordance with the EM&A Manual.

12. No Limit Level exceedance was recorded for Construction Noise monitoring due to the Project and no project-related noise complaint was received throughout the whole Project.

Landfill Gas

13. No landfill gas monitoring was conducted throughout the Project as no excavation works at 1m depth or more were conducted.

Complaints and Prosecutions

14. No project-related environmental complaint was received since the commencement of the Project.

15. No warning, summons and successful environmental prosecution was received since the commencement of the Project.

Conclusion

16. The EM&A programme were found to be effective in monitoring impacts arising from the Project. The findings of the environmental monitoring program suggest that no adverse impacts on sensitive receivers at the designated monitoring locations were brought about by the Project.

17. In conclusion the Project was environmentally acceptable in terms of air quality and noise.

1 INTRODUCTION

Background

1.1 Jardine Engineering Corporation Ltd. (the Contractor) was commissioned by Drainage Services Department (DSD) to undertake the construction of "Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B" (hereinafter called the "the Project") under Contract No. DE/2009/09. 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.

1.2 The Stage V works will be implemented in 2 phases. The design capacities of Phase I and Phase II works are 100,000 m^3/d and 130,000 m^3/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 m^3/day. A site layout plan is provided in **Figure 1.1**. The construction activities of the Project commenced on 16 May 2011.

1.3 Cinotech Consultants Limited was commissioned by the Contractor to undertake the Environmental Monitoring and Audit (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 Environmental Permit (EP) of the Contract. Ove Arup and Partners Hong Kong Limited was appointed as the IEC under Condition 2.2 of the EP. The laboratory testing works were conducted by a HOKLAS laboratory, Wellab Limited.

1.4 The Final EM&A report was prepared by Cinotech for the Project to summarize the finding of all EM&A Works associated with baseline monitoring and construction phase conducted between May 2011 and March 2015.

Project Organization

1.5 Different parties with different levels of involvement in the project organization include:

- Project Proponent / Engineer's Representative (ER) – Drainage Services Department (DSD)
- Contractor – Jardine Engineering Corporation Ltd.
- Environmental Team (ET) – Cinotech Consultants Ltd.
- Independent Environmental Checker (IEC) – Ove Arup and Partners Hong Kong Limited

1.6 The responsibilities of respective parties are detailed in Section 1.10 of the EM&A Manual of the Project.

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

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
DSD	E&M Branch	Mr. TONG Sau Kit	Senior Engineer	2594 7304	2827 8532
		Mr. TSE Ho	Engineer	2660 7638	
Cinotech	Environmental Team	Dr. Priscilla CHOY	ET Leader	2151 2089	3107 1388
		Mr. Harris WONG	Project Coordinator and Audit Team Leader	2151 2098	
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087	
Arup	Independent Environmental Checker	Mr. Coleman NG	Independent Environmental Checker	2268 3097	2865 6493
		Mr. Edmond PUT	Assistant to Independent Environmental Checker	2528 3031	
JEC	E&M Contractor	Mr. Alex LAW	Project Manager	9312 8659	2887 9090
		Mr. Kim Hung LAU	Site Agent	6393 7548	
		Mr. Brendan CHAN	Environmental Officer	6892 0956	

Summary of EM&A Requirements

1.8 The EM&A Manual designates locations for the ET to monitor environmental impacts in terms of air quality and noise due to the Project. The Project area and monitoring locations are depicted in **Figures 1.1 and 1.2.**

1.9 Monitoring works/equipments were conducted/calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates are attached in the appendices of the Monthly Reports.

1.10 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix A.**

1.11 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for the Contractor to implement. A list of mitigation measures is given in **Appendix B.**

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, baseline checking of ambient TSP levels was 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 were 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.

Table 2.1 Locations for 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.

Monitoring Parameters, Frequency and Duration

2.4 **Table 2.2** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period.

Table 2.2 Impact Dust Monitoring Parameters, Frequency and Duration

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

Results and Observation

Baseline Monitoring

2.5 Baseline air quality monitoring of 1-hr TSP and 24-hr TSP was conducted at the designated stations CAM1, 2 and 3.The baseline data established was used for the Project and derive the Action and Limit Levels.

2.6 The graphical presentations for baseline air quality monitoring at CAM 1, 2 and 3 over the project period are shown in **Appendix D & E**.

Impact Monitoring

2.7 Impact air quality monitoring of 1-hr TSP and 24-hr TSP was conducted at all designated locations during the whole construction period.

2.8 All measured 1-hr and 24-hr TSP levels were below the Action/Limit Levels. No exceedance was recorded in the construction period.

2.9 The graphical presentation for impact air quality monitoring at all designated locations over the project period is shown in **Appendix D & E**.

3 NOISE MONITORING

Monitoring Requirements

3.1 One designated noise monitoring stations was stipulated in 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 were reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

Monitoring Locations

3.3 According to the EM&A Manual, one designated monitoring station, NM1 was selected for impact noise monitoring, as shown in **Figure 1.2. Table 3.1** describes the locations of the noise monitoring stations.

Table 3.1 Location of Noise Monitoring Station

Monitoring Station	Description and Location of Measurement
NM1	Government Staff Quarters (The corridor at the first door)

Monitoring Parameters, Frequency and Duration

3.4 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameters	Period	Frequency	Measurement
NM1	L_{eq}(30 min.) (L_{10} and L_{90} were also recorded as supplementary information)	0700-1900 hrs. on normal weekdays	Once a week	Façade

Results and Observations

Baseline Monitoring

3.5 Baseline noise monitoring was conducted at the designated station NM1. The baseline data established was used for the Project and derive the Action and Limit Levels.

3.6 The graphical presentation for baseline noise monitoring at NM1 over the project period is shown in **Appendix F**.

Impact Monitoring

3.7 Impact noise monitoring was conducted at all designated locations and the monitoring locations during the whole construction period. All noise monitoring results were below the Limit Level. No exceedance was recorded in the construction period.

3.8 The graphical presentation for impact noise monitoring at all designated locations over the project period is shown in **Appendix F**.

4 ENVIRONMENTAL AUDIT

Site Audits

4.1 Site audit provided a direct means to trigger and enforce the specified environmental protection and pollution control measures. The ET undertook site audits routinely to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. Additionally, the ET was responsible for defining the scope of the inspections, detailing any deficiencies that are identified, and reporting any necessary action or mitigation measures that were implemented as a result of the audit.

4.2 Site audits were carried out by ET on weekly basis in construction phase. The areas of inspection included the general environmental conditions in the vicinity of site, pollution control and mitigation measure within the site.

4.3 The implementation of the environmental mitigation measures and environmental complaint handling procedures were also checked.

Review of Environmental Monitoring Procedures

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

4.5 *Air Quality Monitoring*

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- The monitoring team recorded the temperature and weather conditions on the monitoring day.

4.6 *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.

4.7 No changes had been made to the monitoring methodology during the construction period.

Implementation Status of Environmental Mitigation Measures

4.8 The mitigation measures detailed in the Environmental Permit, the Manual and in the EIA report were implemented throughout the whole project period.

4.9 The EM&A programme was found effective in monitoring the environmental impacts of the Project. The data collected were useful in determining whether the Project has caused unacceptable impacts on the sensitive receivers. During the construction phase the impact data indicated where exceedances occurred and helped determine whether the exceedances were due to the works. Analysis of all EM&A data collected throughout the construction periods demonstrated the environmental acceptability of the Project.

4.10 No non-compliance was recorded during the site inspections throughout the construction period. Observations and recommendations recorded during the site inspections were summarized in each of the Monthly EM&A Reports.

Waste management

4.11 In this Project, general refuse and C&D waste were delivered to Landfill. Both the trip ticket system and chit accounting system for disposal of waste were operated smoothly.

4.12 The amount of wastes generated by the activities of the Project was shown in the Monthly EM&A Reports.

Summary of Record of All Complaints Received

4.13 No project-related environmental complaint has been received since the commencement of the Project.

Summary of Record of Notifications of Summons and Successful Prosecutions

4.14 No warning, summon and notification of successful prosecution was received since the commencement of the Project.

Comparison with EIA predictions

4.15 The environmental impacts caused by the Project during the Construction phase were generally in line with the predictions in EIA report based on the following.

Air Quality

In the EIA Report, dust impacts from the construction at the ASRs were predicted to be low. Throughout the whole Project, there was no Action/Limit Level exceedance recorded for 1-hr TSP and 24-hr TSP at the designated monitoring locations with the appropriate implementation of mitigation measures.

Noise

Although it is identified in the EIA Report that there was a potential noise level exceedance at the NSR, there was no Limit Level exceedance recorded throughout the whole Project, and there was no complaint related to construction noise received throughout the whole Project as well with the appropriate implementation of mitigation measures.

4.16 With the environmental monitoring and site inspection to directly ensure the timely implementation of mitigation measures during the Project, the environmental performance of the Project was acceptable based on the reasons stated in sections 4.11 and 4.16.

5 COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Comments on Overall EM&A Programme

5.1 The EM&A programme requires construction phase monitoring for air quality, air-borne construction noise, landfill gas and environmental site audit. No landfill gas monitoring was conducted throughout the Project as no excavation works at 1m depth or more were conducted. Timely implementation of mitigation measures was carried out according to the environmental monitoring data obtained during the Project. The weekly site inspections were effective to ensure the implementation and efficiency of the mitigation measures. In addition, the recommendations made by the auditors of the ET could continuously improve the house keeping of the Contractor and maintain good site cleaning and tidiness. As a result, environmental nuisance to the public could be reduced to a minimal.

5.2 Therefore, the overall performance of the monitoring methodology adopted and environmental management system in this Project was effective.

Overall EM&A Data

5.3 Impact air quality and construction noise monitoring were conducted in accordance with the Manual.

Air Quality

5.4 No Action Level and Limit Level exceedances for 1-hr TSP and 24-hr TSP were recorded due to the Project throughout the whole Project with the appropriate implementation of mitigation measures.

Noise

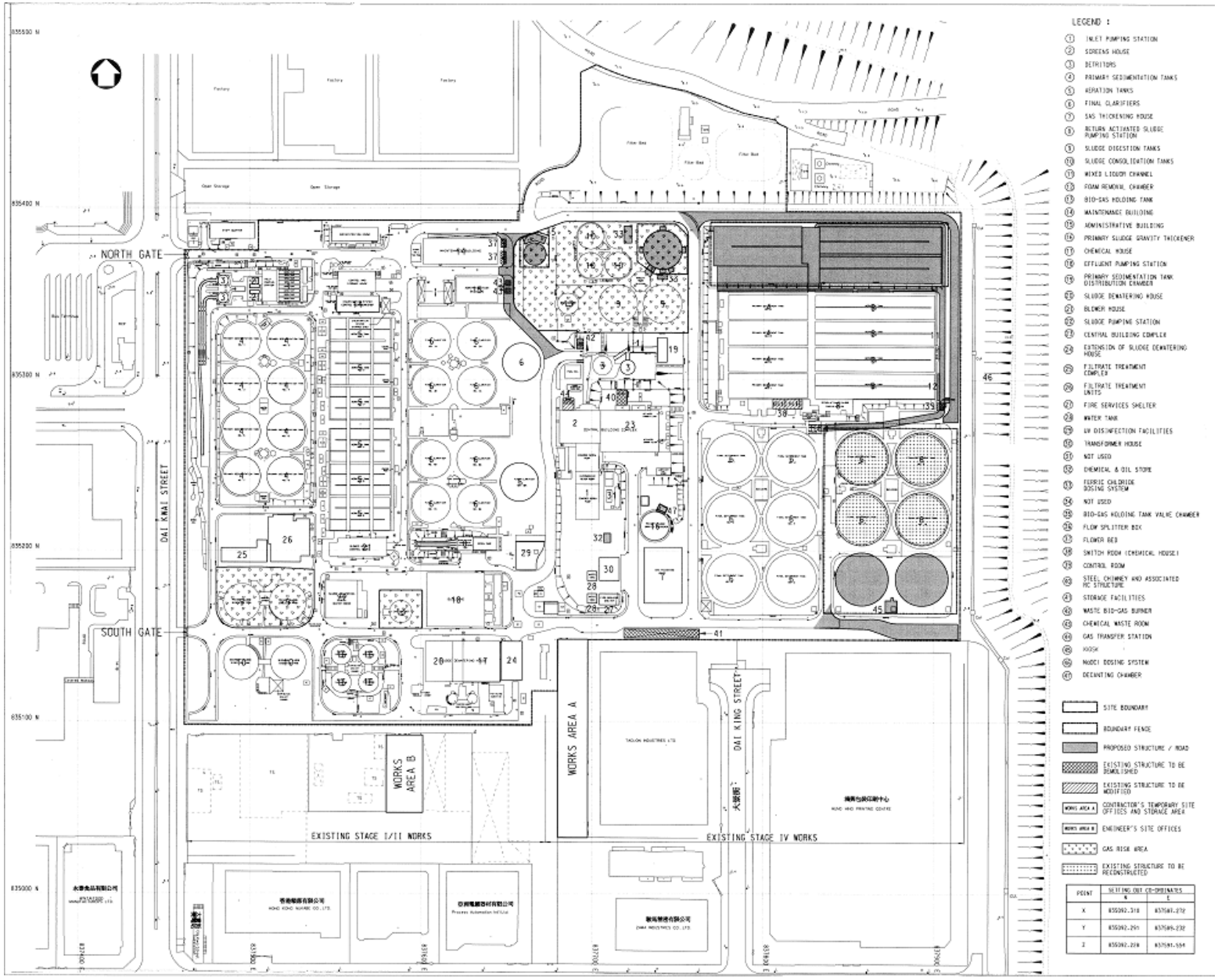
5.5 No Limit Level exceedance for Construction Noise was recorded due to the Project, and no project-related noise complaint was received throughout the whole Project with the appropriate implementation of mitigation measures.

Recommendations and Conclusions

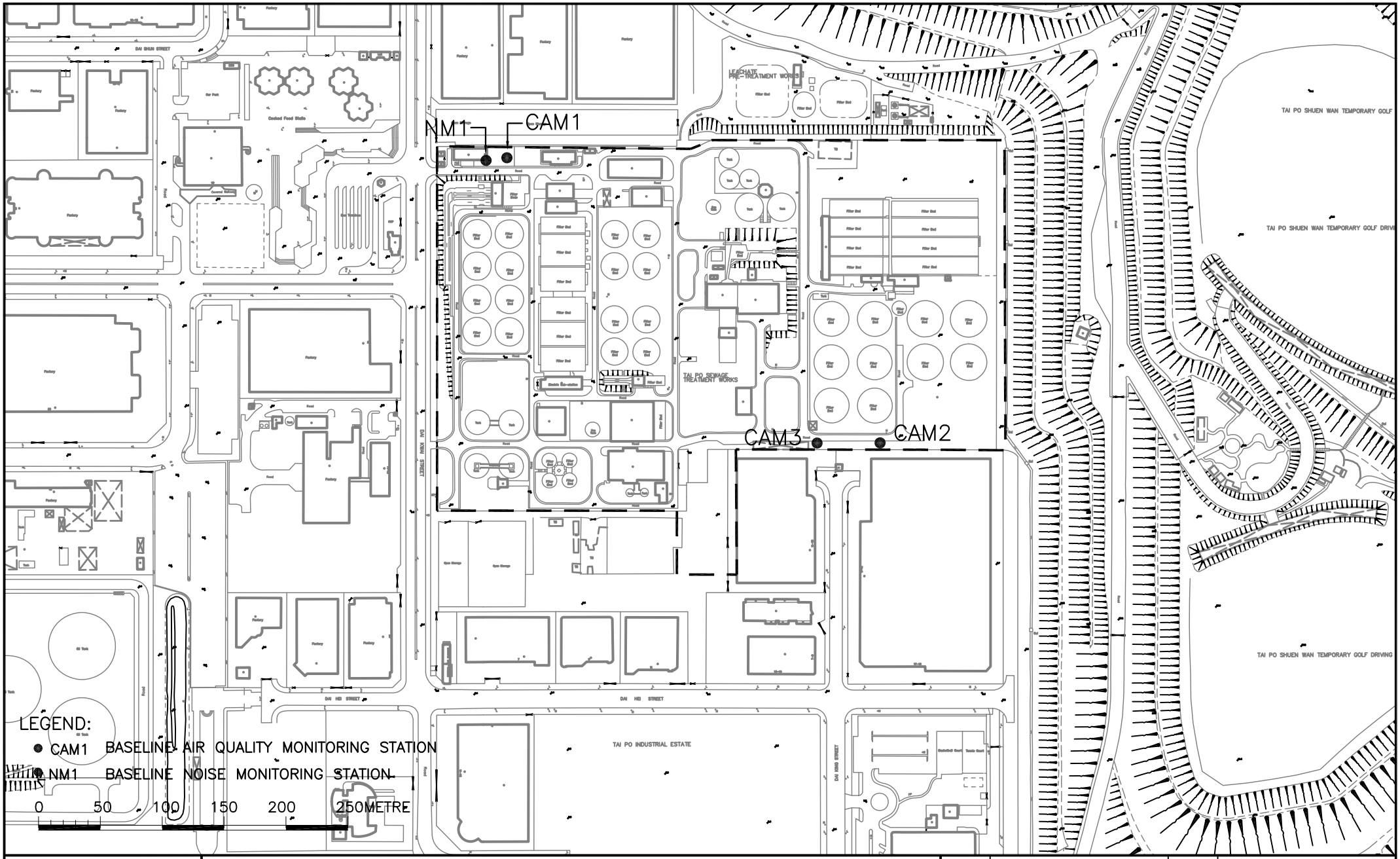
5.6 The EM&A programme was found to be effective in monitoring impacts arising from the Project. The findings of the environmental monitoring program suggest that no adverse impacts on sensitive receivers were brought about by the Project since no exceedance of Action and Limit Levels were recorded throughout the Project with the proper implementation of mitigation measures, which is as predicted in the EIA. In conclusion the Project was environmentally acceptable in terms of air quality and noise.

5.7 With the success of the overall EM&A programme, the deterioration of the environment caused by the Project was cost-effectively identified and necessary prompt effective mitigation measures were implemented to avoid any unacceptable impacts.

FIGURES



TAI PO SEWAGE TREATMENT WORKS, STAGE V, PHASE IIB	Scale N.T.S	Proposa No. MA10069	CINOTECH
PROJECT SITE LAYOUT PLAN	Date Mar-11	Figure 1.1	



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Tai Po Sewage Treatment Work, Stage V, Phase IIB

LOCATIONS OF AIR QUALITY AND NOISE MONITORING STATIONS

SCALE	A4 1:4000	DATE	2011
CHECK	IT	DRAWN	TY
JOB No.	MA10069	DRAWING No. 1.2	REV —

F:\MA10069\DRAWING\BASELINE\FIGURE 1.2.DWG

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

1-Hour TSP

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

24-Hour TSP

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

Construction Noise

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

APPENDIX B
SUMMARY OF ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

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

Type of Impact	Recommended Mitigation Measures
Air Quality	Dust mitigation measures stipulated in *the Air Pollution Control (Construction Dust) Regulation* shall be incorporated to control dust emission. Notice shall be given to authority prior to commencing of work
Noise	Use of quiet PME
	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.
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.
	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.
	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.
	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.

Type of Impact	Recommended Mitigation Measures
	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.
	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.
	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.
	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.
	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.
	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.

Type of Impact	Recommended Mitigation Measures
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.
	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
	General Refuse 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.
	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.
	Bentonite Slurry 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.

Type of Impact	Recommended Mitigation Measures
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.
	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.
	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 area to be free of landfill gas before any man enters the area. • Landfill gas precautionary measures involved with excavation and piping works shall be included in the Safety Plan • Monitoring shall be conducted at the cracks on the ground floor during ground-works construction
	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

APPENDIX C
EVENT / ACTION PLANS

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

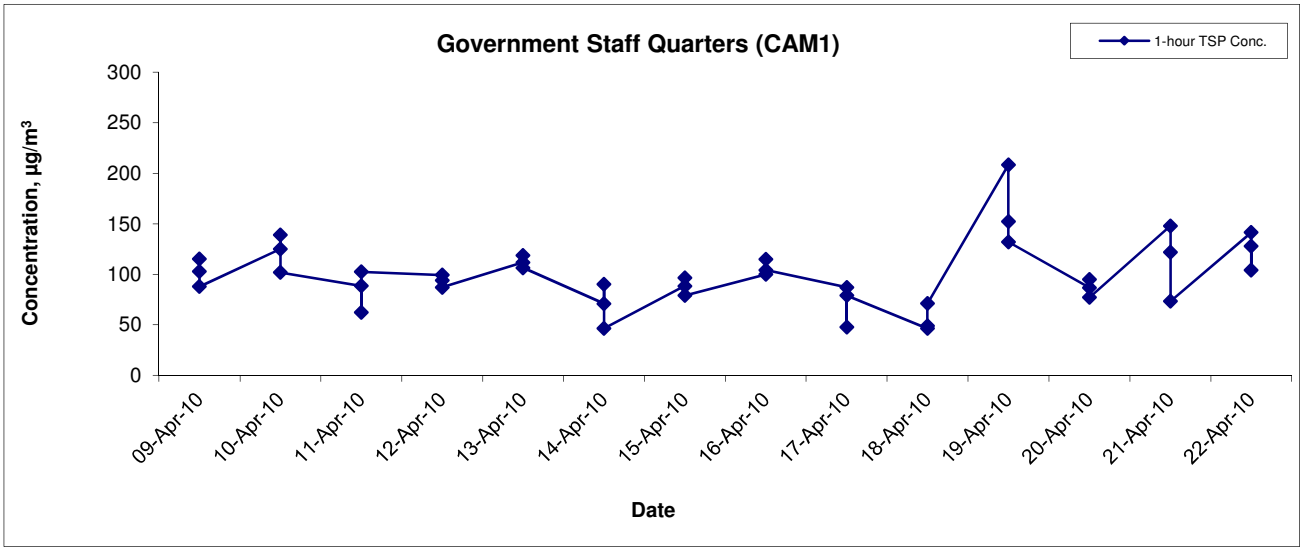
EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IC(E) and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. 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.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

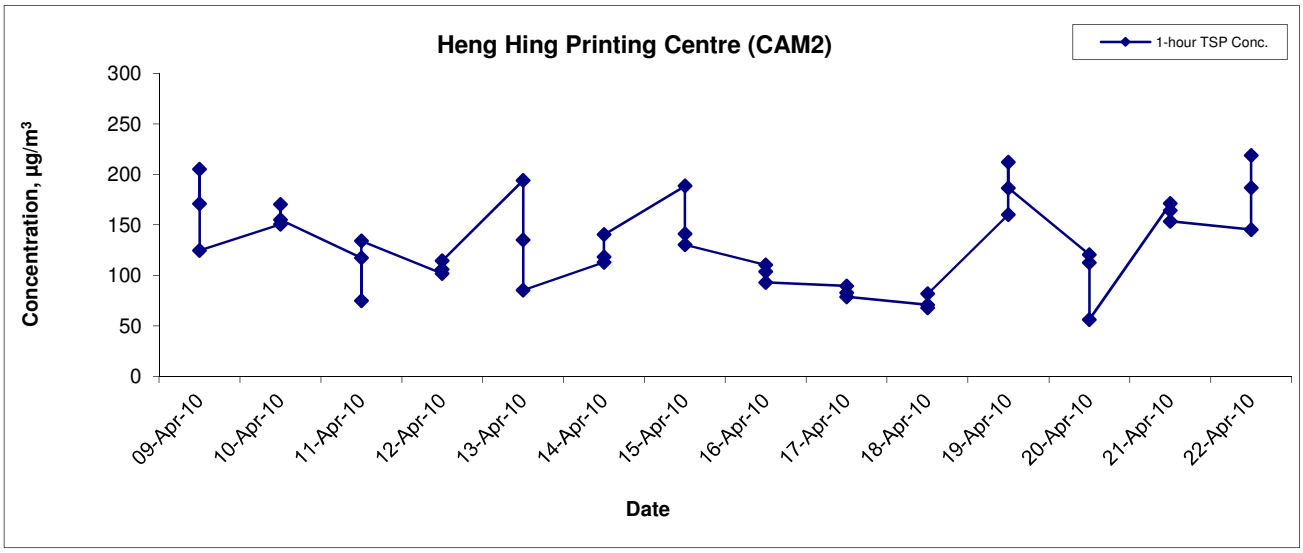
APPENDIX C (2) – Event Action Plan for Construction Noise Monitoring (Construction Phase)

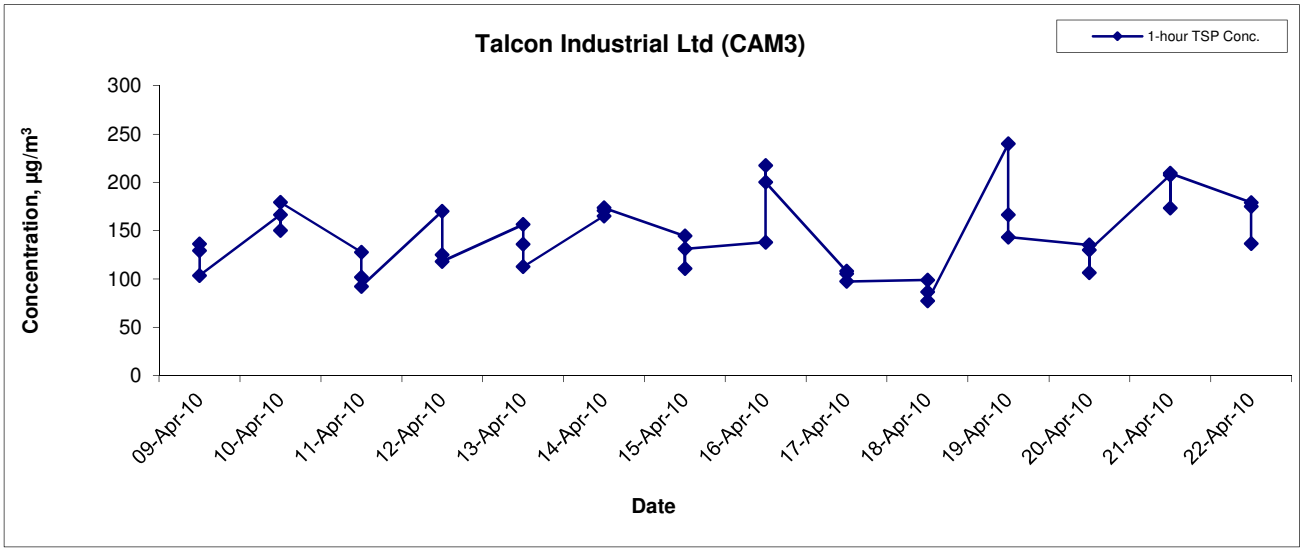
EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed results submitted by the ET; 2. Review the propose d remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
LIMIT LEVEL	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. 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.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX D
GRAPHICAL PRESENTATION OF 1-HOUR TSP MONITORING RESULTS OVER THE PROJECT PERIOD

1-hr TSP Concentration Levels

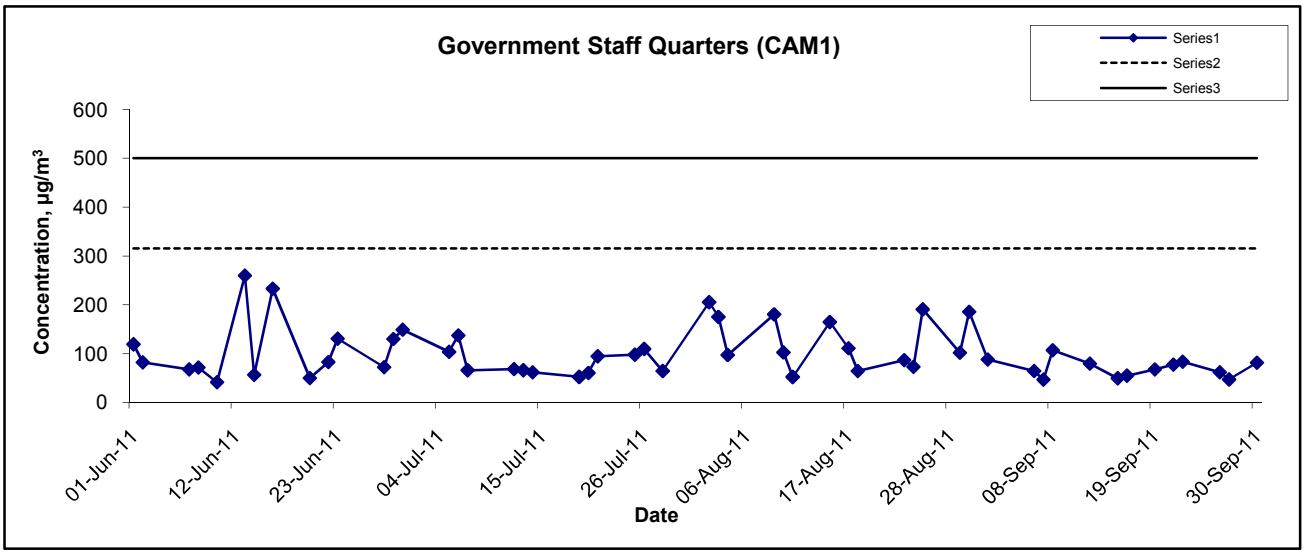


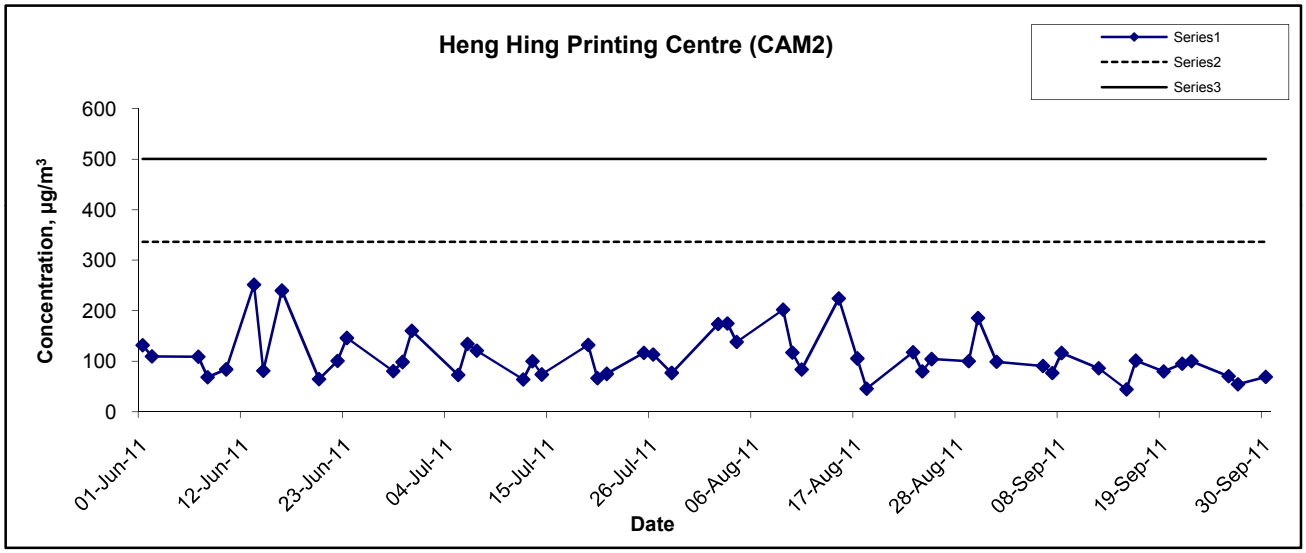


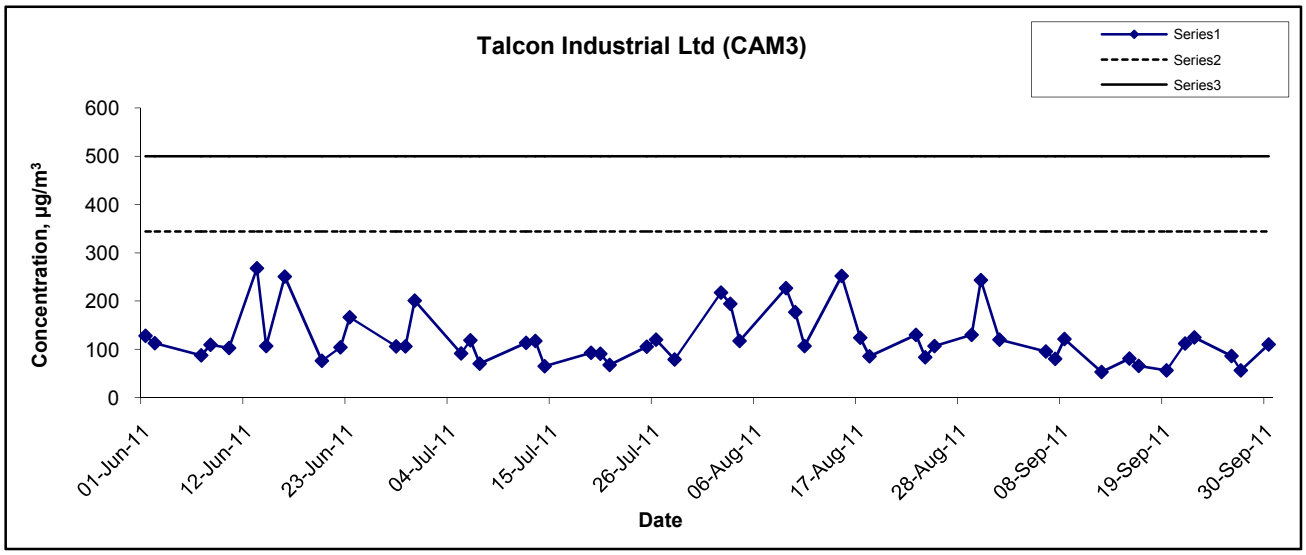


Title: Tai Po Sewage Treatment Works, Stage V, Phase IIB Graphical Presentation of 1-hour TSP Baseline Monitoring Results	Scale: N.T.S Date: Apr 10	Project No.: MA0010 Appendix: D	CINOTECH

1-hr TSP Concentration Levels

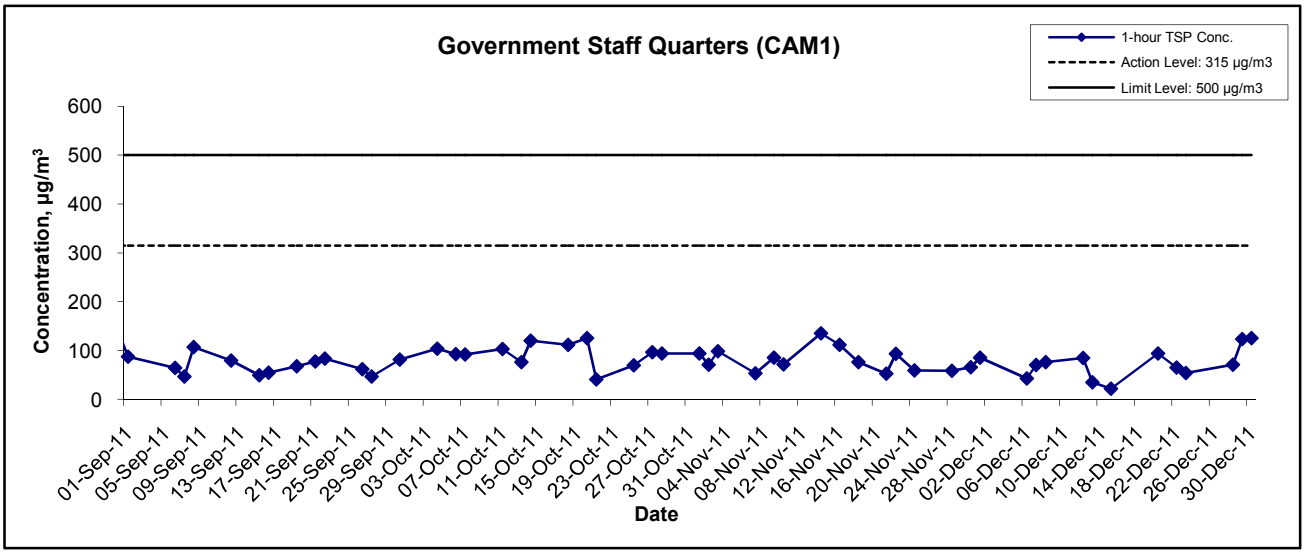


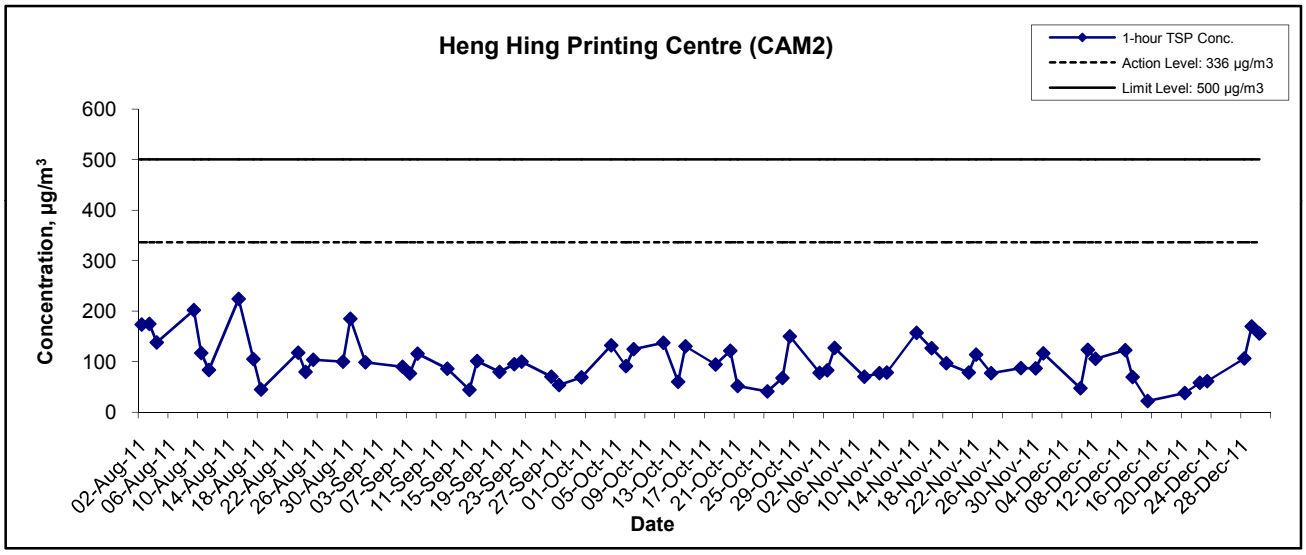


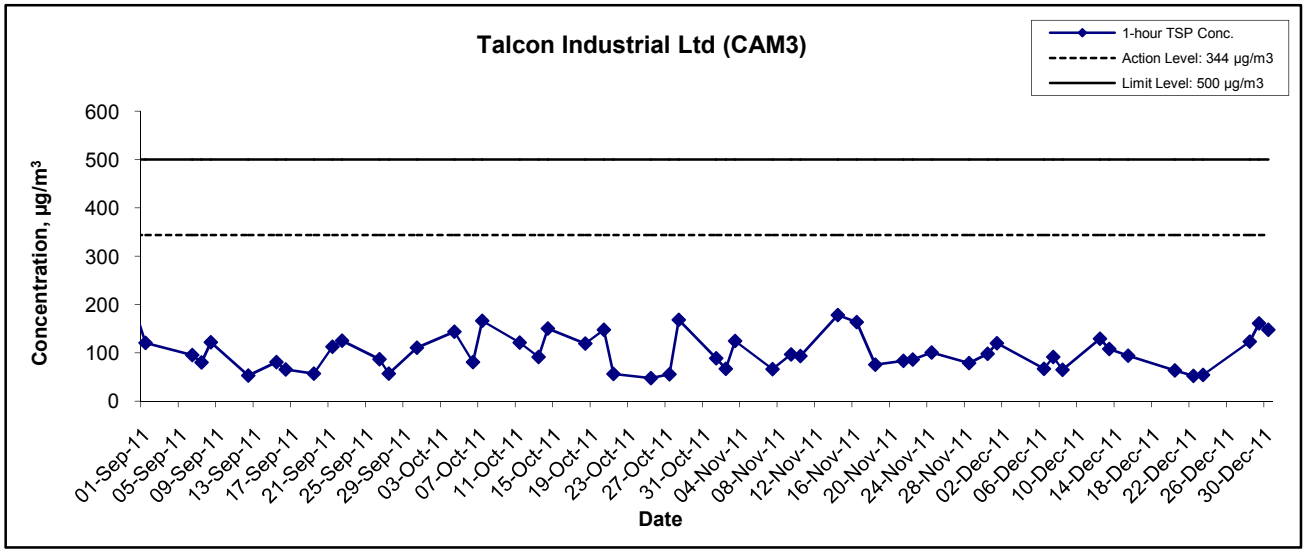


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Sept 11	Project No.: MA10069 Appendix: D	CINOTECH

1-hr TSP Concentration Levels



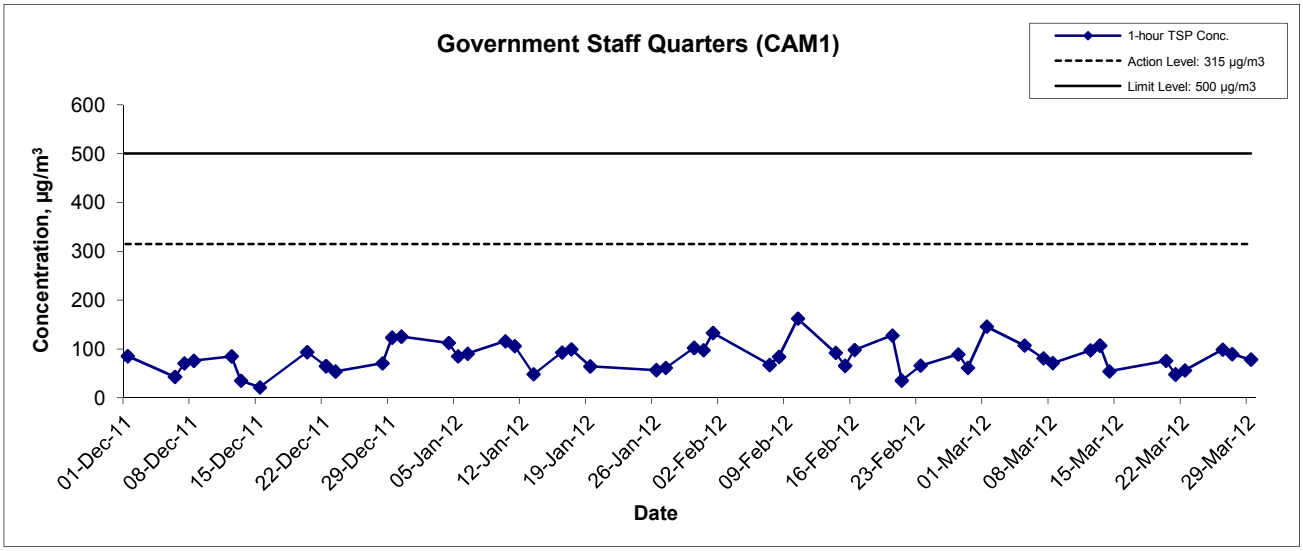


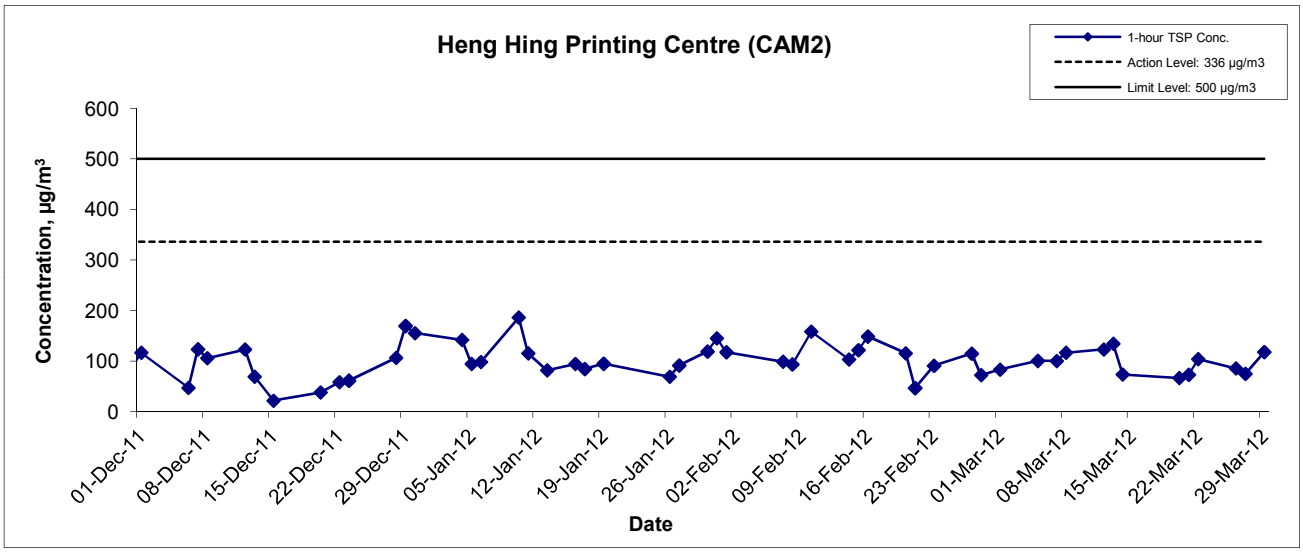


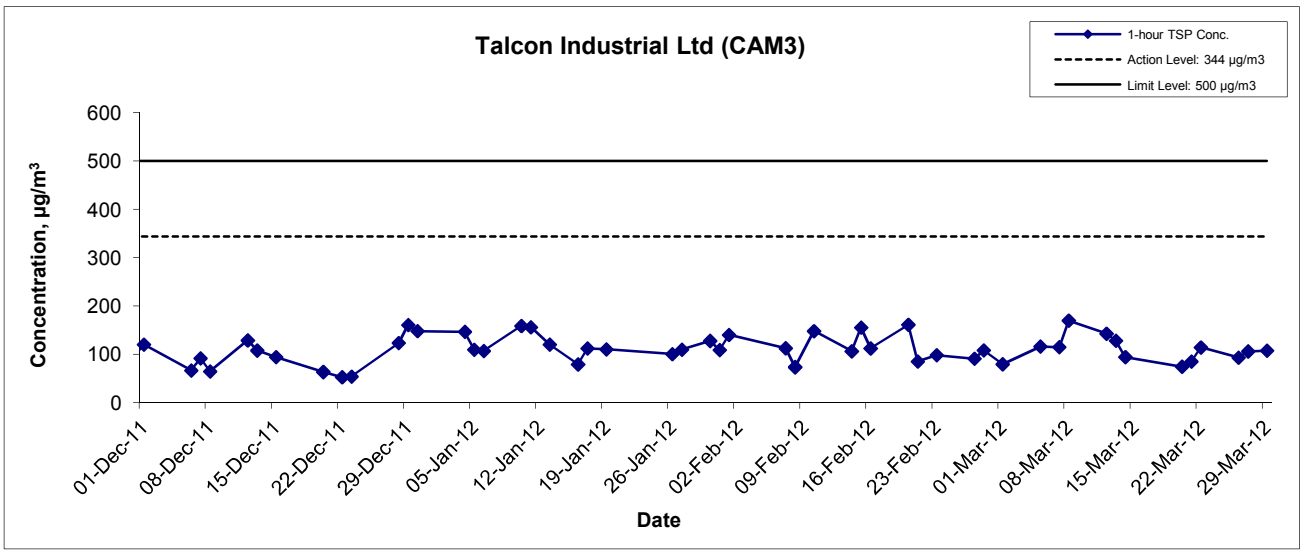
Title: Graphical Presentation of 1-hour TSP Impact Monitoring Results	Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B	Scale: N.T.S Date: Dec 11	Project No. MA10069 Appendix: D

CINOTECH

1-hr TSP Concentration Levels



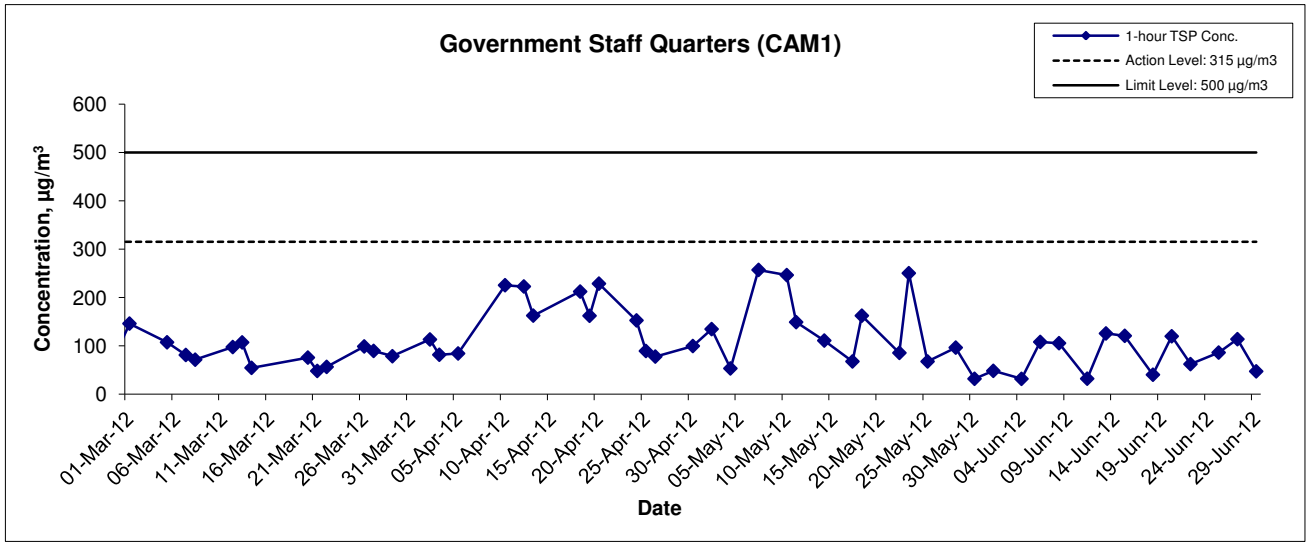


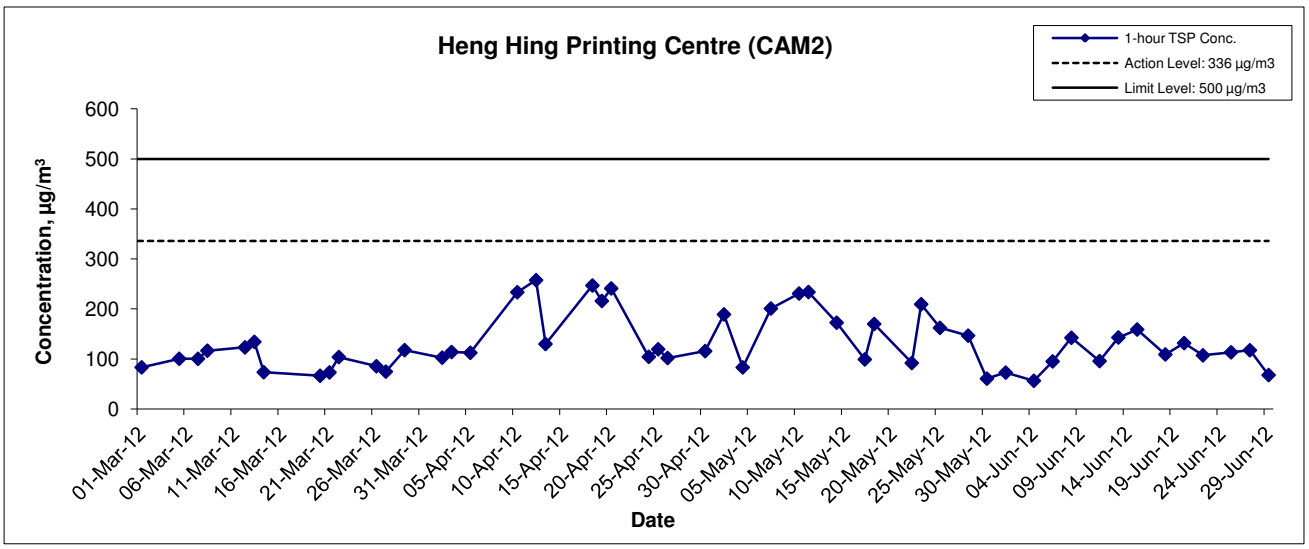


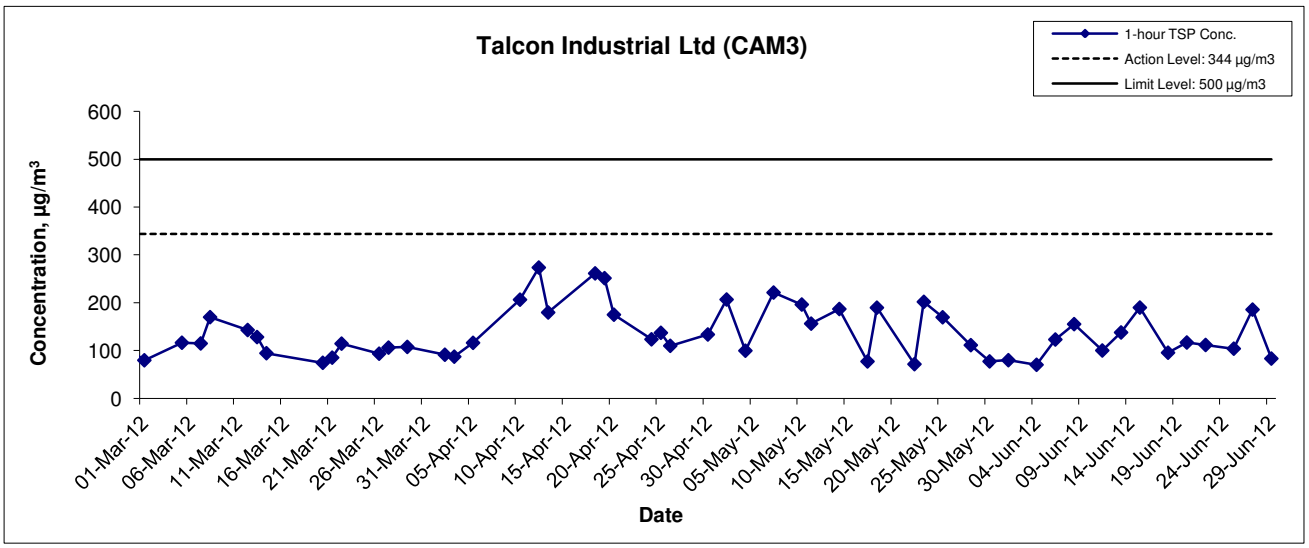
Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	N.T.S	MA10069
	Date: Mar 12	Appendix: D

CINOTECH

1-hr TSP Concentration Levels

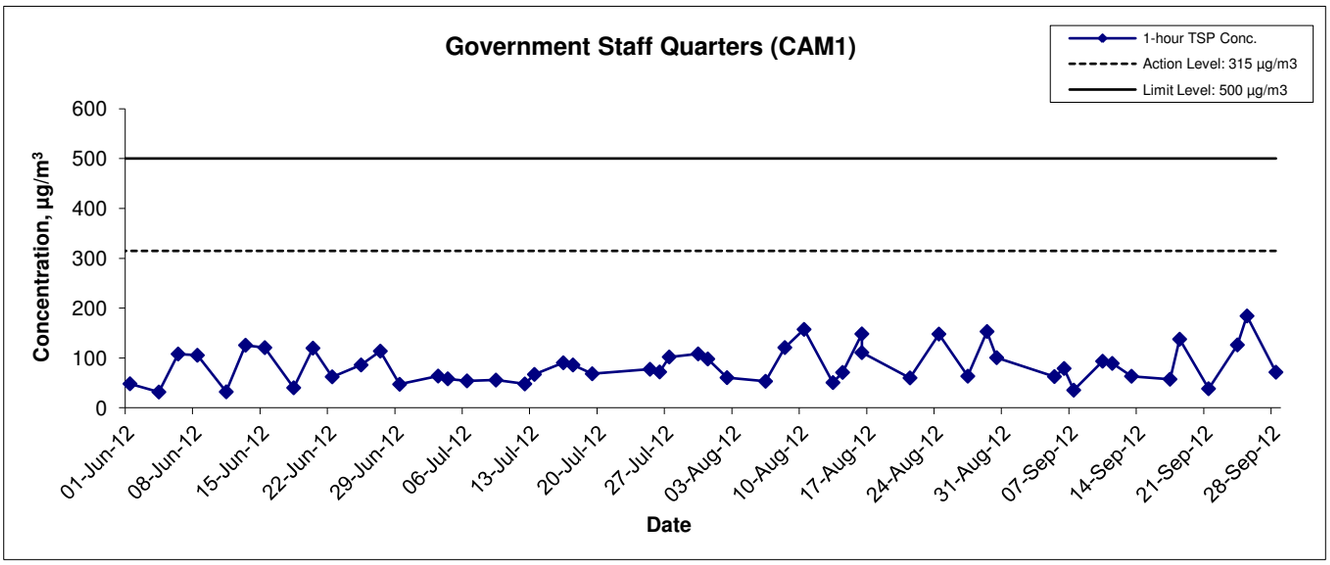


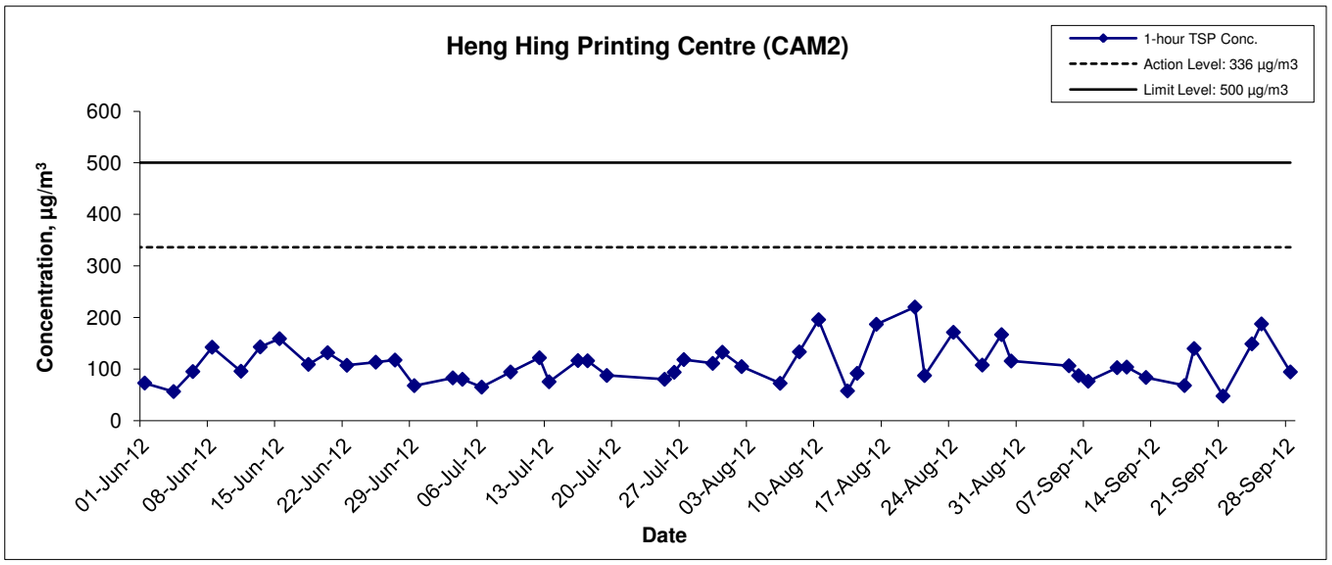


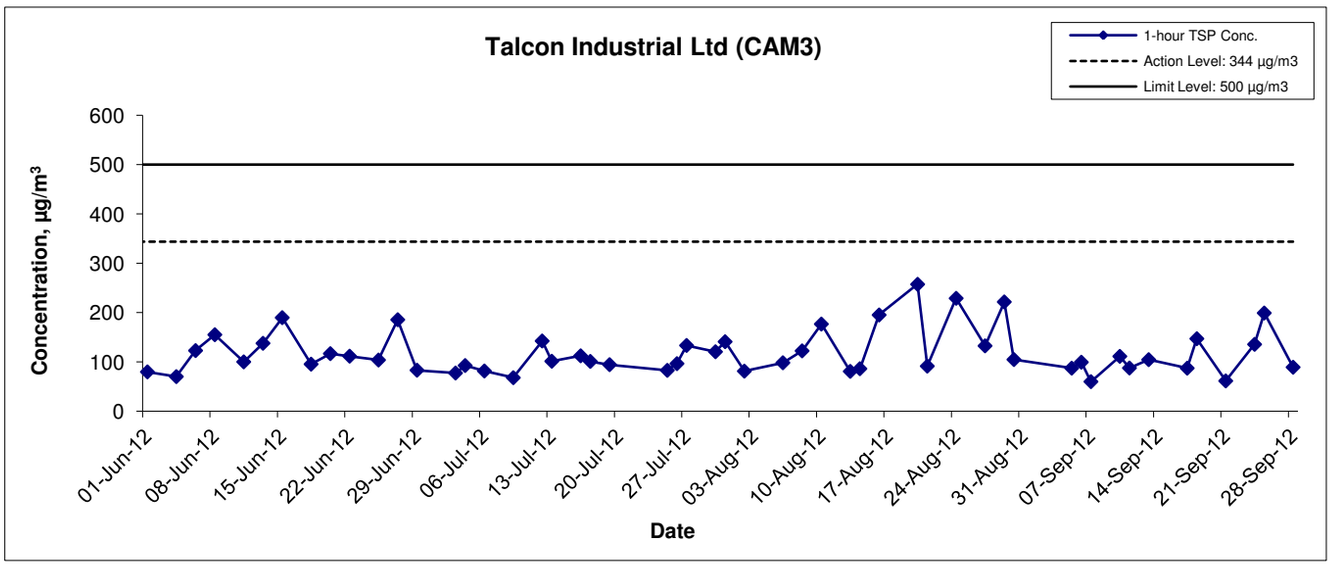


Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Jun 12	Project No.: MA10069 Appendix: D	CINOTECH

1-hr TSP Concentration Levels



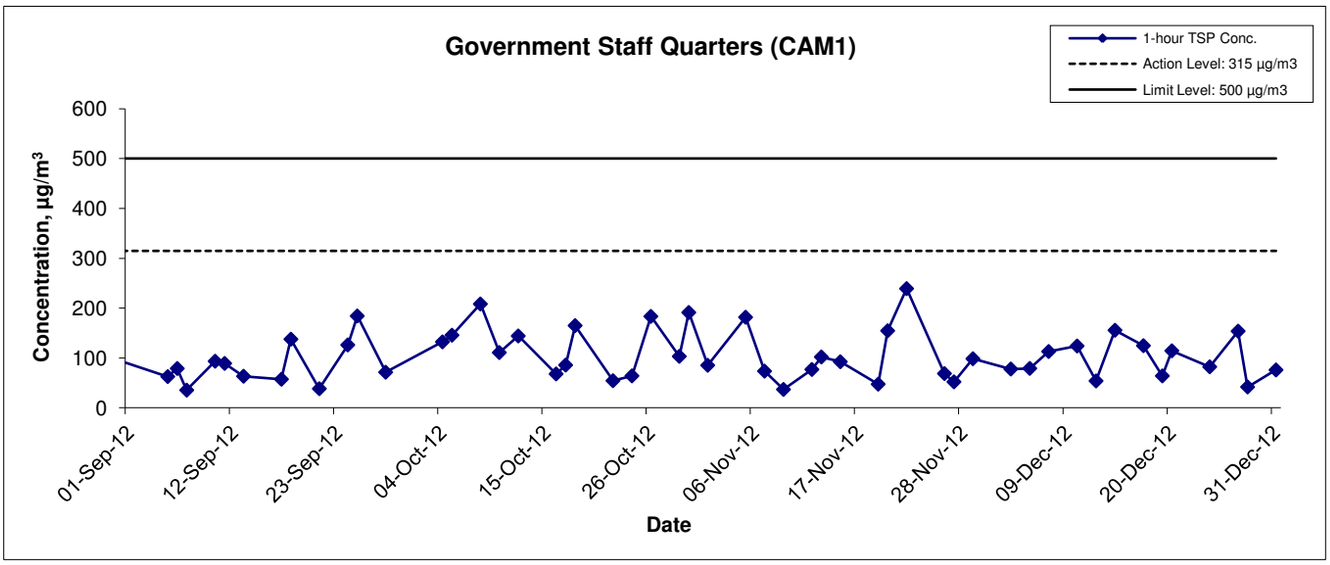


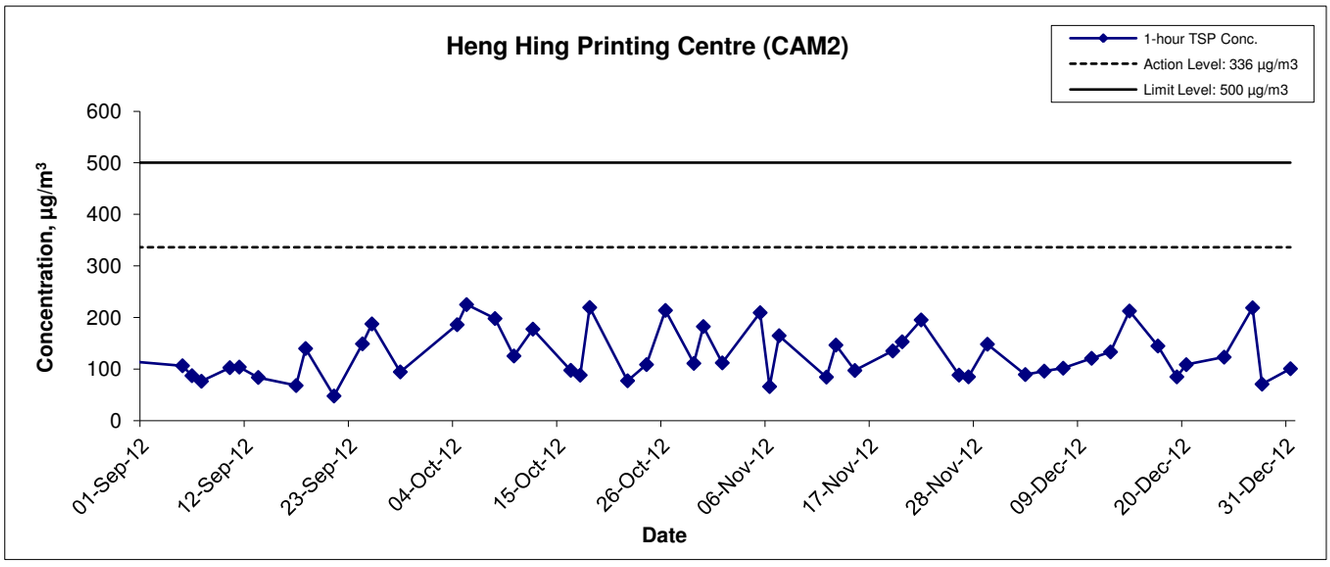


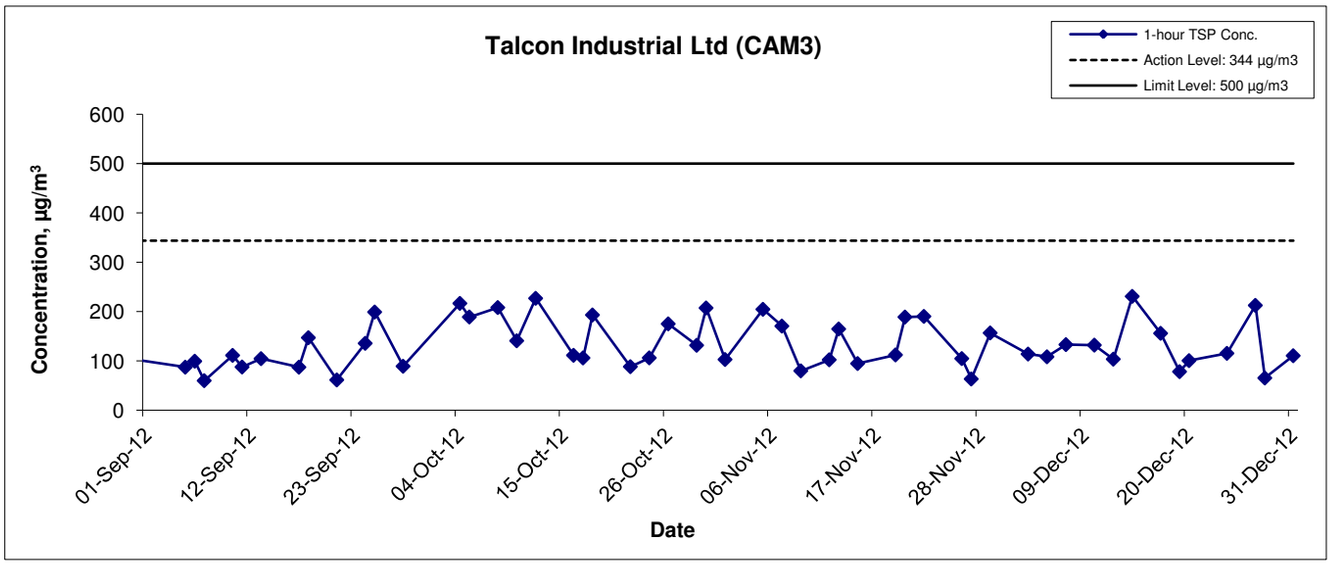
Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B	N.T.S	MA10069
Graphical Presentation of 1-hour TSP Impact Monitoring Results	Date: Sep 12	Appendix: D

CINOTECH

1-hr TSP Concentration Levels







Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B	N.T.S	MA10069
Graphical Presentation of 1-hour TSP Impact Monitoring Results	Date: Dec 12	Appendix: D

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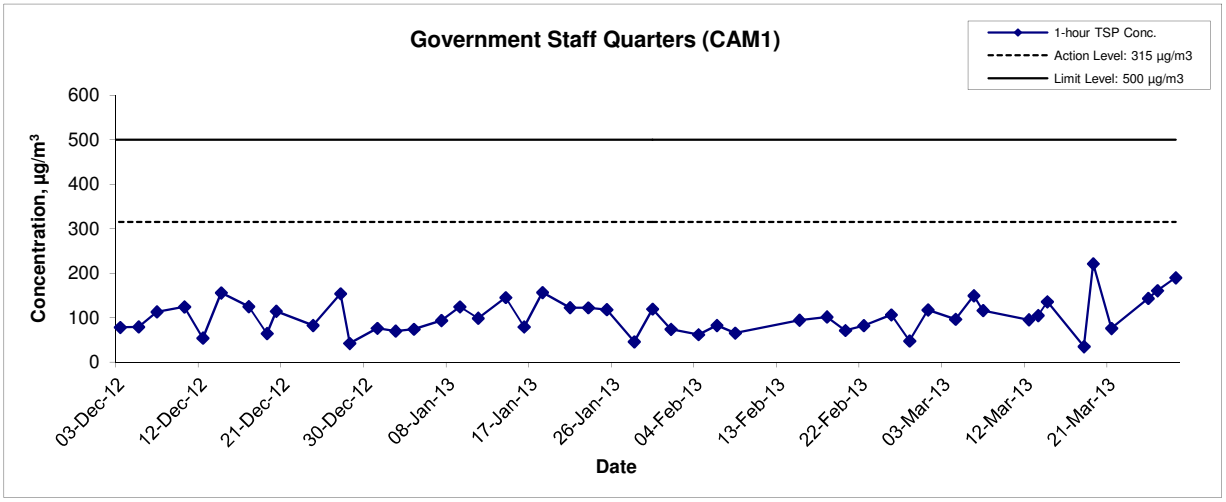
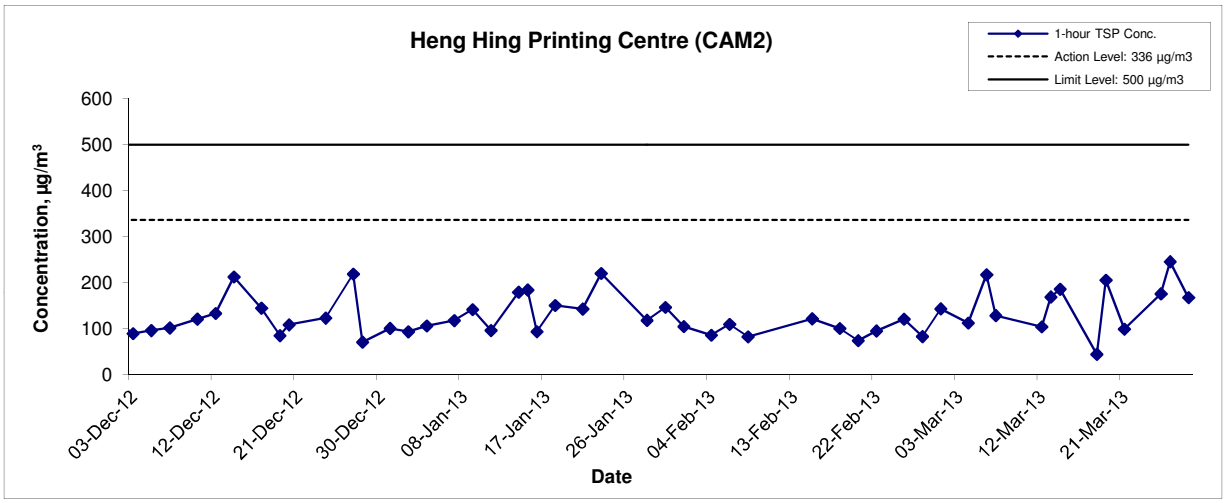
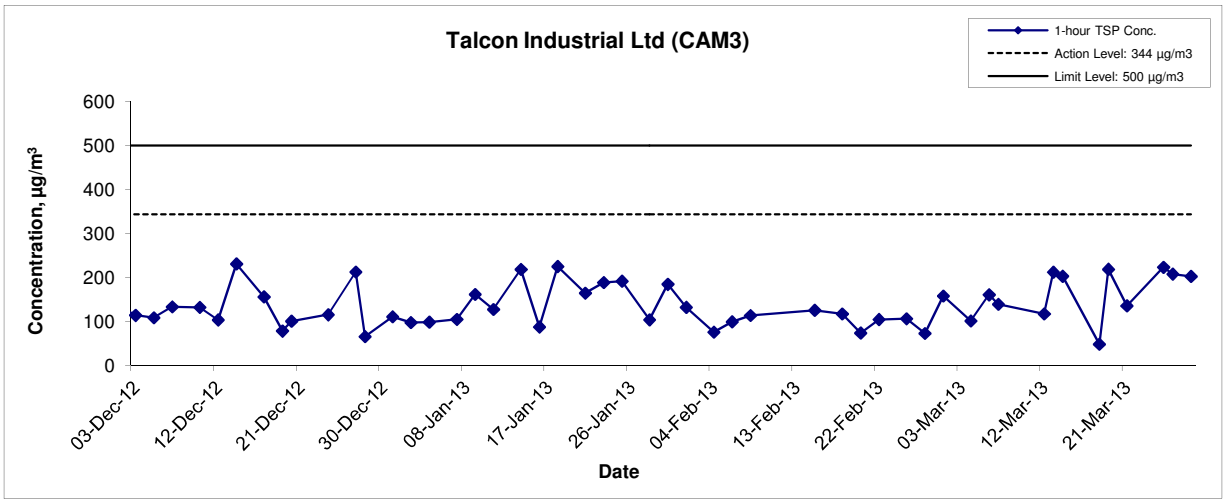
1-hr TSP Concentration Levels

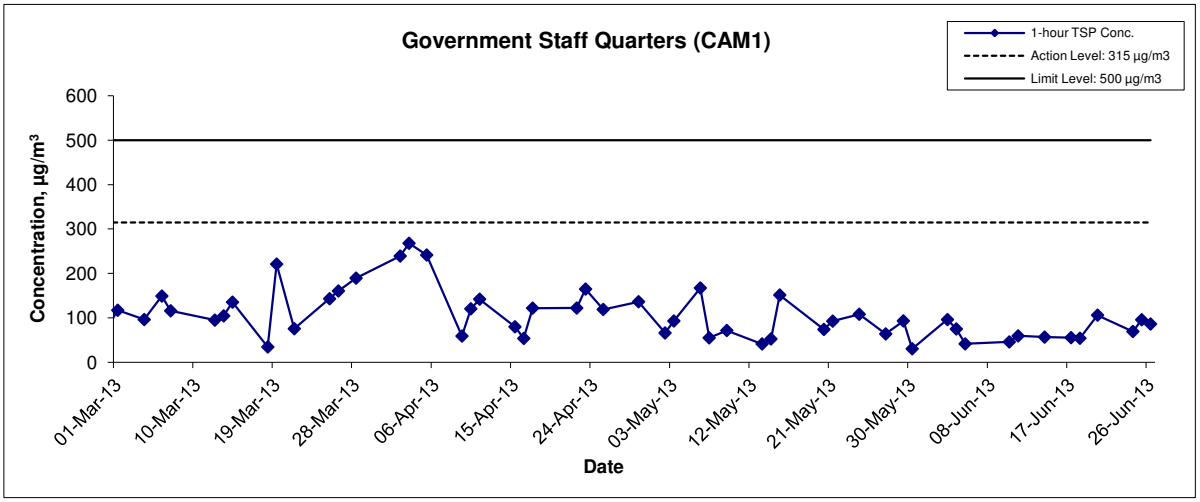


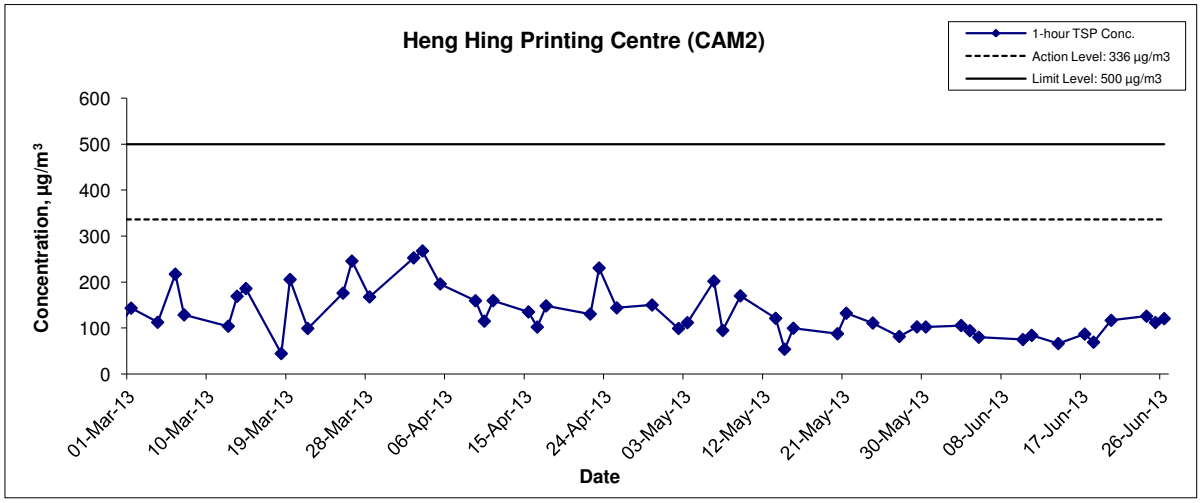


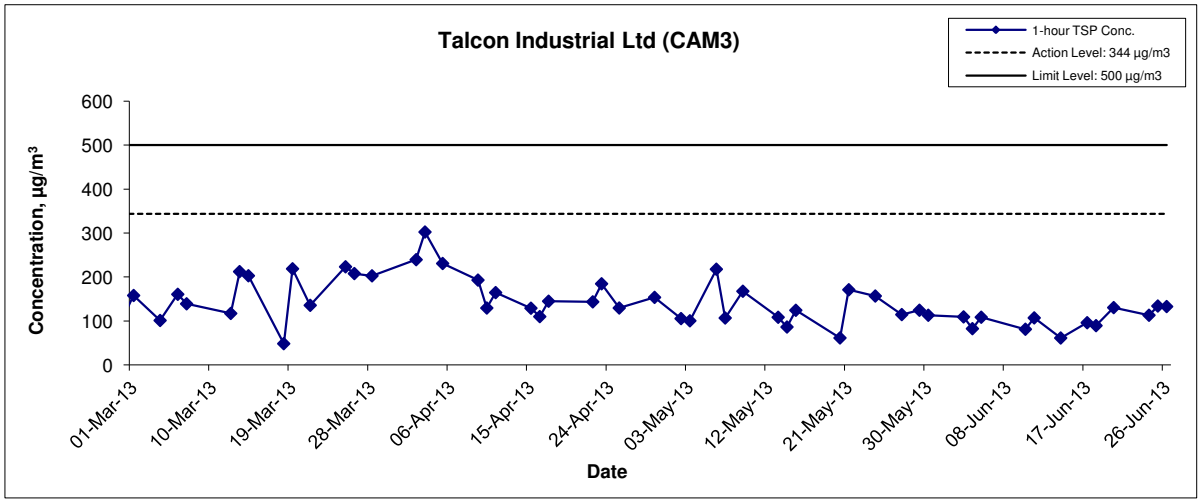


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Mar 15	Project No.: MA10069 Appendix: D	CINOTECH

1-hr TSP Concentration Levels

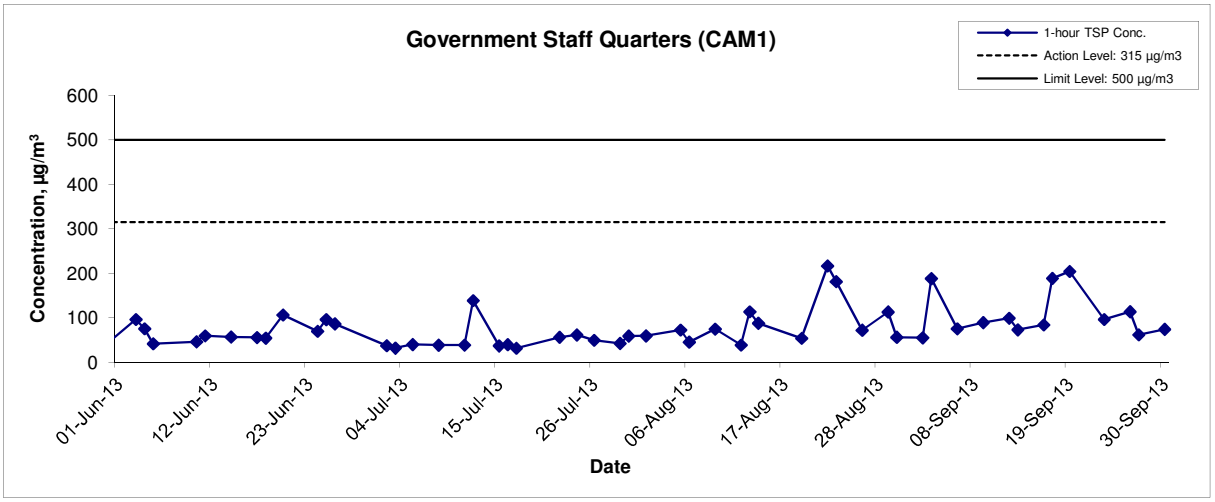


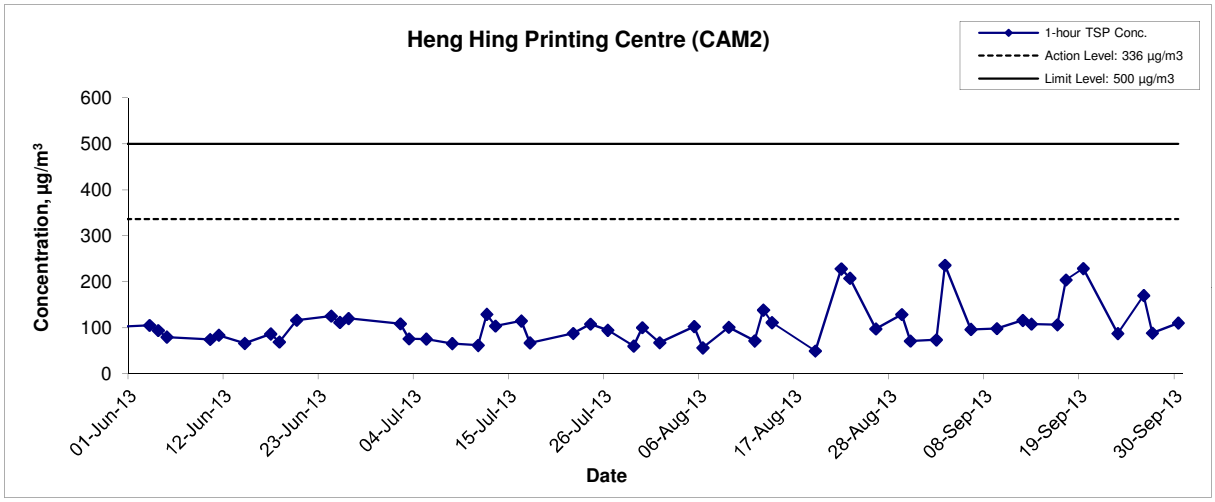


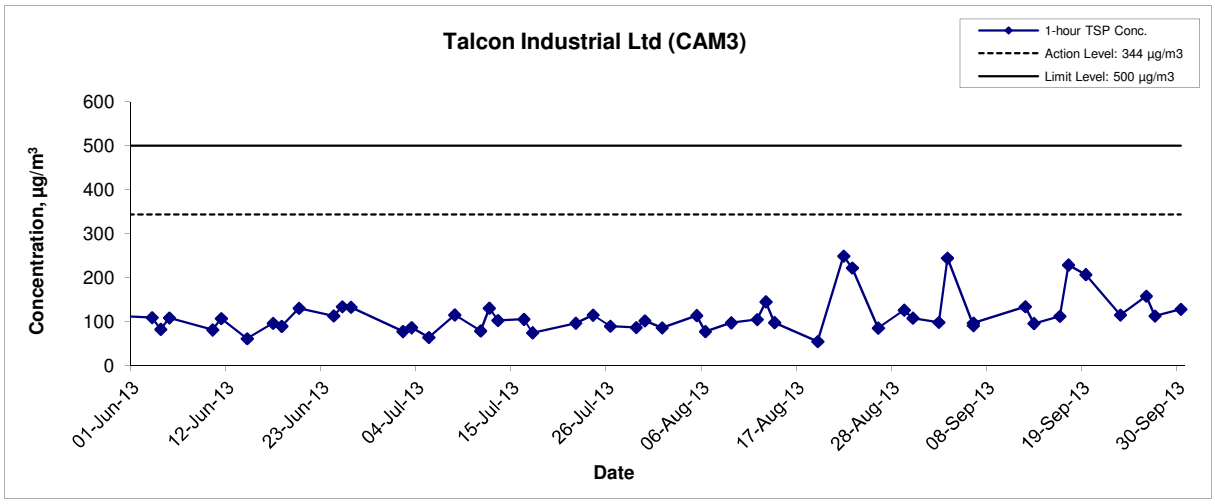


Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Jun 13	Appendix: D	

1-hr TSP Concentration Levels



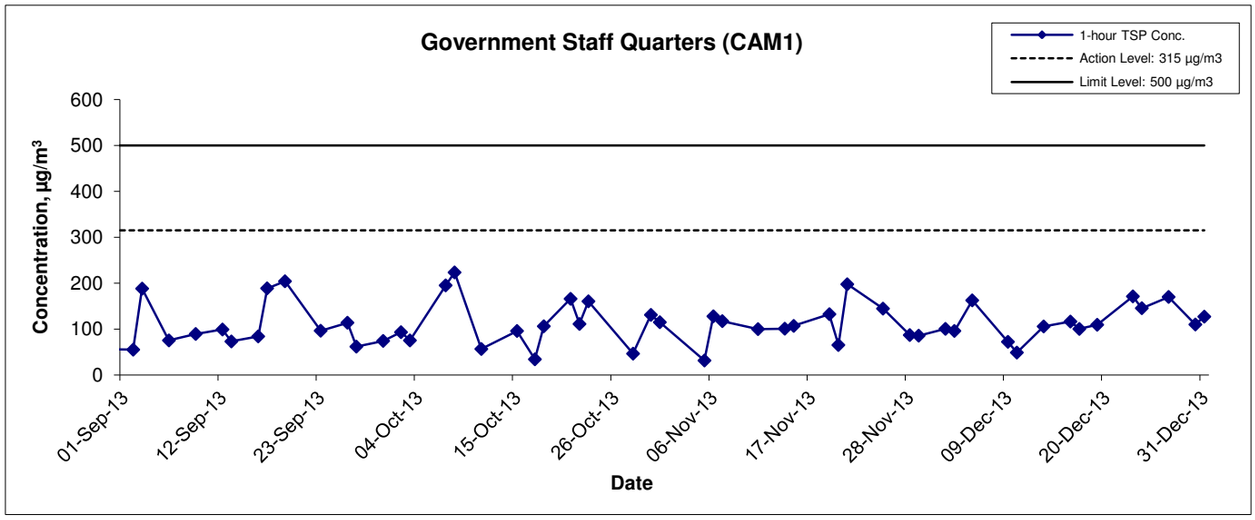


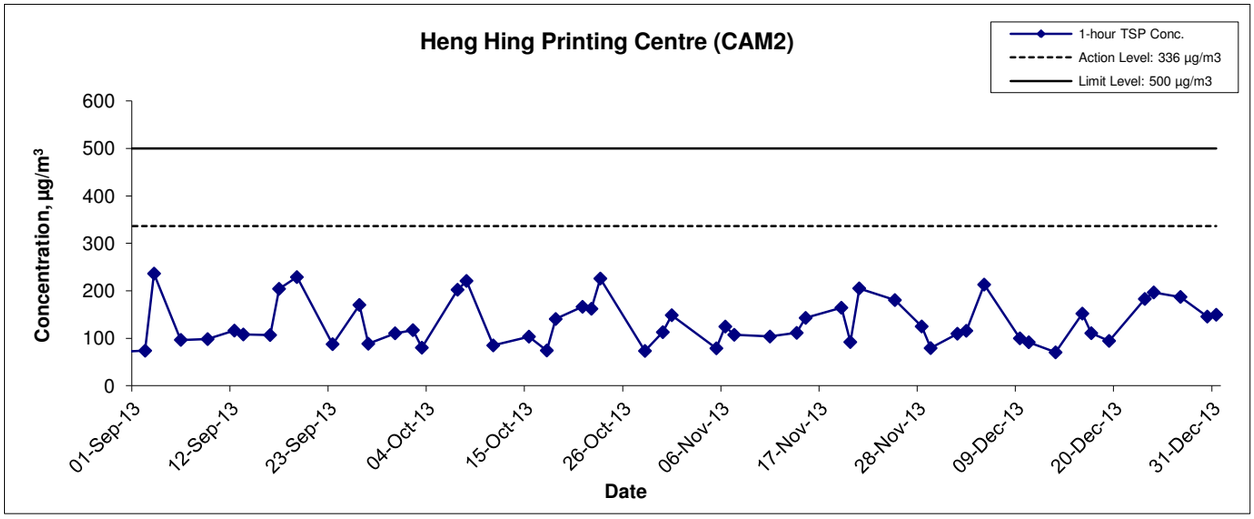


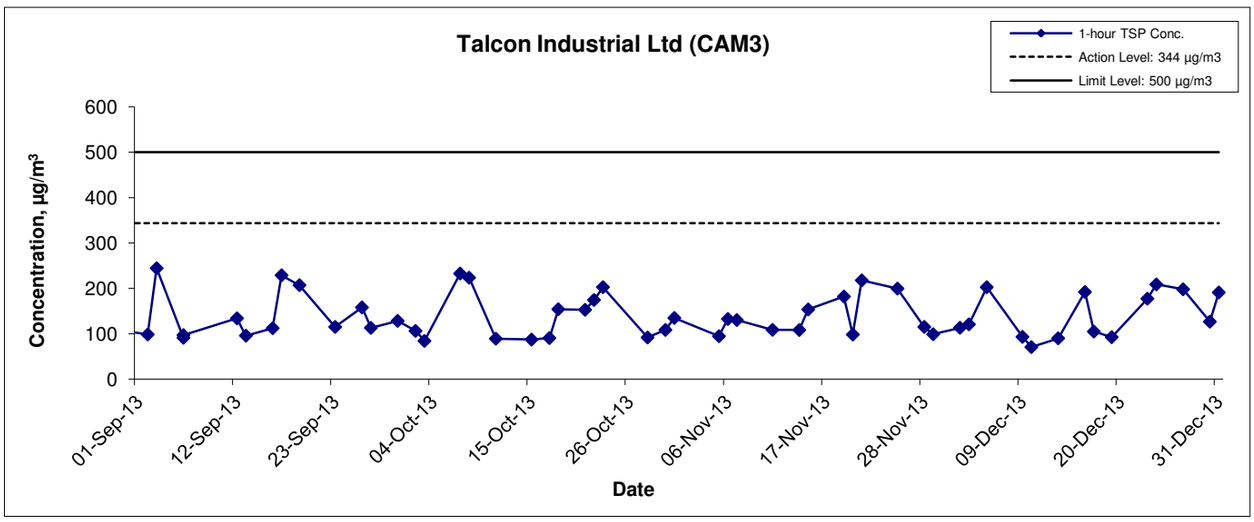
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	
	Date: Sep 13	Appendix: D	

CINOTECH

1-hr TSP Concentration Levels



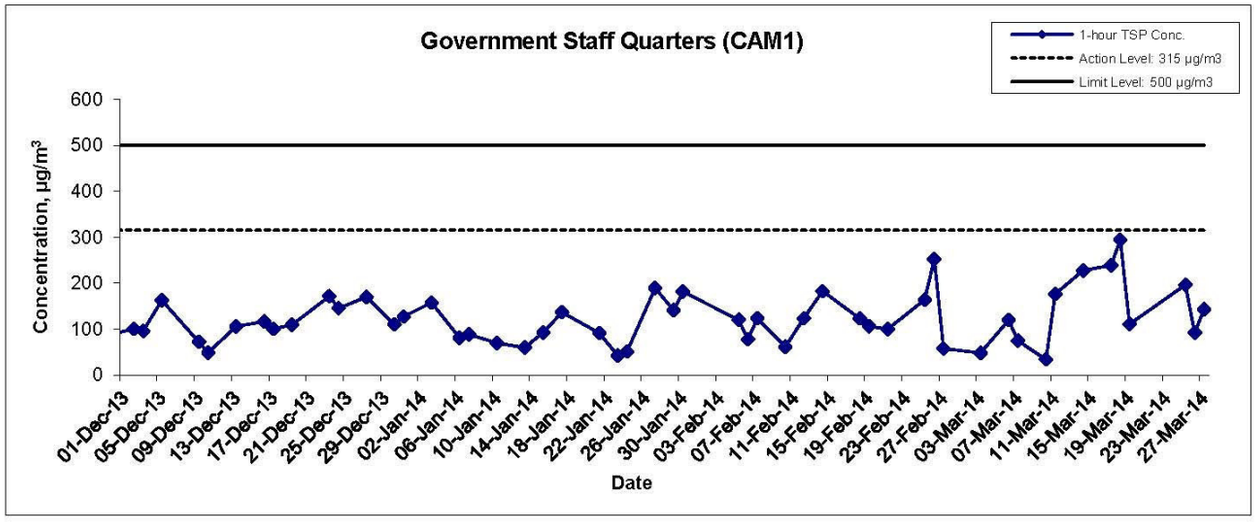


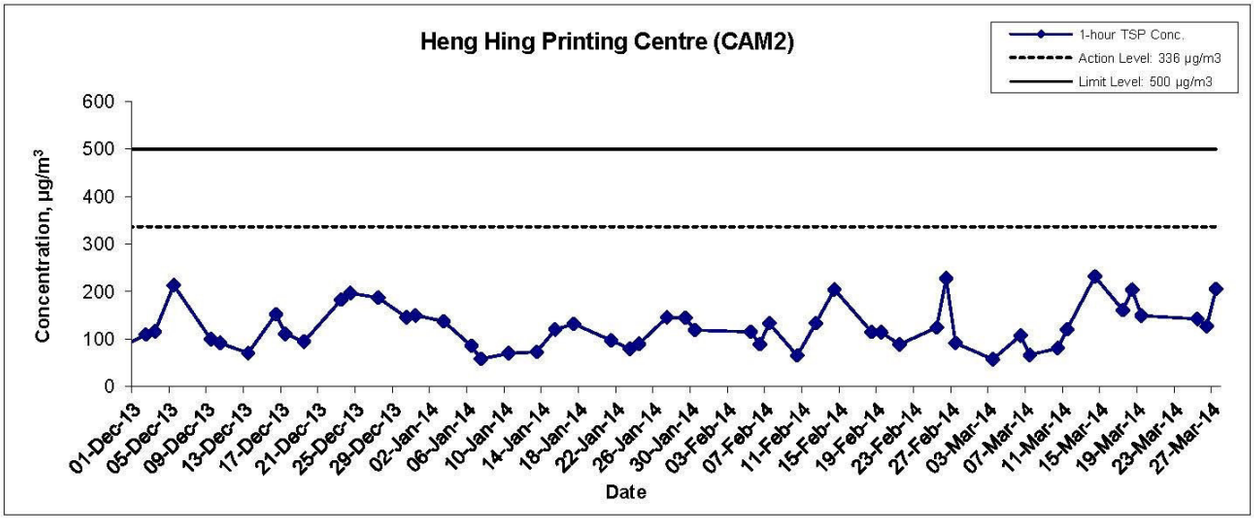


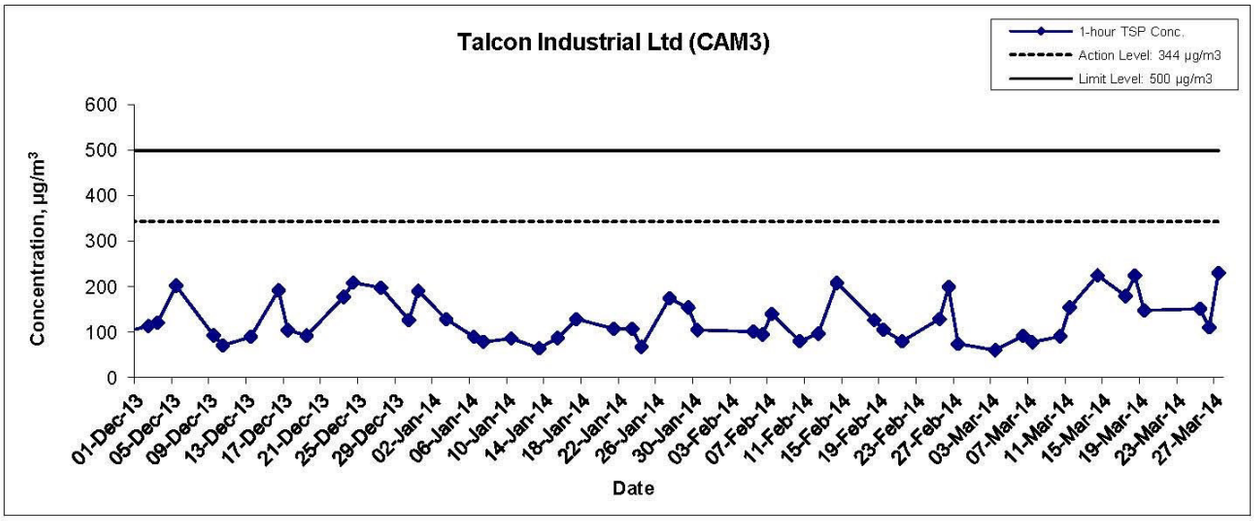
Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	N.T.S	MA10069
	Date: Dec 13	Appendix: D

CINOTECH

1-hr TSP Concentration Levels

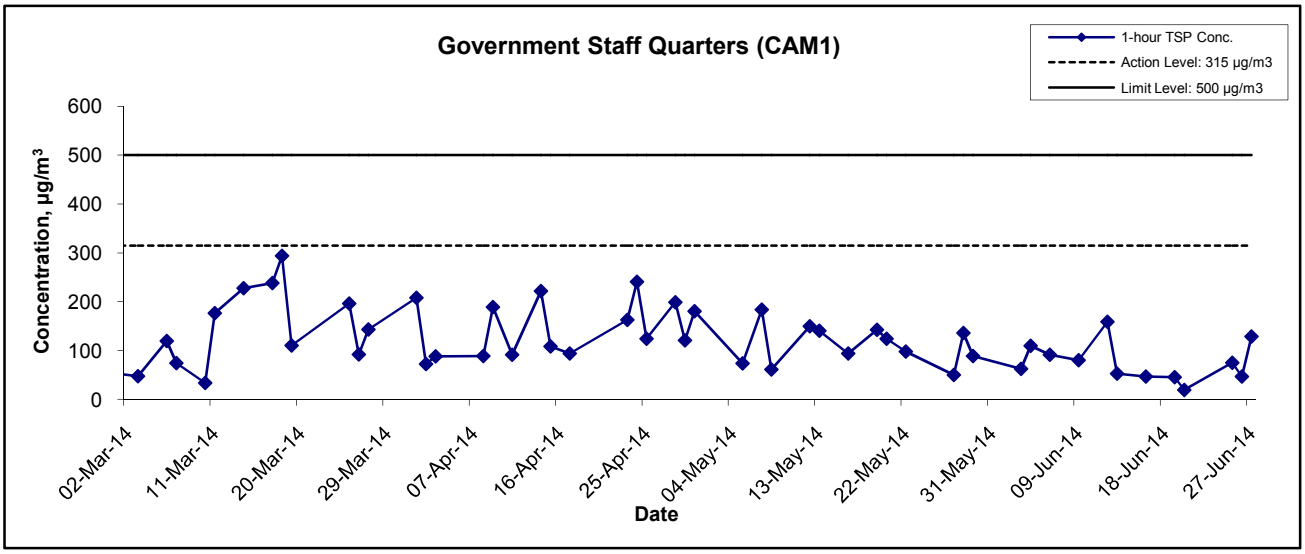


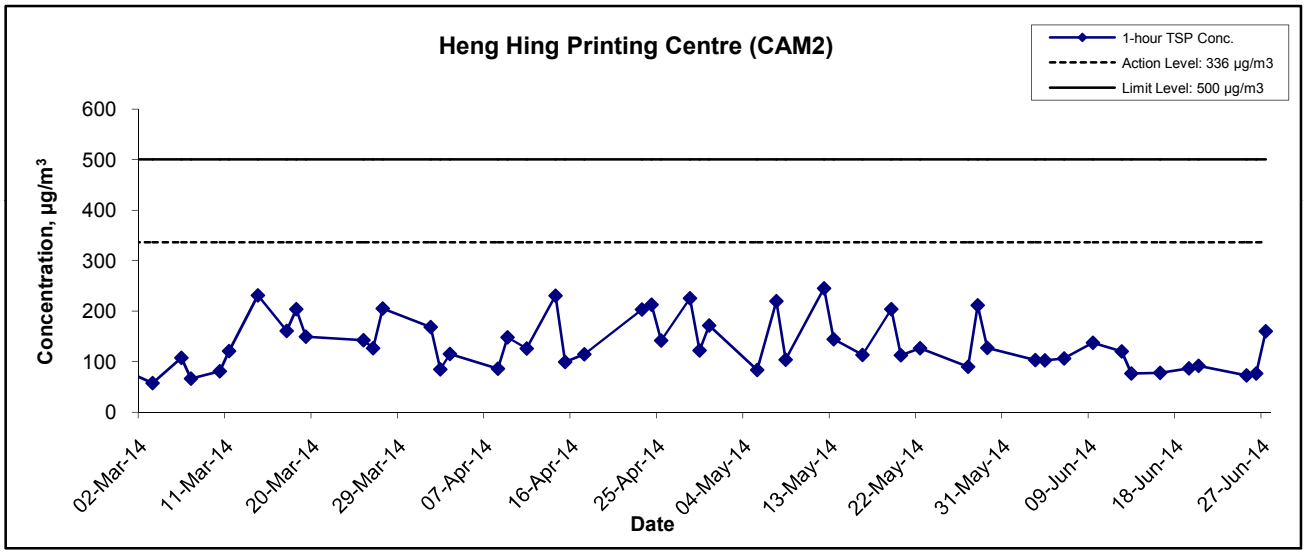


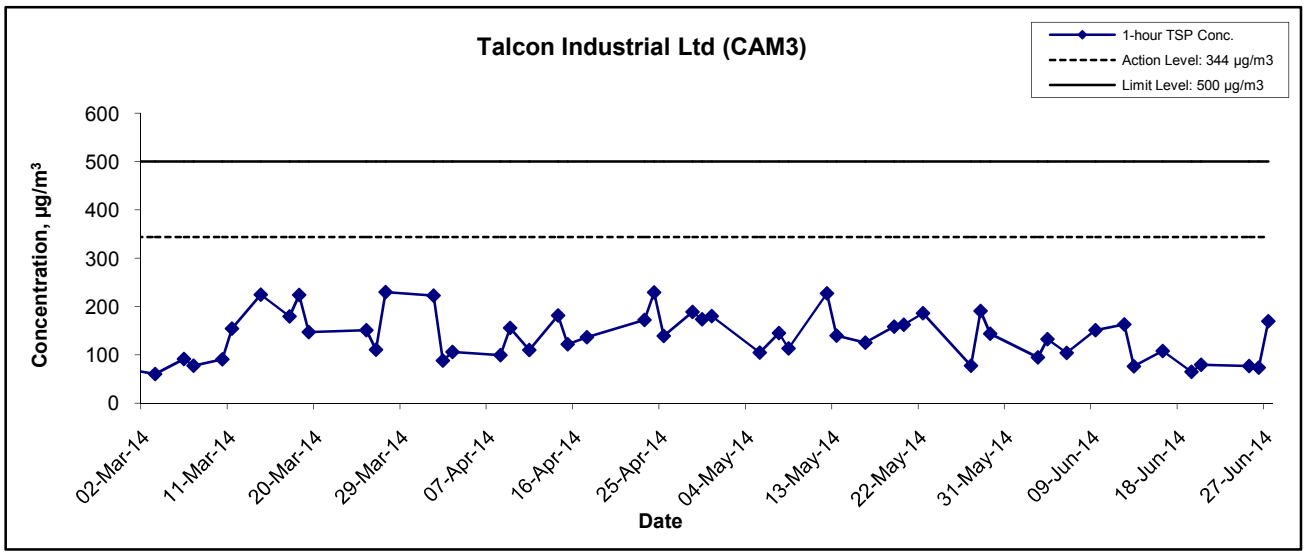


Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Mar 14	Appendix: D	

1-hr TSP Concentration Levels

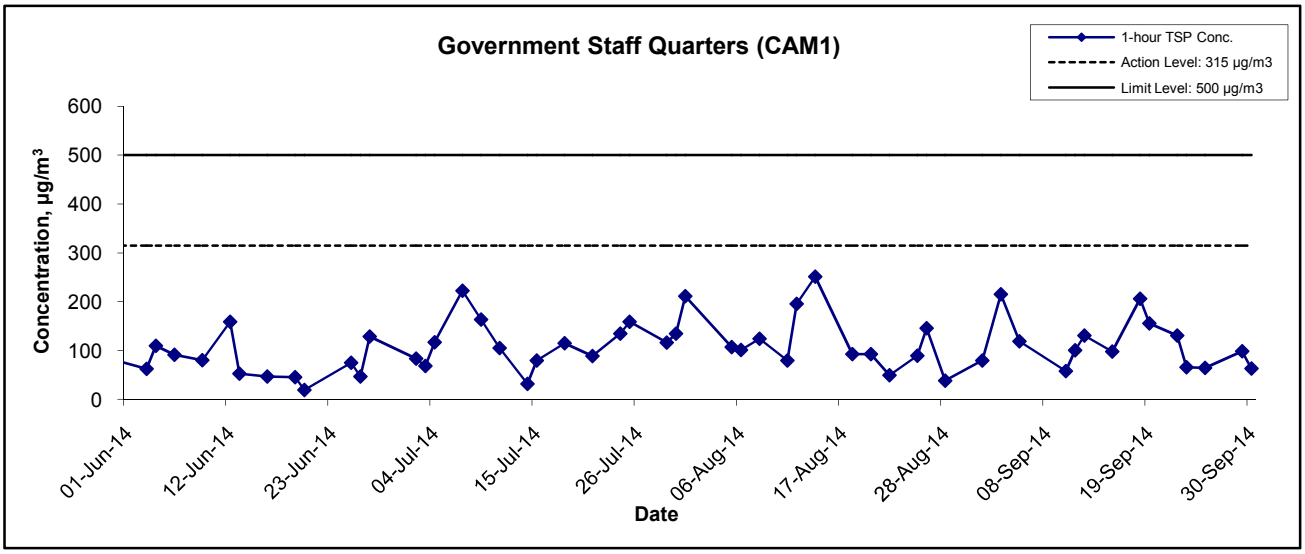


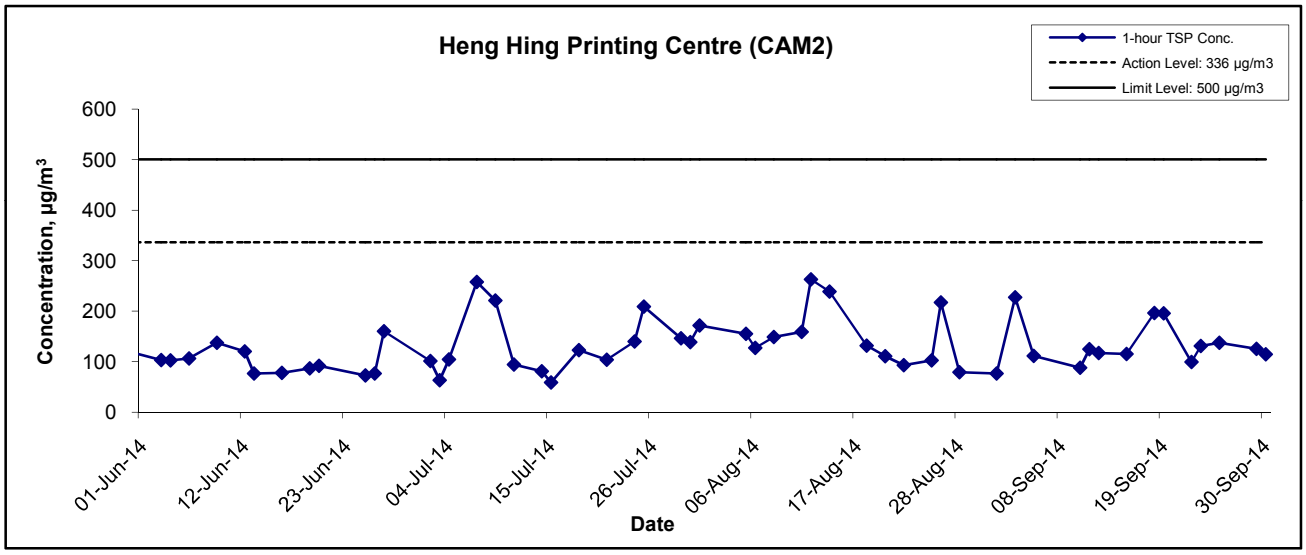


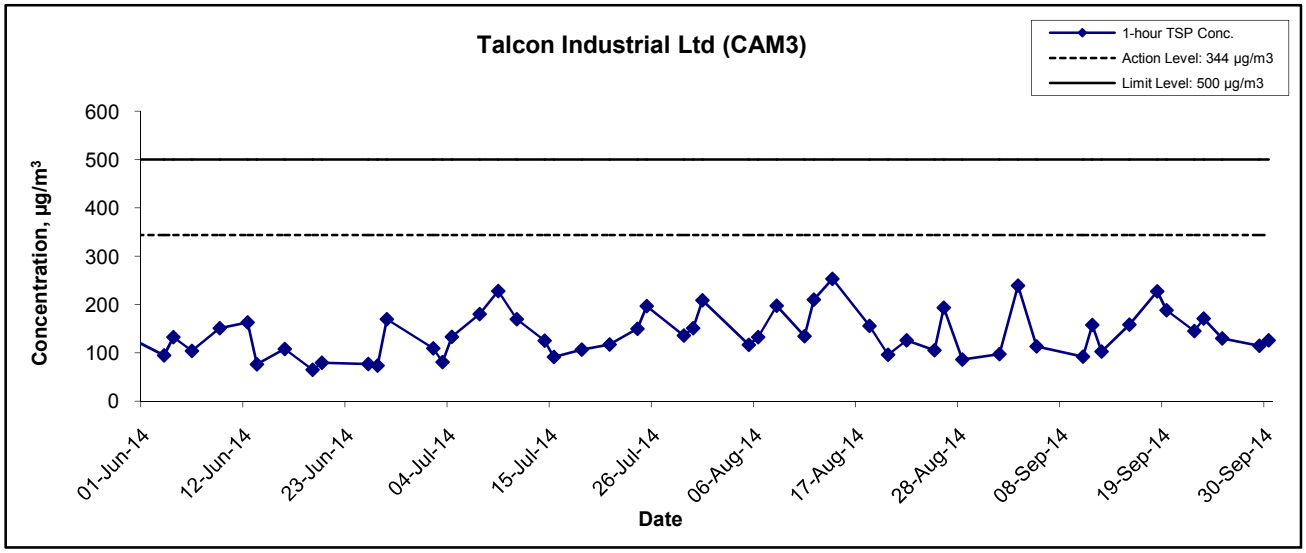


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Jun 14	Appendix: D	

1-hr TSP Concentration Levels

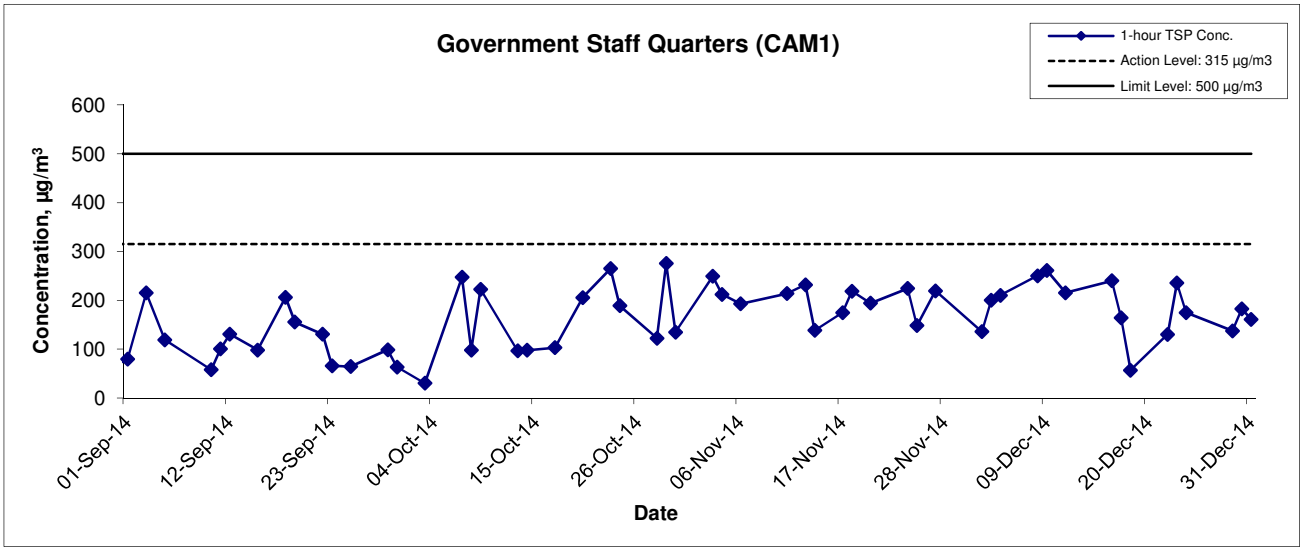


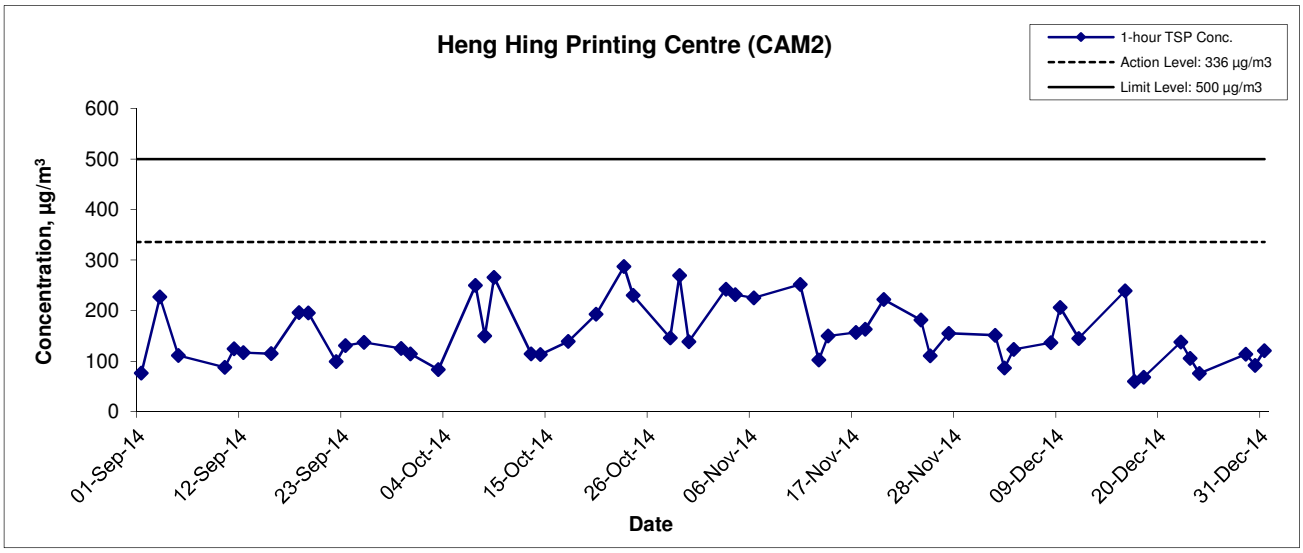


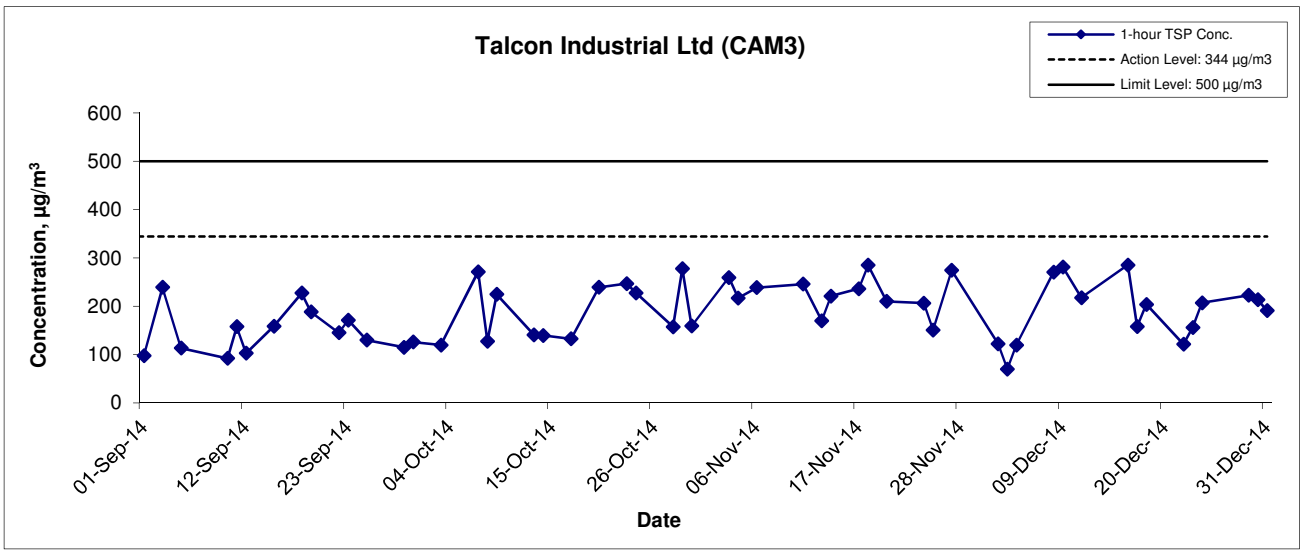


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Sep 14	Project No.: MA10069 Appendix: D	CINOTECH

1-hr TSP Concentration Levels







Title: Graphical Presentation of 1-hour TSP Impact Monitoring Results	Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B	Scale: N.T.S Date: Dec 14	Project No.: MA10069 Appendix: D

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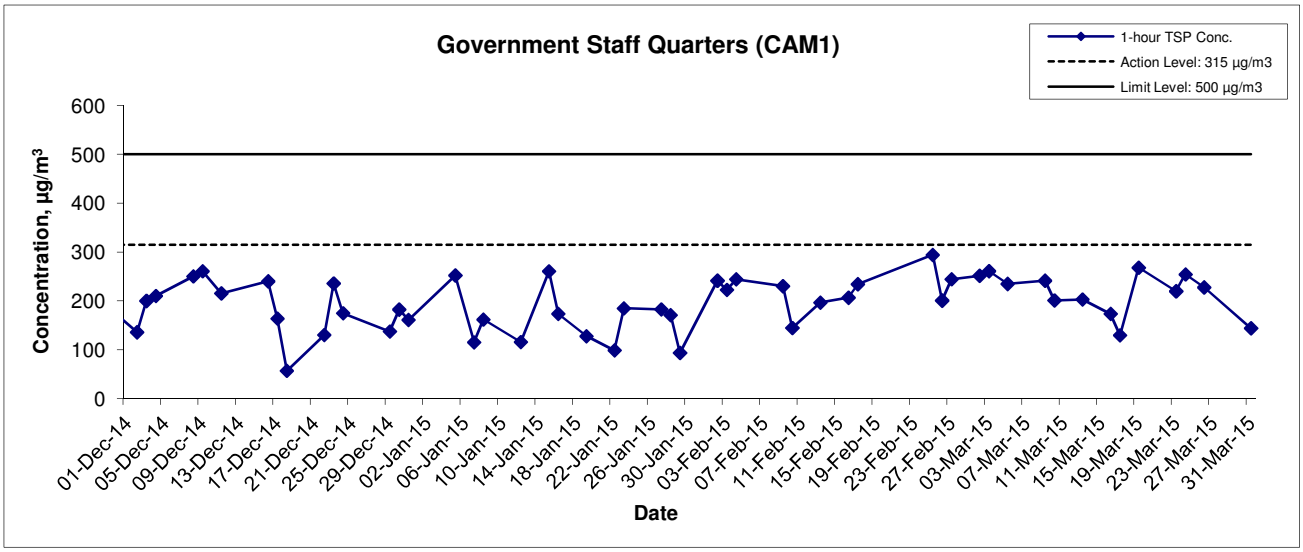
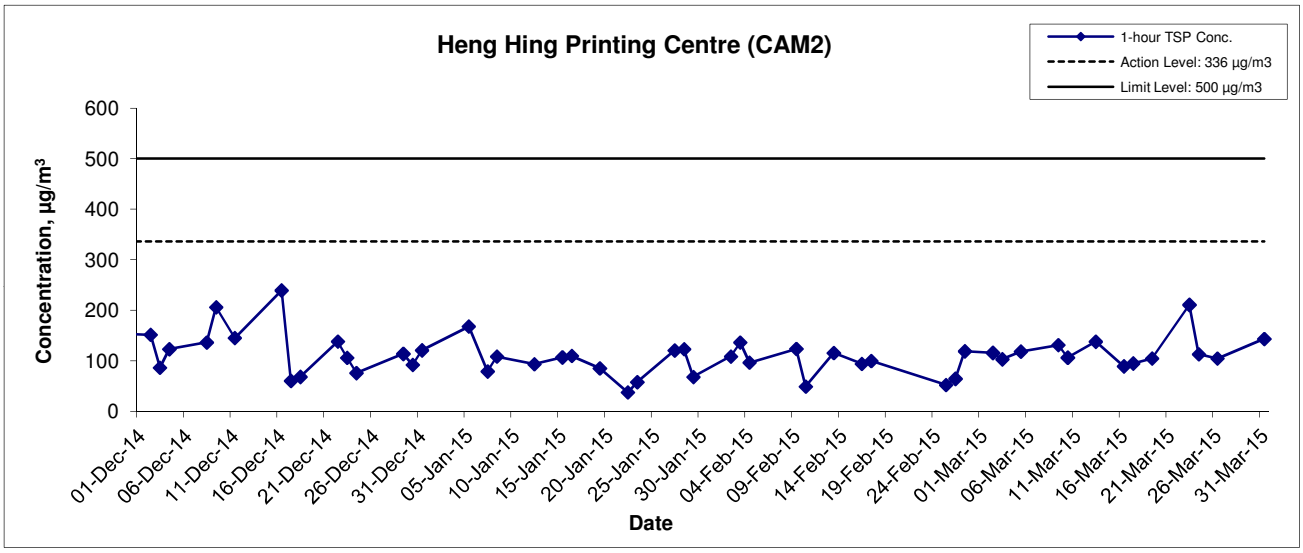
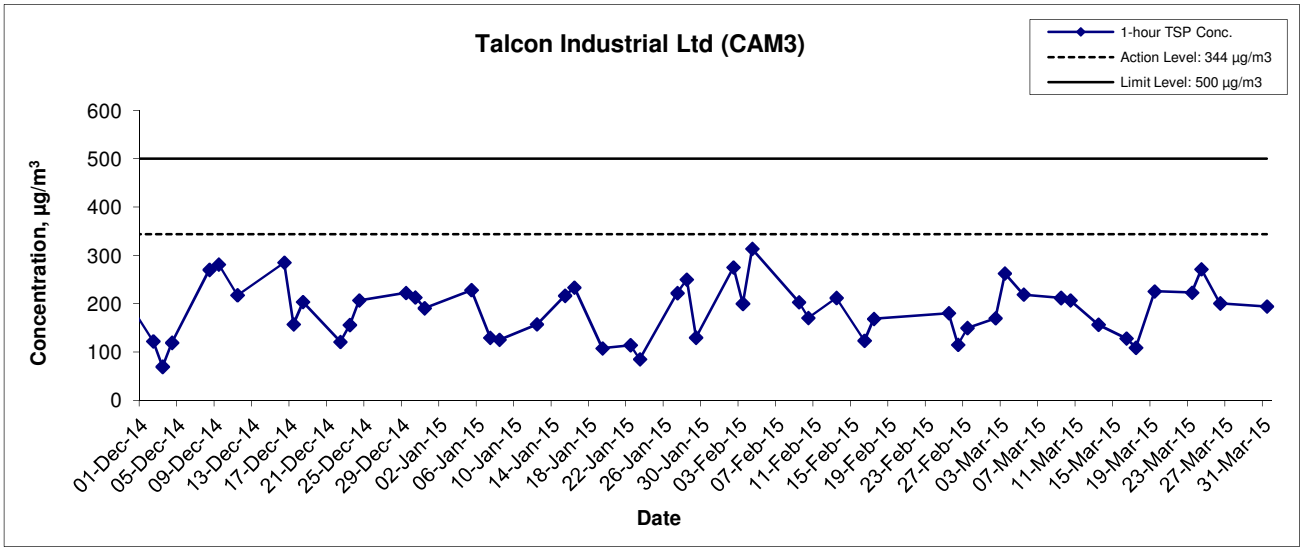
1-hr TSP Concentration Levels





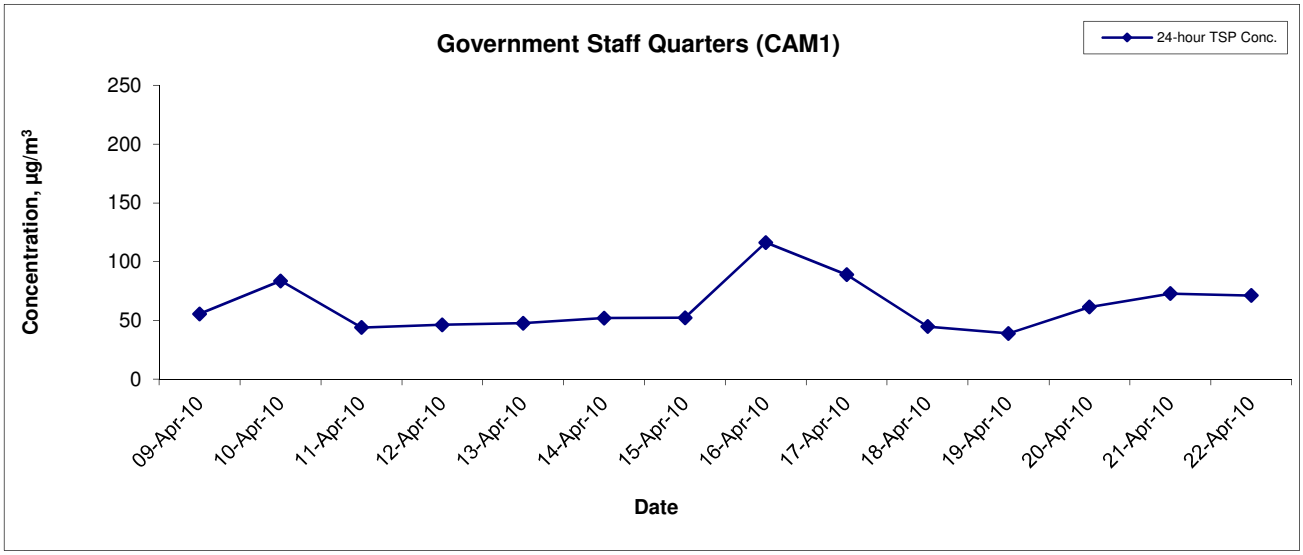


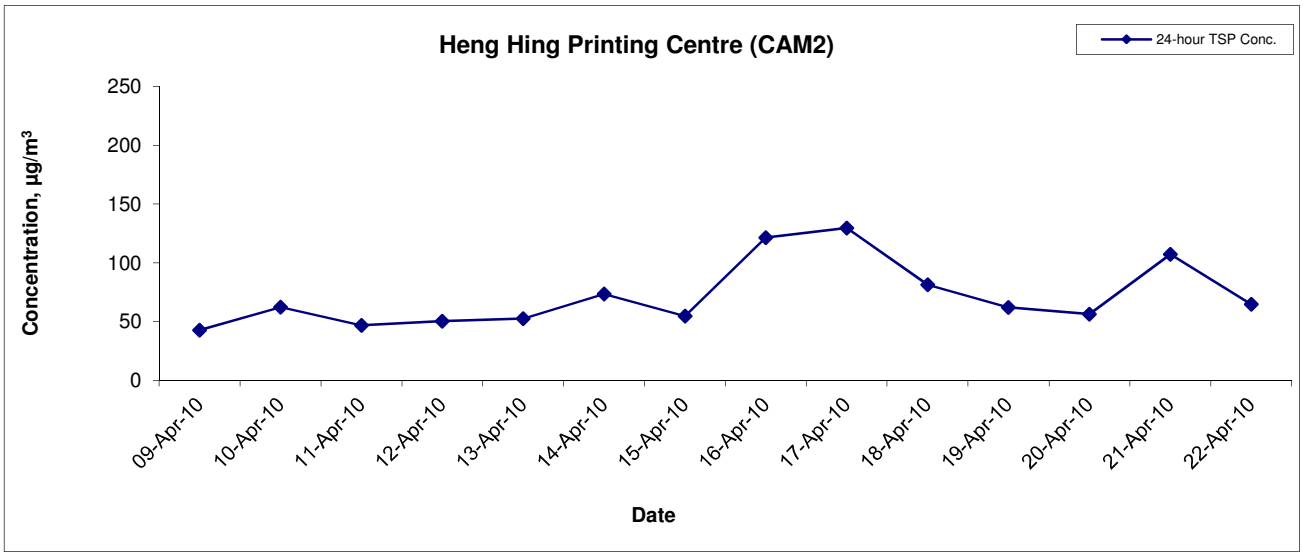
Title: Graphical Presentation of 1-hour TSP Impact Monitoring Results	Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B	Scale: N.T.S Date: Mar 15	Project No.: MA10069 Appendix: D

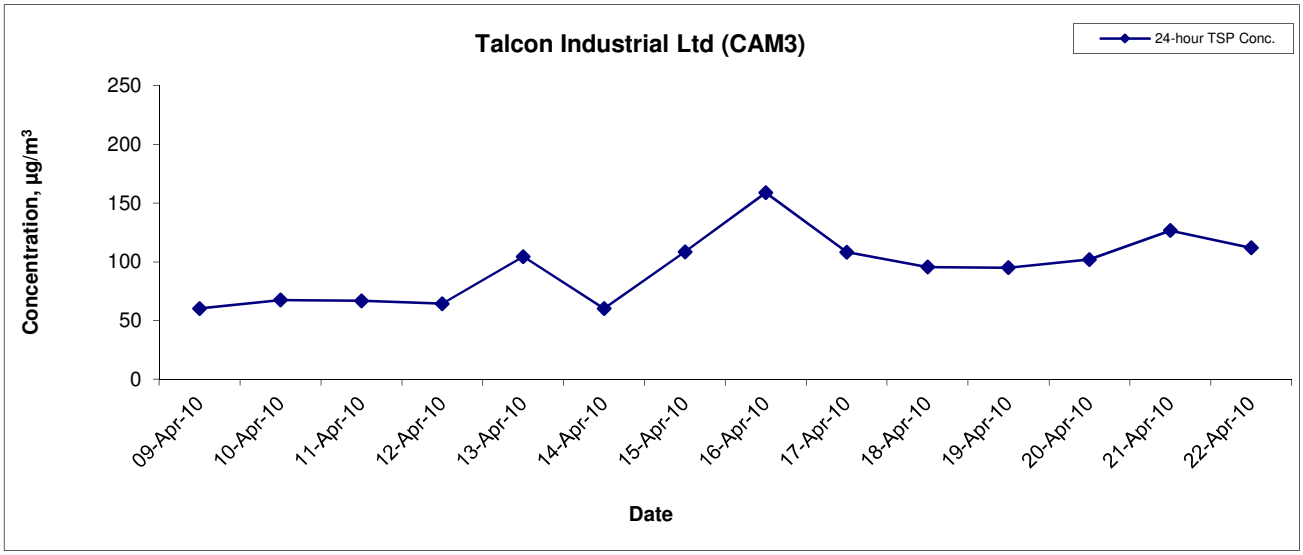
CINOTECH

APPENDIX E
GRAPHICAL PRESENTATION OF 24-HOUR TSP MONITORING RESULTS OVER THE PROJECT PERIOD

24-hr TSP Concentration Levels

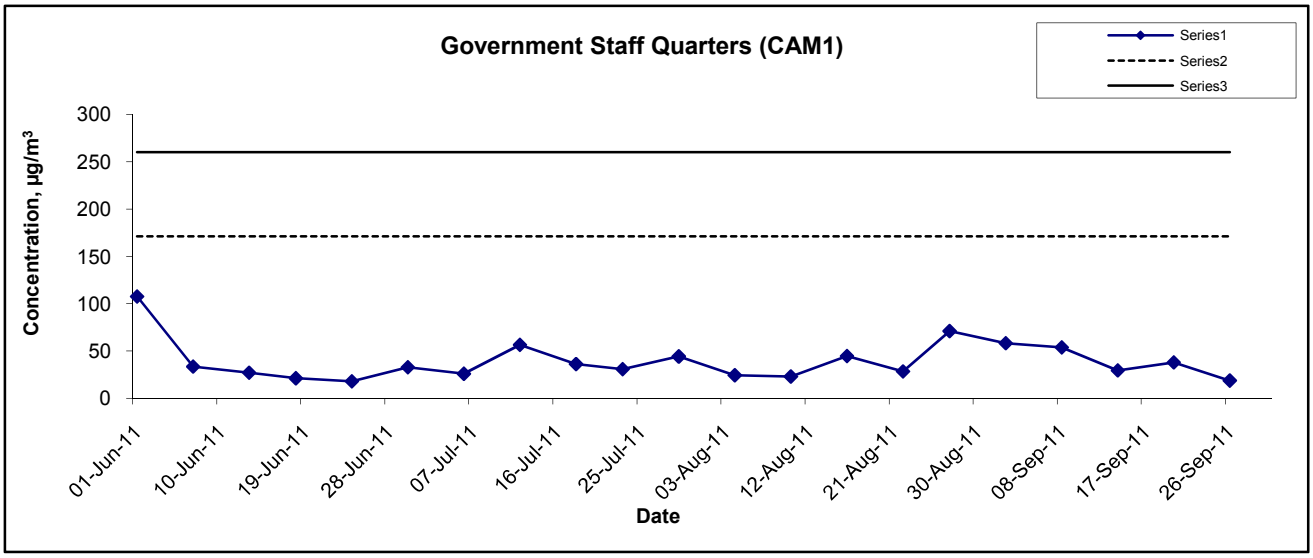


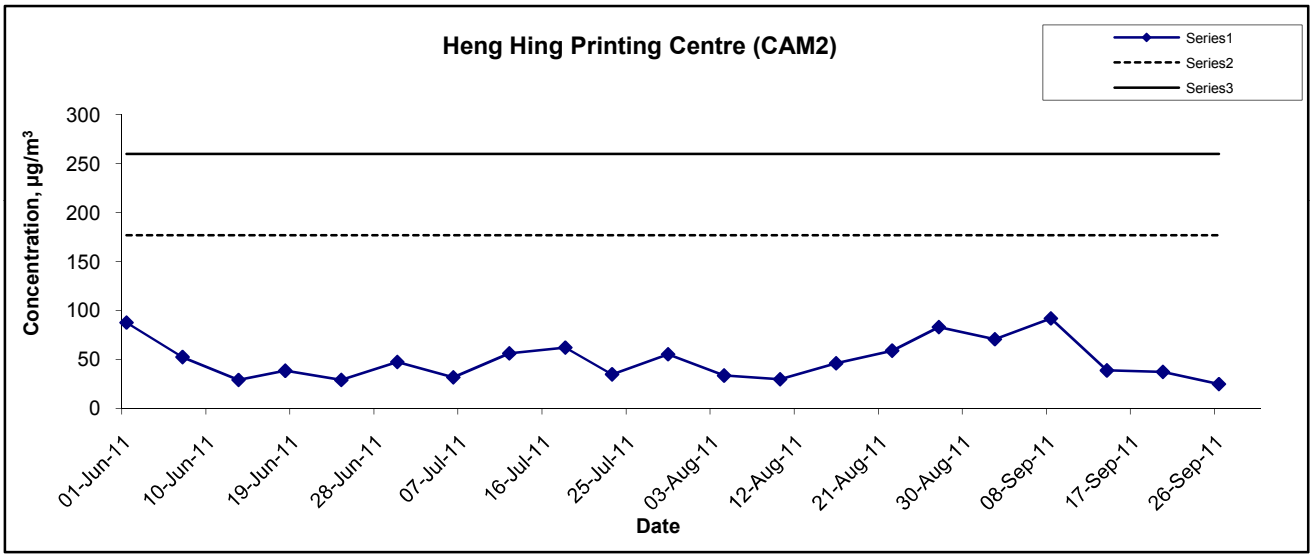


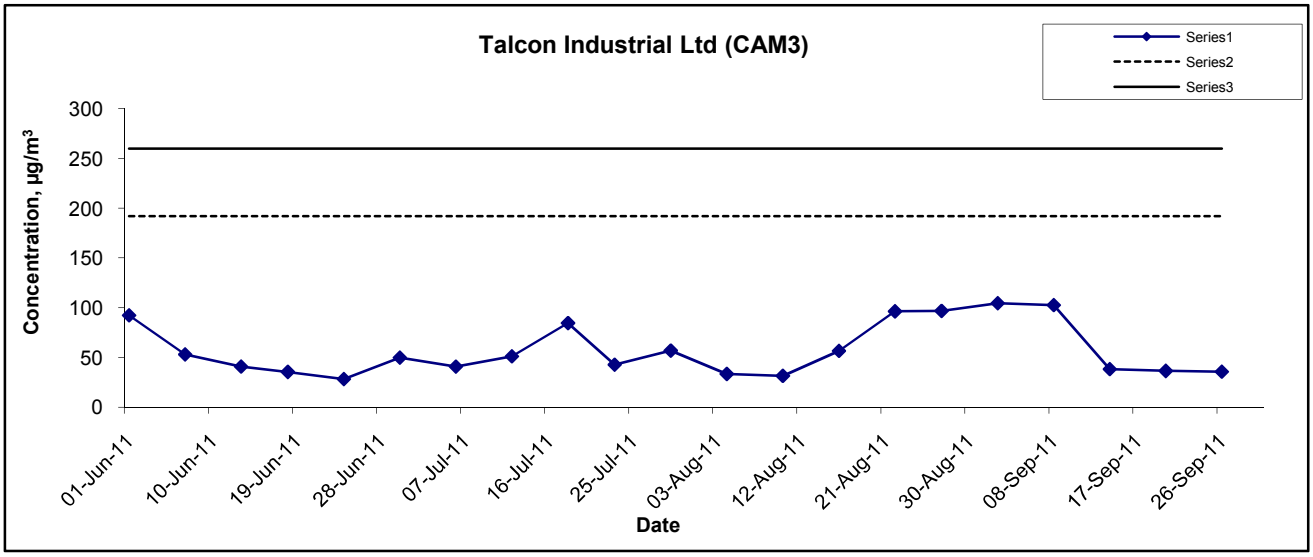


Title: Tai Po Sewage Treatment Works, Stage V, Phase IIB Graphical Presentation of 24-hour TSP Baseline Monitoring Results	Scale: N.T.S Date: Apr 10	Project No.: MA0010 Appendix: E	CINOTECH

24-hr TSP Concentration Levels

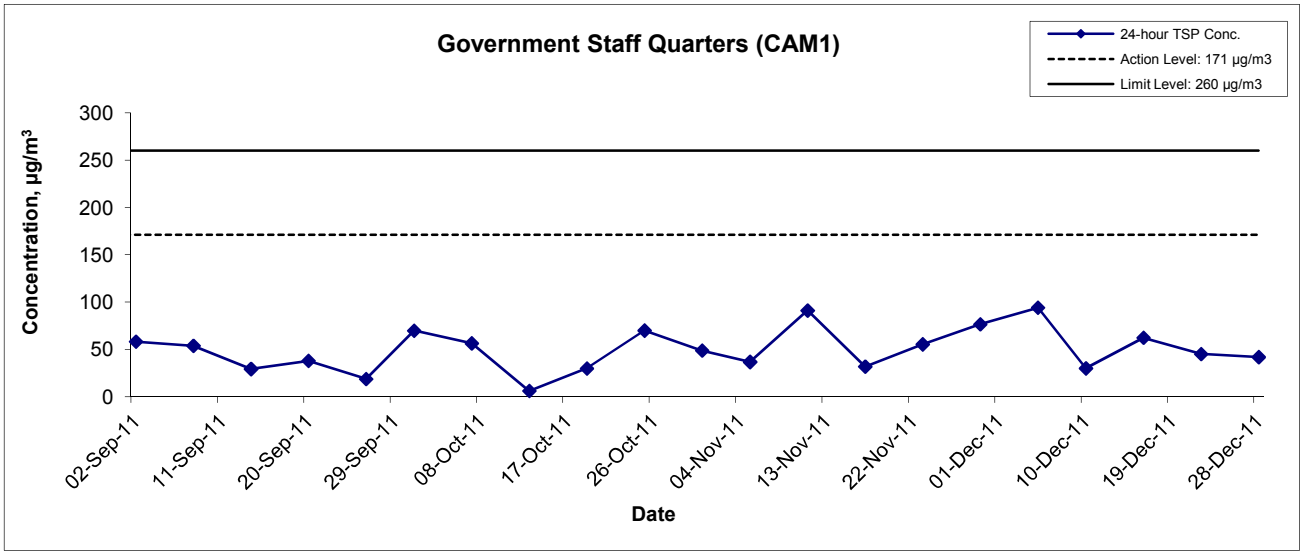


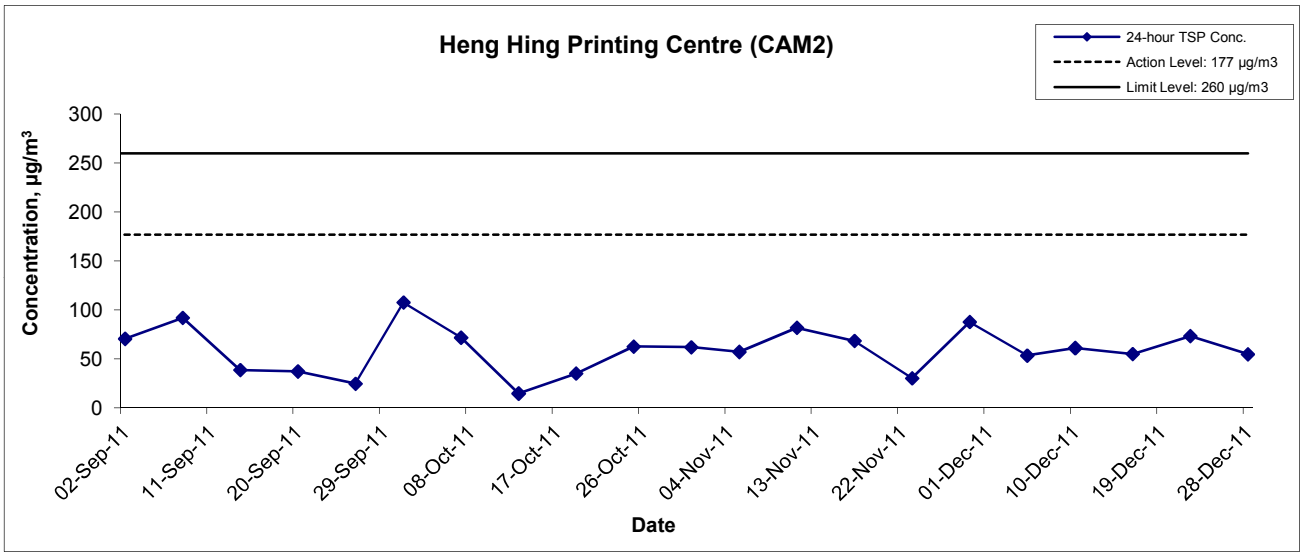


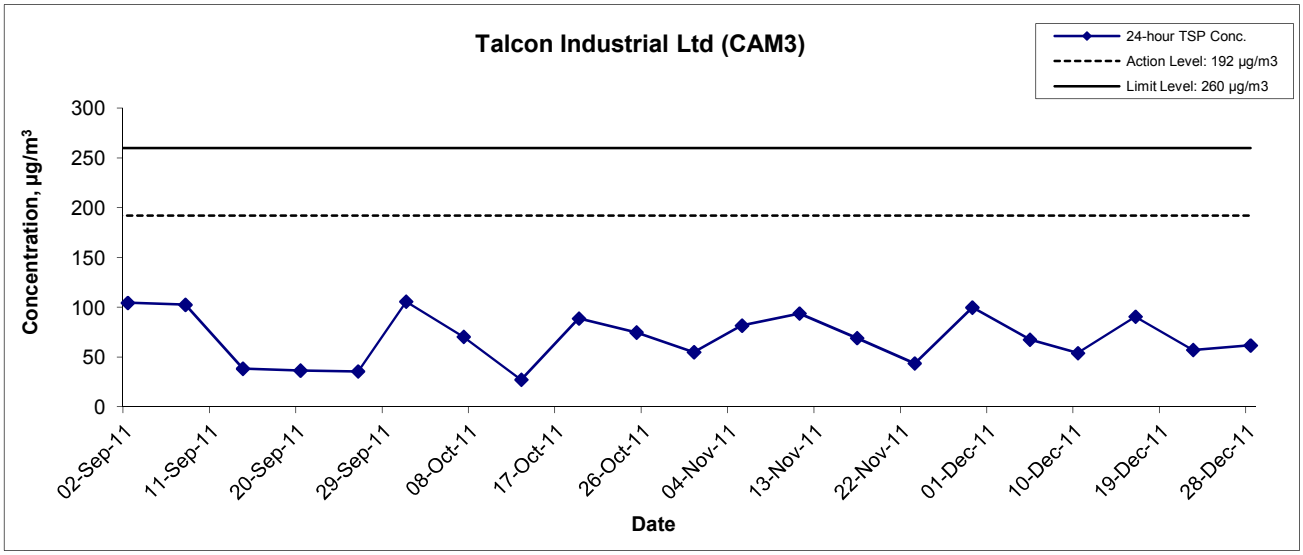


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Sept 11	Project No.: MA10069 Appendix: E	CINOTECH

24-hr TSP Concentration Levels



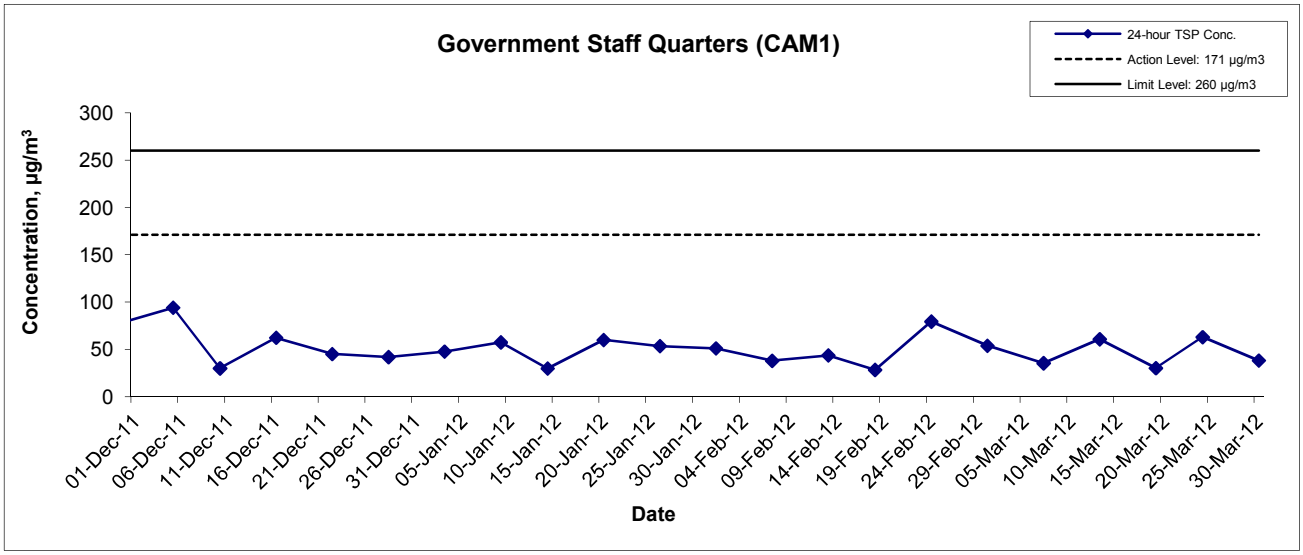


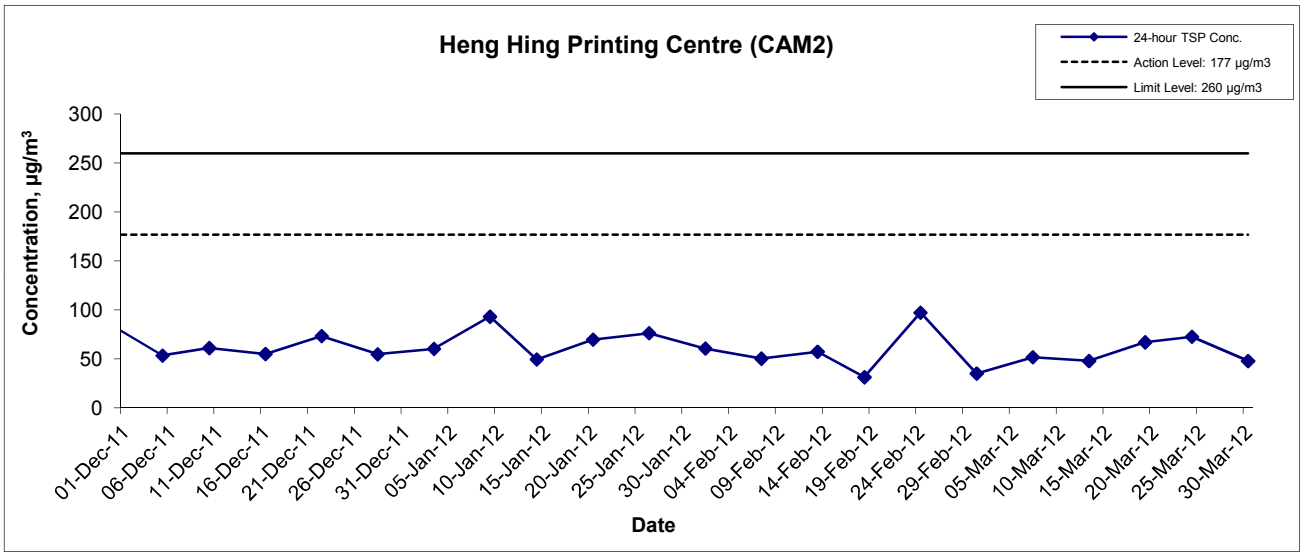


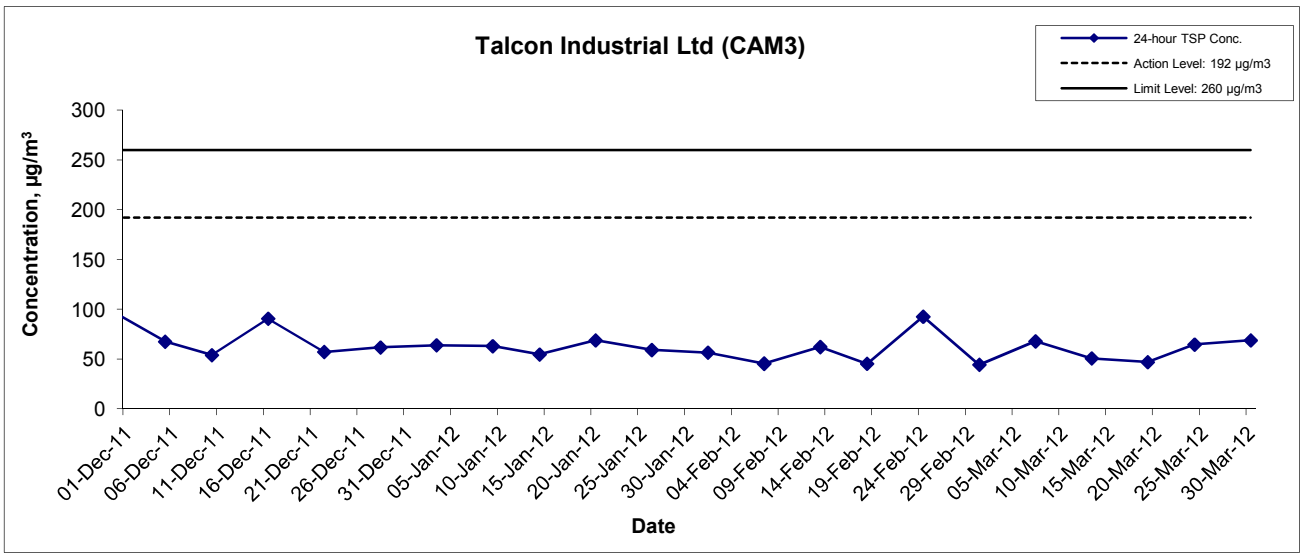
Title		Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B		N.T.S	MA10069
Graphical Presentation of 24-hour TSP Impact Monitoring Results		Date Dec 11	Appendix E

CINOTECH

24-hr TSP Concentration Levels



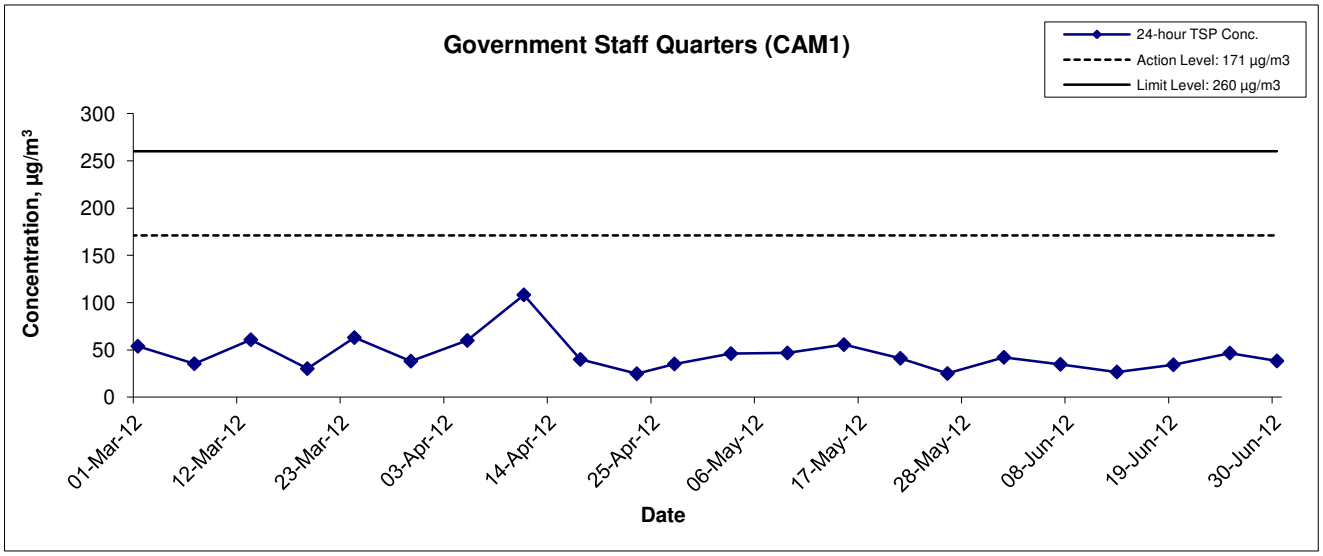


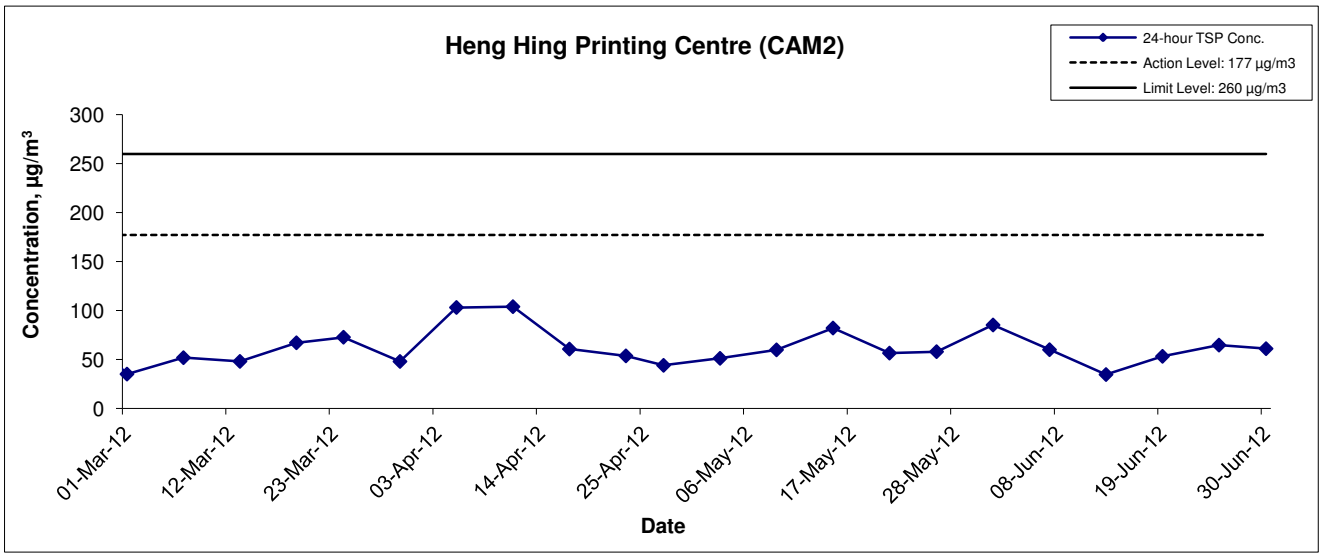


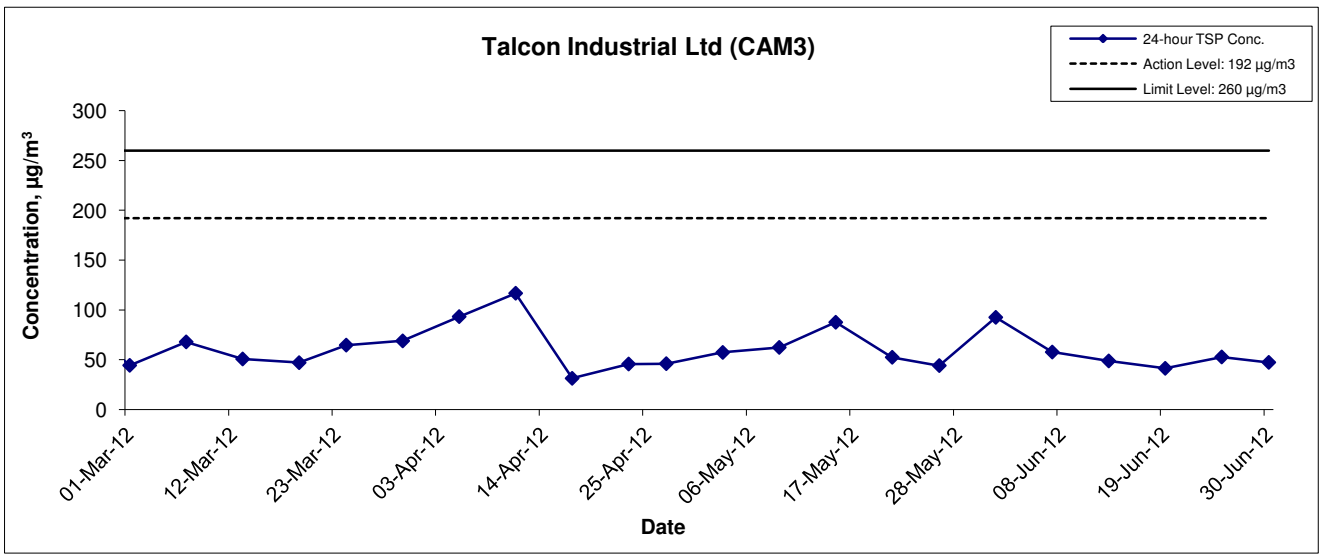
Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B	N.T.S	MA10069
Graphical Presentation of 24-hour TSP Impact Monitoring Results	Date: Mar 12	Appendix: E

CINOTECH

24-hr TSP Concentration Levels







Title		Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B		N.T.S	MA10069
Graphical Presentation of 24-hour TSP Impact Monitoring Results		Date: Jun 12	Appendix: E

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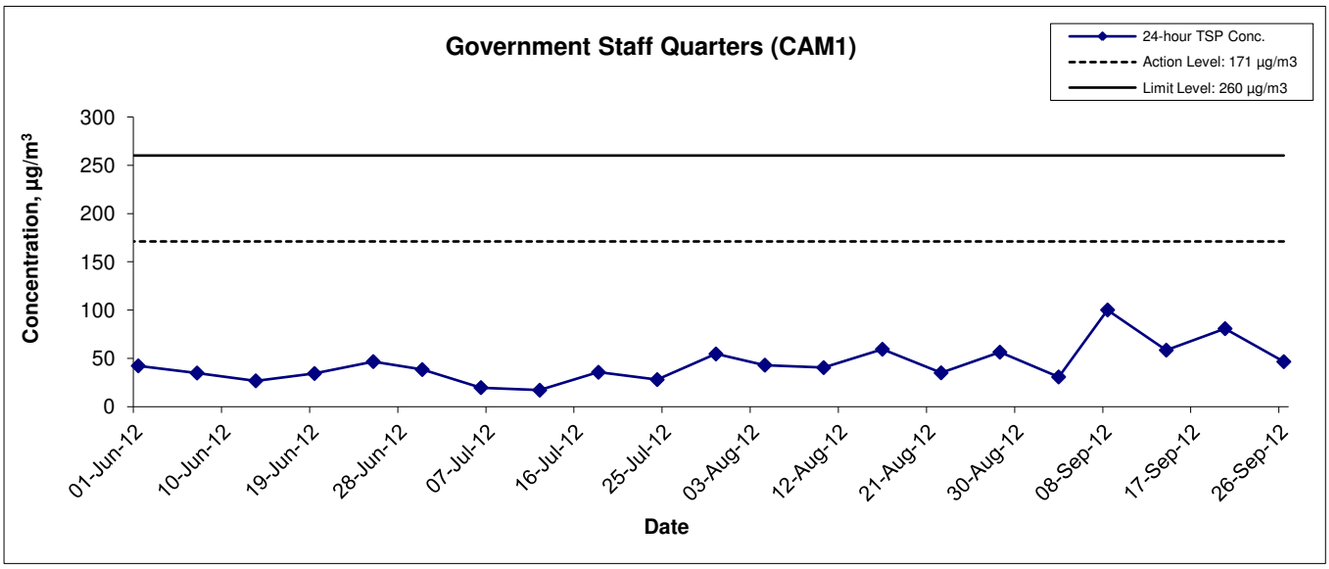
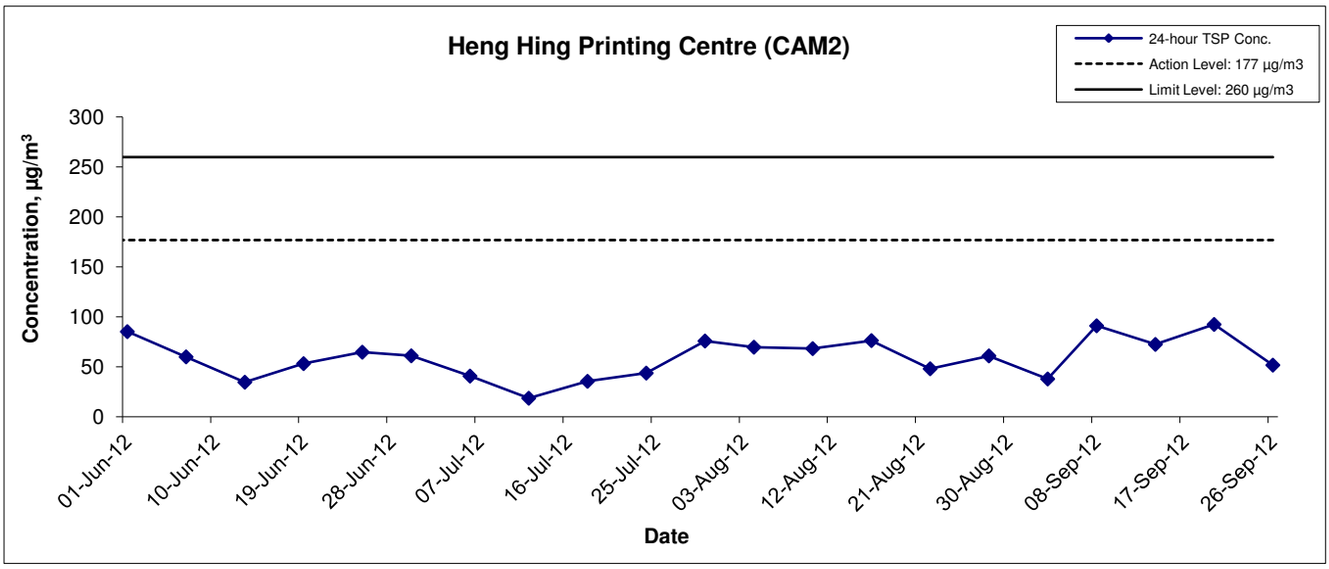
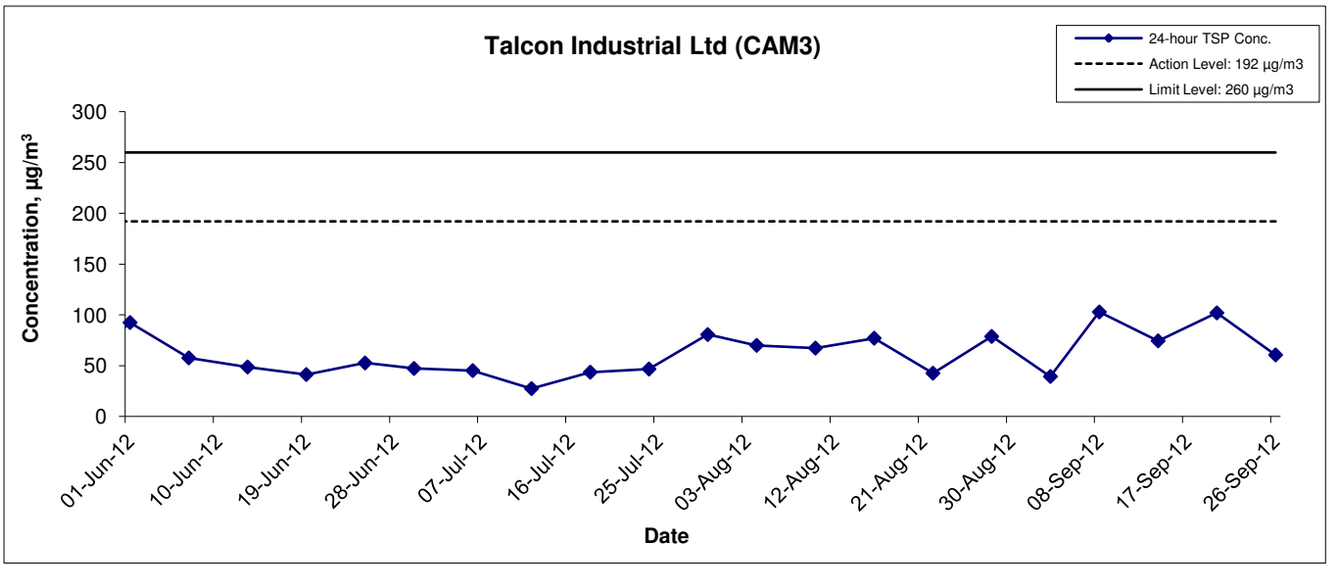
24-hr TSP Concentration Levels

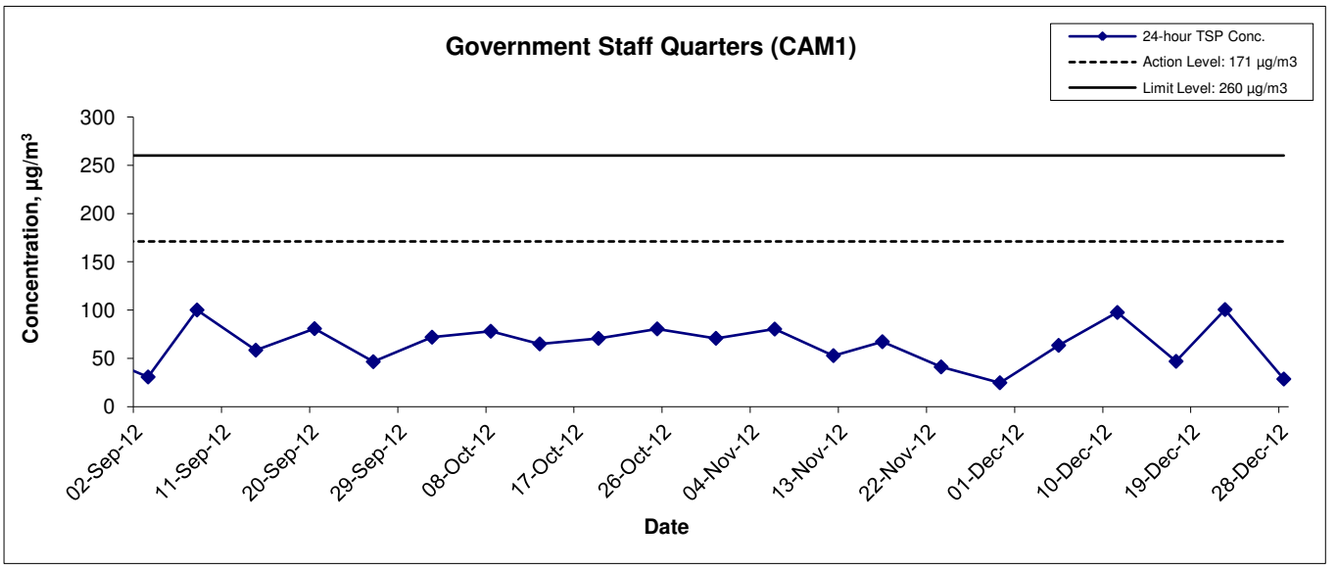


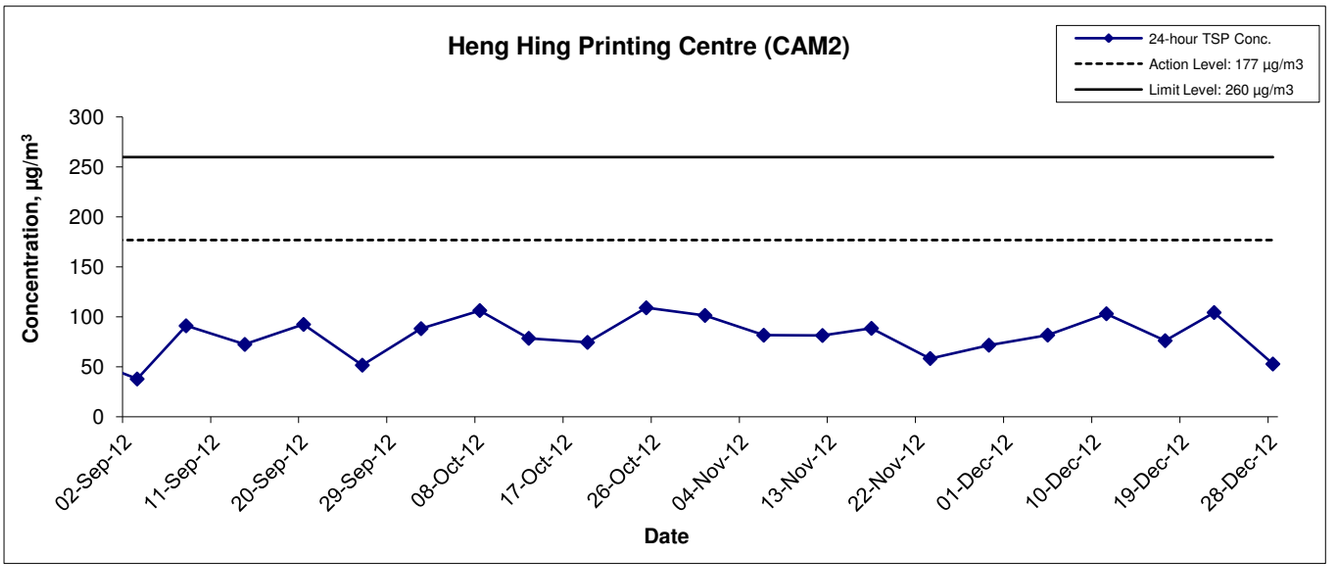


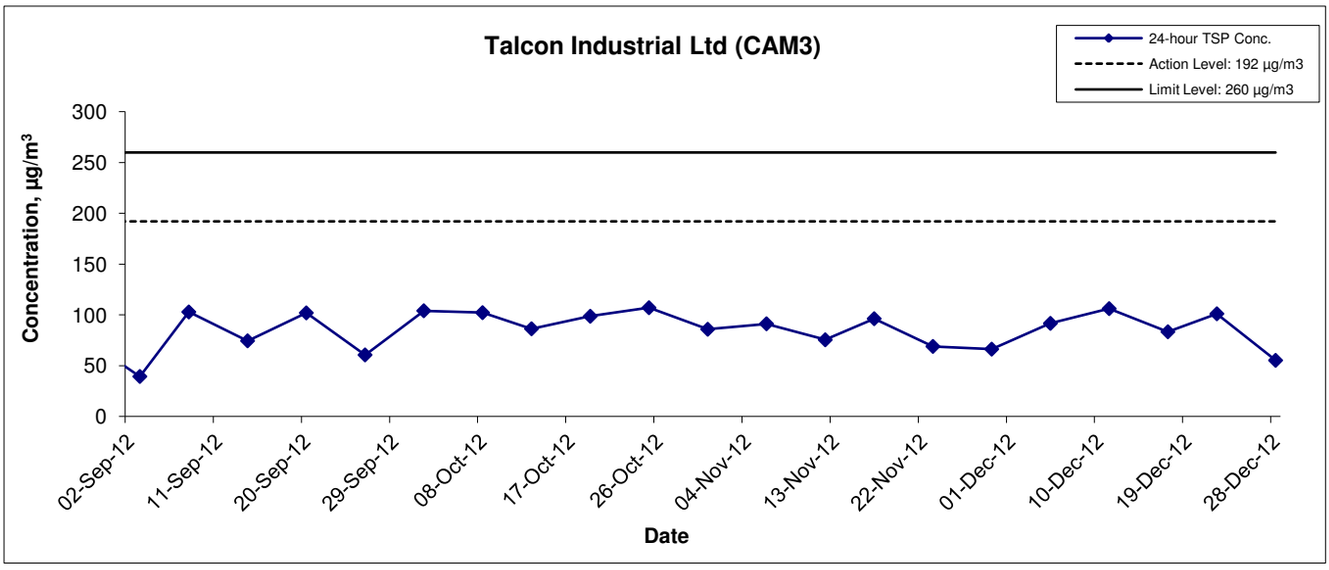


Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Sep 12	Appendix: E	

24-hr TSP Concentration Levels

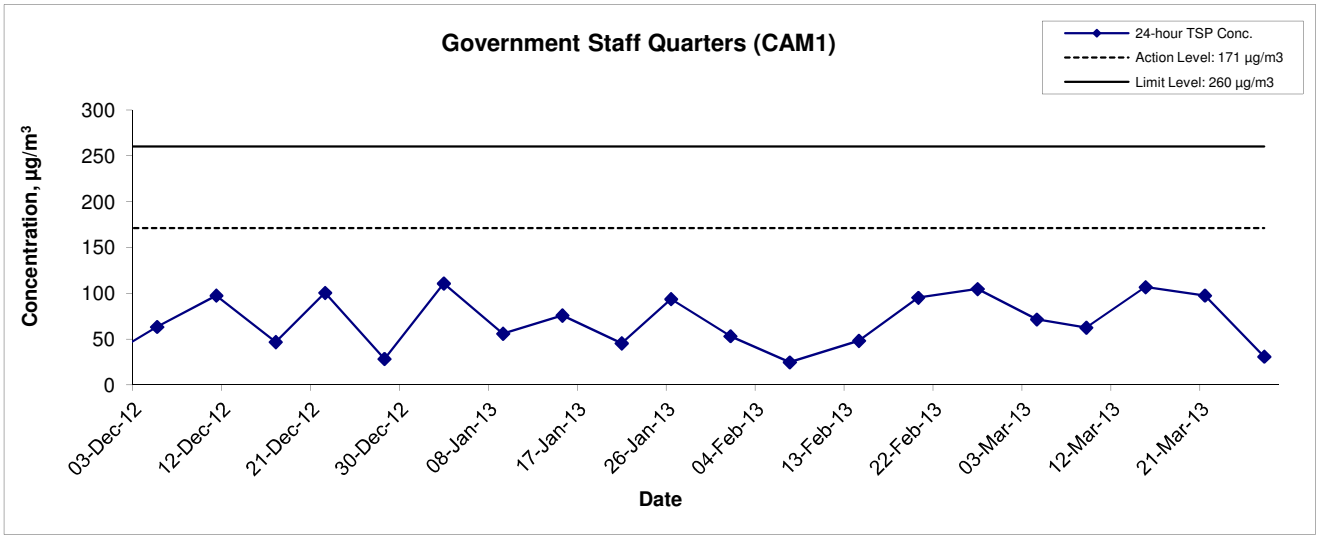


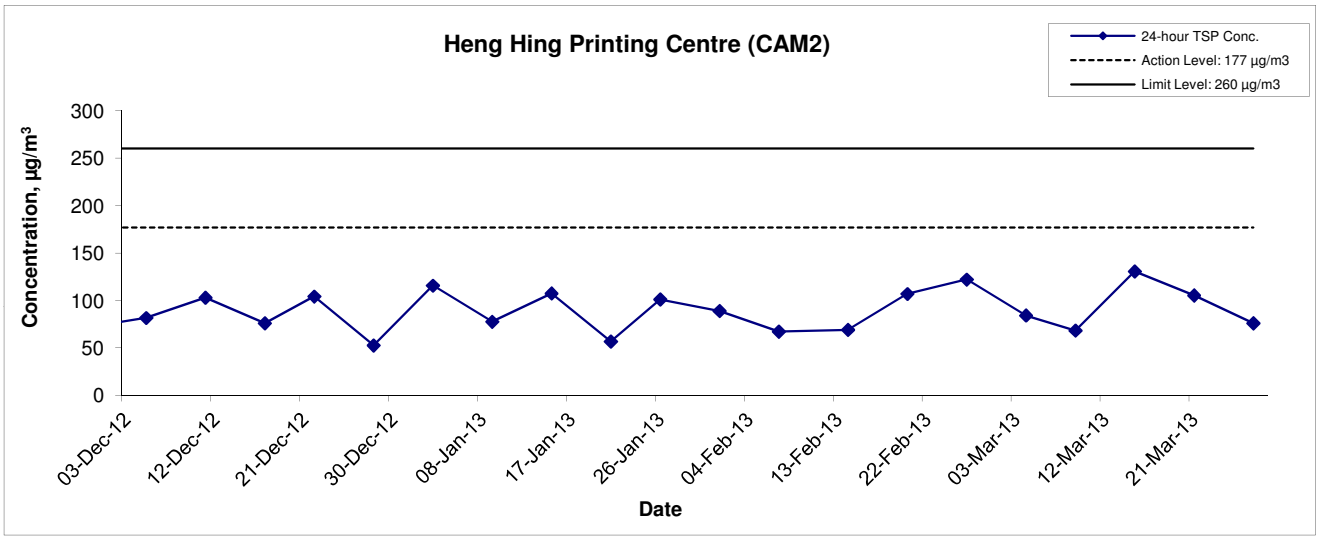


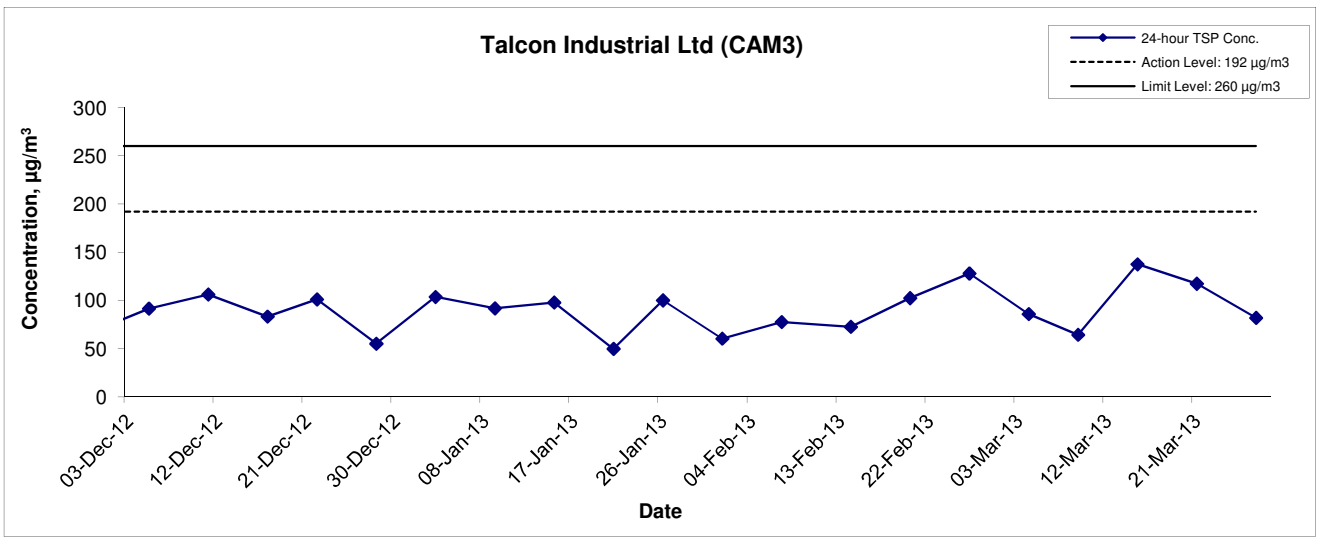


Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Dec 12	Project No.: MA10069 Appendix: E	CINOTECH

24-hr TSP Concentration Levels

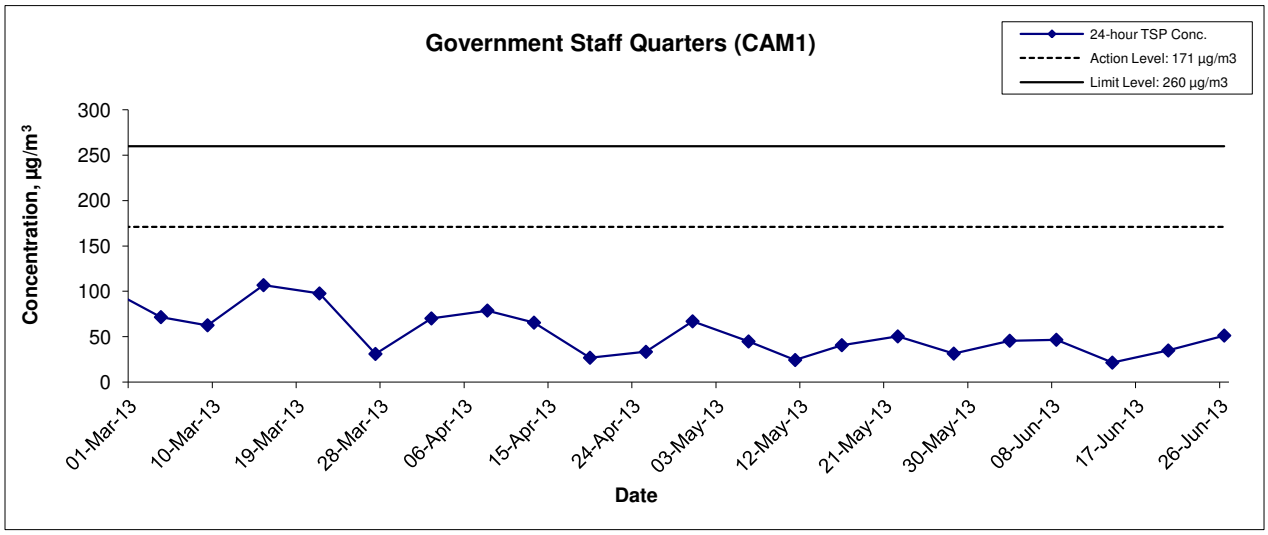


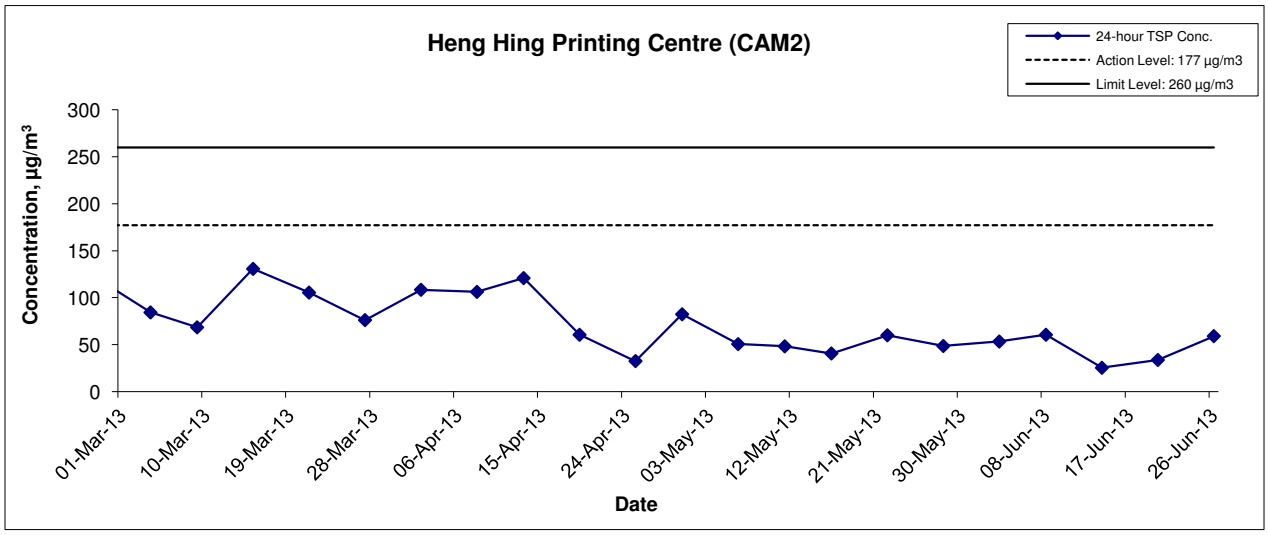


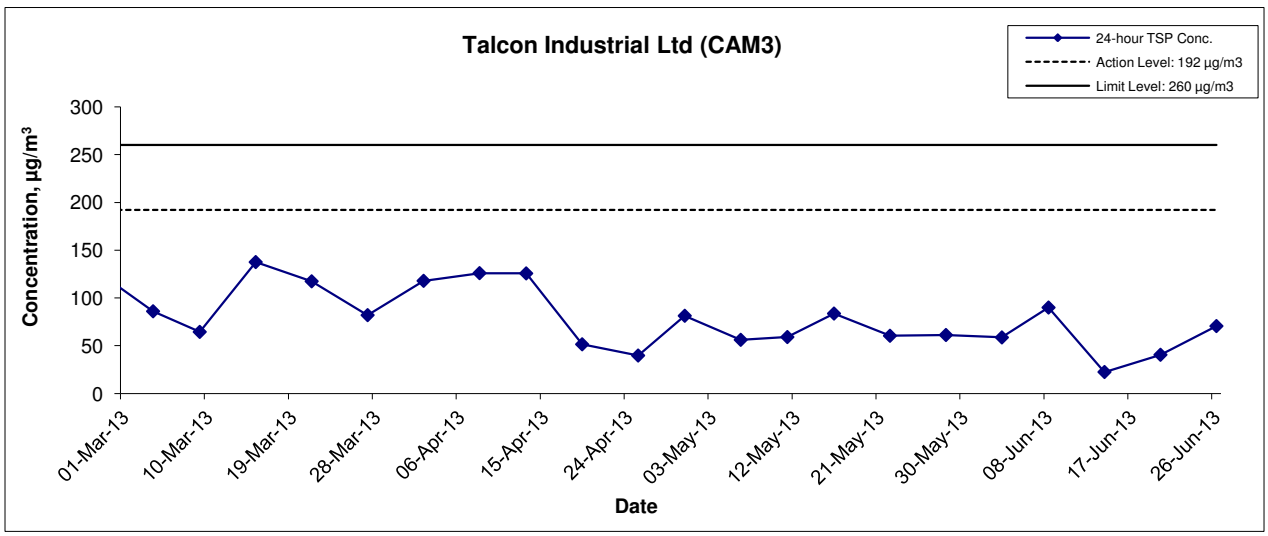


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Mar 15	Project No.: MA10069 Appendix: E	CINOTECH

24-hr TSP Concentration Levels

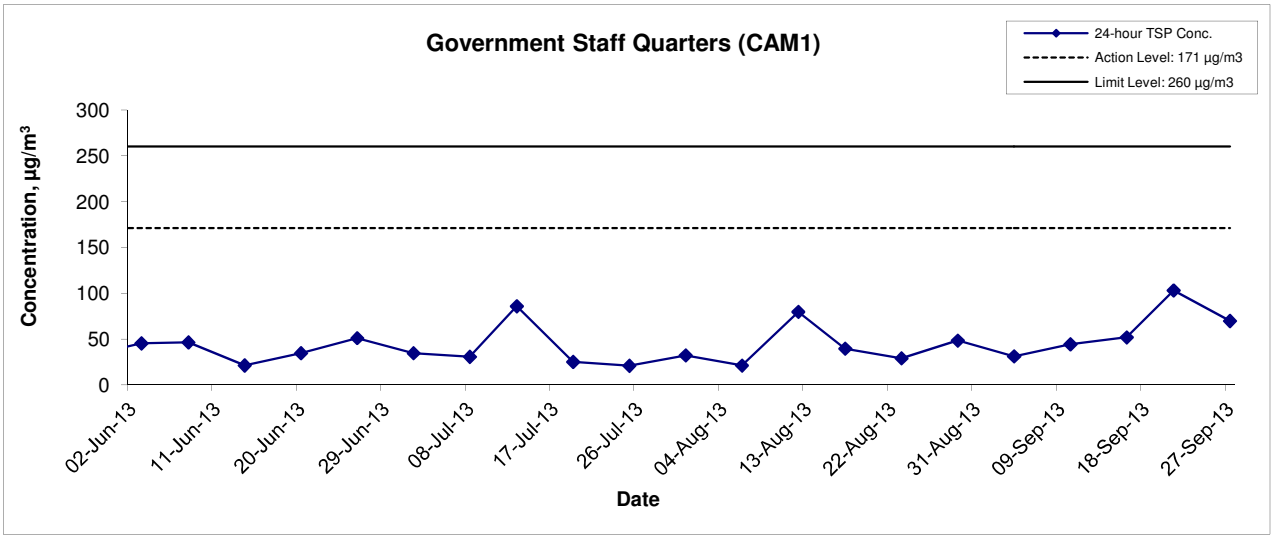


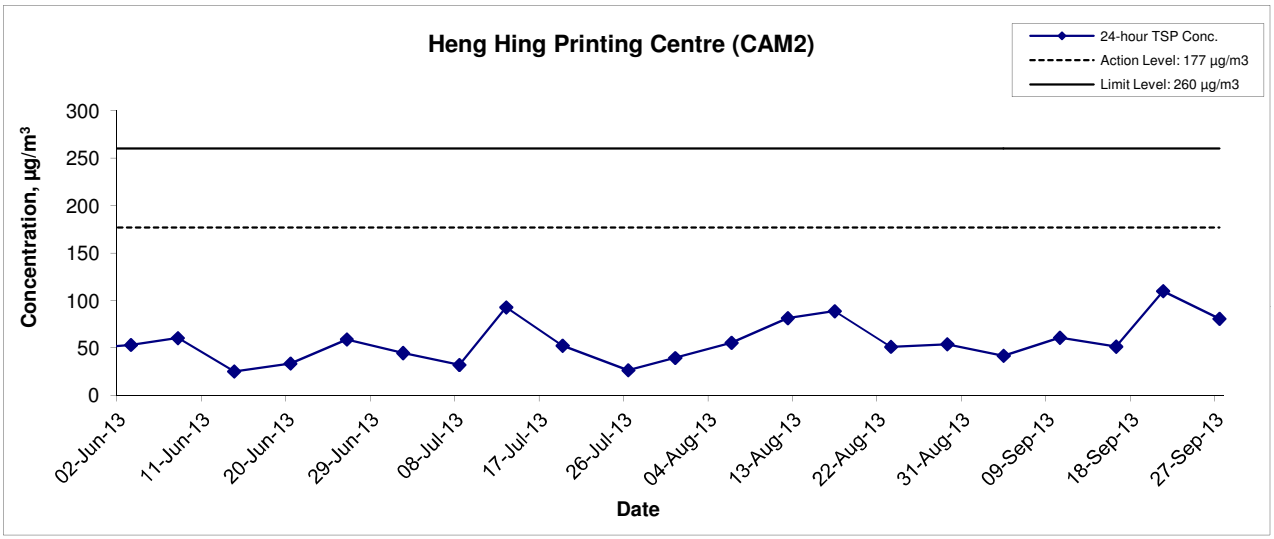


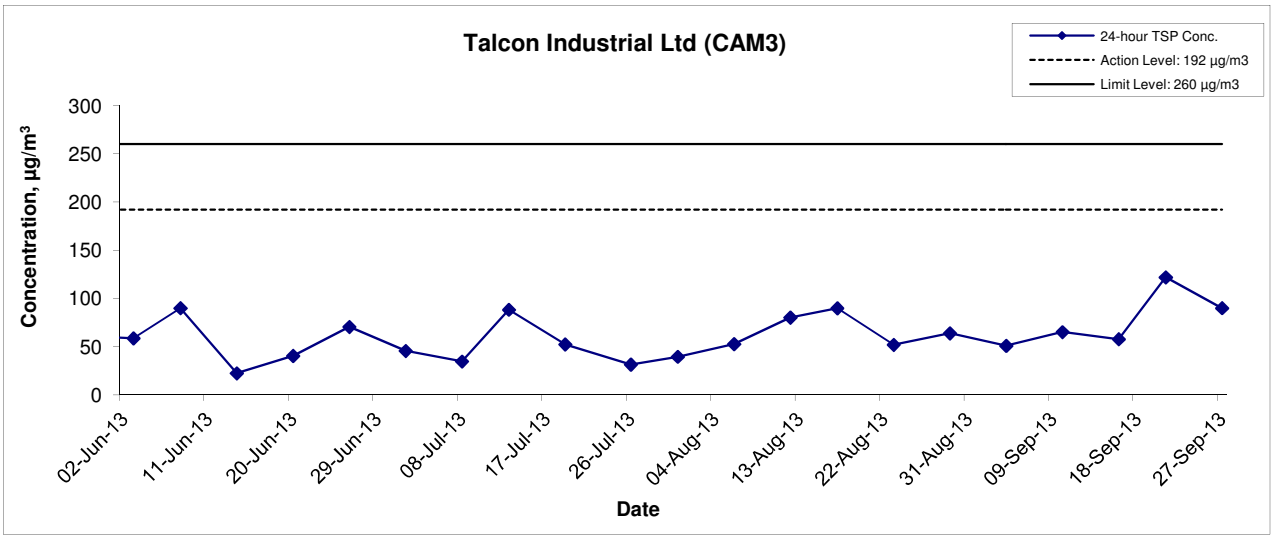


Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Jun 13	Project No. MA10069 Appendix: E	CINOTECH

24-hr TSP Concentration Levels

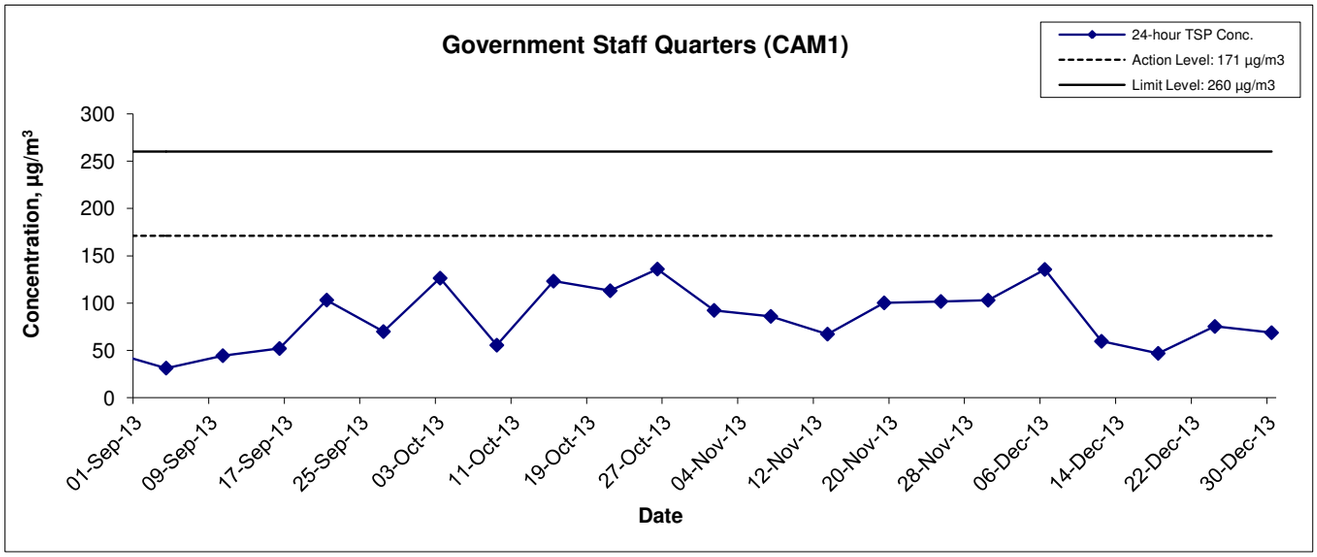


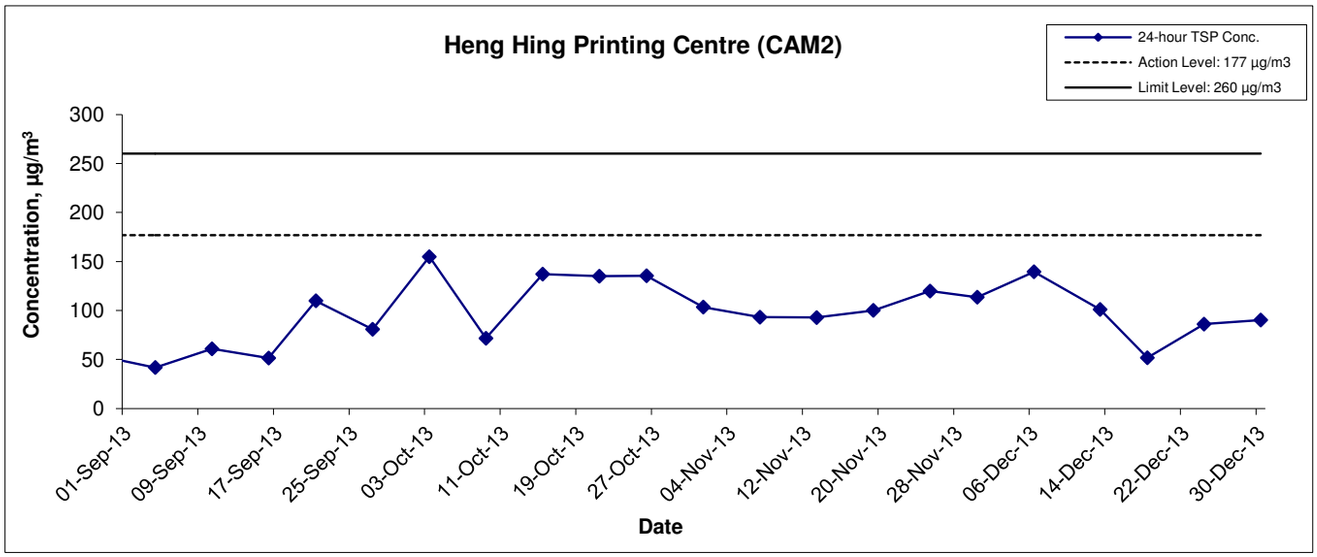


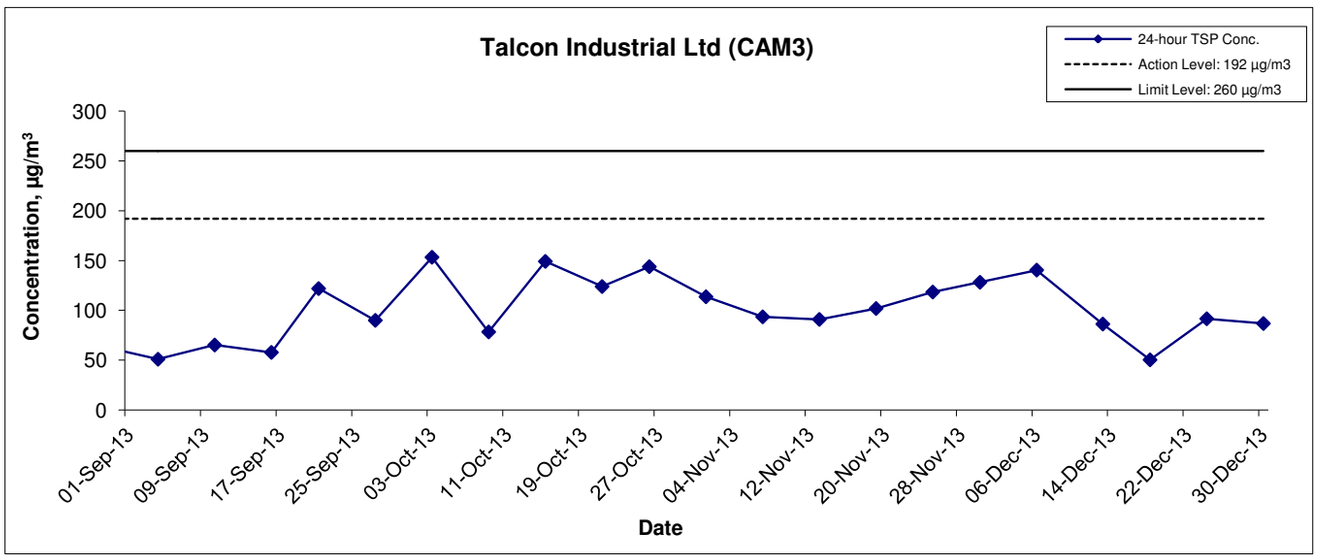


Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	N.T.S	MA10069
	Date: Sep 13	Appendix: E

24-hr TSP Concentration Levels







Title	Scale	Project No.
Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	N.T.S	MA10069
	Date: Dec 13	Appendix: E

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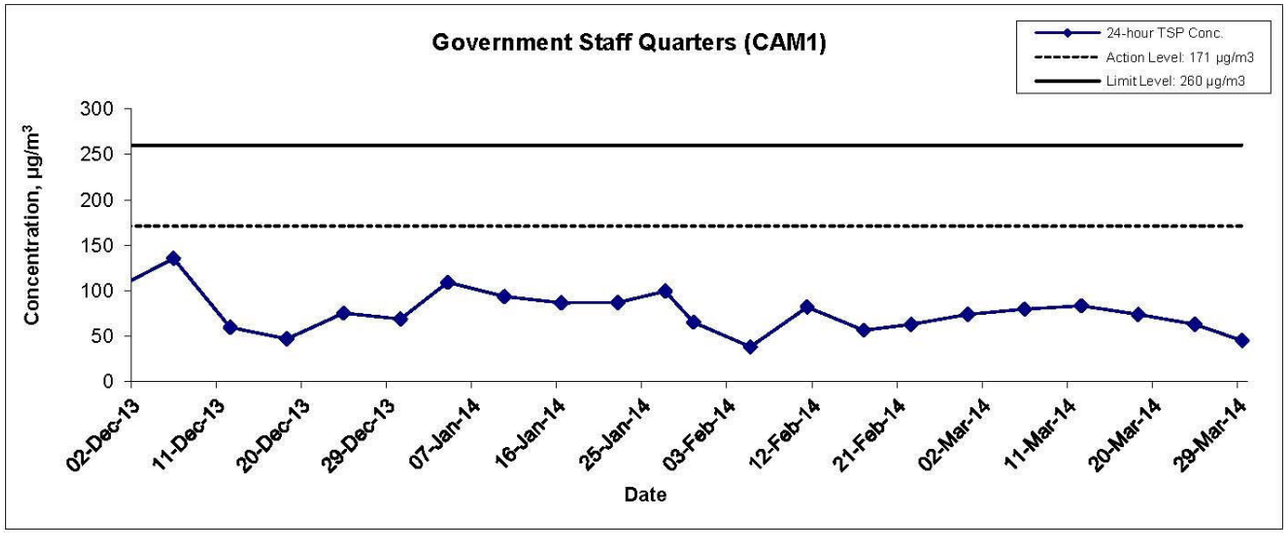
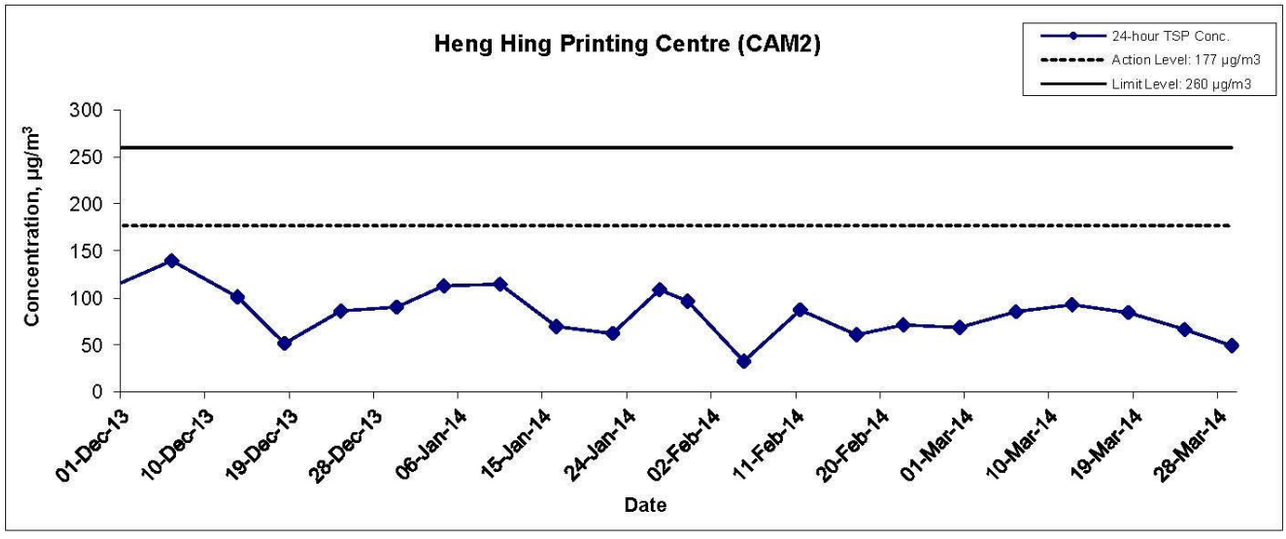
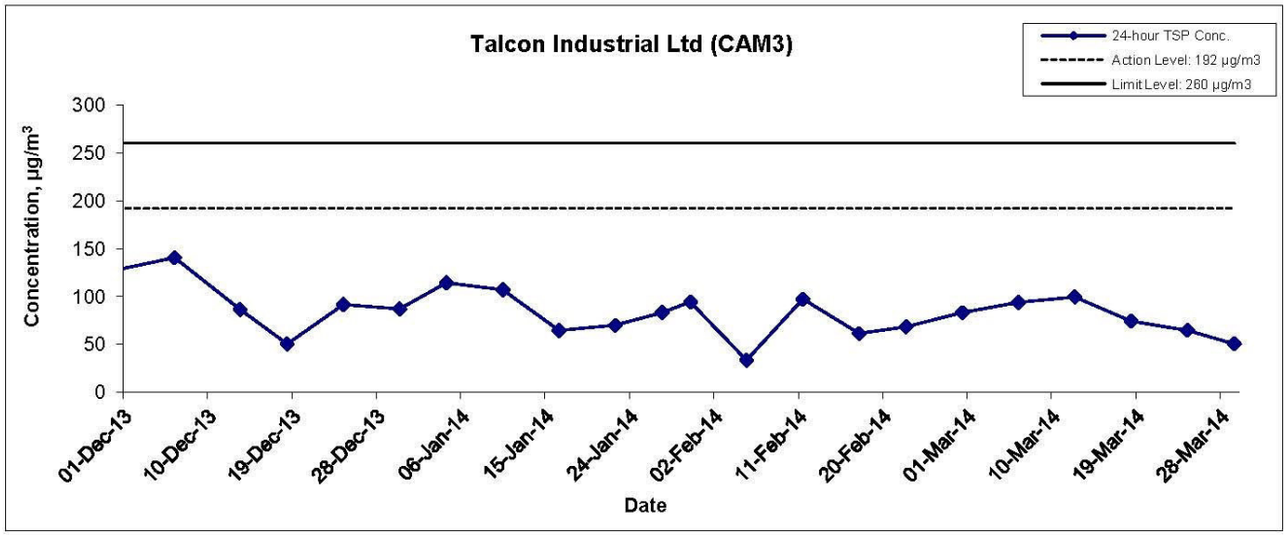
24-hr TSP Concentration Levels

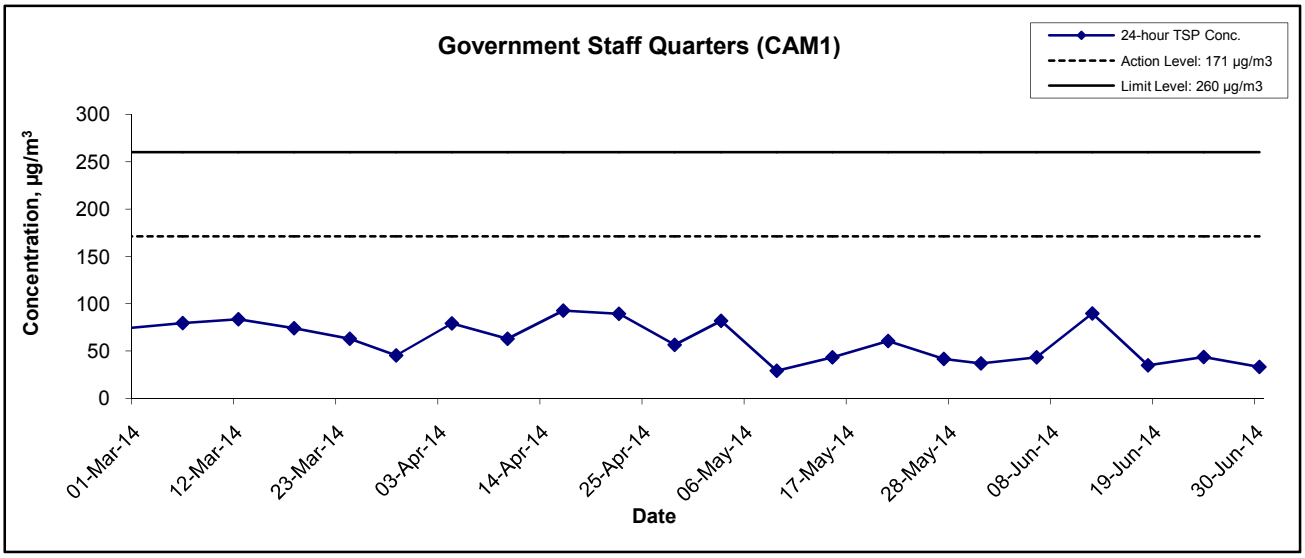


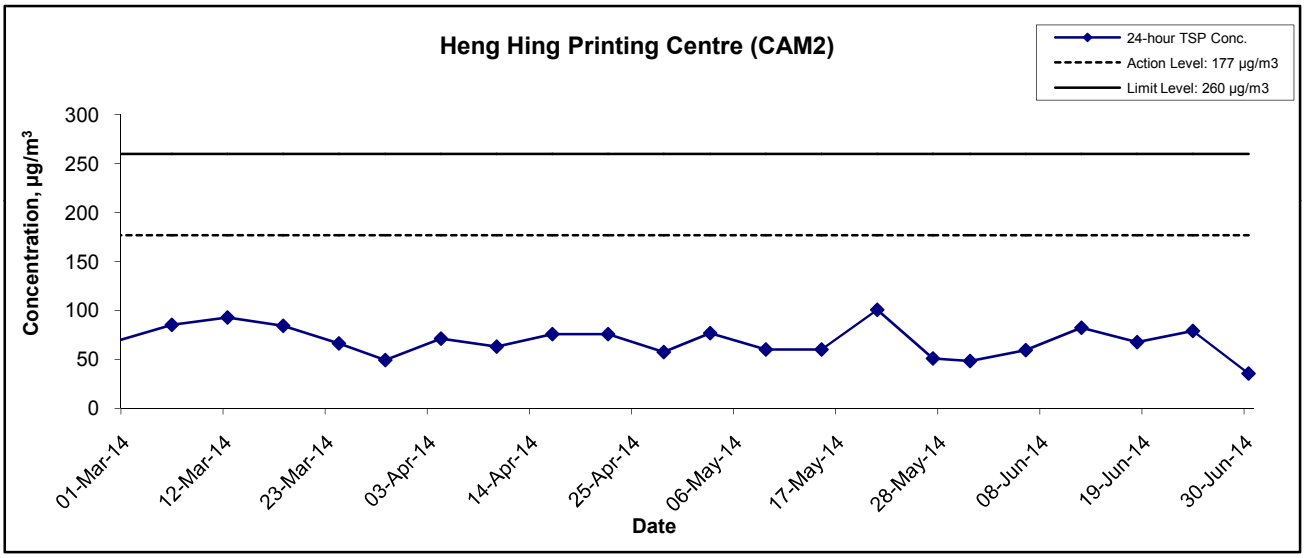


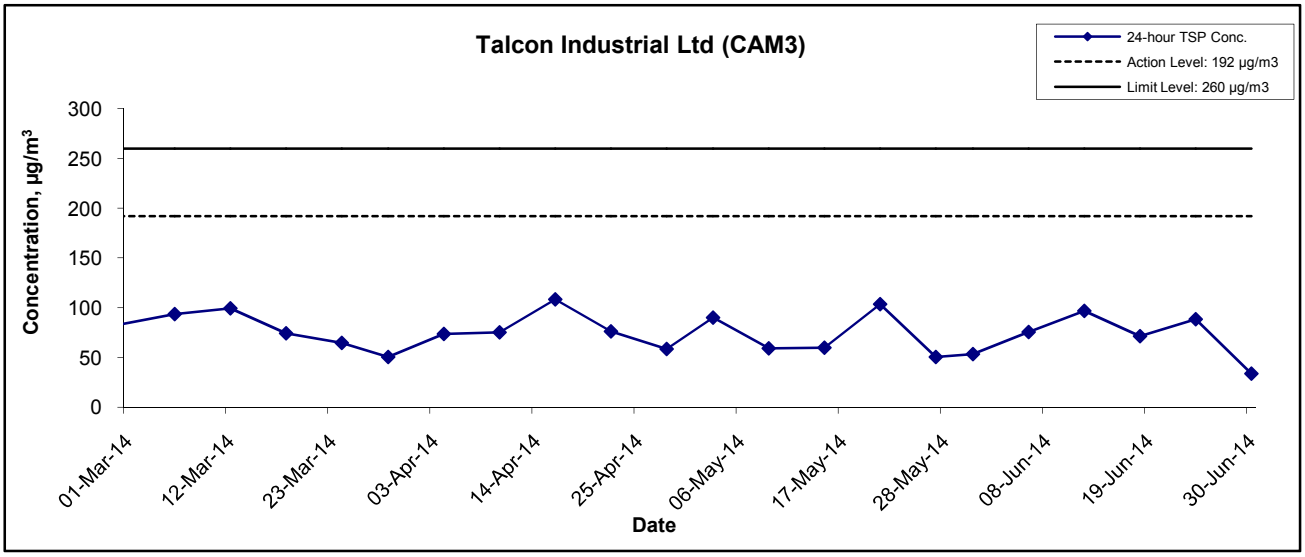


Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Mar 14	Appendix: E	

24-hr TSP Concentration Levels







Title	Scale	Project No.
Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	N.T.S	MA10069
	Date: Jun 14	Appendix: E

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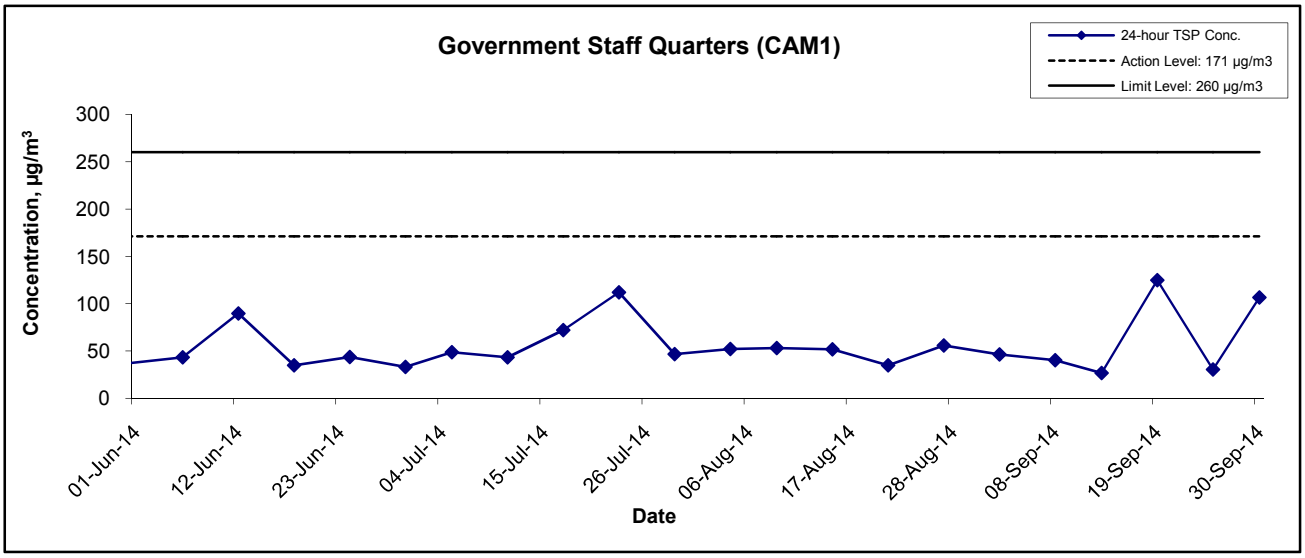
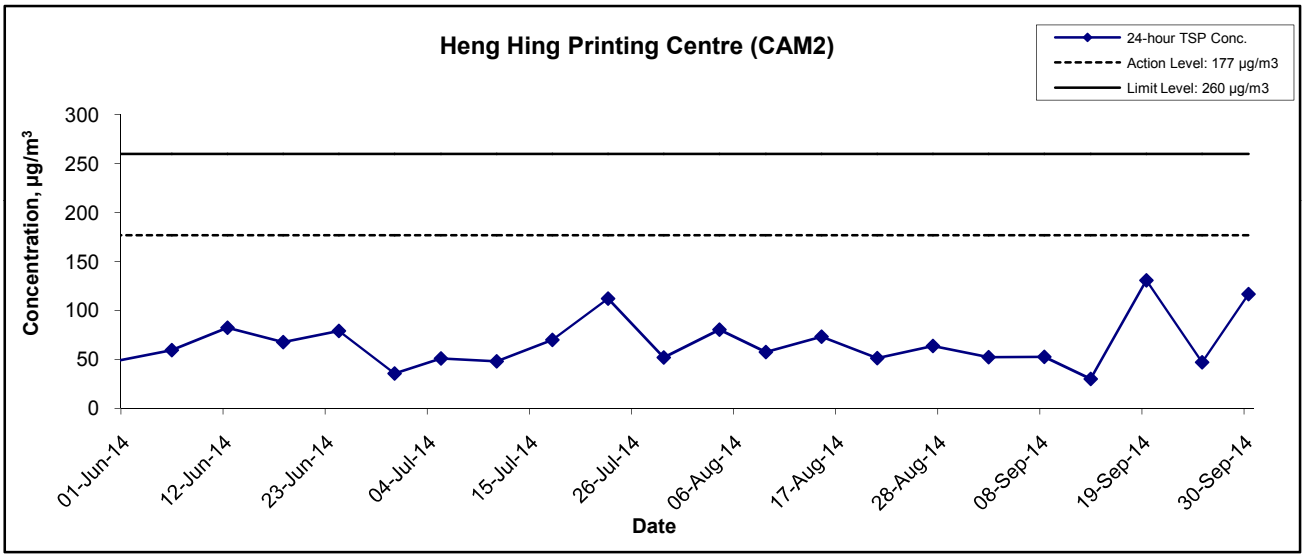
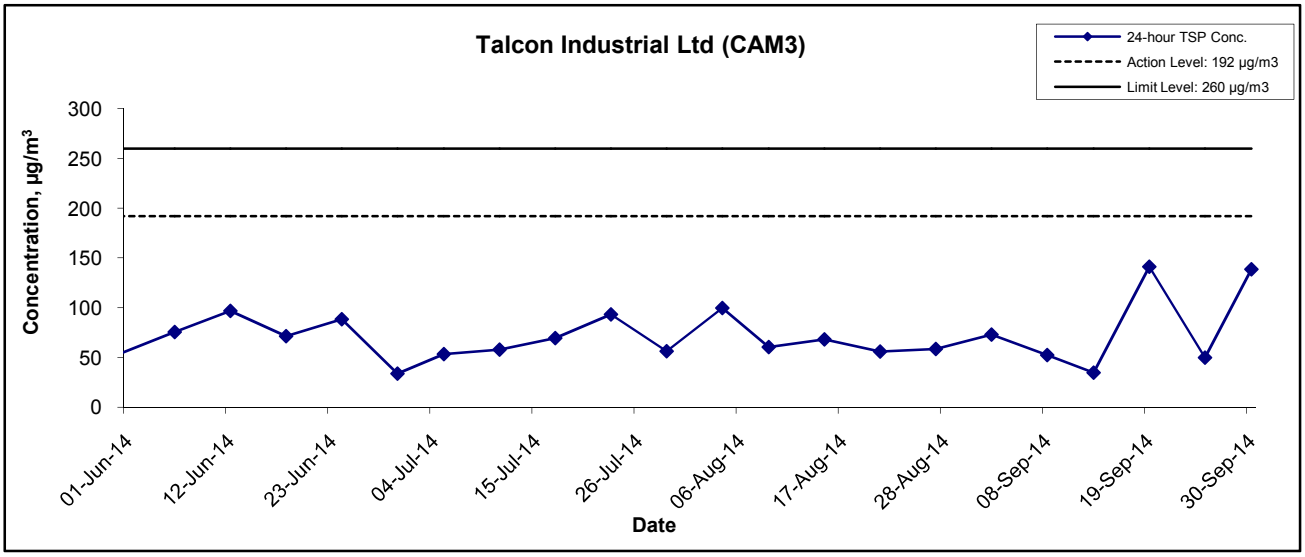
24-hr TSP Concentration Levels

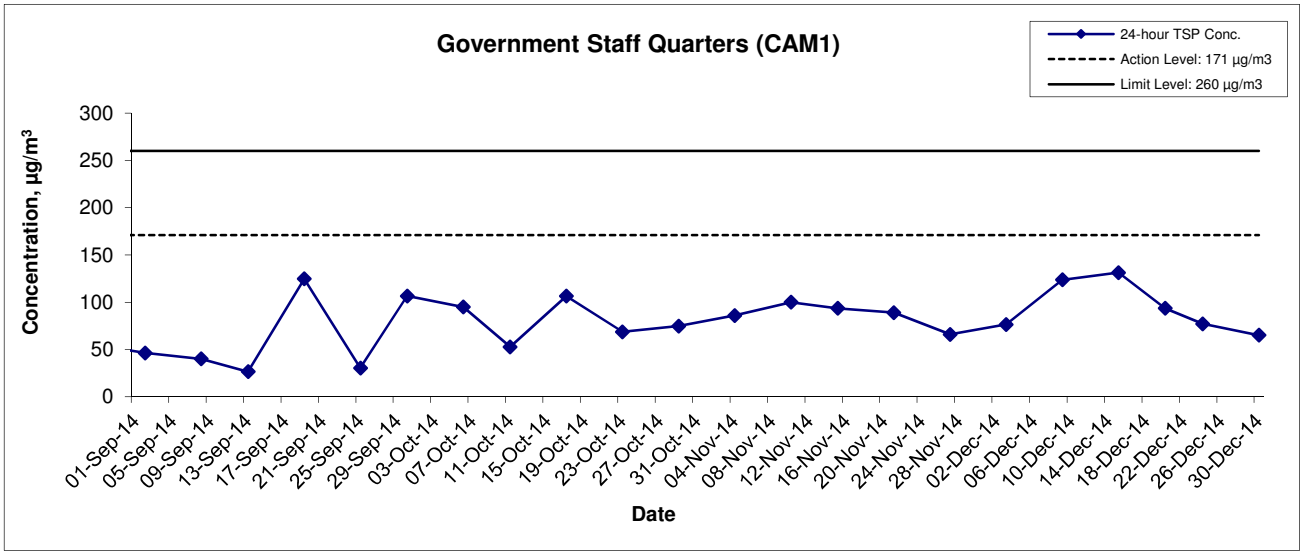


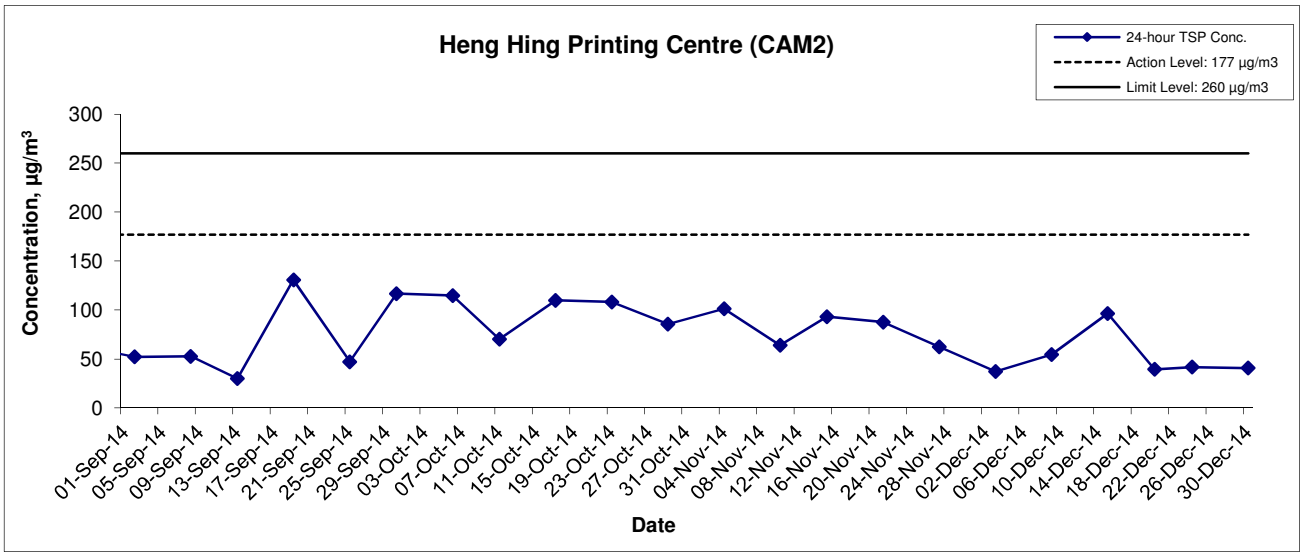


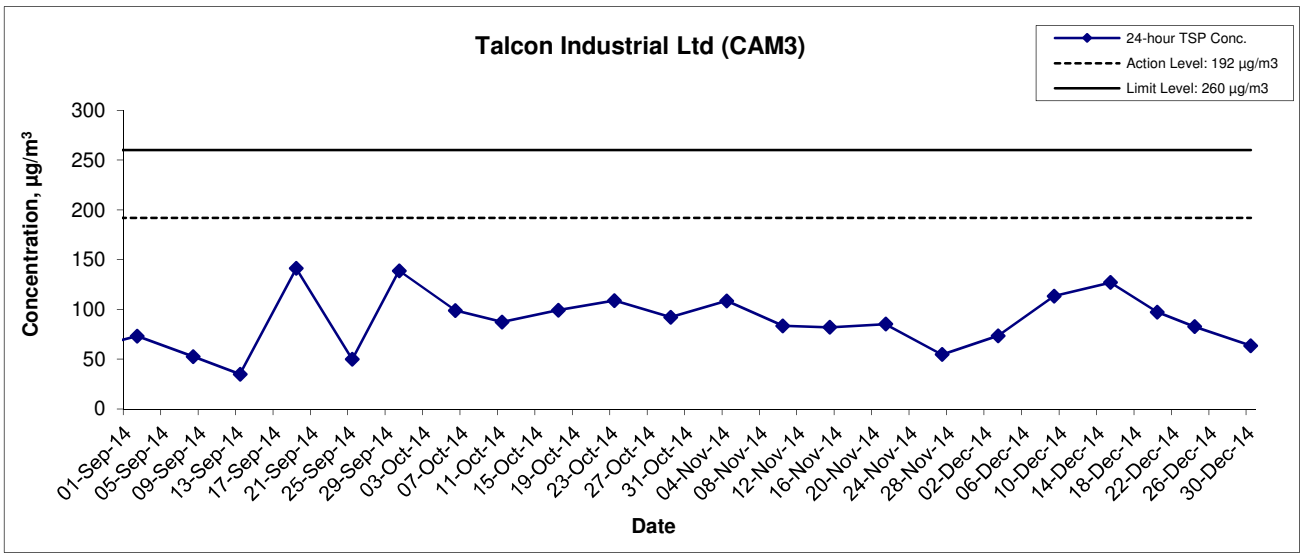


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Sep 14	Appendix: E	

24-hr TSP Concentration Levels







Title	Scale	Project No.
Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B	N.T.S	MA10069
Graphical Presentation of 24-hour TSP Impact Monitoring Results	Date: Dec 14	Appendix: E

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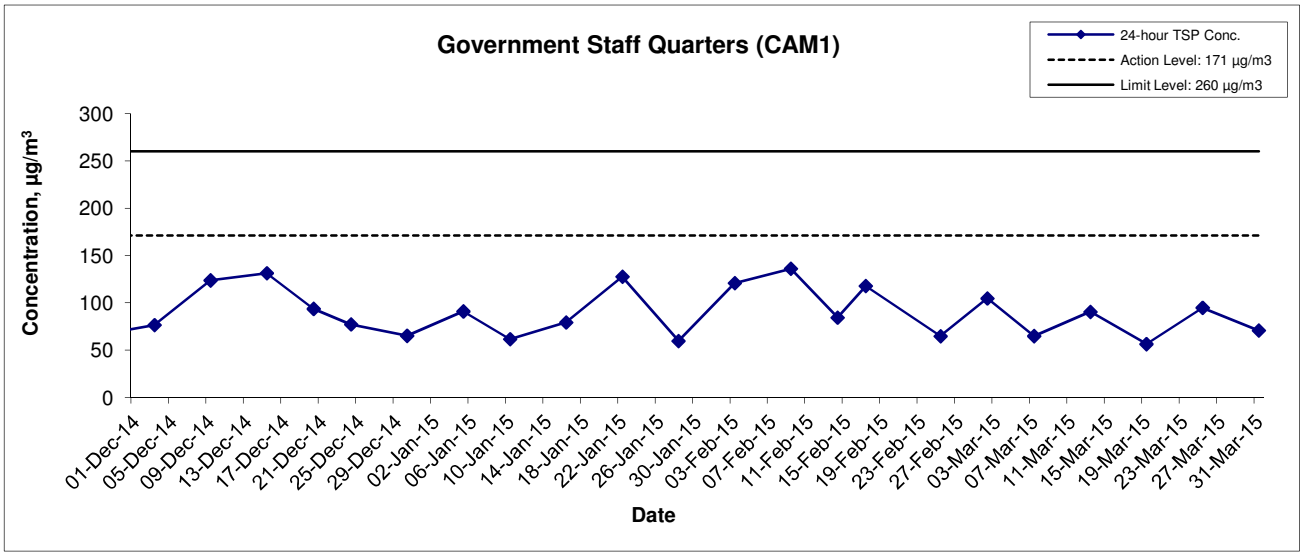
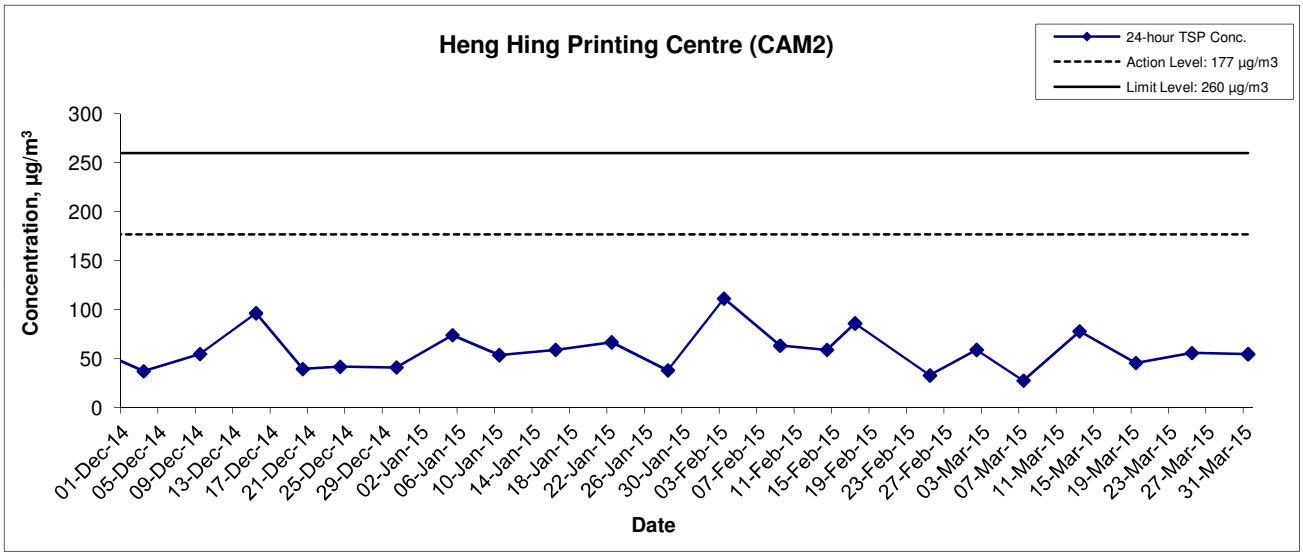
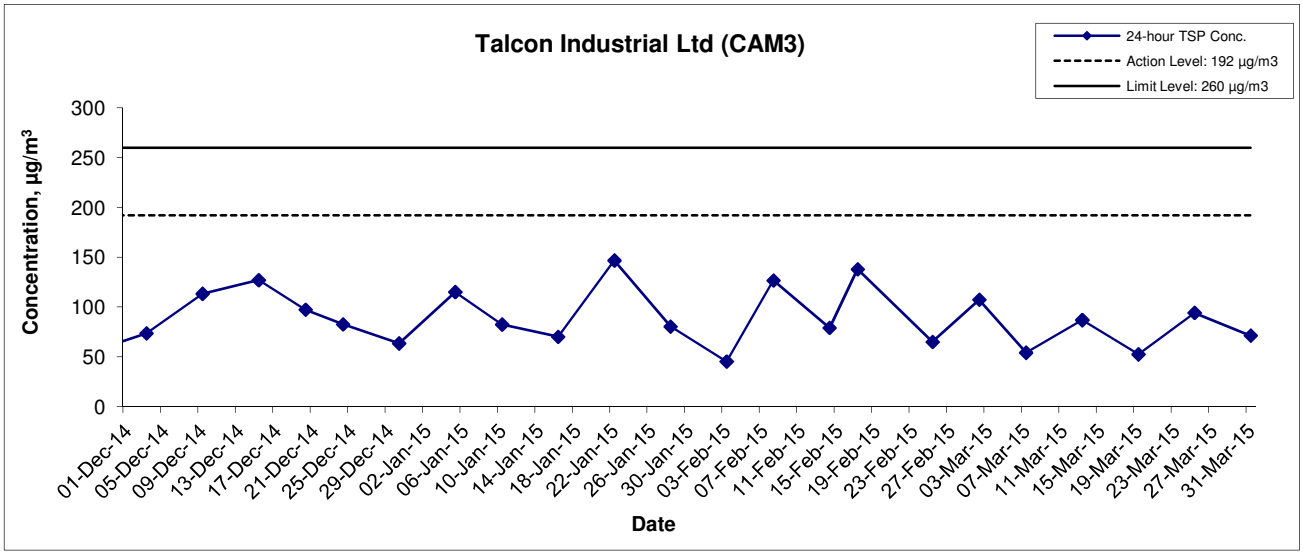
24-hr TSP Concentration Levels



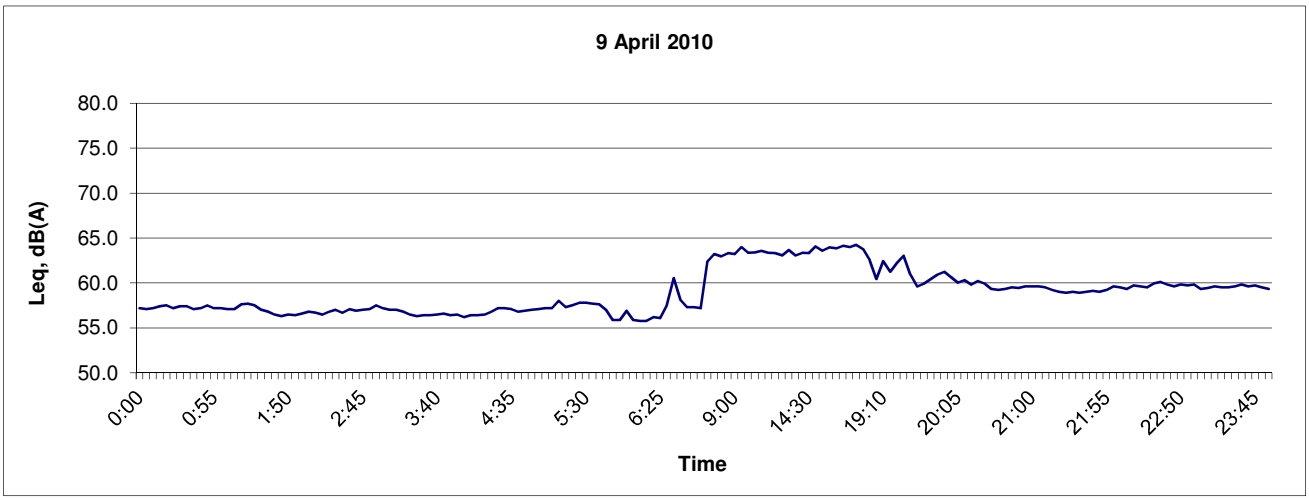


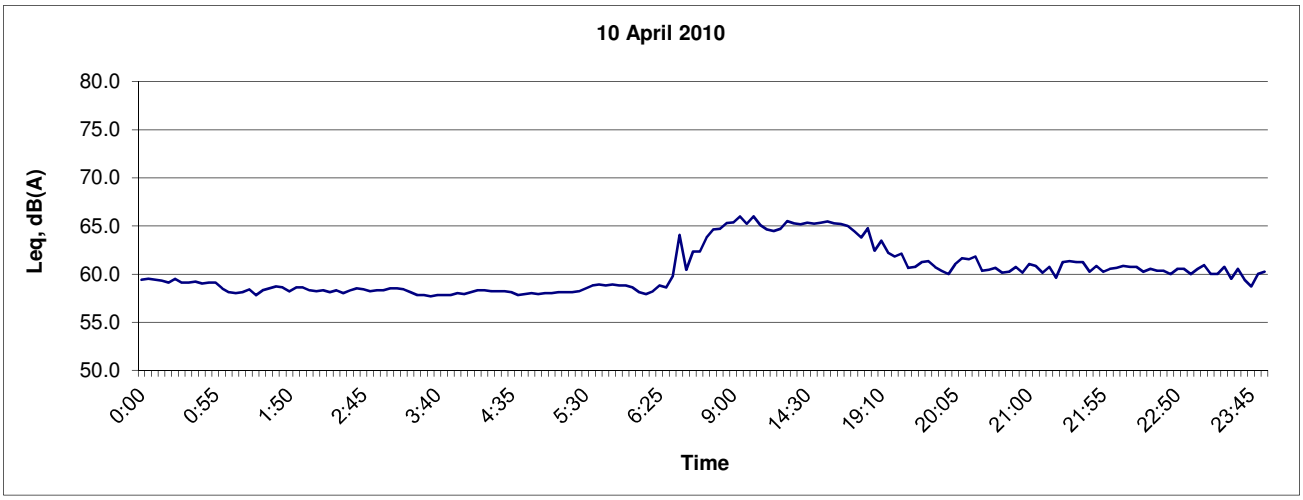


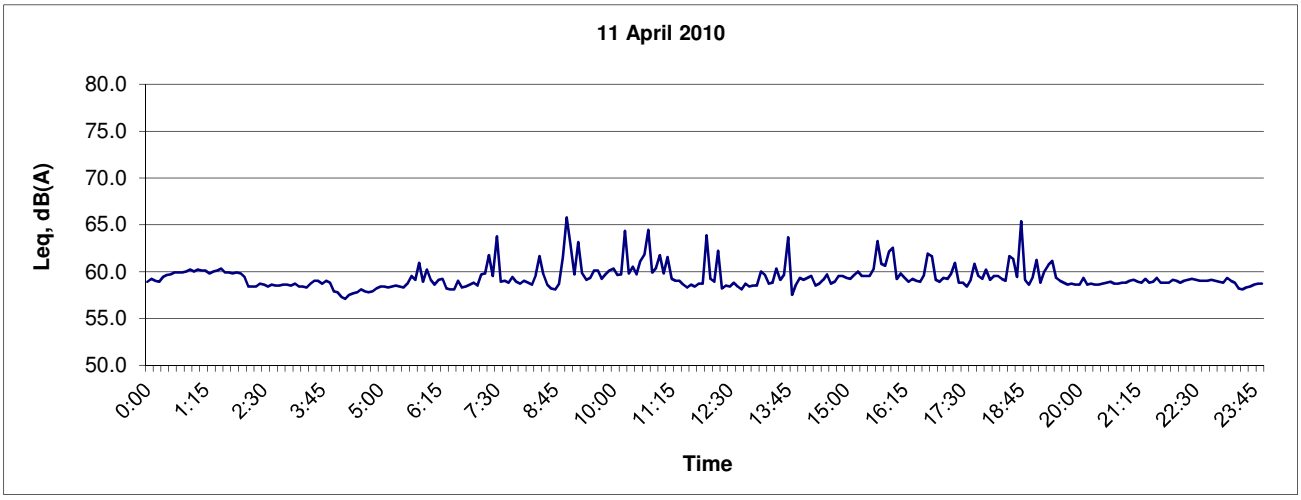
Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale: N.T.S Date: Mar 15	Project No.: MA10069 Appendix: E	CINOTECH

APPENDIX F
GRAPHICAL PRESENTATION OF NOISE MONITORING RESULTS OVER THE PROJECT PERIOD

Noise Level at NM1 (Government Staff Quarters)

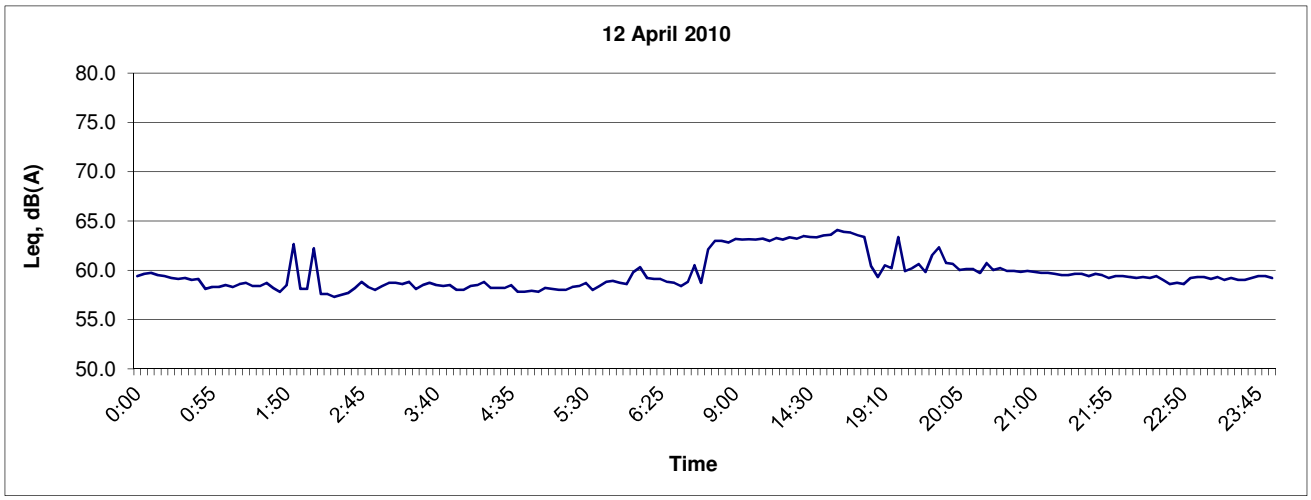


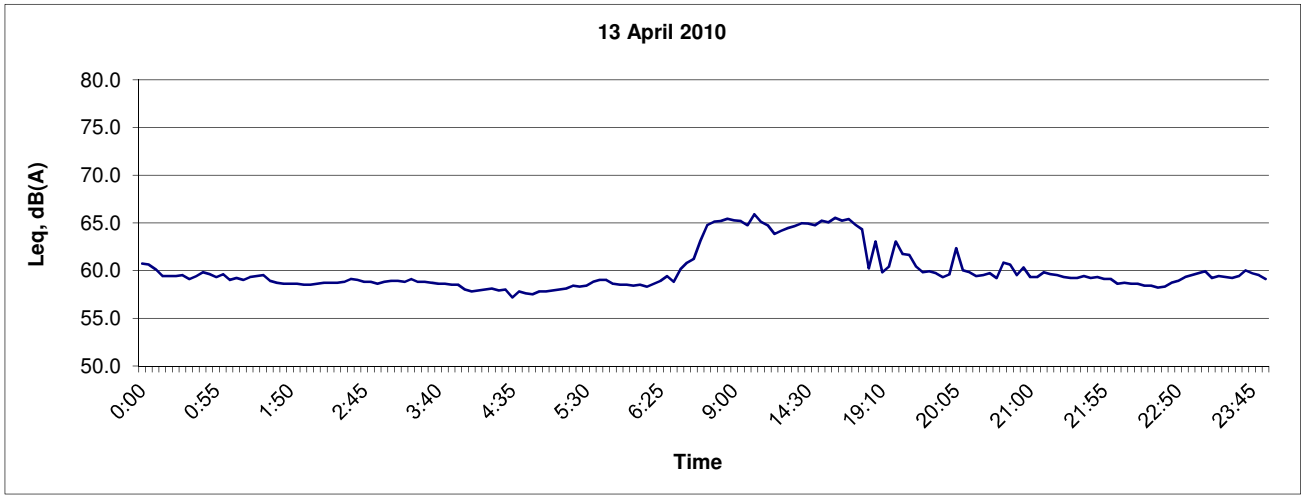


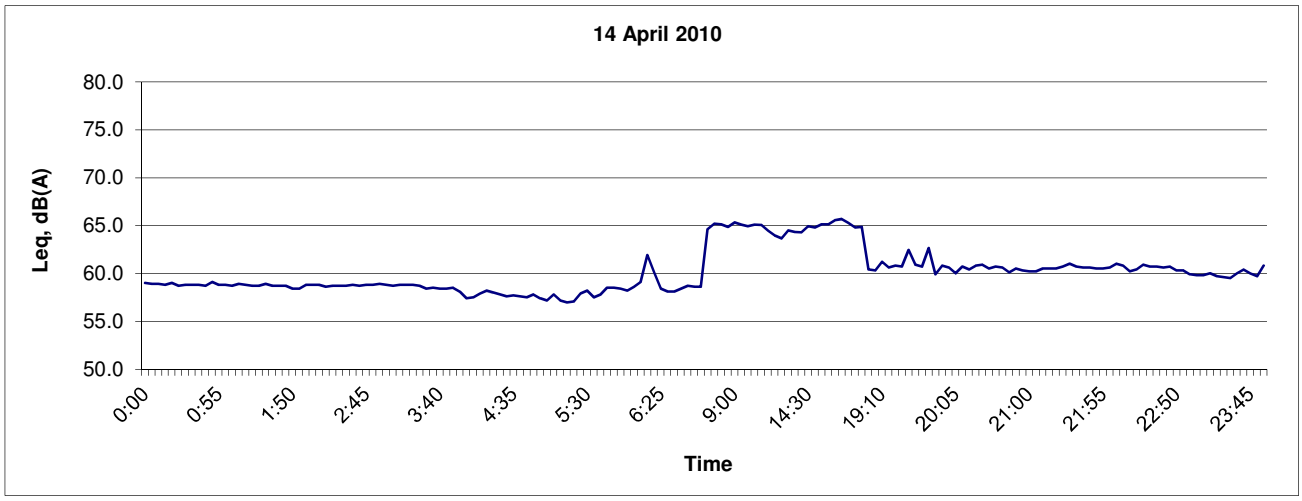


Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 1 Graphical Presentation of Baseline Noise Levels at NM1 (Government Staff Quarters)	Scale: N.T.S	Project No.: MA0010	CINOTECH
	Date: April 10	Appendix: F	

Noise Level at NM1 (Government Staff Quarters)

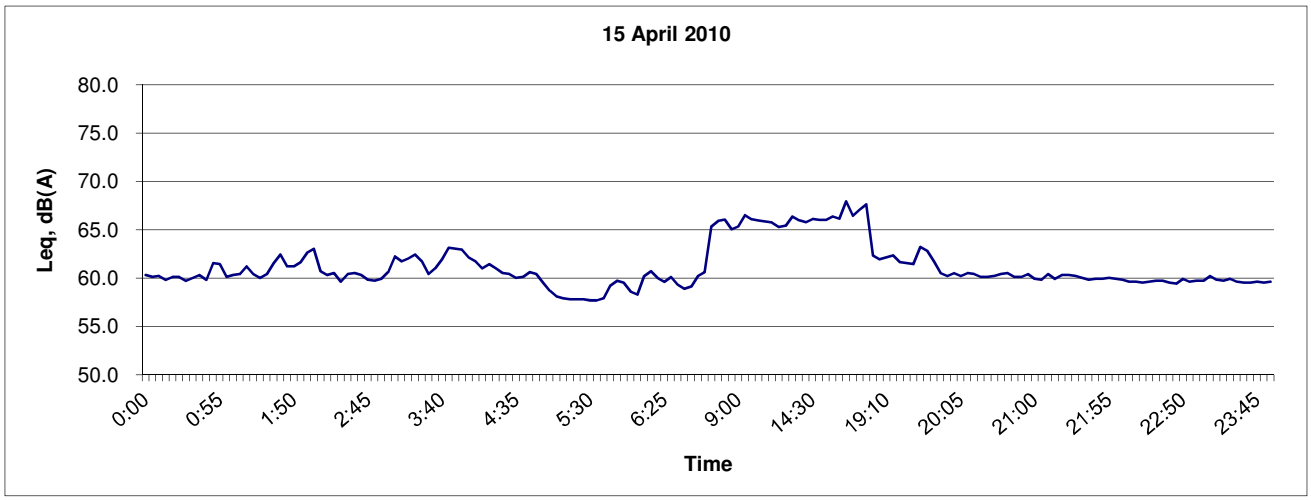


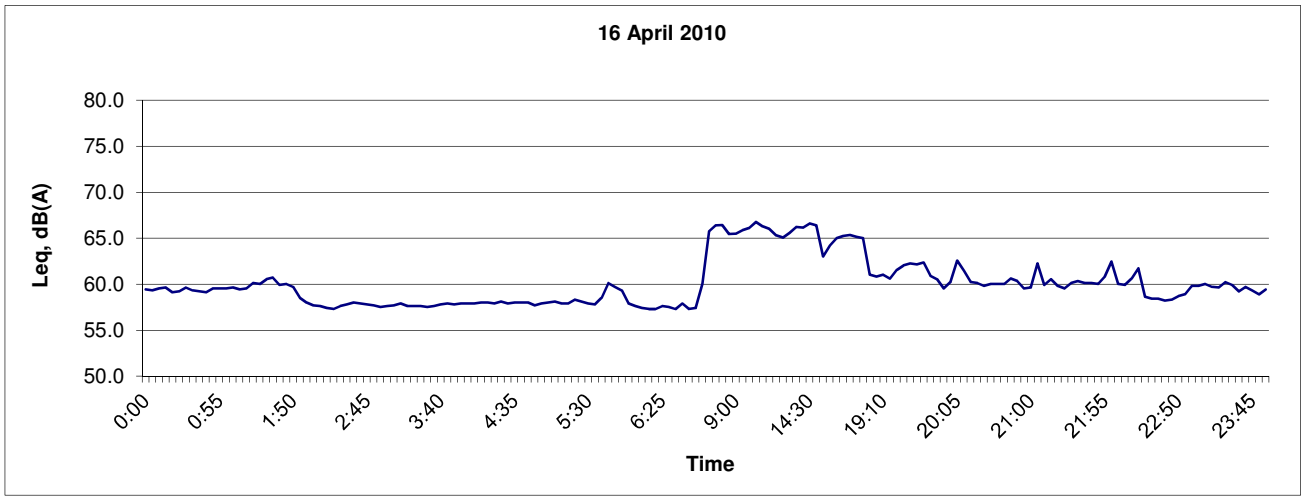


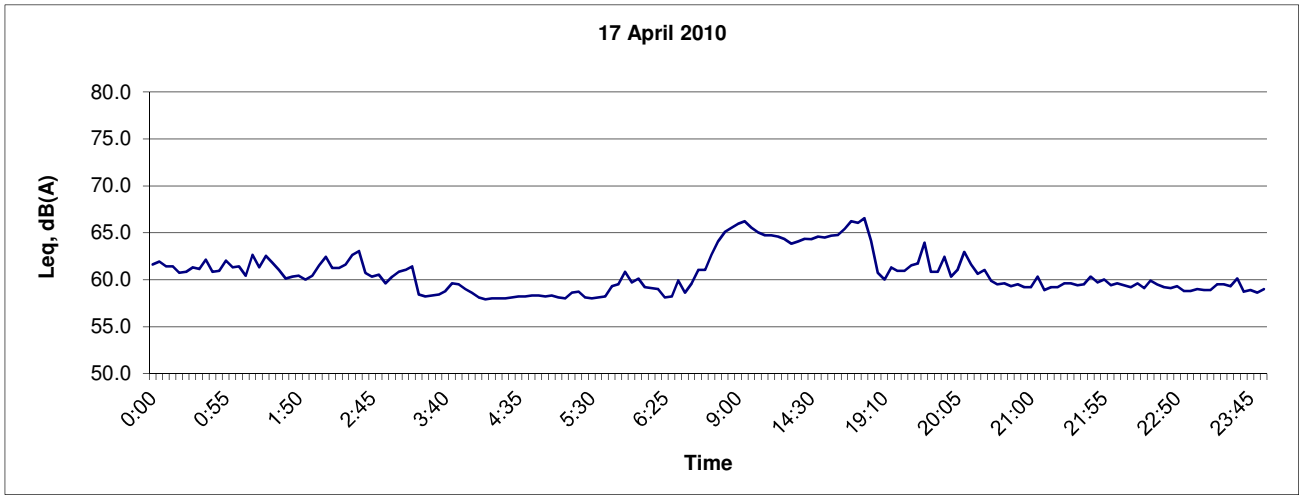


Title		Scale	Project No.	
	Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 1	N.T.S	MA0010	CINOTECH
	Graphical Presentation of Baseline Noise Levels at NM1 (Government Staff Quarters)	Date: April 10	Appendix: F	

Noise Level at NM1 (Government Staff Quarters)

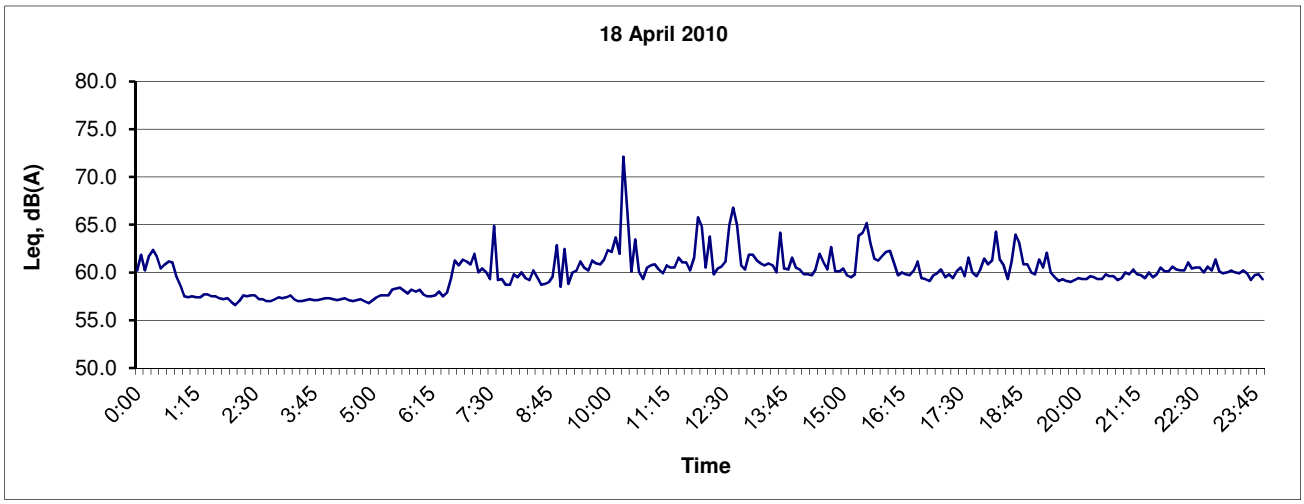


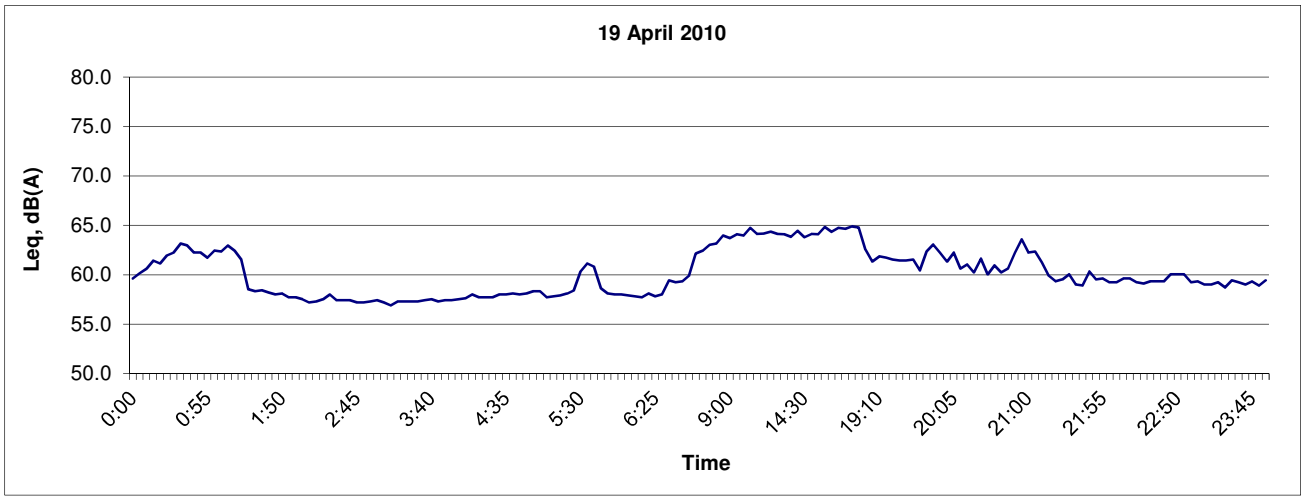


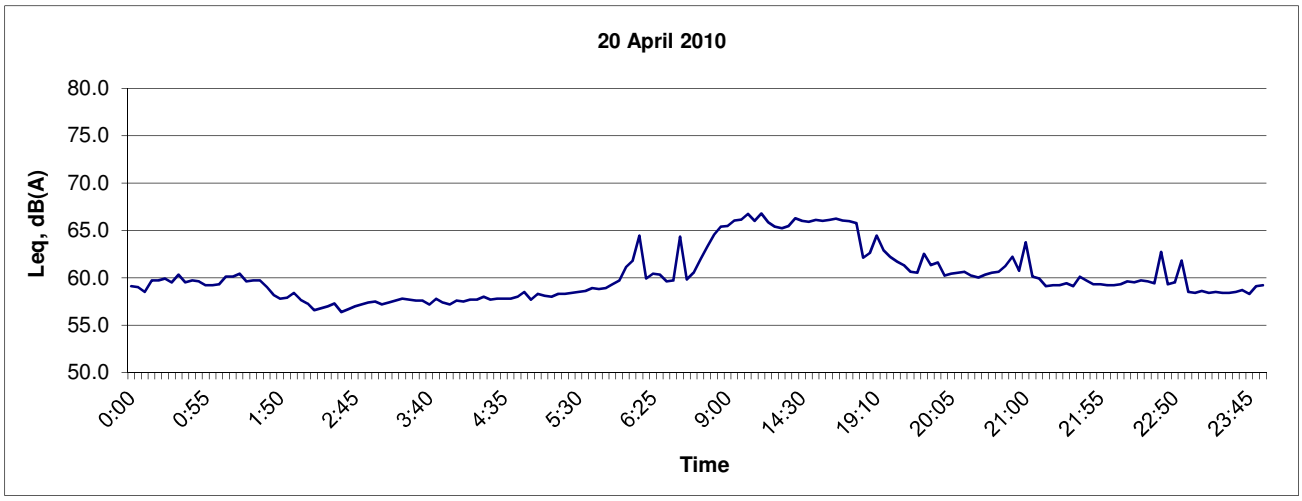


Title		Scale	Project No.	
	Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 1	N.T.S	MA0010	CINOTECH
	Graphical Presentation of Baseline Noise Levels at NM1 (Government Staff Quarters)	Date: April 10	Appendix: F	

Noise Level at NM1 (Government Staff Quarters)

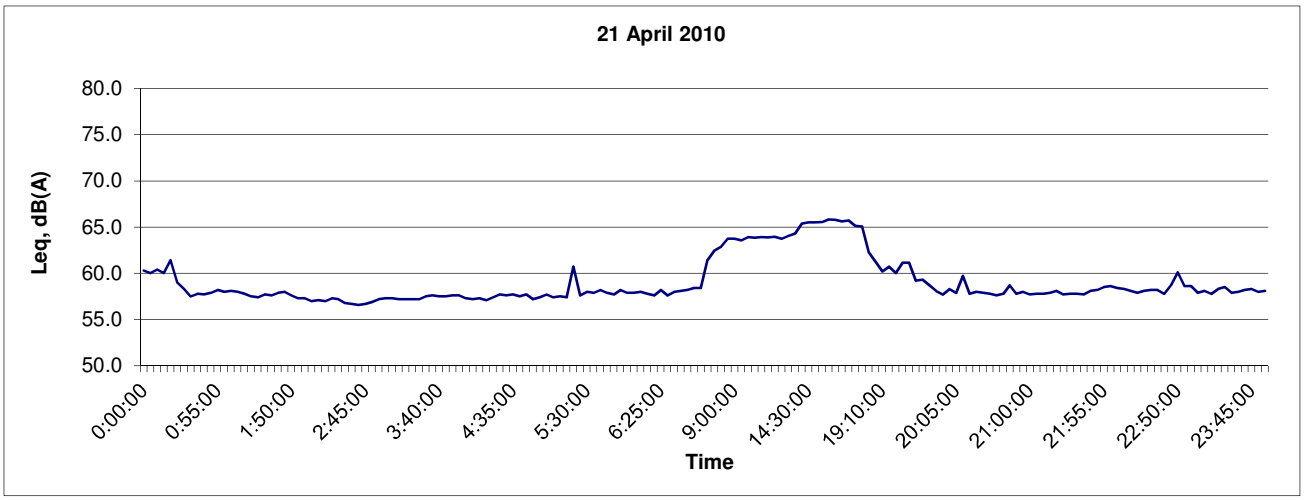


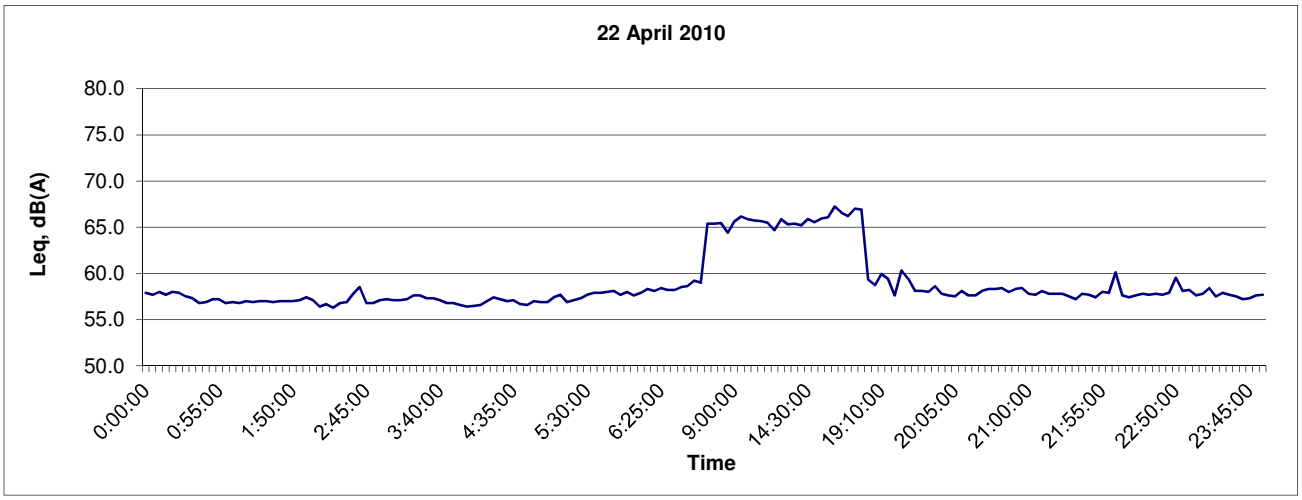




Title		Scale	Project No.	
	Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 1	N.T.S	MA0010	CINOTECH
	Graphical Presentation of Baseline Noise Levels at NM1 (Government Staff Quarters)	Date: April 10	Appendix: F	

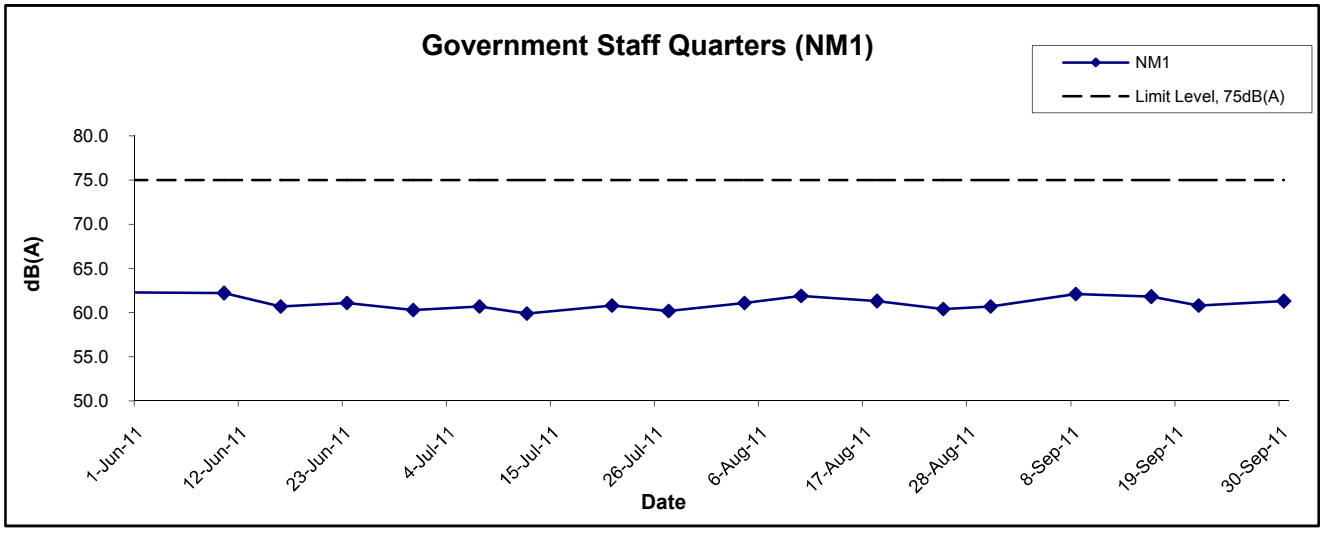
Noise Level at NM1 (Government Staff Quarters)





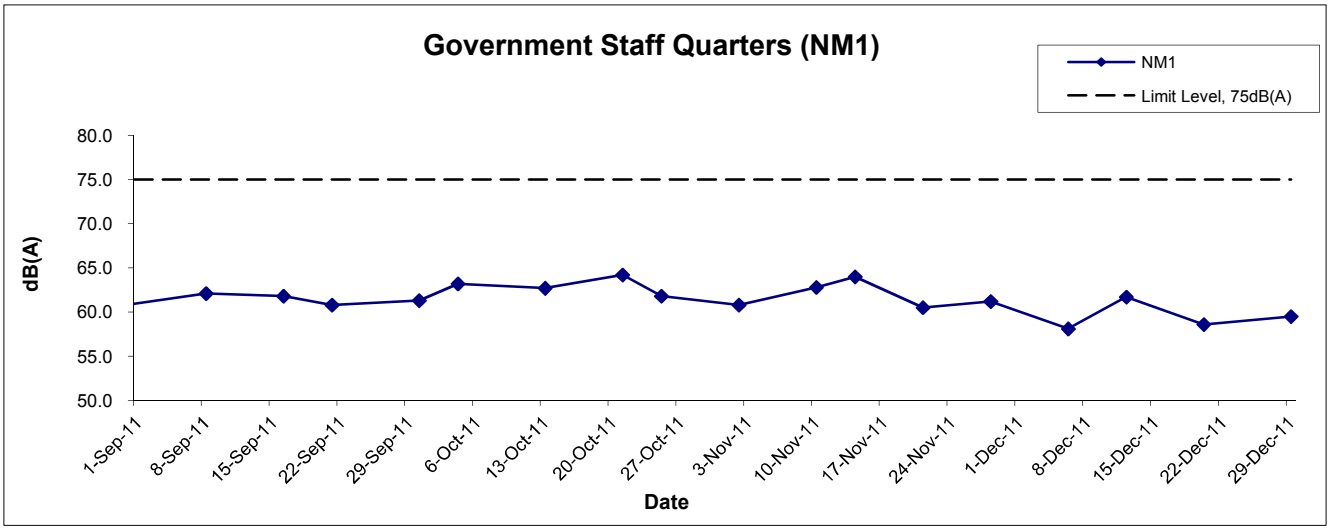
Title		Scale	Project No.	
	Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 1	N.T.S	MA0010	CINOTECH
	Graphical Presentation of Baseline Noise Levels at NM1 (Government Staff Quarters)	Date: April 10	Appendix: F	

Noise Levels



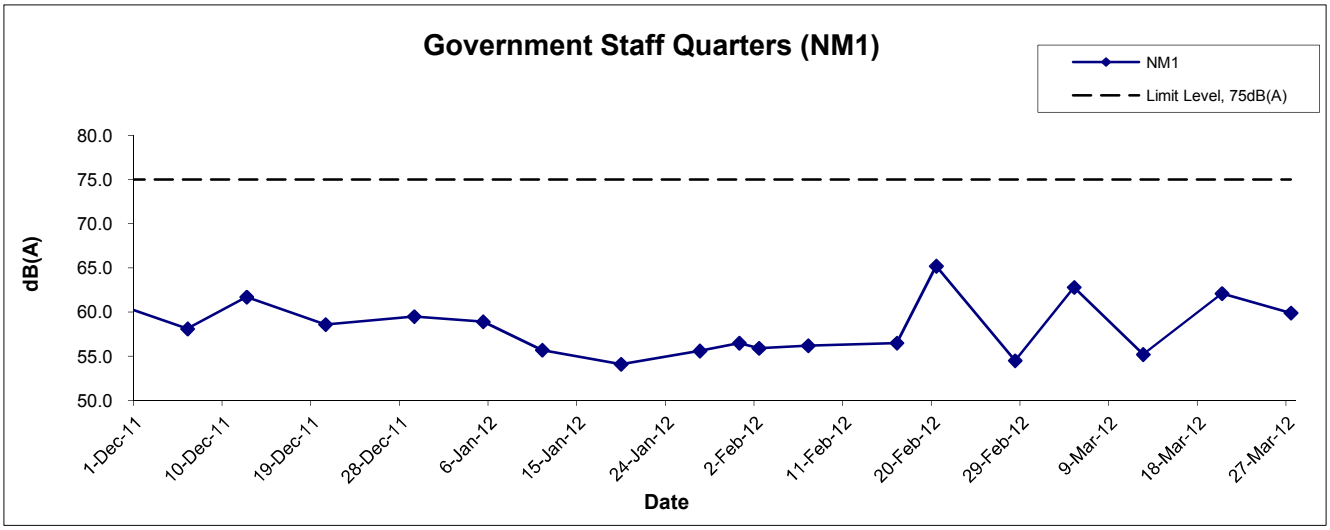
Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Sep 11	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



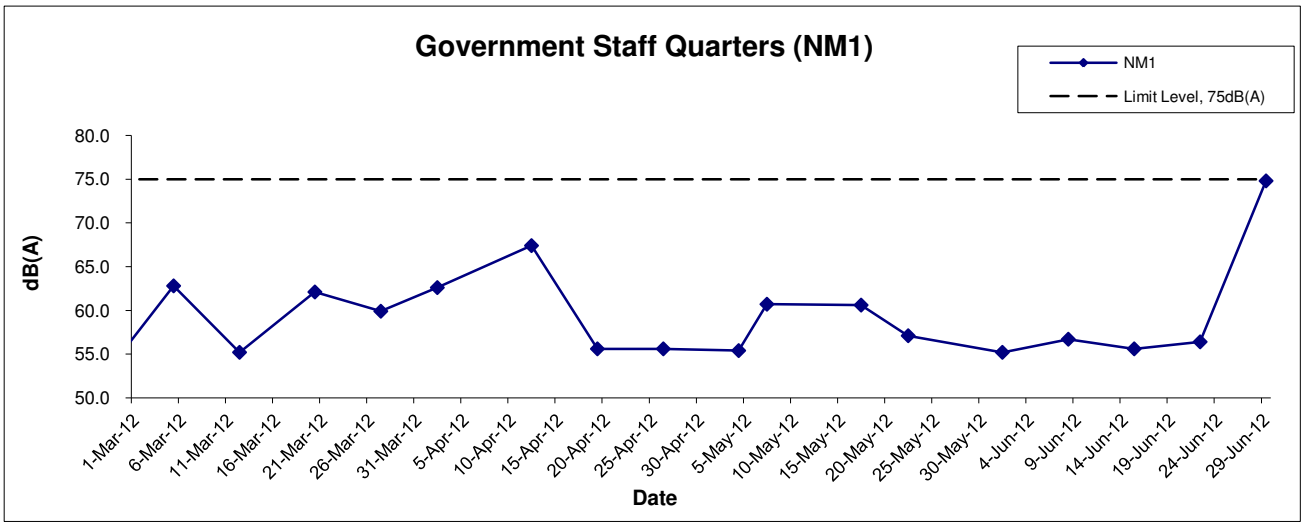
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 11	Project No. MA10069 Appendix: F	CINOTECH

Noise Levels



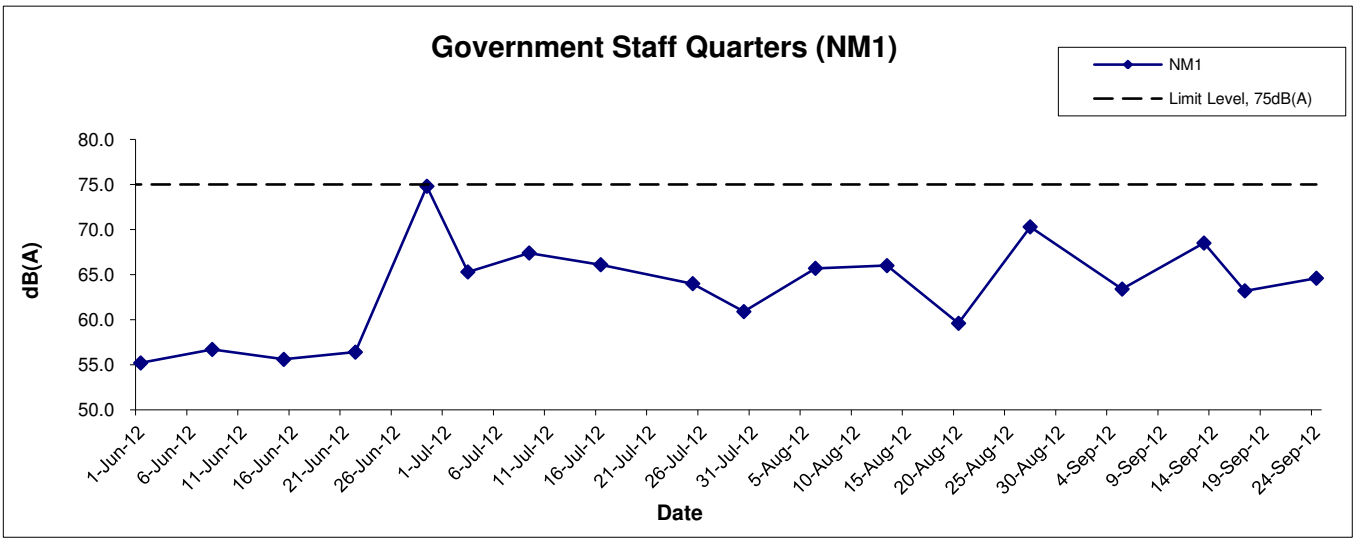
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Mar 12	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



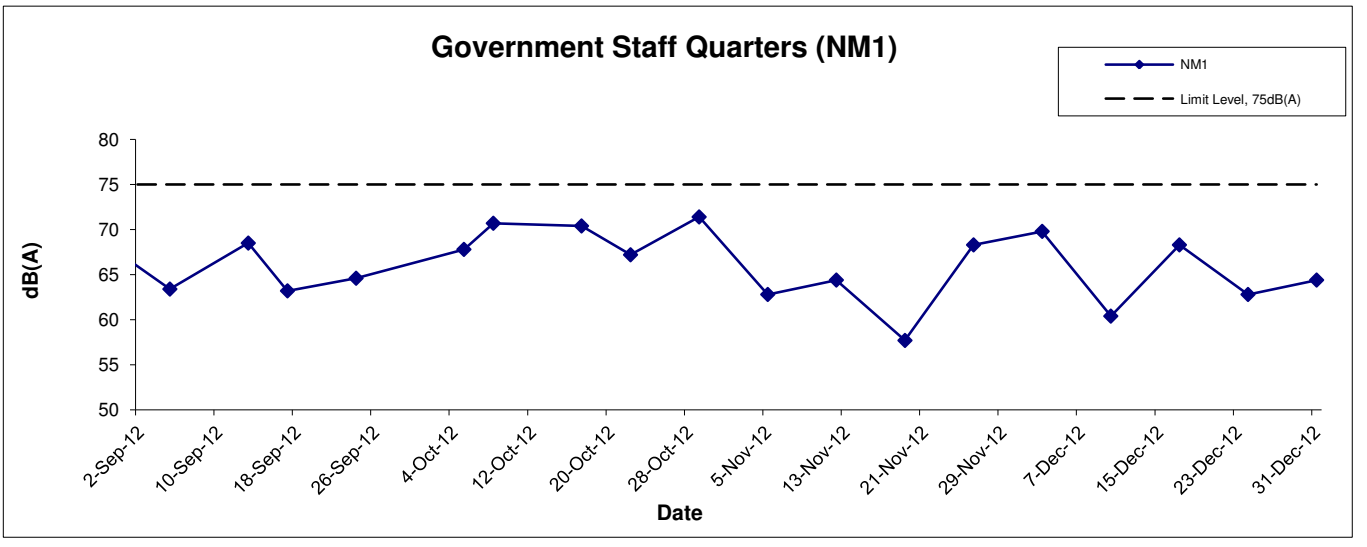
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Jun 12	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



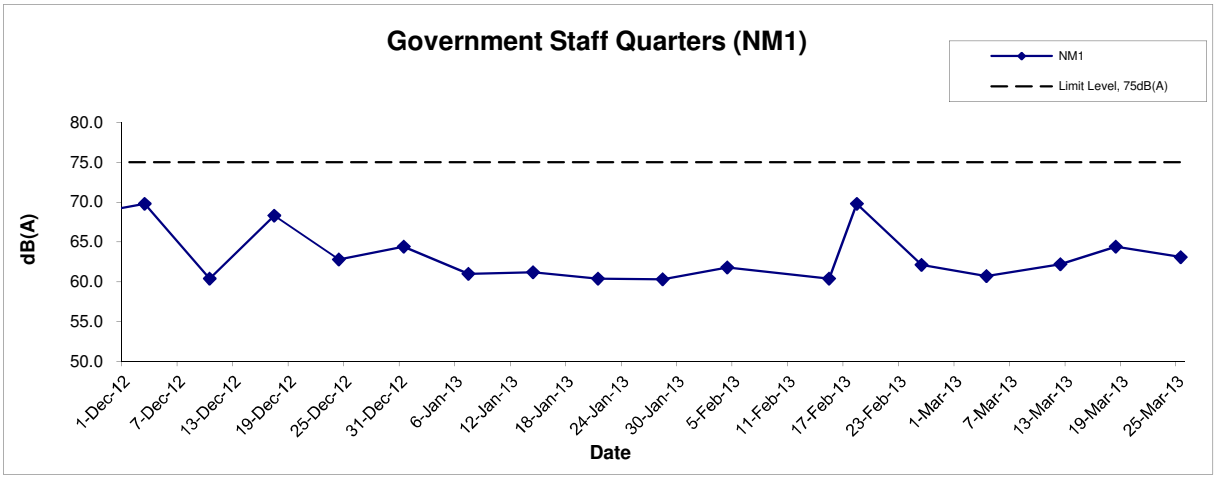
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Sep 12	Appendix: F	

Noise Levels



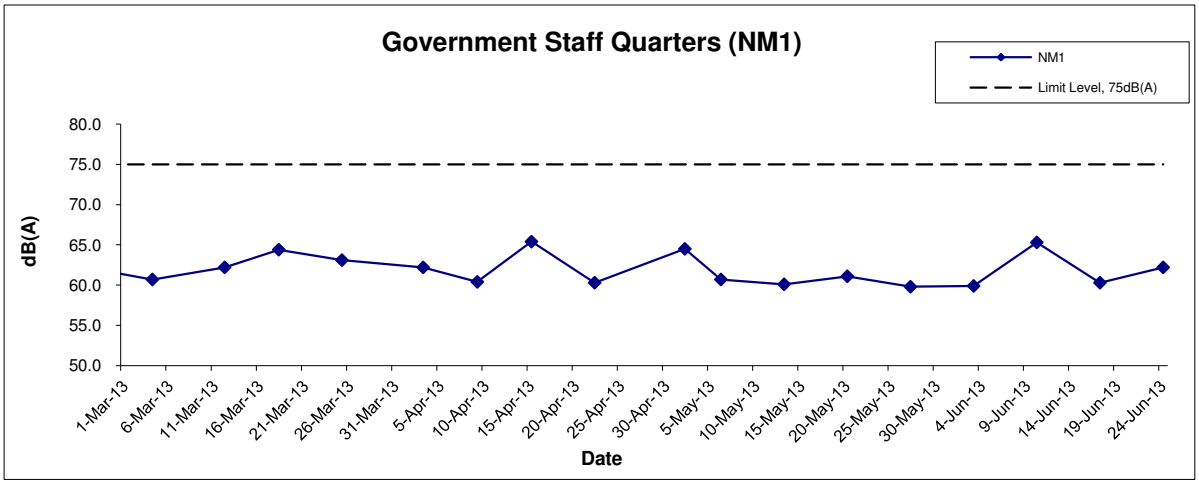
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 12	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



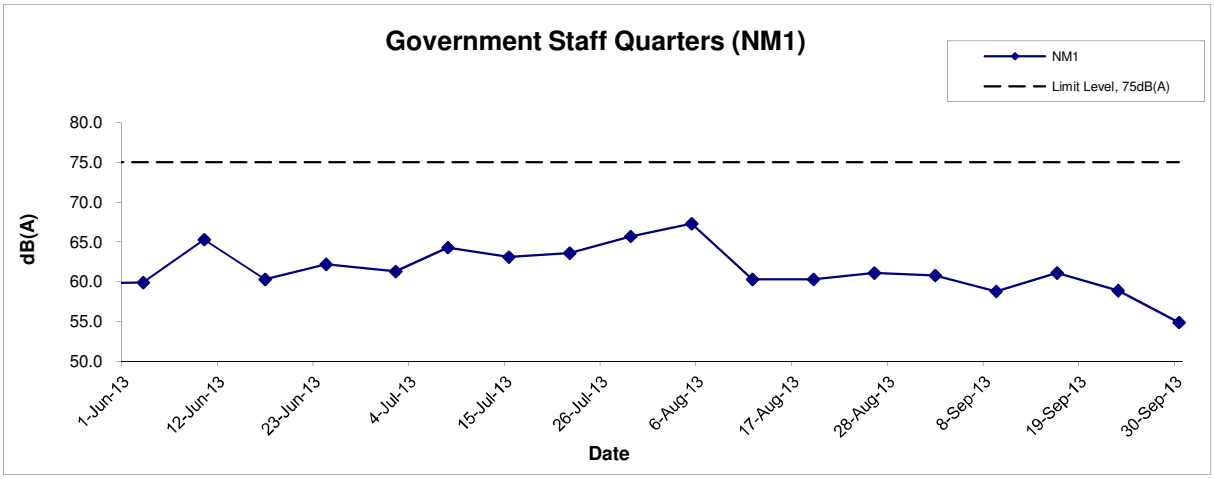
Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Mar 13	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



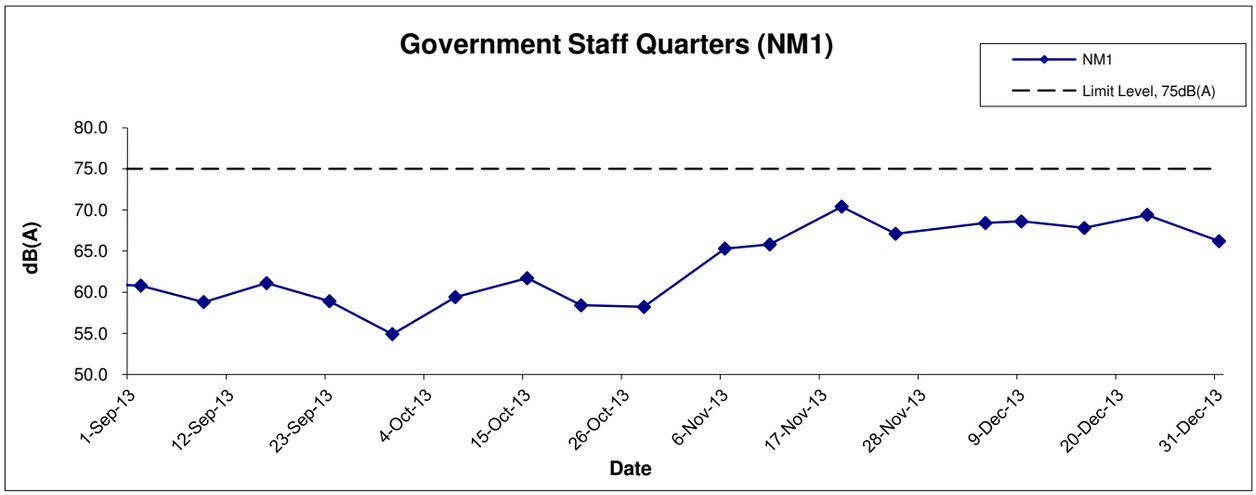
Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Jun 13	Appendix: F	

Noise Levels



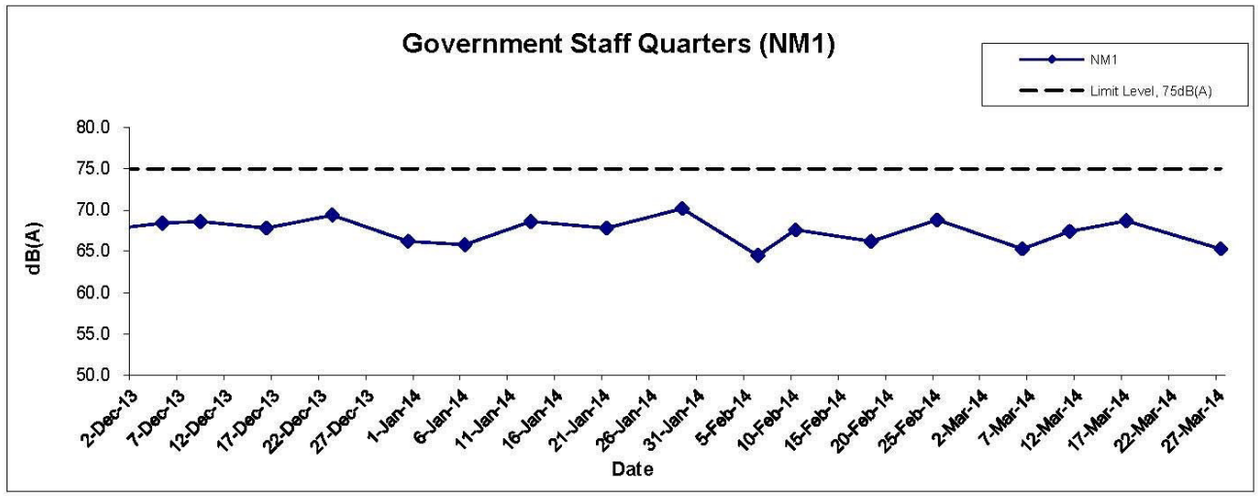
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA10069	
	Date: Sep 13	Appendix: F	

Noise Levels



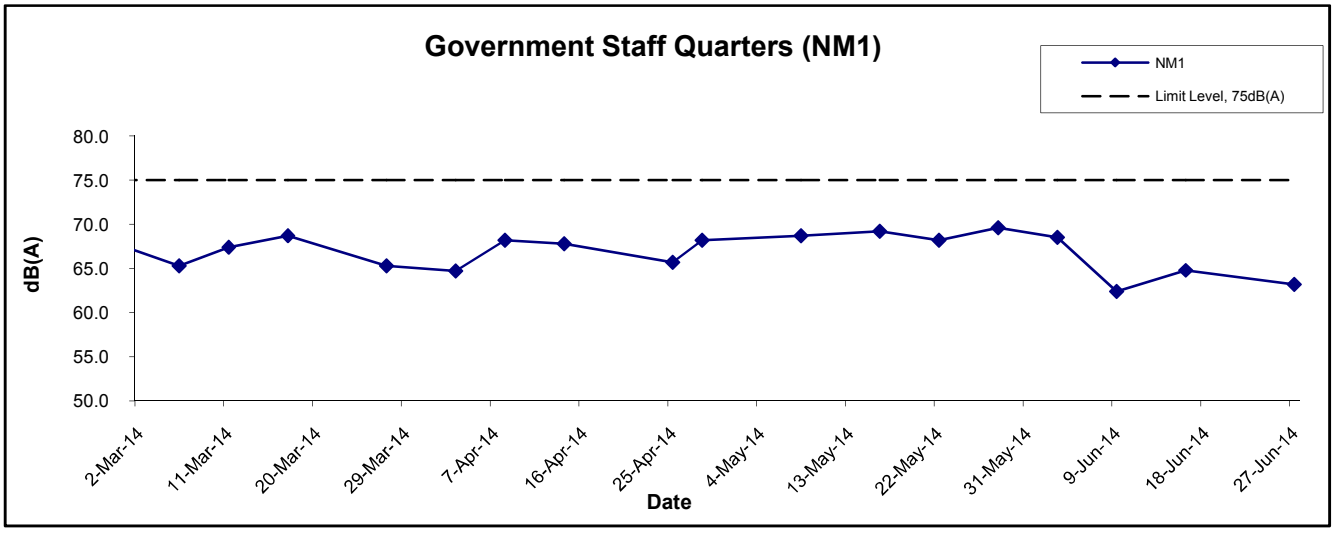
Title: Contract No. DE/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Dec 13	Appendix: F	

Noise Levels



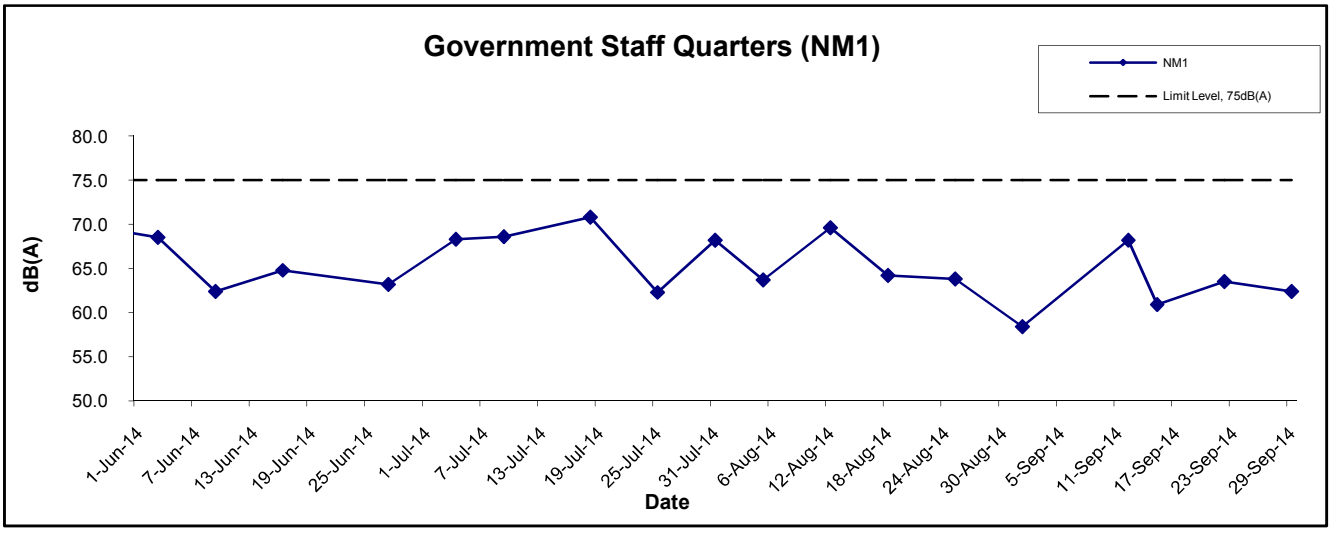
Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Mar 14	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



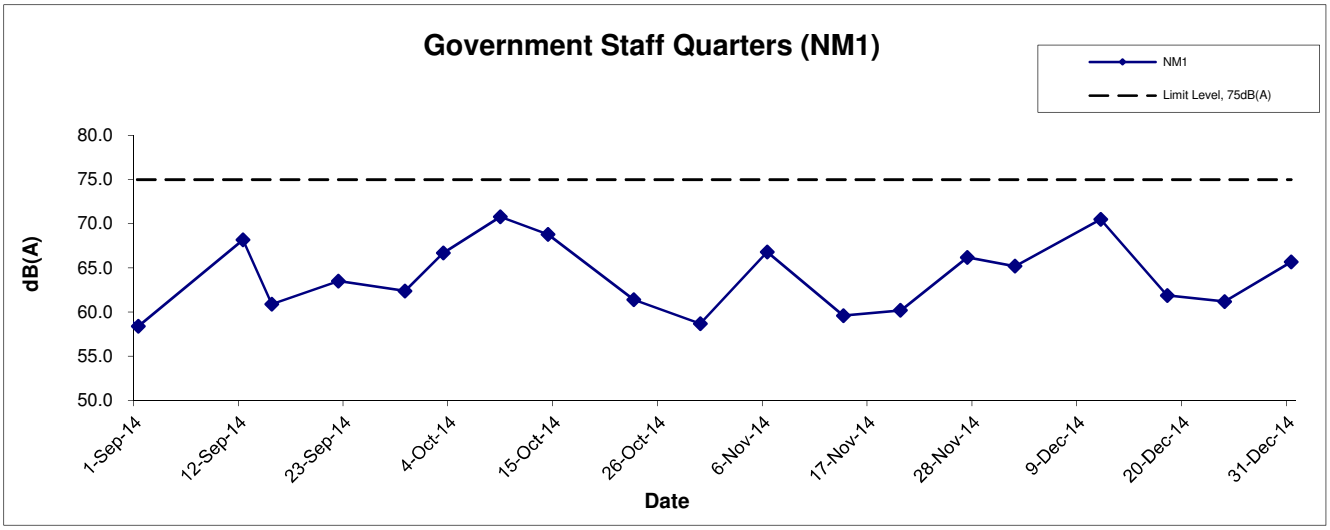
Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Jun 14	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



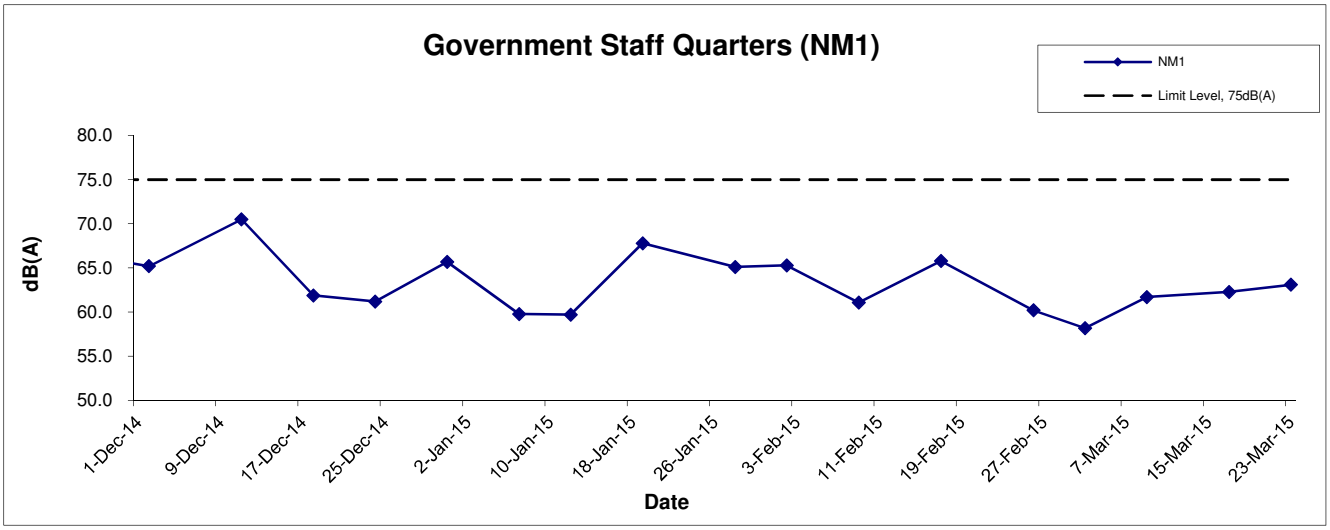
Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA10069	CINOTECH
	Date: Sep 14	Appendix: F	

Noise Levels



Title: Contract No. DC/2009/09 Construction of Tai Po Sewage Treatment Works - Stage V Phase II B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 14	Project No.: MA10069 Appendix: F	CINOTECH

Noise Levels



Title: Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works - Stage V Phase 2B Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Mar 15	Project No.: MA0069 Appendix: F	CINOTECH

APPENDIX G
COMPLAINT LOG

APPENDIX G – COMPLAINT LOG

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 throughout the Project.

APPENDIX H
SUMMARY OF EXCEEDANCE RECORDED OVER THE PROJECT PERIOD

APPENIDX H – SUMMARY OF EXCEEDANCE

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)