

Civil Engineering & Development Department
NT EAST Development Office

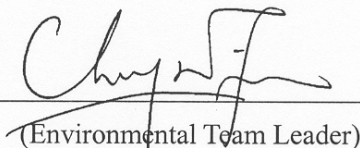
Contract No. ST89/02

Sha Tin Heights Tunnel and Approaches

**Environmental Monitoring and Audit
Quarterly Report (Version 1.0)**

August to October 2005

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.

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EXECUTIVE SUMMARY

1. This is the twelfth Environmental Monitoring and Audit (EM&A) Quarterly Summary Report prepared by Cinotech Consultants Limited for the “Sha Tin Heights Tunnel and Approaches” (the Project). This summary report presents EM&A works performed in the period between August and October 2005.
2. The construction activities undertaken in this reporting quarter were:
 - Construction of Portal Buildings;
 - Site formation and slope works;
 - Tunneling works;
 - Bridge superstructure works;
 - Drainage works;
 - Construction of retaining structure and;
 - Demolition of Temporary Access Road no.1.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed regularly as stipulated in the EM&A Manuals and the 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.

Air Quality

1-hr TSP Monitoring

4. All 1-hour TSP monitoring was conducted as scheduled except that monitoring at Station 4 was suspended occasionally due to power disruption to the monitoring equipment.
5. On 12th September 2005, the 1-hr TSP levels at Stations A2 and A4 exceeded the Action Level while that at Station A3 exceeded the Limit Level. However, it was considered that the exceedances were due to the poor ambient air quality and not related to the Project works.

24-hr TSP Monitoring

6. All 24-hour TSP monitoring was conducted as scheduled except that monitoring at Station 4 was suspended occasionally due to power disruption to the monitoring equipment.
7. No Action/Limit Level exceedance was recorded in the reporting quarter.

Construction Noise

8. All construction noise monitoring was conducted as in this reporting quarter.
9. A limit level exceedance of construction noise at monitoring station N7 was recorded on 30th September 2005. According to our field observation, the major noise source was due to the construction activities of T3 Project and not related to this Project.

Environmental Complaint and Prosecution

10. No environmental prosecution was recorded in the reporting quarter.
11. One environmental complaint was received by CEDD on 26 October 2005, which was about the overflow of wheel washing water onto Tai Po Road. The complaint was considered valid and corrective and preventive actions were taken by the Contractor. A complaint investigation report was issued by ET on 4 November 2005.

Environmental Licensing and Permitting

12. License/Permits granted to the Project include the Environmental Permit (EP), Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit.
13. A total of seven new CNPs (CNP no. GW-RN0381-05, GW-RN0382-05, GW-RN0401-05, GW-RN0435-05, GW-RN0436-05, GW-RN0491-05 and GW-RN0497-05) were issued by the EPD in the report period.

Future Key Issues

14. Construction of portal buildings, drainage work, tunneling works, segment erection and demolition of TAR 1 will be the major construction activities for the coming quarter.
15. The anticipated environmental impacts will be mainly on potential dust emission in dry season and construction noise impact during restricted-hour works.

1. INTRODUCTION

- 1.1 Sha Tin Heights Tunnel and Approaches (SHT) (hereinafter called the “Project”) forms part of the Route 9 (Formerly Route 8) between Cheung Sha Wan and Sha Tin project, which will be a new expressway connecting west Kowloon and Sha Tin. The Project, the entrusted portion of the Route 9 (Formerly Route 8) project, is being managed and implemented by Civil Engineering & Development Department (CEDD).
- 1.2 The Project works mainly comprise the site formation for a toll plaza at the valley of Sha Tin Heights, the construction of 1 km long dual three-lane tunnels under Sha Tin Heights, a 0.6 km long dual two-lane tunnel approach road in Tai Wai, two slip road viaducts with approximately total length of 1 km connecting to Che Kung Miu Road, associated noise barriers and noise enclosures, drainage, slope works and landscape works. The remainder of the Route 9 (Formerly Route 8) (Main Portion, R9K) project forms the Kowloon Section and is being managed and implemented separately by Highways Department.
- 1.3 The Project is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 449, EIAO). An environmental impact assessment (EIA) report has been prepared in 1998 for the Route 9 (Formerly Route 8) project to consider the key issues of noise, air quality, water quality, ecological, construction waste, landscape and visual, land use and culture impacts, and identify possible mitigation measures. An updated Final EIA report was subsequently completed in August 1999 to cater for some changes in the main portion. The 1998 and 1999 Route 9 (Formerly Route 8) EIA (R9 EIA Reports) reports were included in the EIA register under the EIAO as report number EIA-135/BC and AEIAR-022/1999 respectively. EM&A Manuals for each of the R9 EIA reports were also included as part of the EIA reports in the register.
- 1.4 Subsequent to the endorsement of the R9 EIA reports by EPD in November 1999, the R9 project was deferred to start in 2002/2003 for completion by 2006/07. The implementation of the Route 9 (Formerly Route 8) project was then separated into the SHT and R9K portions. Meanwhile further design amendments had also been proposed for the SHT during the detailed design stage to resolve various engineering constraints. In view of these changes, an Environmental Review on the SHT was undertaken to update the findings of the R9 EIA reports. The Environmental Review report for R9S was completed in September 2001 and an Environmental Permit No. EP-104/2001 was issued on 4th October 2001 for the Project.
- 1.5 The works of the SHT is constructed under CEDD’s construction Contract No. ST 89/02 “Sha Tin Heights Tunnel and Approaches”. The site layout of the Project is shown in Figure 1.
- 1.6 Cinotech Consultants Limited (Cinotech) was commissioned by CEDD to undertake the Environmental Team (ET) Services for the Project. This is the twelfth Quarterly EM&A report summarizing the EM&A works for the Project between August and October 2005.

2. PROJECT CHARACTERISTICS

Project Organization and Contacts of Key Management

- 2.1 An organization structure and the line of communication were set up for the Project between the CEDD, Engineer Representative (ER), Independent Environmental Checker (IEC), the Contractor and Environmental Team (ET). The organization chart and contact details are shown in Appendix A and Figure 3.

Construction Programme and Synopsis of Work

- 2.2 The construction programme is presented in Appendix B. The construction activities undertaken in this reporting quarter were:
- Construction of Portal Buildings;
 - Site formation and slope works;
 - Tunneling works;
 - Bridge superstructure works;
 - Drainage works;
 - Construction of retaining structure and;
 - Demolition of Temporary Access Road no.1.

3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

- 3.1 The EM&A Manuals designate 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 2a and 2b. Appendix C gives details of monitoring requirements.

Monitoring Methodology and Calibration Details

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

Environmental Quality Performance Limits (Action and Limit Levels)

- 3.3 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 D.

Environmental Mitigation Measures

- 3.4 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manuals for the Contractor to implement. A list of mitigation measures is given in Appendix E.

4. MONITORING RESULTS

- 4.1 The summary exceedance report in this reporting quarter is presented in Appendix J.

Weather Conditions

- 4.2 The weather during monitoring sessions was mainly sunny and cloudy. The weather conditions for each individual monitoring session were presented in the field record sheets.

Air Quality

- 4.3 All 1-hour TSP monitoring was conducted as scheduled except that the monitoring at Garden Villa was suspended on 22nd, 24th, and 26th August 2005 and 26th September 2005 due to power disruption to the monitoring equipment.
- 4.4 On 12th September 2005, the 1-hr TSP levels at Station A2 and A4 exceeded the Action Level while that at Station A3 exceeded the Limit Level. Based on the EPD monitoring station data, the hourly Air Pollution Index (API) from most air quality monitoring stations was ranked as high to very high. The APIs recorded by EPD's monitoring station at Shatin were above 90 during the sampling period. Besides, high TSP levels were also obtained in our other EM&A Projects, covering the areas of Sha Tin, Yuen Long and Lai Chi Kok, etc. Exceedances of air quality were also recorded at the monitoring stations in the above areas. Therefore, the recorded exceedances of air quality may be due to the high ambient TSP level as a consequence of regional air pollution over Hong Kong. It was concluded that the exceedances were not related to the Project.
- 4.5 All 24-hour dust monitoring was conducted as scheduled except that the monitoring at Garden Villa was suspended from 19th and 25th August 2005 and 23rd September 2005, the monitoring stations at Shatin Heights and Garden Villa were suspended on 10th, 16th and 22nd June 2005 due to power disruption to the monitoring equipment. No Action / Limit Level exceedance was recorded in the reporting month.
- 4.6 The monitoring data of 1-hr and 24-hr TSP Levels are shown in the appendices of the Monthly Reports. The graphical presentations of the monitoring results are shown in Appendix F.

Noise

- 4.7 All construction noise monitoring was conducted as scheduled during the reporting quarter.
- 4.8 A Limit Level exceedance of construction noise was recorded on 30th September 2005 at Station N7. According to our field observation, the major noise source was due to the construction activities of T3 Project and not related to the Project. No Action Level exceedance was recorded.
- 4.9 The noise monitoring data are attached in the appendices of the Monthly Reports. The graphical plots of the noise monitoring results in this reporting quarter are shown in Appendix G.

5. AUDIT RESULTS

Implementation Status of Environmental Mitigation Measures

- 5.1 The implementation status of environmental mitigation measures (EMIS) is given in Appendix G.

Site Audit Summary

Water Quality

- 5.2 Overflow of pre-treatment tank was observed near North Portal Building. The contractor was reminded to remove silt as soon as possible and ensure that the sedimentation system well-maintained.
- 5.3 Stagnant water was observed at Portion 7, South Portal Building, Che Kung Miu and RC Enclosure Base 4. The contractor was reminded to spray larvicide or clear up stagnant water for avoiding mosquito breeding.
- 5.4 Sand accumulated in an U-channel of Che Kung Miu and Box 5 of Portion 9. The contractor was reminded to remove the sand and keep the channel clean.

Air Quality

- 5.5 No environmental deficiency was identified during the reporting month.

Chemical and Waste Management

- 5.6 General wastes were found scattering on ground of North Portal Building, the area near to Staircase N1 and Che Kung Miu area. The contractor was reminded to clear up and maintain site tidiness.
- 5.7 Rubbish was found scattering on ground at the area of North Portal Building. The contractor was reminded to clean up and provide a rubbish bin.

Status of Environmental Licensing and Permitting

- 5.8 Environmental licenses and permits including Environmental Permit for the Project, Construction Noise Permits (CNPs), Waste Disposal (Chemical Waste) License and Water Discharge Permit were in place and valid during this reporting quarter. A summary status of licenses and permits is given in Appendix H.

Advice on Solid Waste Management Status

- 5.9 The solid waste generated from the Project site office was mainly general refuse that was collected by a licensed collector on an as need basis.

6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

Summary of Exceedances

1-hr TSP

- 6.1 On 12th September 2005, the 1-hr TSP levels at Stations A2 and A4 exceeded the Action Level while that at Station A3 exceeded the Limit Level. However, it was considered that the exceedances were due to the poor ambient air quality and not related to the Project works. Therefore, no further action was required.

24-hr TSP

- 6.2 No Action/Limit Level exceedance was recorded in the reporting quarter.

Noise

- 6.3 All construction noise monitoring was conducted as scheduled. A Limit Level exceedance of construction noise at monitoring station N7 was recorded on 30th September 2005. According to our field observation, the major noise source was due to the construction activities of T3 Project and not related to the Project. No Action Level exceedance of noise was recorded.

Review of the Reasons for and the Implications of Non-compliance

- 6.4 There was no non-compliance from the site audits in this reporting quarter. The observations and recommendations made in each individual site audit session were attached in the Monthly Reports.

Summary of Actions Taken

- 6.5 In this reporting quarter, the following mitigation measures were implemented:
- Frequent watering on haul roads was applied for dust suppression;
 - Drip trays for oil storage of oil buckets have been provided;
 - Excavated/dusty materials have been covered by tarpaulin or water sprayed;
 - Wheel washing facilities were provided;
 - Groundwater pumped out was recycled via sediment tanks; and
 - 'AquaSep' has been setup to incorporate with the modified desilting system.

7. ENVIRONMENTAL COMPLAINTS

Complaint Log

- 7.1 The implementation status of the complaint handling procedure is summarized in Appendix I.
- 7.2 One environmental related complaint was received in the reporting period. The complaint was about the overflow of muddy water onto Tai Po Road and the source of the water was found to be the wheel washing bay located at the egress of TAR1. Corrective actions were taken by the Contractor to deploy a water browser for clearing the muddy water and debris on Tai Po Road. Moreover, a concrete bund was constructed along the lower side of the wheel washing bay to reduce the amount of water overflowing and a small ditch was formed across the lower side of the vehicular exit in order to collect the overflowed water. The complaint was considered valid and the situation was found rectified. A complaint investigation report was issued by ET on 4 November 2005.

8. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 8.1 No environmental prosecution was recorded in the reporting quarter.

9. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

- 9.1 Construction of portal buildings, drainage works, tunneling works and segment erection will be the major construction activities for the coming quarter. The anticipated environmental impacts will be mainly on potential dust emission in dry season and construction noise impact during restricted-hour works.