



Environmental Monitoring Report

Project Number: 32334
January 2006

PRC: Southern Sichuan Roads Development Project

Prepared by Halcrow Inc.

For Sichuan Panxi Expressway Company Limited

**Environmental Monitoring Report for Xichang-Panzhihua Expressway
Environment Conditions During 2005**

Monitored by: Liangshan Environment Monitoring Station

Authorized by: Sichuan Panxi Expressway Co., Ltd.

Date: 6 January, 2006

Director:	Zhang Shaodong
Technical Principal:	Chen Zhong
Quality Control Principal:	An Yuemei
Compiled by:	Lei Bo
Checked by:	Zhu Jianhua
Approved by:	Zhang Shaodong
Participants:	An Yuemei
	Wang Hongbo
	Fu Xingdong
	Shang Chunlin
	Zhang Shuo
	Zeng Rong
	Wang Jie
	Zhou Jianping
	Peng Qiang

Monitoring Target

To monitor the performance of various environmental protection measures during construction of Xichang (Huanglianguan)—Panzhihua (Jinjiang Township) Expressway, and provide scientific basis for the data and period of the performance of environmental protection action plan and measures.

A.6

Monitoring Basis

Environmental Protection Law of PRC;
Environmental Noise Prevention Law of PRC;
Water Contamination Prevention Law of PRC;
Air Contamination Prevention Law of PRC;
Solid Waste Contamination Prevention Law of PRC;
Environmental Impact Assessment Law of PRC;
Environment Protection Management Statue of Construction Project (No. 253 Issued by State Council of PRC);
National Trunk 108 Xichang (Huanglianguan) to Panzhihua Municipal Highway Environmental Impact Report;
Environmental Examination [2002] No.46 Response to the Comment of National Trunk 108 Xichang (Huanglianguan) to Panzhihua Highway Environmental Impact Report issued by State Environmental Protection Bureau;
Letter of Authorization.

A.7

Content of Monitoring

Based on the monitoring plan in *National Trunk 108 Xichang (Huanglianguan) to Panzhihua Municipal Highway Environmental Impact Report*, the content of monitoring during construction period includes ambient air, environmental noise and water quality.

Monitoring Parameters

- Ambient air: TSP;
- Noise: environmental noise L_{Aeq} ;
- Water quality: pH, SS, COD_{cr} , Petroleum, etc.

Monitoring frequency and time

- Ambient air: once in March 2005 and August 2005 individually;

- Environmental noise: once every month in the daytime from January to December 2005, time: 10:00-11:00;
- Water quality: once in dry season (March) in 2005, rainy season (August), average season (November) respectively, continuously 2 days for each time, collect 1 piece of water sample in the morning and in the afternoon respectively;

Monitoring Spots

- Ambient air: 3 monitoring spots located at the Lianmeng Primary School in Xiaogao Township, and schools and residential area near the road being constructed in Puba and Salian. Please see Table 2 for the details;
- Environmental noise: located at the sensitive location 100m within the construction site. The specific spot is decided by the construction conditions. This year 5 monitoring spots were adopted. Please see Table 3 for the details;
- Water quality: two fixed monitoring sections at Jinshaba Anning River Large Bridge (I) and 50m of lower reaches of Jinjiang Jingsha River Large Bridge (II) respectively. Please see Table 4 for the details.

Analysis Method of the Monitoring Factors and Its Resource (Table 1)

Table 1: Analysis Method of the Monitoring Factors and Its Resource

Monitoring factors	Method of analysis	Resource of method
TSP	Weight	GB/T15431—95
pH	Glass electrode	GB6920—86
COD _{cr}	Potassium chromate	GB11914—89
SS	Weight	GB11901—89
Petroleum	Infrared spectrophotometry	GB/T16488—1996
Environmental noise	Municipal environmental noise measurement method	GB/T14623—93

A.8

Measures for ensuring the monitoring quality

The collection, storage and transportation, analysis of sample and the statistics of monitoring data are carried out strictly abide by the relating specifications, standard and quality control measures. Monitoring equipment

used (such as spectro photometry instrument, acidity instrument and noise classification instrument etc.) is within inspection period and calibrated before application.

Water sample collection and storage is carried out according to *the Specification of Water Sample Storage and Management Technology (GB12999-91)*. The analysis of water sample adopts the national standard analysis method, and controlled by self-control means and other control means of code quality control sample to control the exactness and precision of monitoring analysis.

A.9

Monitoring Results

Please see Table 2 on the monitoring results of air quality.

Table 2: Monitoring results of total suspending particles (TSP) in the air

Monitoring locations	Lianmeng Primary School in Xiaogao Township		Puba		Salian Village	
	March	August	March	August	March	August
Monitoring results (mg/m ³)	0.213	0.256	0.273	0.291	0.254	0.289
Exceedance of standard	No exceedance	No exceedance	No exceedance	No exceedance	No exceedance	No exceedance
Standard value	Daily average value $\leq 0.30 \text{ mg/m}^3$					

The monitoring value of TSP at all the 3 monitoring locations satisfies the requirements for Grade II of *Environmental air quality standard (GB3095-1996)*.

Please see Table 3 on the monitoring results of noise.

Table 3: Monitoring results of noise (L_{Aeq} : dB)

Locations Date	Lianmeng Primary School in Xiaogao Township	Puba	Guabang Zhongxing School	Salian	Puwei Forestry Bureau Retirement Base
January, 2005	51.3	52.4	53.8	49.3	53.9
February, 2005	53.5	51.7	52.6	50.1	55.8*
March, 2005	54.1	53.2	51.9	53.2	51.7
April, 2005	52.7	51.6	54.1	47.5	52.4
May, 2005	54.5	53.7	51.8	52.4	53.1
June, 2005	49.8	55.5*	50.7	51.7	58.3*
July, 2005	49.5	52.7	48.9	49.8	51.2
August, 2005	57.7*	51.9	52.7	52.8	54.4
September, 2005	54.4	52.8	58.3*	50.4	53.7
October, 2005	53.2	56.9*	57.6*	57.7*	56.5*
November, 2005	56.9*	54.0	53.9	55.4*	52.5
December, 2005	53.0	56.2*	53.8	54.2	54.1
Standard value	Daytime ≤ 55 dB				

*: Exceedance of standard

The monitoring results in Table 3 show that: Except for the monitoring value of some individual months (20%) exceed the standard for Grade I of *City Regional Environmental Noise Standard (GB3096-93)* due to loud noise from the construction machinery in the peak period, the monitoring value of noise meets the requirement at large (80%).

Please see Table 4 on the monitoring results of water quality.

Table 4: Monitoring results of water quality

Items Date & Locations		pH (dimensionless)	SS (mg/l)	CODcr (mg/l)	Petroleum (mg/l)
Dry season March	I	8.00	78.5	8.28	ND
	II	8.07	89.0	9.85	ND
Wet season August	I	8.03	175.6	12.77	0.022
	II	8.11	212.7	17.75	ND
Average season November	I	8.05	67.0	9.54	0.035
	II	8.17	82.0	11.28	ND
Standard value		6~9	/	≤20	≤0.05
Whether meets the requirements?		Yes	/	Yes	Yes

ND: detected as nil

The monitoring value of water quality in both the two locations during dry, wet and average seasons meet the requirements for Grade III water area of *Surface Water Environment Quality Standard (GB3838-2002)*.

In a word, from the overall results of 2005 monitoring, most of the sections were able to carry out the environmental protection measures required by the EIA; there were some locations where environmental protection requirements were not strictly conformed, as the spoils not being transported to the pointed spoil yard but dumped at random on the riverbank or slope face; mechanical equipment for the constructions made loud noise, which affected sound environment of the surrounding environment-sensitive area. It is anticipated that during future constructions the Client will reinforce environment protection education to the contractors, help them improve their environmental protection consciousness and strictly conform to all the requirements on environmental protection regulated by the EIA.