



Environmental Monitoring Report

Project Number: 32334
January 2007

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 2006**

**Monitored by: Xichang Station of Liangshan Environment Monitoring
Center**

Authorized by: Sichuan Panxi Expressway Company Ltd.

Date: 20 January, 2007

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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 data 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 2006 and August 2006 individually;

- Environmental noise: once every month in daytime from January to December 2006, time: 10:00-11:00;
- Water quality: once in dry season (March) in 2006, rainy season (August), average season (November) individually, continuously 2 days for each time, collect 1 water sample everyday.

Monitoring Spots

- Ambient air: 4 monitoring spots located at the school and residential area near the un-paved construction road in Xiaogao Lianmeng primary School, China Railway 17th bureau construction site, Salian, Wanqiu;
- Environmental noise: 5 noise monitoring spots located at the sensitive location 100m within the construction site, the specific spot is decided by the construction progress and site conditions;
- 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).

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.4

Measures for ensuring the monitoring quality

The collection, storage and transportation, analysis of sample and the statistics of monitoring data are carried out strictly abiding by the relating specifications, standard and quality control measures. Monitoring equipment used (such as spectrophotometry 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 *Technical Specification of Surface water and sewage water monitoring (HJ/T91-2002)*. 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.5

Monitoring Results

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

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

Monitoring locations	Xiaogaolienmeng primary school		China Railway 17 the bureau site		Wanqiu		Salian	
	March	August	March	August	March	August	March	August
Monitoring results (mg/m ³)	0.160	0.273	0.178	0.252	0.200	0.262	0.281	0.177
Exceedance of standard	No exceedance							
Standard value	Daily average value $\leq 0.30 \text{ mg/m}^3$							

The monitoring value of TSP at all the 4 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	Xiaogaolianmeng primary school	China Railway 17 the bureau site	Wanqiu	Guabang school	Salian Village
January, 2006	48.9	48.6	53.7	58.2*	47.9
February, 2006	50.6	51.7	54.5	58.9*	52.1
March, 2006	52.1	53.8	57.3*	58.1*	50.2
April, 2006	52.7	49.2	53.4	58.5*	51.5
May, 2006	51.2	52.7	58.6*	58.7*	60.3*
June, 2006	53.7	55.3*	52.9	58.0*	53.8
July, 2006	51.9	51.5	53.6	58.5*	51.2
August, 2006	49.5	52.6	54.1	58.8*	50.1
September, 2006	50.3	53.3	53.5	57.6*	55.9*
October, 2006	54.1	51.7	51.3	57.2*	53.2
November, 2006	52.9	57.8*	56.6*	59.2*	51.3
December, 2006	51.5	54.0	52.2	58.3*	50.6
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 at the 4 monitoring spots, 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

Parameters Date & Locations		pH (dimensionless)		SS (mg/l)		CODcr (mg/l)		Petroleum (mg/l)	
		Once	Twice	Once	Twice	Once	Twice	Once	Twice
Dry season March	I	7.9	7.9	79	74	19.6	19.6	0.023	0.027
	II	8.15	8.17	47	43	15.3	15.5	0.021	0.029
Wet season August	I	8.01	7.82	232	206	19.8	19.2	None	None
	II	8.28	8.35	166	185	16.8	16.1	None	None
Average season November	I	7.95	7.78	88	103	14.3	14.7	None	None
	II	8.17	8.09	70	61	12.6	13.0	None	None
Whether meets the requirements?		reach		/		reach		reach	
Standard value		6-9		/		≤ 20		≤ 0.05	

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)*.

The construction is not intensive at monitoring sections in 2006 on the grounds of intermittent construction. In a word, from the overall results of 2006 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.