



Environmental Monitoring Report

Project Number: 32334
January 2005

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 in 2004**

Monitored by: Liangshan Environment Monitoring Station

Authorized by: Sichuan Panxi Expressway Ltd. Company

Date: 18 January, 2005

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A.1

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 date and period of the performance of environmental protection action plan and measures.

A.2

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 Statute 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.3

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 2004 and August 2004 individually;

- Environmental noise: once every month in daytime from March to December 2004, time: 10:00-11:00;
- Water quality: once in dry season (3 months) in 2004, rainy season (August), average season (November) individually, continuously 2 days for each time, collect 1 water sample in the morning and in the afternoon individually.

Monitoring Spots

- Ambient air: 3 monitoring spots located at the school and residential area near the un-paved construction road in Dechang Minority Middle School, Puba, Salian;
- Environmental noise: located at the sensitive locations 100m within the construction site, the specific spot is decided by the construction conditions;
- Water quality: Jinshaba Anning River Large Bridge (I), two fixed monitoring sections at 50m (II) of lower reaches of Jinjiang Jingsha River Large Bridge.

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	Infra-red spectrophotometry	GB/T16488-1996
Environmental noise	Municipal environmental noise measurement method	GB/T14623-93

A.4

Measures for Ensuring Monitoring Quality

The collection, storage and transportation, analysis of samples and the statistics of monitoring data are carried out strictly in accordance with the relevant specifications, standards and quality control measures. Monitoring equipment used (such as spectrophotometry instrument, acidity instrument

and noise classification instrument etc.) are 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 samples adopts the national standard analysis method, and controlled by self-controlling means of parallel double sample, sample recycle, quality controlled sample and the controlling means of code quality control sample to control the exactness and precision of monitoring analysis.

A.5

Monitoring Results

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

Table 2 - Monitoring results of total suspended particulates (TSP) in the air.

Monitoring locations	Dechang Minority Middle School		Puba		Salian Village	
	March	August	March	August	March	August
Monitoring results (mg/m ³)	0.256	0.278	0.243	0.287	0.224	0.263
Exceedance of standard	No exceedance	No exceedance	No exceedance	No exceedance	No exceedance	No exceedance
Standard	Daily average value $\leq 0.30 \text{ mg/m}^3$					

The monitoring values of TSP at all three monitoring locations satisfy 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	Dechang Minority Middle School	Xiaogao	Puba	Guabang Village	Salian Village
March, 2004	50.4	51.3	49.8	47.3	48.9
April, 2004	52.1	53.4	50.7	48.6	50.4
May, 2004	53.5	54.2	53.5	50.6	53.5
June, 2004	49.3	52.5	50.3	53.4	57.1*
July, 2004	48.2	51.7	49.2	50.8	54.2
August, 2004	50.7	52.9	50.7	56.7*	53.4
September, 2004	53.1	54.7	57.4*	51.8	52.7
October, 2004	52.9	50.9	52.6	53.7	51.5
November, 2004	57.8*	53.6	50.9	52.4	56.7*
December, 2004	52.0	57.2*	51.8	51.9	52.1
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 (12%) exceed the standard for Grade I of *City Regional Environmental Noise Standard (GB3096-93)* due to large noise from construction machinery in the peak period, the monitored value of noise meets the requirement at large (88%).

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	7.70	78.5	9.50	0.037
	II	7.58	112.3	10.59	0.043
Wet season August	I	7.92	321.8	9.83	0.029
	II	8.01	401.4	9.77	0.038
Average season November	I	7.80	125.6	7.59	0.039
	II	7.78	153.4	7.33	0.018
Standard value		6~9	/	≤20	≤0.05
Compliance		Yes	/	Yes	Yes

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