Environmental Monitoring Report

Project Number: 45507-003
October 2017

PRC: Yunnan Chuxiong Urban Environment Improvement Project – Environmental Monitoring Report (January – June 2017)

Prepared by Chuxiong Prefecture Project Management Office with the assistance of China Urban Construction Design & Research Institute Co., Ltd. for the Chuxiong Prefecture Government and the Asian Development Bank

Asian Development Bank

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1.0 ABBREVIATION

ADB	- Asian Development Bank
CDIC	- Chuxiong Development and Investment Company Limited
CPEMS	- Chuxiong Prefecture Environmental Monitoring Station
CPG	- Chuxiong Prefecture Government
CPPMO	- Chuxiong Prefecture Project Management Office
CPPLG	- Chuxiong Prefecture Project Leading Group
CSC	- Construction Supervision Company
CUCD	- China Urban Construction Design & Research Institute Co., Ltd
DRC	- Development and Reform Commission
EA	- Executive Agency
EEM	- External Environment Monitor
EMP	- Environmental Monitoring Plan
EMU	- Environmental Management Unit
EMR	- Environmental Monitoring Report
EIA	- Environmental Impact Assessment
EMS	- Environmental Monitoring Station
EPB	- Environmental Protection Bureau
FB	- Bureau of Finance
FSR	- Feasibility Study Report
GRM	- Grievance Redress Mechanism
IA	- Implementation Agency
LIEC	- Loan Implementation Environmental Consultant
LPMO	- Local Project Management Office
LPLG	- Local Project Leading Groups
LRB	- Land and Resources Bureau
LUCIC	- Lufeng Urban Construction and Investment Company
PB	- Planning Board
PCCU	- Project Complaints Coordinating Unit
PIC	- Project Implementation Consultant services
PIU	- Project Implementation Unit

PPTA	- Project Preparatory Technical Assistance
PPCU	- Project Public Complaints Unit
WUCIC	- Wuding Urban Construction and Investment Company
YPG	- Yunnan Provincial Government

2.0 INTRODUCTION

2.1 Report Purpose and Rationale

1. As required by the EIA for the Chuxiong Urban Environmental Improvement Project and the original EMP prepared under ADB project TA-7981-PRC, the borrower is required to prepare semi-annual EMRs for submission to the Chuxiong Prefecture Government and the ADB. This report is prepared by the Chuxiong Prefecture Project Management Office (CPPMO), with assistance from the LIEC, China Urban Construction Design & Research Institute Co., Ltd (CUCD). Environmental monitoring reports (EMRs) are required in order to evaluate and assess overall project activities to ensure the effective implementation of the environmental management plan (EMP).

2. The purpose of this Environmental Monitoring Report (EMR) is to document environmental management activities undertaken and environmental impacts as a result of project implementation, as well as identifying issues and suggesting corrective actions. This environmental monitoring report is the fourth semi-annual EMR, covering the period from January to June 2017.

3. This semi-annual EMR is intended to not only cover the construction phase, but also demonstrate compliance with the EMP for the design, bidding, construction preparation stages and physical construction phase. In line with targets aimed at reducing any negative environmental impacts of the Project, and in accordance with relevant specifications and standards of the PRC, and policies of the Asian Development Bank (ADB), this report emphasizes the following areas: (i) progress made in implementing the EMP, (ii) implementation of mitigation measures, (iii) environmental monitoring and compliance, (iv) institutional strengthening and training, (v) public consultation, and (vi) problems that have occurred and corrective actions taken.

2.2 Project Objective and Components

4. As the second and third tie level cities, the project cities of Chuxiong, Wuding and Lufeng face urban development challenges including high flood risks, poor urban living environment, inadequate urban infrastructure, low quality of municipal services, and lack of institutional capacity. Further assistance is needed to stimulate economic growth in these cities.

5. The Project aims at promoting balanced and environmentally sustainable urbanization and environmental improvement, as well as improving living conditions in these project cities. The Project will support (i) flood controls and environmentally friendly river rehabilitations; (ii) environmental and sustainable urban infrastructure development; (iii) city and town environmental health improvement; and, (iv) capacity development. The proposed project will promote local economic development and improve the urban living conditions, improving municipal services and infrastructures, improving urban environmental health and urban transport systems.

6. Project components include the development of Integrated Municipal and Environmental Services in each of the three Project cities – Chuxiong, Wuding and Lufeng, as well as support for the strengthening of management capacity and financial sustainability.

7. Component #1 – Chuxiong Urban Infrastructure and Environment Improvement:

   A. 9.4 kilometers (km) of Longchuan River flood protection and enhancement with improved 6.2-km river embankments, 202,505 m^2 landscaping, and installation of flood early warning system including a coordination center, 2 water/rainfall monitoring stations, 19 real-time monitoring cameras, and 4 flood warning broadcasting stations;

   B. 9.0-km urban roads with non-motorized traffic lanes, pedestrian and bicycle facilities;

   C. 19.0-km of water supply pipeline, 18.8-km of sewerage pipeline with 29 sewage interceptor facilities, 19.2-km of storm water pipeline, 9.0-km power supply, telecommunication cable networks and 2 street light maintenance vehicles;

   D. Installation of an integrated traffic control and traffic management system comprising traffic signal with traffic control system and monitoring camera; and

   E. 8 compaction type waste collection vehicles, 14 waste collection vehicles, 2,500 trash bins, 2,900 waste containers, 1 recycling machine for construction and demolition waste, 6 street sweeping vehicles, 2 high pressure street cleaning vehicles, 2 water spraying vehicles, 4 sewage collection vehicles, and 10 portable toilets.

8. Component #2 – Lufeng Urban Infrastructure and Environment Improvement:

   A. 2.0-km East and 4.1-km West river enhancement and flood protection with 12.2-km of river embankment protection, 290,336 m^2 of landscaping and installation of flood early warning system including a coordination center, 3 water/rainfall monitoring stations, 10 real-time monitoring cameras, and 3 flood warning stations;

   B. A storm water detention pond system with volume capacity of 68,135 m3;

   C. 7.5-km urban roads with non-motorized traffic lanes, pedestrian and bicycle facilities;

   D. 15.9-km of water supply pipeline, 15.5-km of sewer pipeline with 4 sewage interceptor facilities, 18.6 km of storm water pipeline, 7.5-km of power and telecommunication cable networks; and

   E. 4 compaction-type waste collection vehicles, 10 waste collection vehicles, 1 construction and demolition waste recycling machine, 10 street sweeping/dust collection vehicles, 1 high pressure street cleaning vehicles, 2 water spraying vehicle, and 2 sewage collection vehicles.

9. Component #3 – Wuding Urban Infrastructure and Environment Improvement:

   A. 2.6-km of Wulong River flood protection and enhancement through 5.2 km of river embankment protection, 54,572 m^2 of landscaping and installation of the flood early warning system including a coordination center, 7 water/rainfall monitoring stations, 10 real-time monitoring cameras, and 3 flood warning broadcasting stations;

B. A storm water detention pond with volume capacity of 16,884 m^3;

C. 9.4-km urban roads with non-motorized traffic lanes, pedestrian and bicycle facilities, and 1 street light maintenance vehicle;

D. 17.9-km of water supply pipeline, 13.4-km of sewer pipeline with 10 sewage interceptor facilities, 20.3-km of storm water pipeline, 9.4-km of power and telecommunication cables networks; and

E. 3 compaction type waste collection trucks, 4 mini waste collection & transport vehicles, and 1 street sweeping/dust collection vehicle, 1 movable toilet, and 198 waste containers.

10. Component #4 – Capacity Development and Institutional Strengthening:

A. Capacity building and institutional strengthening for Project management;

B. Expert support and advice on storm water management, municipal solid waste planning and management, urban transport management, and road safety; and

C. Public awareness activities including road safety and solid waste recycling; and training, seminars, workshops, and study tours on operation and maintenance, public financial management, and public participation and awareness raising activities.

2.3 Mid-Term Project Adjustments

11. At the ADB Mid-term Review Mission in March 2017, CPPMO submitted to ADB project adjustments, including a number of additional project proposals to meet the needs of the city of Chuxiong, and counties of Lufeng and Wuding.

12. The list of additional project includes 12 sub-projects, consisting of 6 civil works and 6 equipment packages.

A. Chuxiong city: one sub-project (CCX5: 2nd urban road of No.17) was cancelled influenced by the delay of resettlement; and two addition projects proposed, including urban intelligent transport system and new energy public transit buses .

B. Wuding county: nine addition projects are to proposed, 6 civil works including Wusi Road construction, Zhongxin Street upgrade, Municipal sewage collection networks, Sponge city demonstration in Northwestern district, Improvements to city street lighting, urban greening improvement, and waste transfer station renovation; 3 equipment packages covering new energy public transit buses, Urban intelligent transport system and equipment for solid waste collection system.

C. Lufeng County: one addition project – Urban intelligent transport system – was proposed in Lufeng County.

13. The international and national environment experts from the project's LIEC visited the sites, reviewed the FSRs and EIA documents, discussed with all relevant project agencies, including CPPMO, LPMOs, PIUs, consultants for FSR and EIA studies retained by respective project city/county in May and June, 2017. The addendum to EMP and the addendum to EIA are being prepared by the project's LIEC, and will be submitted as separate reports.

2.4 Project Implementation Progress

14. Project components include civil works in one city (Chuxiong) and two counties (Wuding and Lufeng) in the Province of Yunnan. Since the engagement of the CUCD as the LIEC, The CUCD has mobilized its project team early in 2014. International and national experts of the CUCD have conducted field visits and carried out detailed project assessment and a series of training and capacity development activities to all relevant agencies for EMP implementation.

15. Status of Contractor Engagement and Project Progress has been summarized in the following tables.

Table 2.1 Chuxiong City Urban Infrastructure & Environment Improvement Works

Status of Contractor Engagement

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Name of Contractor	Date of Contract signed	Name of EMS	Name of CSC
Chuxiong Development and Investment Company Limited (CDIC)	CCX1	1、Scope: 2958.165M urban road of No.11, with 40M red line width and 40KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities	Xinzhou Proprietary Corp.	Nov 20th, 2016	CPEMS /Yunnan Gaoke environmental Protection Co. Ltd	Kunming Construction Consulting & Supervising Co. Ltd
	CCX2&CCX3	1、Scope: 1397.89M urban road of No.10, with 36M red line width and 30KM/h speed; 1612.056M urban road of No.49, with 24M red line width and 20KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities.				
	CCX4	1、Scope: 1485M 1st urban road of No.17, with 60M red line width and 60KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water	China Railway Shanghai Engineering Bureau Corporation	Nov 27th 2015	CPEMS / Yunnan Gaoke environmental Protecti	Kunming Construction Consulting & Supervi

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Name of Contractor	Date of Contract signed	Name of EMS	Name of CSC
		pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities.			on Co.Ltd	sing Co. Ltd
	CCX5	1、Scope: 1471.165M 2nd urban road of No.17, with 60M red line width and 60KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities.	Cancelled by ADB			
	CCXR1&2	1、Scope: 9385M of Longchuan River flood protection and enhancement. 2、Content: Flood control channel design standards in a 10-year return; ecological management taken including emergent plants planting along embankment, urban green landscaping, recreation space, water and soil conversation, flood early warning system, and environmental improvement.	China No.6 Water Conservancy and Hydropower Engineering Co. Ltd	21st, Feburary, 2017	Yunnan Gaoke environmental Protection Co.Ltd	Yunnan Rundian Project Technology Consulting Co. Ltd
	CCXR3	1、Scope: 202505M^2 landscaping 2、Content: urban green landscaping, recreation space, and environmental improvement.				

Table 2.2 Chuxiong City Urban Infrastructure & Environment Improvement Works Status of Project Progress

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Status of Project Progress
Chuxiong Development and Investment Company	CCX1	1、Scope: 2958.165m urban road of No.11, with 40M red line width and 40KM/h speed. 2、Content: urban road, an integrated traffic control and traffic	The contractor mobilized on 1st December, 2016. Road cleaning and roadbed smoothing started on 15th, December. To June 30th,2017, the construction of surface cleaning and

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Status of Project Progress
Limited (CDIC)		management system, water supply, sewerage and storm water pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities	foundation treatment has been completed. Embankment and pipeline are being operated.
	CCX2&CCX3	1、Scope: 1397.89M urban road of No.10, with 36M red line width and 30KM/h speed; 1612.056M urban road of No.49, with 24M red line width and 20KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities.	Evaluating bidding report has been submitted to ADB on 20th March, 2017. However the bid was abandoned. So new bidding documents are being prepared.
	CCX4	1、Scope: 1485m 1st urban road of No.17, with 60m red line width and 60KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water pipelines, sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities.。	The contractor mobilized on November 30th,2015.Total excavation to 25th June, 2016 is 69,740 m^3. Amount of earth filled for road based is 310,889 m^3. Amount of water pumped is 38,000m^3. Amount of sludge pumped is 32,000m^3. Equipment mobilized includes excavator, loader, bulldozer, water pump and dump trucks. In coordination with the Underground Comprehensive Pipe Gallery Construction, the construction of CCX4 was in shutdown period from 25th June, 2016 to 31th December, 2016. It restarted on 18th March, 2017 and is to complete in the end of 2017. To June 30th,2017, subgrade engineering, culvert engineering, drainage engineering, and curb stone have been implemented.
	CCX5	1、Scope: 1471.165m 2nd urban road of No.17, with 60M red line width and 60KM/h speed. 2、Content: urban road, an integrated traffic control and traffic management system, water supply, sewerage and storm water pipelines,	The content of CCX5 is in the processing of adjustment for the resettlement of villages involved by CCX5 can't come to an agreement. The project has been cancelled by ADB.

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Status of Project Progress
		sewage interceptor, telecommunication cable networks and street light maintenance vehicles facilities.。	
	CCXR1&2	1、 Scope: 9385M of Longchuan River flood protection and enhancement. 2、 Content: Flood control channel design standards in a 10-year return; ecological management taken including emergent plants planting along embankment, urban green landscaping, recreation space, water and soil conversation, flood early warning system, and environmental improvement.	The contractor signed on 21st February 2017, and mobilized on 1st April, 2017. To 30th June 2017, earth excavation and rock excavation has been implemented. About 50% of earthwork backfilling has been finished, **30% of ..**, and 40% of ecological model framework has been done.
	CCXR3	1、 Scope: 202505M^2 landscaping 2、 Content: urban green landscaping, recreation space, and environmental improvement.	Bidding documents will be issued in August.

Table 2.3 Wuding County Urban Infrastructure & Environment Improvement Works Status of Contractor Engagement

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Contractor Name	Date of Contract signed	Name of EMS	Name of CSC
Wuding Urban Construction and Investment Company (WUCIC)	CWD1	1、Scope: Beichengdadao Road 2、Content: 1558.968M urban road of Beichengdadao Road, with 40M red line width.	Beijing Urban Construction Road & Bridge Co. Ltd.	24th,September, 2015	CPEMS/ Yunnan Fangyuan Technical Co. Ltd	Kunming Construction Consulting & Supervising Co. Ltd
	CWD2	1、Scope: Wuxu Road and Wuchan Road 2、Content: 848.305M urban road of Wuxu Road with 20M red line width; 1346.228M urban road of Wuchan Road with 20M red line width.	Beijing Urban Construction Road & Bridge Co. Ltd.	25th April, 2016		
	CWD3	1、Scope: Chengbei Raod and bypass 2、Content: 1267.981M urban road of Chengbei Road, with 32M red line width; 338.182M bypass roads (NO1 and NO2) with 15M red line width.	Beijing Xinchang Road & Bridge Co.Ltd.	22nd April, 2016		
	CWD4-1	1、Scope: Wuzheng Road 2、Content: 924.023M urban road of Wuzheng Road, with 20M red line width.	Yunnan Zhenghao Construction Engineering Co Ltd.	28th,August, 2015		
	CWD4-2	1、Scope: Mudan Road, Caiyuan Road, Binghe Road 2、Content: 1318.92M urban road of Mudan Road, with 30M red line width; 606.631M urban road of Caiyuan Road, with 24M red line width; 1183.468M urban road of Binghe Road, with 20M red line width.	Yunnan Zhenghao Construction Engineering Co Ltd.	29th October, 2016		
	CWDR1	1、Scope: a storm water detention 2、Content: a storm water detention with volume capacity of 16884 m^3.	Jiangsu Huaiying Water Conservancy Engineering Co Ltd.	12th ,March, 2017		
		1、Scope: Wulong River 2、Content: 2.6KM of Wulong River flood protection and enhancement through 5.2km of river embankment protection, and 54572m^2 of landscaping.				

Table 2.4 Wuding County Urban Infrastructure & Environment Improvement Works Status of Project Progress

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Status of Project Progress
Wuding Urban Construction and Investment Company (WUCIC)	CWD1	1、 Scope: Beichengdadao Road 2、 Content: 1558.968M urban road of Beichengdadao Road, with 40M red line width.	The contractor mobilized on December 8th, 2015. To date, construction on inspection well, sewerage and storm water pipeline has been implemented. 95% of Roadbed construction and electric tunnel construction has been implemented. 90% of bridge construction has been implemented.
	CWD2	1、 Scope: Wuxu Road and Wuchan Road 2、 Content: 848.305M urban road of Wuxu Road with 20M red line width; 1346.228M urban road of Wuchan Road with 20M red line width	The contractor mobilized in October. To date, 30% of water supply pipeline has been implemented; 83% of subgrade engineering has been implemented; 80% of sewerage and storm water pipeline has been implemented.
	CWD3	1、 Scope: Chengbei Raod and bypass 2、 Content: 1267.981M urban road of Chengbei Road, with 32M red line width; 338.182M bypass roads (NO1 and NO2) with 15M red line width.	The contractor mobilized in October. To date, 80% of subgrade engineering construction and sewerage and storm water pipeline has been implemented.
	CWD4-1	1、 Scope: Wuzheng Road 2、 Content: 924.023M urban road of Wuzheng Road, with 20M red line width.	The contractor mobilized on October 20th, 2015. The project was in shutdown period from July to September for the resettlement issues. The contractor remobilized on 18th October, 2016. To date, construction on subgrade engineering, sewerage and storm water pipeline, and inspection wells have been implemented. 90% of electric engineering has been implemented.
	CWD4-2	1、 Scope: Mudan Road, Caiyuan Road, Binghe Road 2、 Content: 1318.92M urban road of Mudan Road, with 30M red line width; 606.631M urban road of Caiyuan Road, with 24M red line width; 1183.468M urban road of Binghe Road, with 20M red line width.	The contractor mobilized in November, 2016. To date, construction on road cleaning has been implemented; 45% of subgrade engineering and 10% of sewerage and storm water pipeline has been implemented.
	CWDR1	1、 Scope: a storm water detention 2、 Content: a storm water detention with volume capacity of 16884 m3	The contractor mobilized in May, 2017. Preparation on campus construction and equipment setting has been done during the report period.
		1、 Scope: Wulong River 2、 Content: 2.6KM of Wulong River flood protection and enhancement through 5.2km of river embankment protection, and 54572m2 of landscaping.	

Table 2.5 Lufeng County Urban Infrastructure & Environment Improvement Works Status of Contractor Engagement

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Name of Contractor	Date of Contract signed	Name of EMS	Name of CSC
Lufeng Urban Construction and Investment Company (LUCIC)	CLF1	1、Scope: Zhuluojidadao Northern extension line 2、Content: 1000.933M urban road of Zhuluojidadao Northern extension line, with 40M red line width.	Henan Qiankun Road&Bridge Engineering Co. Ltd.	12th ,April, 2017	CPEMS / Yunnan Fangyuan Technical Co. Ltd	Yunnan Urban Construction Consulting & Supervising Co. Ltd
	CLF2	1、Scope: No.1 road and Jinshan South Road 2、Content: 1587.129M urban road of No.1, with 36M red line width; 1657.595M urban road of Jinshan South Road with 36M red line width.				
	CLF3&4 CLF4	1、Scope: Century Dadao extension line 2、Content: 1000.933M urban road of Century Dadao Extension line, with 36M red line width.				
		1、Scope: No 2 Road and No 3 Road 2、Content: 1409.542M urban road of No.2, with 24M red line width; 1000.55M urban road of No 3, with 32M red line width.				
	CLF5& CLFR2	1、Scope: a storm water detention pond 2、Content: a storm water detention pond system with volume capacity of 68135m^3.				
		3、Scope: river embankment protection and landscaping 4、Content: 12.2km of river embankment protection, and 290,336 m2 of landscaping.				
	CLFR1	1、Scope: East and West River enhancement 2、Content: 2.0KM East and 4.1KM River enhancement	Guangdong Dayu Water Resource Construction Co.Ltd	14th October, 2016		

Name of PIU	Civil works contract/ procurem ent	Nature of Civil works	Name of Contractor	Date of Contract signed	Name of EMS	Name of CSC
		and flood protection				

Table 2.6 Lufeng County Urban Infrastructure & Environment Improvement Works Status of Project Progress

Name of PIU	Civil works contract/ procuremen t	Nature of Civil works	Status of Project Progress
Lufeng Urban Construct ion and Investme nt Company (LUCIC)	CLF1	1、Scope: Zhuluojidadao Northern extension line 2、Content: 1000.933M urban road of Zhuluojidadao Northern extension line, with 40M red line width.	The contractor mobilized in May, 2017. To date, construction on surface cleaning has been implemented; excavation and backfilling construction from K0+600-K0+960 has been complemented.
	CLF2	1、Scope: No.1 road and Jinshan South Road 2、Content: 1587.129M urban road of No.1, with 36M red line width; 1657.595M urban road of Jinshan South Road with 36M red line width.	The bidding documents were ready to issue in the third quarter, and the contract plans to sign in the fourth quarter in 2017.
	CLF3&CLF 4	1、Scope: Century Dadao extension line 2、Content: 1000.933M urban road of Century Dadao Extension line, with 36M red line width.	The bidding documents were ready to issue in the third quarter, and the contract plans to sign in the fourth quarter in 2017.
		1、Scope: No 2 Road and No 3 Road 2、Content: 1409.542M urban road of No.2, with 24M red line width; 1000.55M urban road of No 3, with 32M red line width.	
	CLF5&CLF R2	1、Scope: a storm water detention pond 2、Content: a storm water detention pond system with volume capacity of 68135m3.	The bidding of the project implemented on 2nd June, 2017. The contract will be sign in August 2017.
		3、Scope: river embankment protection and landscaping 4、Content: 12.2km of river embankment protection, and 290,336 m2 of landscaping	
	CLFR1	1、Scope: East and West River enhancement 2、Content: 2.0KM East and 4.1KM River enhancement and flood protection	The contractor mobilized on 1st November, 2016. To date, construction on surface cleaning and excavation has been implemented. 除墙未回填外其余填方已完成，固床梁已完成，预制块安装完 15000 块，涵洞全部完成。Amount of

Name of PIU	Civil works contract/ procurement	Nature of Civil works	Status of Project Progress
			excavation was 24,200m^3. Construction on river trench excavation and stone replacement from K1+600 to K1+880, on foundation concrete from K1+620 to K1+280, on anti-erosive stone installing from K1+280 to K1+550 has been implemented. Construction on river trench excavation and stone replacement in the left side of the river from K0+400 to K0+780 has been implemented.

3.0 INSTITUTIONAL SETUP AND RESPONSIBILITIES FOR EMP IMPLEMENTATION AND SUPERVISION

3.1 Institutional Responsibilities for Environmental Management

16. The Chuxiong Yi Minority Autonomous Prefecture Government (CPG) is the Executive Agency (EA) of the project. The EA is responsible for communication with ADB, loan repayment, as well as supervision and guidance of the CPPMO, LPMOs and the Project Implementation Units (PIUs) for project implementation in three project city/counties. At the Prefecture level, CPG has established (i) the Chuxiong Prefecture Project Leading Group (CPPLG) to provide policy guidance and coordination, and (ii) Chuxiong Prefecture Project Management Office (CPPMO) to supervise and coordinate overall project implementation. The three participating city/county governments are the implementing agencies (IAs), and they have already established local project management offices (LPMOs) to supervise and coordinate overall implementation of subprojects in their respective cities.

17. Three project implementing units (PIUs) physically implement the subprojects on behalf of respective IAs

18. The updated EMP prepared by CUCD and approved by the ADB provides the following outline of institutional responsibilities for EMP implementation. Roles and responsibilities for major tasks as described in the EMP were assigned to each of the agencies involved in this project. The following table also provides linkage of between the parties.

Institutional Responsibilities for EMP Implementation

Name of Organizations	Roles and Responsibilities
Executing Agency (EA) – Chuxiong Yi Minority Autonomous Prefecture Government (CPG)	*Overall policy and project control - Responsible for project coordination with three project city/town's governments, liaison with ADB, financial management and administration.*
Chuxiong Prefecture Project Leading Group (CPPLG)	*Responsible for implementation of the entire project - Headed by the Vice Mayor and consists of senior staff from DRC, FB, EPB, HURDB, TB, LRB, and PB:* Coordinate and overlook project preparation and implementation; • Provide policy guidance during project implementation; • Facilitate interagency coordination.

Name of Organizations	Roles and Responsibilities
ADB Chuxiong Prefecture Project Management Office (CPPMO)	*Reporting to the CSPLG, supervise and provide overall management to ensure smooth project implementation:* • Responsible for all day-to-day management for project preparation and implementation; • Designate one environment specialist as EMP coordinator; • Communicate and coordinate with ADB for project management and implementation; • Monitors and reports on project implementation progress and prepares compliance monitoring to ADB; • Submit bidding documents, bid evaluation reports and other necessary documents to ADB for approval where necessary; • Procure and engage project management consulting service, including loan implementation environmental consultant (LIEC) to assist in supervision, tracking and reporting on EMP implementation of all subprojects; • Procurement of external environment monitor (EEM); • Compiling environmental monitoring reports prepared by the LPMOs for submission to ADB;
Implementing Agencies (IAs) - Governments of Chuxiong City, Lufeng County, and Wuding County	*Primary responsibility for project implementation of local project components in their jurisdictions, including finance and administration, technical and procurement matters, monitoring and evaluation, and safeguard compliance. Day-to-day activities delegated to LPMOs (see below)*
Local Project Leading Groups (LPLGs)	• *Overall coordination of project preparation and implementation:* • *Provide policy guidance during implementation:* • *Facilitate interagency coordination at the local level.*
Local Project Management Offices (LPMOs), established under IAs	*Responsible for all day-to-day management for project implementation:* • Communicate and coordinate with CPPMO for project management and implementation; • Establish environment management unit (EMU) within LPMOs; • Work with PIUs, ensuring EMP requirements are fully incorporated into bidding documents; • Establishment of a Grievance Redress Mechanism (GRM) with a dedicated Project Complaints Coordinating Unit (PCCU). • Supervise and monitor EMP implementation and prepare semi-annual reports to CPPMO (with support of LIEC); • Participation in capacity building and training programs;

Name of Organizations	Roles and Responsibilities
Project Implementation Units: • Chuxiong Development & Investment Co. Ltd (CDIC) • Lufeng Urban Construction Investment Co. (LUCIC) • Wuding Urban Construction Investment Co. (WUCIC)	*Ensuring successful implementation of project sub-components:* • Appoint one Environmental Specialist as EMP Coordinator; • Issue tenders for contractors & equipment with assistance of tendering agency; • Administer and monitor performance of contractors and suppliers; • Carry out construction supervision and quality control; • Contracting with local environment monitoring stations (EMS) to conduct environment impact monitoring work; • Procure and manage contract with construction supervision Companies (CSC) required for subproject implementation in accordance with PRC and ADB procedures and regulations; • Participate in capacity building and training programs; • Facility commissioning
Facility Operators • Water Resource Bureaus; • Urban Management Bureaus; • Transport Management Bureaus; • Traffic Police	*Ensuring successful ongoing operation and maintenance of the relevant subproject components:* • In conjunction with PIUs, conduct commissioning of the constructed facilities • O&M of completed facilities, including environmental management, monitoring and reporting responsibilities.

19. Under the overall leadership of the Chuxiong Prefecture Project Leading Group (CPPLG), the Chuxiong Prefecture Project Management Office (CPPMO) has the responsibility to supervise and coordinate all project activities for EMP implementation.

20. Specifically, participating project city/counties, i.e. governments of City of Chuxiong and counties of Wuding and Lufeng are the project implementation agencies (IAs). Each of the local IAs has established their respective local project management office (LPMOs) early 2014 to supervise and coordinate implementation of local project components.

21. Specific project implementation responsibilities in each of the participating city/counties have been assigned to local agencies as Project Implementation Units.

22. **Environment Staff within LPMOs, CPPMO and PIUs -** The LPMOs will have main EMP coordination responsibility. Therefore, each LPMO has established an **environmental management unit (EMU)** and designate a leader and an appropriate number of staff to coordinate environmental issues associated with each component, subcomponent and contract package.

23. The EMUs take charge of (i) coordinating the implementation of the EMP and developing implementation details; (ii) supervising the implementation of mitigation measures during project construction and operation; (iii) ensuring that environmental management, monitoring, and mitigation measures are incorporated into bidding documents, construction contracts and operation management plans; (iv) submitting quarterly EMP monitoring and progress reports to the CPPMO; (v) coordinating the local grievance redress mechanism (GRM); and (vi) responding to any unforeseen adverse impact beyond those mentioned in the domestic EIAs, the project EIA and the EMP. The EMUs is technically supported by the loan implementation

environment consultants (LIECs). The CPPMO and the PIUs will nominate one staff to act as environmental coordinator to check the overall implementation of environmental management provisions of the EMP.

24. **Loan Implementation Environment Consultant -** The LIEC retained under the project implementation consultant services (PIC) will advise the CPPMO, LPMOs, PIUs, contractors and CSCs on all aspects of environmental management and monitoring for the project. Specifically, the LIEC will:

A. Assist in updating the EMP and environmental monitoring program, as needed, following the detailed design of project components;

B. Guide the implementation of the mitigation measures specified in the EMP;

C. On behalf of the LPMOs and CPPMO, prepare the semi-annual EMP monitoring and progress reports in English;

D. Provide training to the CPPMO, LPMOs, PIUs, CSCs, in requirements of PRC's environmental laws, regulations and policies, ADB SPS 2009, EMP implementation, and GRM, etc. in accordance with the tentative training plan defined in Table 5-2;

E. Identify any environment-related implementation issues, and propose necessary corrective actions;

F. Undertake site visits as required.

25. **Construction Contractors** - Construction contractors will be responsible for implementing relevant mitigation measures provided in the EMP as part of the contract agreement for all construction activities under the supervision of the Construction Supervision Companies (CSCs) and PIUs. Construction contractors will also be responsible for conducting internal environmental monitoring. Where appropriate, the contractors may contract local environmental monitoring stations (EMS) or other suitably qualified agencies to provide monitoring services to assess potential environmental impacts that may result from construction activities.

26. **Construction Supervision Companies (CSCs)** - CSCs will be selected through the PRC bidding process by the PIUs. The CSCs will be responsible for supervising construction progress and quality, and EMP implementation at construction sites. Each CSC shall have at least one environmental engineer at each construction site to: (i) supervise the contractor's EMP implementation performance; and (ii) prepare the contractor's environmental management performance section in monthly project progress reports for submission to the PIUs and LPMOs.

27. **Environmental Monitoring Stations (EMS)** - The IAs will appoint the EMS of each project city/county to conduct periodic environmental impact monitoring during construction and operation in accordance with the environmental impact monitoring plan (Table 3-6 and Table 3-7).

3.2 Incorporation of Environmental Requirements into Project Contractual Arrangements

28. During this reporting period, CUCD reviewed and provided comments and suggestions in the drafting of contract bid documents as well as provided specific requirements for incorporation in bid and contract documents. As such, contract documents for all civil works contracts contains specific responsibilities, tasks and activities required for the proper

implementation of the EMP. By the end of June 2017, Chuxiong has issued 11 tender bids and signed 10 contract agreements.

Specific documents prepared for the implementation of EMP:

A. A separate document, "EMP Responsibilities for Contractor", was prepared that details the roles and responsibilities of all civil work contractors for the implementation of EMP.

B. Similarly, a similar document, "EMP Responsibilities for CSC", was also prepared that details the roles and responsibilities of all construction supervision companies for the implementation of EMP.

C. A 3rd document, "EMP Responsibilities for EMS", was prepared that details the roles and responsibilities of Environmental Monitoring Stations that are retained either by the local PIUs or civil works contractors. The document specifies various types of monitoring requirements, QA/QC procedures and requirements, sampling and analytical methods, monitoring media, e.g. air, surface or noise, analytical parameters, as well as reporting requirements and frequencies.

D. Monthly report submission schedule for each of the civil works contractor was prepared by CUCD; meanwhile, quarterly report submission schedule for LPMO was also prepared by CUCD, and transferred to LPMO. The detailed schedule will help contractors and LPMO submit relevant reports timely according to the requirements EMP.

E. A notification was issued by CPPMO basing on the existing environmental management problems arose during the implementing EMP. The notification re-clarified the responsibility of LIEC, EMP coordinator in CPPMO, environmental leader and coordinator in EMU; and performed the duties to the people. The notification unified the audit procedure and submission schedule for environmental report; unified the relevant matters of environmental monitoring during the construction phase and stressed the need to pay attention to the important matters in EMP.

29. CUCD has advised the CPPMO, all LPMOs and PIUs that the content of these specific documents must be fully incorporated into all bid documents and in the actual contract agreements to be signed with respective parties. It is also of critical importance that the bid prices from potential contractors, CSCs and EMS have taken into consideration of EMP requirements and the cost for EMP implementation is fully included in the total contract prices.

4.0 COMPLIANCE WITH PROJECT COVENANTS RELATING TO ENVIRONMENTAL MANAGEMENT

30. To date, all covenants in the Loan Agreement and Project Agreement have been executed as stipulated, while some are still to be enacted. A list of covenants and compliance status related to the environmental aspect is shown in the following table.

Compliance with Environment Related Project Covenants

Item	Environment Related Specific Covenants	Status of Compliance
1	CPG shall ensure, and cause the Project Implementing Agencies to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with: a) all applicable laws and regulations of the Borrower relating to environment, health and safety; b) the Environmental Safeguards; c) all measures and requirements set forth in the EIA, and the EMP, and any corrective or preventive actions (i) set forth in a Safeguards Monitoring Report, or (ii) subsequently agreed between ADB and CPG. CPG shall cause the Project Implementing Agencies to incorporate such respective mitigation and monitoring measures into the design and bidding documents and construction contracts.	Being complied with at each stage of project implementation
2	CPG shall ensure, and cause the Project Implementing Agencies to ensure that: a) no artificial structures will be constructed to impound water restricting free flow of flood waters in the project rivers, and b) no river sediment dredging is carried out unless a sediment management plan is developed, defining a minimum sediment treatment, transport, disposal and reuse and shared with ADB, and disclosed to affected people by environmental safeguards. CPG shall cause the Project Implementing Agencies to ensure that spoil and dredged material generated in the course of implementation of the Project is tested and disposed of in accordance with national and local laws and regulations, and that such disposal creates no significant risk of secondary pollution.	Being complied with at applicable stages of project implementation
3	CPG shall cause Chuxiong Prefecture Water Resource Bureau to review and adjust the operating procedures of the Qingshanzui Reservoir to ensure that the Longchuan River receives a minimum flow at all times in accordance with the reservoir operating rule on minimum flow provision as defined in reservoir EIA approved by the Ministry of Environmental Protection in 2005	Being compiled with
4	CPG shall cause the Project Implementing Agencies to implement the necessary noise mitigation measures along the Project roads in accordance with the requirements specified in the EMP and applicable national environmental protection regulations.	Being complied with at relevant stages of project activities
5	CPG shall make available, and cause the Project Implementing Agencies to make available, necessary budgetary and human resources to fully implement the EMP, (the RPs and the REMDP).	Being complied with at applicable stages of project activities

Item	Environment Related Specific Covenants	Status of Compliance
6	CPG shall ensure, and cause the Project Implementing Agencies to ensure that all bidding documents and contracts for Works contain provisions that require contractors to: a) comply with the measures relevant to the contractor set forth in the EIA and the EMP (to the extent they concern impacts on the respective affected people under the Environmental Safeguards, and any corrective or preventative actions set forth in (i) a Safeguards Monitoring Report or (ii) subsequently agreed between ADB and CPG; b) monitor relevant environmental impacts caused by the construction and installation activities and report to the supervising project management office of the Project Implementing Agencies; c) make available a budget for all such environmental measures; d) provide the Project Implementing Agencies with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the project that were not considered in the EIA and the EMP; e) adequately record the condition of roads, agricultural land, physical cultural resources and other infrastructure prior to starting to transport materials and construction; and f) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition as soon as possible and no later than the completion of construction.	Being complied with and all specific requirements are being incorporated in all bidding documents and contracts
7	CPG shall do, or cause the Project Implementing Agencies to do, the following: a) submit Safeguards Monitoring Reports to ADB in respect of implementation of and compliance with Environmental Safeguards and the EMP, annually during construction and the implementation of the Project and the EMP until the issuance of ADB's Project completion report unless a longer period is agreed in the EMP; and disclose relevant information from such reports to respective affected people under Environmental Safeguards promptly upon submission; b) If any unanticipated environmental risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA and the EMP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; c) No later than the date of award of Works Contract, i. Update the EMP, if necessary in order to fully take into account the final detailed design, and submit to ADB for its concurrence; ii. Engage a qualified and experienced external environmental expert, acceptable to ADB, to verify information produced through the environmental monitoring process, and to facilitate the carrying out of any verification activities; and iii. Contract licensed environmental monitoring agencies who conduct periodic environmental impact monitoring in accordance with the approved monitoring plan; d) Report any actual or potential breach of compliance with the measures and requirements set forth in the EMP promptly after	Being compiled with all items excluding the requirement of external environmental expert. The contract of EEM with CPPMO was terminated in 2016. The external monitoring was implemented by CPEMS, and LIEC helped CPPMO prepare semi-annual EMR to submit to ADB which is approved by the ADB environmental official.

Item	Environment Related Specific Covenants	Status of Compliance
	becoming aware of the breach.	
8	Safeguard Grievance Redress Mechanism - CPG shall ensure that separate safeguards grievance redress mechanisms acceptable to ADB are established in accordance with the provisions of the EIA and EMP at its project management office, within the timeframes specified in the relevant EIA and EMP to consider safeguards complaints.	Complied with – Grievance Redress Mechanism establish with full documentation and management procedure
9	Applicability of ADB Safeguard Policies – CPG shall ensure that the provisions of the EIA and EMP as well as any requirements under the Safeguards Policy Statement also apply to the portion of the Project to be financed by the Project Implementing Agencies and commercial banks.	Being complied with
10	Public Awareness – CPG shall cause the Project Implementing Agencies to undertake public awareness campaigns on the Project and its benefits, including but not limited to information related to the EMP, to be conducted through information disclosure, education and consultation, in both local dialect and Madarin.	Being complied with -

5.0 ENVIRONMENTAL MITIGATION MEASURES IMPLEMENTED IN THIS REPORTING PERIOD

31. There are 11 contracts were awarded, with 10 projects are on-going at present, and one projects just mobilized with no specific on-site activities yet during this reporting period.

A. China Railway Shanghai Engineering Bureau Corporation was awarded the contract of CCX4 sub-project in Chuxiong city and mobilized construction activities on November 30th, 2015. To June 2016, construction of roadbed including road cleaning, excavation, and filled, and road pavement has been implemented. In coordination with the Underground Comprehensive Pipe Gallery Construction at the same site, the construction of CCX4 was in shutdown period from 25th June, 2016 to 31th December, 2016. It restarted in March 18th, 2017.

B. Beijing Urban Construction Road & Bridge Co. Ltd. was awarded the contract of CWD1 sub-project in Wuding County and started construction on November 13th, 2015.

C. Yunnan Zhenghao Construction Engineering Co Ltd. got the bid of CWD4-1 sub-project in Wuding County and started works on 20th, October, 2015. The construction of CWD4-1 was in shutdown process from July to September, 2016 due to the resettlement problems.

D. Beijing Urban Construction Road & Bridge Co. Ltd. won the bid of CWD2 sub-project in Wuding County and mobilized in October, 2016.

E. Beijing Xinchang Road & Bridge Co.Ltd. was awarded the contract of CWD3 sub-project in Wuding County and started works in October, 2016.

F. Yunnan Zhenghao Construction Engineering Co Ltd. got the bid of CWD4-2 sub-project in Wuding County and started construction in November, 2016.

G. Guangdong Dayu Water Resource Construction Co.Ltd. got the bid of CLFR1 sub-project in Lufeng County and started construction in November, 2016.

H. Xinzhou Proprietary Corporation won the bid of CCX1 sub-project in Chuxiong City and mobilized in December, 2016.

I. China No.6 Water Conservancy and Hydropower Engineering Co. Ltd was awarded the contract of CCXR1&2 sub-projects in Chuxiong City and mobilized on 1st April, 2017.

J. Jiangsu Huaiying Water Conservancy Engineering Co Ltd was awarded the contract of CWDR1 (which includes CWD5- a storm water detention) and mobilized in May, 2017. No concrete activities have been done in June, 2017.

K. Henan Qiankun Road & Bridge Engineering Co. Ltd was awarded the contract of CLF1 and mobilized on 22nd April, 2017.

32. Mitigation measures taken by 10 contracts:

A. In terms of CCX1 (11Road), CCX4(the 1st urban road of No.17), CWD1 (Beichengdadao Road), CWD2 (Wuchan Road & Wuxu Road), CWD3 (Chengbei Road), CWD4-1 (Wuzheng Road), CWD4-2 (Mudan Road – Caiyuan Road – Binghe Road), CLFR1 (East- West River enhancement), CCXR1&2 (Longchuanjiang River enhancement), CWDR1(a storm water detention and Wulong River enhancement) and

CLF1(Zhuluojidadao Northern extension line), mitigation measures have been taken by the construction contractors in accordance with the requirement of the EMP. The construction contractors of CCXR1&2 and CLF1 have prepared the corresponding Construction site EMP (CS-EMP) based on the project EMP, and prepared the monthly progress reports from April to June, 2017. The construction contractors of CCX1, CWD1, CWD2, CWD3, CWD4-1, CWD4-2 and CLFR1 have prepared the monthly progress reports from January to June, 2017. And the construction contractor of CCX4 has prepared the monthly progress reports from March to June, 2017. Potential environmental impacts and the respective mitigation measures undertaken during this reporting period are described in the monthly progress reports.

B. The CSC of Chuxiong City Road Construction Project was awarded to Kunming Construction Consulting & Supervising Co. Ltd; the CSC of Chuxiong River enhancement was awarded to Yunnan Rundian Project Technology Consulting Co. Ltd. The CSC of Wuding County Road Construction and River Enhancement Project were awarded to Kunming Construction Consulting & Supervising Co. Ltd. And the CSC of Lufeng County Road Construction and River Enhancement were awarded to Yunnan Urban Construction Consulting & Supervising Co. Ltd. The CSCs supervised construction progress and quality, and EMP implementation at construction sites based on the project EMP. The CSCs have prepared monthly project progress reports at four construction sites to assess the contractor's EMP implementation performance from January to June, 2017.

C. The EMUs in the LPMO in Chuxiong City, Wuding and Lufeng counties have prepared the quarterly report to evaluate the mitigation measures taken by the construction contractors, and summarize the environmental impact monitoring results covering the 1st and 2nd quarterly report in 2017.

D. Potential environmental impacts and the respective mitigation measures undertaken by the contractors during this reporting period are summarized in the table 5.1. Some pictures were provided by the CSCs to illustrate the mitigation measures undertaken from figure 5.1 to figure 5.6.

Table 5.1- Summary of Potential Impacts & Implementation of Mitigation Measures

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
A. Preconstruction Phase			
	Establishment of environmental units at different levels of supervision	1. Establish an EMU in each of the LPMOs, including at least one environment specialist 2. Appoint environmental coordinators for EMP coordination within CPPMO and PIUs. Environmental coordinator at CPPMO: Sun Zuan (15987203968) EMU leader at LPMO in Chuxiong City: Li Guangli (13187658005) Environmental coordinator at LPMO in Chuxiong: Chen Lei (13312608823) EMU leader at LPMO in Wuding County:	1.Being complied with 2.Being complied with

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		Yang Youqing (18987803677) Environmental coordinator at LPMO in Wuding: Zhang Lei (15125781064) EMU leader at LPMO in Lufeng County: Liao Yuhong (13638773847) Environmental coordinator at LPMO in Lufeng: Chen Zhijuan (15969331480) Chen Dongyu (18008785393)	
	Updated EMP	3. Update mitigation measures defined in this EMP based on final detailed design, as needed, submit to ADB for disclosure. 4. In case of major change of project location (or additional physical component) that may cause substantial environmental impacts or involve additional affected people, IAs and PMOs should form an EIA team to conduct additional environmental assessment and also public consultation. The revised EIA reports should be submitted to relevant EPB and ADB for approval and disclosure. To determine whether the change is minor or major, City PMOs should consult with ADB.	3 & 4. No updated action taken
	Environmental monitoring stations	5. Prior to construction, engage EMS 6. Prepare a detailed environmental monitoring plan in accordance to monitoring plan defined in this EMP.	5. Being complied with 6. Being complied with
	Project Implementation Consultant Services (PIC)	7. Engage loan implementation environmental consultant (LIEC)	7. Being complied with
	External environment monitor (EEM)	8. Engage external environment monitor (EEM) to verify the project environmental performance and compliance with the EMP CPPMO signed a contract with Yunnan New Century Environmental Protection Sciences Co. Ltd in January, 2016. The contract was terminated in August, 2016. The external monitoring was implemented by CPEMS, and LIEC helped CPPMO prepare semi-annual EMR to submit to ADB which was approved by the ADB environmental official.	8. Being complied with
	Bidding and Contract Documents	9. Prepare environment section in the terms of reference for bidders; 10. Prepare environmental contract clauses for contractors, namely the special conditions (e.g., reference to EMP and monitoring table).	9. Being complied with 10.Being complied with
	EMP training	11. PIC, LIEC or invited environment specialists and/ or officials from the provincial EPB and the Prefecture EPB provide training on construction environmental management and implementation and supervision of	11. Being complied with

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		environmental mitigation measures to contractors and CSCs in accordance with training plan defined in this EMP.	
	Establish operational GRM	12. Establish a Project Public Complaints Unit (PPCU) in each LPMO; provide training for PPCU members and GRM access points; 13. Disclose the PPCU's phone number, fax, address, and email to the public on City EPB's website and on information boards at each construction site.	12. PPCUs have been established in Chuxiong, Wuding and Lufeng LPMO. 13. PPCU information has been disclosed through multi-media, i.e. website, an announcement poster.
	Environmental Conditions at construction site, as identified in the EMP	14. Each civil works contractor shall prepare a Construction site EMP (CS-EMP), based on this project EMP, to include the following plans: - Site drainage and soil erosion management; - Spill control and management; - Environmental, health & safety management plan; - Surface water protection; - Temporary traffic management; - Construction site access control;	14. Being complied with eight site EMPs of CCX1, CCX4, CCXR1&2, CWD1, CWD2, CWD3, CWD4-1, CWD4-2, CLF1 and CLFR1.
B. Construction Phase			
Air	Dust generated by construction activities	1. Spray water daily on construction sites and earth/material handling routes where fugitive dust is being generated; 2. Pay particular attention to dust suppression need 3. Cover materials during truck transportation, in particular for fine materials to avoid spillage or dust generation.	1. Being complied with (Figure 5.1) 2. Being complied with 3. Being complied with (Figure 5.1)
	Air emission from asphalt paving operation, & vehicles & machinery	4.Locate asphalt plants and mixers as far away as possible (at least 500 m downwind) from the nearest residential areas, and other sensitive receptors; 5. Store petroleum or other harmful materials in appropriate places with covering to minimize emission; 6. Maintain vehicles and construction machinery regularly to a high standard of efficient running and fuel-burning to ensure emissions from vehicle and construction machineries are in compliance with the PRC standards of GB18352-2005, GB17691-2005, GB11340-2005, GB2847-2005, and GB18285 -2005; and 7. Initiate a regular inspection and certification system for vehicle and equipment emission.	4. Being complied with 5. Petroleum is not on-site of CCX1, CCX4, CWD1, CWD2, CWD3, CWD4-1, CWD4-2 and CLFR1. Petroleum has been store safely on-site of CCXR1&2 and CLF1 (Figure 5.3). 6. Being complied with 7.Being complied with
Noise	Noise generated from construction activities	1. Ensure that noise levels from equipment and machinery conform to the PRC standard of GB12523-90, and properly maintain construction vehicles and machineries to	1. Being complied with 2. Piling equipment is far away from the sensitive

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		minimize noise; 2. Apply noise reduction devices or methods where piling equipment is operating within 300m of sensitive sites such as schools, hospitals and residential areas; 3. Locate sites for rock crushing, concrete-mixing, and similar activities at least 1 km away from sensitive areas; 4. To reduce noise at night, restrict the operation of machinery generating high levels of noise, such as piling, and movement of heavy vehicles along urban and village roads between 22: 00 and 06: 00 the next day in accordance with PRC regulations; 5. Take special precaution at construction sites that are close to such sensitive sites as schools, hospitals and office buildings. When construction activities are unavoidable during the school seasons, the use of heavy equipment will be restricted to weekends and non-class hours. 6. Place temporary hoardings or noise barriers around noise sources during construction, if necessary; 7. Monitor noise at sensitive areas at regular intervals (refer to the monitoring plan in the EMP). If noise standards are exceeded, equipment and construction conditions shall be checked, and mitigation measures shall be implemented to rectify the situation; and 8. Conduct monthly interviews with residents living adjacent to construction sites to identify community complaints about noise, and seek suggestions from community members to reduce noise annoyance. Community suggestions will be fully considered and addressed.	sites. 3. Being complied with 4. Being complied with 5. Being complied with 6. Being complied with （Figure 5.2） 7. Noise monitoring was conducted twice during the reporting period in Chuxiong City, Wuding and Lufeng County. 8. Being complied with (Figure 5.2)
Soil	Soil erosion	Develop and implement a Site Drainage and Soil Erosion Management Plan that responds to the SEPP (Site Erosion Protection Plan) approved by local Water Resources Bureau, and the project EIA. Measures shall include the following: 1.During road and bridge constructions, maintain slope stability at cut faces by implementing erosion protection measures such as terraces and silt barriers; 2.Stabilize all cut slopes, embankments, and other erosion-prone working areas while works are going on; 3.All earthwork disturbance areas must be stabilized within 30 days after earthworks have ceased at the sites;	1. Being complied with (Figure 53) 2. Being complied with (Figure 5.3) 3.Being complied with (Figure 5.3) 4. Being complied with

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		4.Minimize active open excavation areas during trenching activities and use appropriate compaction techniques for pipe trenches construction; 5.Provide temporary detention ponds or containment to control silt runoff; 6.Construct intercepting ditches and drains to prevent runoff entering construction sites, and divert runoff from sites to existing drainage; 7.Strip and stockpile topsoil, cover or seed temporary soil stockpiles; 8. Limit construction and material handling during periods of rains and high winds; 9. Properly slope or re-vegetate disturbed surfaces, such as compacted pipeline trenches and cut banks; 10. Protect slopes on both sides of bridges and culverts; 11. Plant grass to protect slopes, especially on sandy soil and terraced slopes; 12.Appropriately set up temporary construction camps and storage areas to minimize the land area required and impact on soil erosion;	5. Being complied with (Figure 5.3) 6. Being complied with (Figure 5.3) 7. Being complied with 8.Being complied with 9. Being complied with (Figure 5.3) 10.Being complied with 11.Being complied with (Figure 5.3) 12. Being complied with (Figure 5.3)
	Soil contamination	1. Properly store petroleum products, hazardous materials and wastes on impermeable surfaces in secured and covered areas, and use best management practices to avoid soil contamination; 2. Remove all construction wastes from the site to approved waste disposal sites; 3. Establish emergency preparedness and response plan (Spill Management Plan); 4. Provide spill clean-up measures and equipment at each construction site and require contractors to conduct training in emergency spill response procedures.	1.Being complied with （Figure 5.3）. 2. Being complied with 3..Being complied with 4.Being compiled with
Water	Impact on river hydrology by bridge construction	1.River bridge pier constructions (10 bridges - 2 in Chuxiong, 6 in Wuding, 2 for Lufeng) shall be conducted during the dry season; construction during the rainy season will be prohibited; 2. Foundation treatment and pier grouting come first in pier construction; and 3. Provide adequate opening for flood flow before the rainy season.	1. Being complied with – seven bridges were constructed during the dry season. 2. Being complied with 3. Being complied with
	Impact on river hydrology by river rehabilitation works	1. Coffer dam diversion will be set along the proposed rivers; and 2. River bank constructions shall be conducted during the dry season (from October to May), and construction during the rainy season shall be prohibited.	1. Being complied with (Figure 5.3) 2. Being complied with.
	Surface and	Contractors will be requested to implement the	

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
	groundwater pollution	following measures to protect surface and groundwater resources: 1. During bridge and river bank constructions, pump slurry to shore and properly dispose cutting materials; 2. Install sediment traps along river to minimize sediment runoff into rivers during earthworks; 3. Works on the river bed, including sediment dredging, shall not be conducted without prior assessment of environmental impacts, and dredged material management planning; 4. Develop contingency plans for control of oil and other dangerous substances (Spill Management Plan); 5. Collect wastewater from construction activities in sedimentation tanks, retention ponds, and filter tanks to remove silts and oil; 6.Equip all areas where construction equipment is being washed with water collection basins and sediment traps; 7. Fuel storage areas, maintenance shop and vehicle cleaning areas to be located at least 500m away from the nearest water body; 8. Storage facilities for fuels, oil, and other hazardous materials to be within secured areas on impermeable surfaces, and provided with bunds and cleanup installations; 9. Ensure that fuel suppliers are properly licensed. They shall follow proper protocol for transferring fuel and the PRC standard of JT3145-88 (Transportation, Loading and Unloading of Dangerous or Harmful Goods); 10. Locate labor camps at least 500m from ecologically sensitive receivers, such as rivers, residential areas and natural ponds, etc.; 11. Install eco-toilets and septic treatment and disposal systems at construction camps along with proper maintenance protocols; 12. The discharge of construction wastewater to the rivers will be prohibited; 13. Conduct water quality monitoring in the rivers and the natural ponds during construction in accordance with the EMP monitoring program to identify and confirm results of the impact assessment and effectiveness of adopted mitigation measures.	1. Being complied with 2. Being complied with (Figure 5.4) 3. Being complied with 4. Being compiled with 5.Being compiled with 6. No action 7. Being complied with 8. Not being involved. 9. Being compiled with 10. Being compiled with 11. Being compiled with CCXR1&2 and CLF1 (figure 5.4). 12.Being compiled with 13. Water sample was taken during reporting period in Wulong River, Caiyuan River, East-west River and Longchuanjiang River.
Solid Waste	Solid waste generated by construction activities and from workers' camps	1. Provide appropriate waste collection and storage containers at locations away from surface water or sensitive receivers; 2. Reach agreement with municipal waste collection services for regular collection of	1. Being complied with (Figure 5.5). 2. Being complied with 3. Being complied with.

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		waste prior to construction; 3. Properly remove and dispose of any significant residual materials, wastes and contaminated soils that remain on the ground timely during and after construction to designated sites. 4. Any planned paving or vegetating of the area shall be done as soon as the materials are removed to protect and stabilize the soil; 5. Burning of waste is strictly prohibited; 6. Provide sufficient garbage bins at strategic locations and ensure that they are protected from birds and vermin, and emptied regularly (using the municipal solid waste collection systems).	4. Being compiled with 5. Being strictly prohibited(Figure5.5) 6. Being compiled with
Flora and Fauna	Protection of vegetation, and fauna	1. Protect existing vegetation nearby construction sites; 2. Properly backfill, compact and re-vegetate pipeline trenches after pipeline installation; 3. Protect existing trees and grassland during road, bridge, river rehabilitation and pipeline constructions; where a tree has to be removed or an area of grassland disturbed, replant trees and re-vegetate the area immediately after construction; 4. Remove trees or shrubs only as a last resort if they impinge directly on permanent works or approved necessary temporary works; 5. In compliance with the PRC's forestry law, undertake compensatory planting of an equivalent or larger area of affected trees and vegetation; and 6. Use native plant species of local provenance will for replanting; 7. Take special precautions during and after construction for the protection of small animals, reptiles, and birds of common species that live in the vegetated roadside and riverside areas, medians, inner areas of bridges, and green areas	1.Being compiled with 2.Being compiled with 3. Being compiled with 4. Not being involved 5. Not being involved 6. Not being involved 7. Being compiled with
Socio-Economic impact	Impact on physical cultural resources	1.Contractors shall establish chance-find procedures for physical cultural resources; 2.If a new site is unearthed, work shall be stopped immediately and local BCR and the LPMO promptly notified, and construction will resume only after thorough investigation and with the permission of the appropriate authority	1. Being compiled with 2. No physical cultural resources found right now
	Community Health & safety	The civil work contractors shall implement the following measures to ensure community health and safety during construction: 1. Develop and implement temporary traffic control and operation plan, to be cleared by local traffic management administrations before construction. The plan shall include provisions	1. Being compiled with

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		for diverting or scheduling construction traffic toavoid morning and afternoon peak traffic hours, regulating traffic at road crossings, selecting transport routes to reduce disturbance to regular traffic, reinstating roads, and opening them to traffic as soon as the construction is completed; 2. Conduct underground facilities survey and protection to avoid disturbances to utility services, where needed. 3. Disclose information to residents and businesses in advance through media of the construction activities, given the dates and duration of expected disruption; 4. Ensure that construction sites are well protected but placing clear signs at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc., and raising awareness on safety issues. All sites shall be secured, disabling access by members of the public through appropriate fencing whenever appropriate	2. Being compiled with 3.Being compiled with 4. Being compiled with (figure 5.6)
	Occupational health and safety	Each civil works contractor shall develop and implement an environmental, health and safety management plan (EHSMP) which shall include the following provisions: 1. Provide a clean and sufficient supply of fresh water for construction sites and for all camps, offices and workshops; 2. Provide an adequate number of latrines and other sanitary arrangements at construction sites and work camps, and ensure that they are cleaned and maintained in a hygienic state; 3. Garbage receptacles at construction site and camps will be setup, which will be periodically cleared to prevent outbreak of diseases; 4. Provide personal protection equipment, such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection, in accordance with relevant health and safety regulations for workers; 5. An emergency response plan in case of accidents and emergencies will be prepared, including environmental and public health emergencies associated with hazardous material spills and similar events. This plan shall be submitted to the local EPBs for review and appraisal. Emergency phone link with hospitals in the three project towns will be established. A fully equipped first-aid base at each construction camp will be organized;	1. Being compiled with (figure5.6) 2. Being compiled with (figure 5.4) 3. Being compiled with (figure 5.5) 4. Being compiled with (figure 5.6) 5. Being compiled with 6. Being compiled with

Subject	Potential Impact	Mitigation Measures	Implementation Status & Compliance with EMP
		6. A records management system that will store and maintain easily retrievable records protected against loss or damage will be established. It will include documenting and reporting occupational accidents, diseases, and incidents. The records will be reviewed during compliance monitoring and audits; 7. Ensure that occupational health and safety matters are given a high degree of publicity to all persons regularly or occasionally on each construction site. Posters will be displayed prominently in relevant areas of the site; and 8. Train all construction workers in basic sanitation, general health and safety matters, and on the specific hazards of their work. 9. Implement SITs/HIV/AIDS and other communicable diseases awareness and prevention program to target the local community and construction workers.	7. Being compiled with (figure 5.6) 8. Being compiled with (figure 5.6) 9. Being compiled with (figure 5.6)

Figure 5.1 Mitigation measures undertaken at construction sites（Dust prevention）

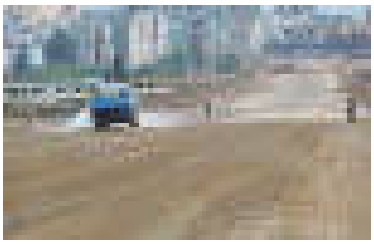
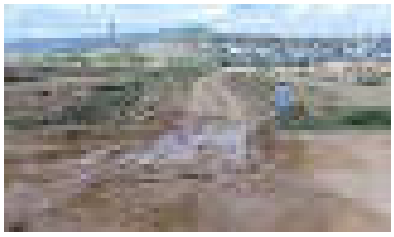
 CCX1-spray water	 CCX1-cover materials	 CCX1-cover materials
 CCX4-cover materials	 CCX4-spray water	 CCX4-spray water
 CCXR1&2- spray water	 CCXR1&2- cover materials	 CWD1- spray water
 CWD1- spray water	 CWD2- spray water	 CWD3-spray water

Figure 5.1 Mitigation measures undertaken at construction sites（Dust prevention）

CWD4-1- spray water



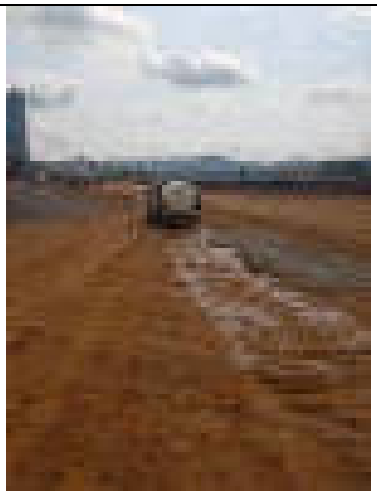
CWD4-1 spray water

CWD4-2 spray water

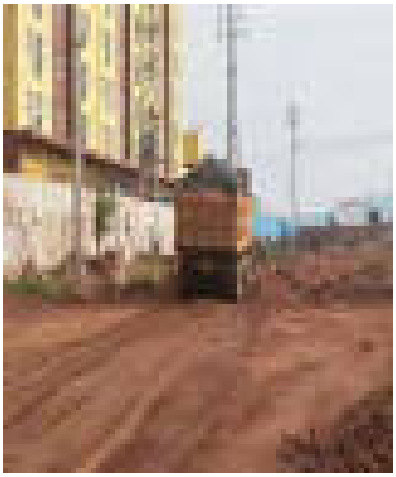
CWD4-2 cover materials

CLFR1 spray water

CLFR1- cover materials



CWD4-2 spray water



CLF1-cover materials

CLF1- spray water

Figure 5.2 Mitigation measures undertaken at construction sites（Noise alleviation）

CCXR1&2- Construction fence

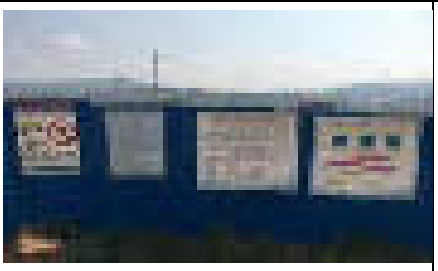
CCXR1&2-Construction fence

CCXR1&-Construction fence

CCX4- EMP board

CWD2-Construction fence

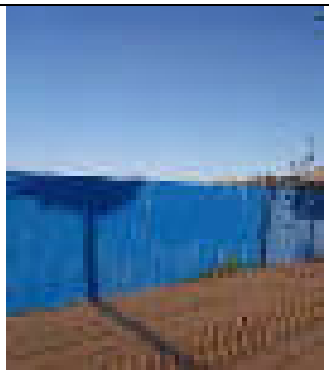
CWD3-Construction fence



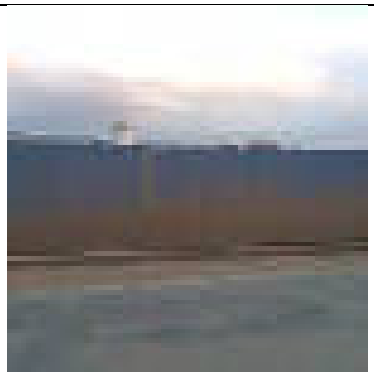
CWD3-GRM board

CWD3-Construction fence

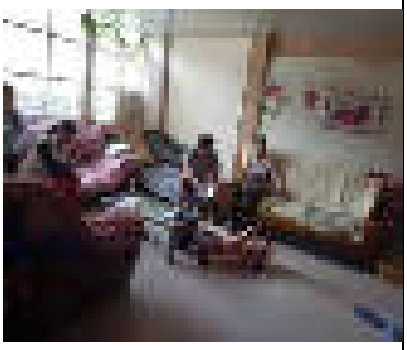
CWD3- Instrument maintenance



CLFR1-Construction fence



CLFR1-Construction fence

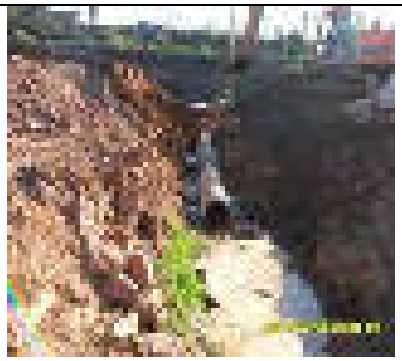


CCX1- interview with residents

 CCX4- interview with residents	 CCXR1&2- interview with residents	 CLFR1- interview with residents

Figure 5.3 Mitigation measures undertaken at construction sites（Water and Soil Conservation）

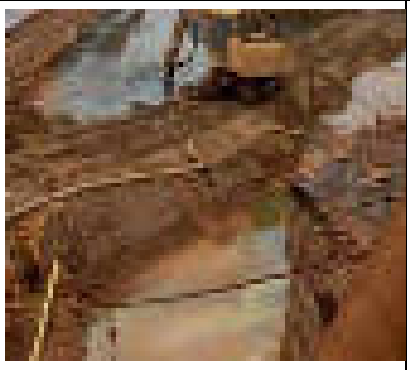
 CCX1- construct ditches	 CCX1 - stabilize roadbed	 CCX1- fill in pipeline
 CCX1- construct ditches	 CCX1Qinglong River Water Diversion	 CCX4- stabilize roadbed

 CCX4- stabilize the sewage ditches	 CCXR1&2-pile covering	 CCXR1&2- plant grass
 CWD1- construct ditches	 CWD2- construct ditches	 CWD3- stabilize roadbed
 CCXR1&2 stabilize roadbed	 CWD4-2 stabilize roadbed	 CWD4-2 stabilize roadbed
 CLFR1-slope stabilization	 CLFR1- construct drain pipe	 CLFR1-pile covering

 CLFR1- stabilize roadbed	 CLFR1- stabilize roadbed	 CLF1 construct drain pipe
 CLF1- pile covering	 CLF1- stabilize roadbed	 CLF1- stabilize roadbed

Figure 5.4 Mitigation measures undertaken at construction sites（Water Pollution Control）

 CCXR1&2- Fuel storage safely	 CCXR1&2- Fuel storage safely	 CCXR1&2- rent local house

 CCXR1&2- office eco-toilets	 CCXR1&2- construction eco-toilets	 CCXR1&2- Dam diversion
 CCXR1&2- Dam diversion	 CCXR1&2- Sediment trap	 CCXR1&2- Sediment trap
 CWD3- Gas station	 CWD4-2- Sediment trap	 CLFR1- septic treatment
 CLFR1- eco-toilets		

	CLFR1- Dam diversion	CLFR1- Dam diversion
 CLFR1- sediment trap	 CLFR1- sediment trap	 CLF1- Fuel storage safely
 CLF1- rent local house	 CLF1- eco-toilet	 CLF1- eco-toilet

Figure 5.5 Mitigation measures undertaken at construction sites（Solid Waste Collection）

 CCX1-Landfill pond	 CCX1- garbage bins	 CCXR1&2- garbage bins

 CCXR1&2- garbage bins	 CWD1- No burning marking	 CWD3- garbage bin
 CLFR1- garbage bin	 CLFR1- city waste storage bins	 CLFR1- garbage bin
 CWD4-1- garbage bin	 CLF1- garbage bins	 CLF1-waste storage container

Figure 5.6 Mitigation measures undertaken at construction sites（Community & Occupational health and safety）

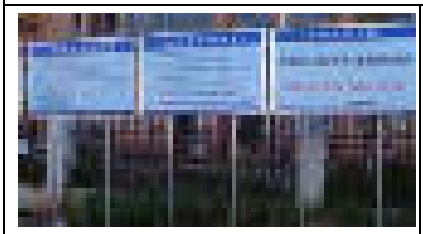
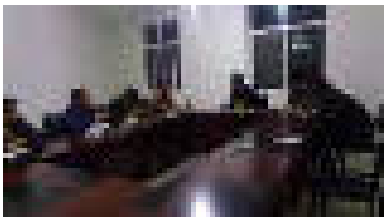
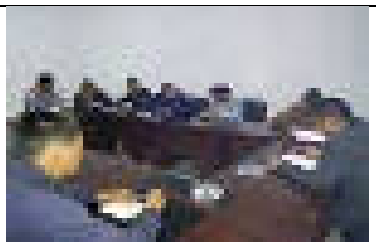
 CCX1- Environmental management board	 CCX1- Security warning signs	 CCX1 -Security warning signs

Figure 5.6 Mitigation measures undertaken at construction sites（Community & Occupational health and safety）

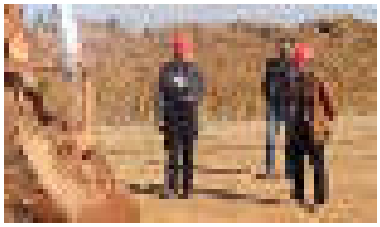


CCX1- health and safety meeting

CCX1- protection equipment



CCX1- health and safety meeting

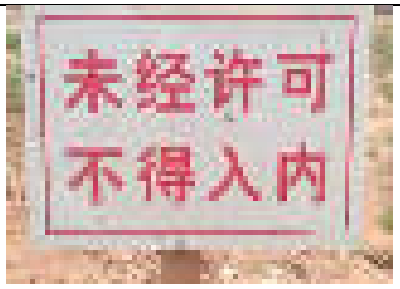


CCX1- Site inspection

CCX1- security warning sign

CCX4- Environmental management board

CCXR1&2- Security warning signs

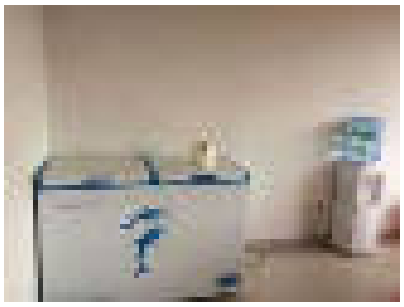


CCXR1&2- Security warning signs

CCXR1&2- Security warning signs

CCXR1&2- Security warning signs

CCXR1&2- Security warning signs



CCXR1&2- Drinking water

Figure 5.6 Mitigation measures undertaken at construction sites（Community & Occupational health and safety）

CCXR1&2- health and safety meeting

CCXR1&2- warning plan training

CCXR1&2- site safety meeting

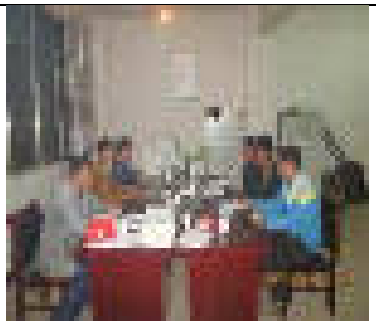
CCXR1&2- inspection meeting

CWD1- inspection

CWD1- Security warning signs

CWD1- site inspection

CWD2- Security warning signs



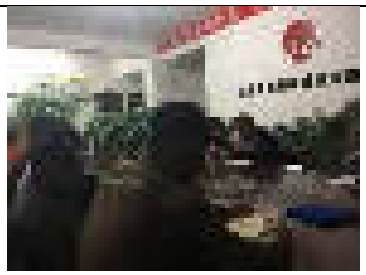
CWD2- site safety meeting

CWD2- Site inspection

CWD3- campus inspection

CWD3- Security sign

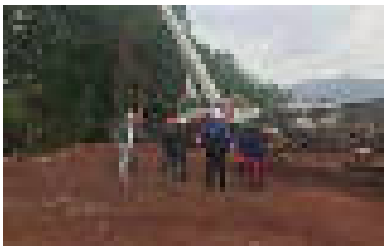
Figure 5.6 Mitigation measures undertaken at construction sites（Community & Occupational health and safety）



CWD3- Safety and healthy meeting

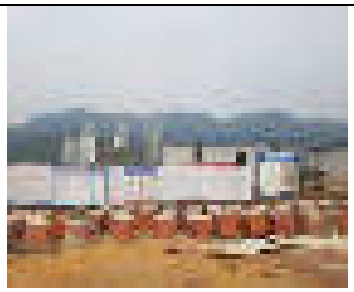
CWD4-1- Site inspection

CWD4-2- Security sign



CWD4-2- Site inspection

CLFR1- Campus



CLFR1- safety and EM signs

CLFR1- Protection equipment

CLFR1- Site safety meeting

CLFR1- Site safety meeting

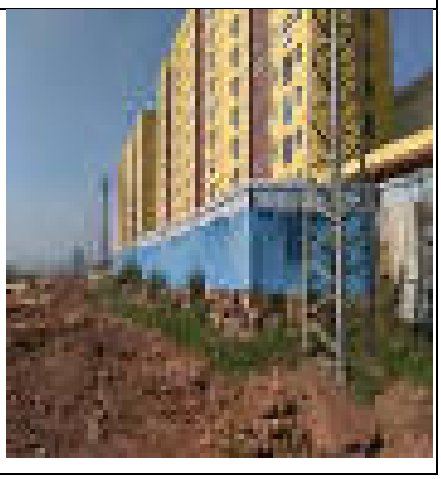
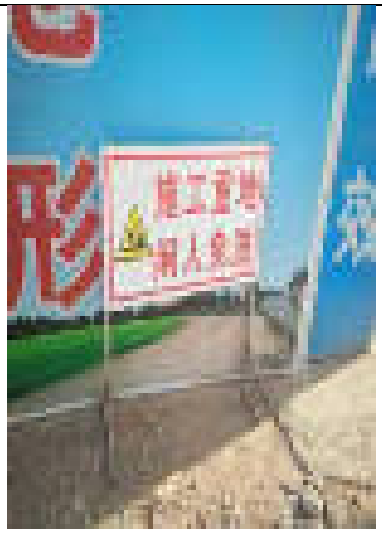


Figure 5.6 Mitigation measures undertaken at construction sites（Community & Occupational health and safety）		
CWD4-2- Security signs	CLF1- construction site fence	CLF1- construction site fence
 CLF1- construction site	 CLF1- fresh drinkging water	 CLF1- protection equipment
 CLF1- -warning signs	 CLF1-warning signs	 CLF1-warning signs
 CLF1- Medicine supply	 CLF1- Site safety meeting	 CLF1- healthy and safety training

6.0 SUMMARY OF ENVIRONMENTAL MONITORING

6.1 Monitoring Plan and Responsibilities

33. The environmental monitoring plan for this project is summarized in tables, 6.1-1, 6.1-2 and 6.1-3. The plan includes the scope of monitoring, monitoring media, monitoring parameters, and the frequency for each type of monitoring. Monitoring methods (table 6.1-4) follows those provided by the national standards in the PRC for pollution monitoring. Standard limits from national environmental quality standards and pollutant discharge and emission standards in PRC. Environmental Reporting Plan is listed in the table 6.1-5.

Table 6.1 – 1 Environmental Monitoring Program – Existing Environmental Condition

Subject	Parameter	Locations	Frequency
Surface Water	pH, DO,SS, NH_3-N, oil, COD_{Cr}, fecal coliforms, anionic surfactants, COD_{Mn}, BOD_5, TN, TP,	At each project bridge, 50m upstream, and 100m downstream, with GPS Coordinate identifier for sampling locations	Monitoring of Existing Environmental Conditions: Once per day for 3 consecutive days prior to commencement of site construction activities; once during the dry season
	pH, DO, SS, NH_3-N, oil, COD_{Cr}, fecal coliforms, anionic surfactants, COD_{Mn}, BOD_5, TN, TP, As, Cd	50m upstream, and 100m downstream of construction activities on project river.	
Air	TSP, SO_2, NO_x, PM_{10}	At all construction sites of Chuxiong Roads, Chuxiong River & Wuding & Lufeng (one point upwind, three points downwind)	Monitoring of Existing Environmental Conditions: Four times per day for 3 consecutive days; Once prior to commencement of construction activities.
Noise	LAeq	At the boundary of all construction sites in 4 directions (north, south, east & west) of Chuxiong Roads, Chuxiong River & Wuding and Lufeng, and sensitive receivers nearby (see Chapter IV-sensitive receivers within project area of influence)	Monitoring of Existing Environmental Conditions: Twice per day (once in day time and once at night time) for 2 consecutive days, Once prior to commencement of construction activities.

Table 6.1 – 2 Environmental Monitoring Program - Infrastructure Components

Subject	Parameter	Location	Frequency
Construction			
Surface water	pH, DO, SS, NH_3-N, oil, fecal coliforms, anionic surfactants, TN, TP, BOD5,	At each project bridge, 50m upstream, and	Impact Monitoring: Once per day, for 3 consecutive days, 4 times per

Subject	Parameter	Location	Frequency
	COD_{Mn}, COD_{Cr}	100m downstream	year during construction activities.
Air	Inspection of dust mitigation measures (water spraying, cover transport vehicles, etc.); and maintenance of vehicles and construction equipment	Visual inspection at all construction sites.	Internal Monitoring: weekly
			External Monitoring (At least twice per year) is updated by the ADB environmental official, which will be implemented by CPEMS.
	TSP, SO_2, NO_x	At all construction sites (one point upwind, three points downwind)	Impact Monitoring: Four times per day for 3 consecutive days, 4 times per year during construction phase.
	TSP, SO_2, NO_2, PM_{10}	sensitive receivers nearby (see Chapter IV-sensitive receivers within project area of influence)	For sensitive receptors, continuous monitoring of 24 hours for consecutive 3 days, 4 times per year during construction phase.
Noise	LAeq	At the boundary of all construction sites in Chuxiong, Wuding & Lufeng and sensitive receivers nearby (see Chapter IV-sensitive receivers within project area of influence)	Impact Monitoring: Twice per day (once in day time and once at night time) for 2 consecutive days, 4 times per year during construction phase.
Solid Waste	Garbage from work-camps and construction waste at construction sites	Visual inspection at all construction sites and work-camps	Internal Monitoring: weekly
			External Monitoring: Twice per year
Soil erosion, vegetation	Soil erosion intensity, re-vegetation	Visual inspection at borrow pit and spoil sites	Internal Monitoring: Random check after rainstorm (rainfall > 50mm)
			External Monitoring :twice per year and once after completion of construction
	Slope stability, topsoil stockpile and rehabilitation of construction sites	Visual inspection of all subgrade slopes and retaining walls, bridges, culverts	Internal Monitoring: At least four times per year
			External Monitoring: twice per year and once after completion of construction
	Compensatory plantings and re-vegetation of borrow pits,	Visual inspection at all disposal sites, borrow	Internal Monitoring: At least four times per year

Subject	Parameter	Location	Frequency
	spoil disposal sites and construction sites	pits and temporary occupied lands	External Monitoring : twice per year and once after completion of construction
Occupational health and safety	Work camp hygiene and safety, availability of clean water and emergency response plans	Inspection at all construction sites and work-camps	Internal Monitoring: Monthly
			External Monitoring: Twice per year

Table 6.1 – 3 Environmental Monitoring Programs – River Rehabilitation and Flood Control

Subject	Parameter	Location	Frequency
Construction Phase			
Construction wastewater	pH, SS, oil	At discharge points of all construction sites	Impact Monitoring: One sampling each day each time, twice per year
Work-camp domestic wastewater	pH, SS, NH3-N, COD_{Cr}, oil, fecal coliforms	At domestic wastewater discharge points of all work-camps	Impact Monitoring: One sampling each day each time, twice per year
Surface water	pH, DO, SS, NH3-N, COD_{Cr}, oil, anionic surfactants, TN, TP, BOD_5, COD_{Mn}, fecal coliforms , As, Cd	50m upstream, and 100m downstream of construction activities on project river.	Internal Monitoring: one sampling each day, 3 consecutive days, 6 times per year.
			Impact Monitoring: one sampling each day, two consecutive days, 4 times per year
Air	Inspection of dust mitigation measures (water spraying, cover transport vehicles, etc.); and maintenance for vehicles and construction equipment	At all construction sites	Internal Monitoring: At least six times per year
			External Monitoring : Twice per year
	TSP, SO_2, NOx	At all construction sites of Chuxiong, Wuding & Lufeng (one point upwind, three points downwind);	Impact Monitoring: Four times per day for three consecutive days, twice per year during construction phase.
	TSP, PM_{10}, SO_2, NO_2	Sensitive receivers nearby	For sensitive receptors, continuous monitoring of 24 hours for consecutive 3 days, 2 times per year during construction phase.
Noise	LAeq	At boundary of all construction sites in Chuxiong, Wuding & Lufeng in all four directions (north, south, east & west). Sensitive receivers nearby	Impact Monitoring: Twice per day (once in day time and once at night time) for 2 consecutive days, twice per year during construction phase.

Subject	Parameter	Location	Frequency
Soil erosion	Inspection of topsoil stockpile and construction site rehabilitation (e.g. compensatory plantings)	At all construction sites	Internal Monitoring: At least four times per year
			External Monitoring : Twice per year
Occupational health and safety	Inspection of hygiene status, availability of clean water and emergency response plans	At all construction sites and work-camps	Internal Monitoring: Monthly
			External Monitoring: Twice per year

Table 6.1 – 4 Standard Monitoring Methods of Ambient Air, Noise and Water

Media	Monitoring Parameter	Method (Standard No.)	Detection Limit	Standard Limit
Air	TSP	Gravimetric (GB/T15432-1995)	0.001 mg/m^3	0.30[1]
	PM_{10}	Traffic Sampling Gravimetric method from Air and Exhaust Air Monitoring and Analysis Method (4th Edition) issued by Ministry of Environmental Protection in 2003	0.001 mg/m^3	0.15
	SO_2	Formaldehyde absorbing-pararosaniline spectrophotometry (HJ 482-2009)	0.007-0.667 mg/m^3	0.15
	NO_x (NO_2)	N-(1-naphthyl)ethylene diamine dihydrochloride spectrophotometric method (HJ479-2009)	0.024-2.0 mg/m^3	0.12
Noise	Equivalent Continuous A Sound (Leq)	Acoustimeter Method (GB12524-90)	0.5	60/55 (day);
				50/45 (night)[2]
Surface water	pH[a]	Glass electrode method (GB6920-86)	0.02 pH	6-9[3]
	COD_{Mn} [a]	Permanganate index (GB11914-89)	0.5 mg/L	10
	Petroleum [a]	Infrared spectra photograph (HJ 637-2012)	0.01 mg/L	0.5
	SS [a]	Gravimetric method (GB11901-89)	4 mg/L	250
	Fecal coliforms[a]	Manifold zymotechnics and filter membrane (HJ/T 347-2007)	10 no./L	20000
	DO[b]	Iodometry (GB7489-87)	0.2 mg/L	3
	COD_{cr} [b]	Permanganate index (GB11914-89)	10 mg/L	30
	NH_3-N[b]	Nessler's reagent spectrophotometric method (HJ535-2009)	0.05 mg/L	1.5
	anionic	Methylene blue spectrophotometric	0.05 mg/L	0.3

Media	Monitoring Parameter	Method (Standard No.)	Detection Limit	Standard Limit
	surfactants [b]	method(GB7494-87)		
	BOD_5[c]	Dilution and inoculation test (HJ505-2009)	2 mg/L	6
	TN [c]	Alkaline potassium persulfate digestion ultraviolet spectrophotometry (HJ 636-2012)	0.05 mg/L	1.5
	TP [c]	Ammonium molybdate spectrophotometric method(GB11893-89)	0.01 mg/L	0.3
	As [c]	Diethyl dithio carbamic acid-Ag Spectrophotometry (GB7485-87)	0.007 mg/L	0.02
	Cd[c]	Atomic absorption spectrophotography (GB7467-87)	0.001 mg/L	0.005

Notes:

[1] All the air parameters are Grade II ambient air standard (daily average).

[2] Grade II and I standard, respectively (Grade I applying to the suburb area).

[3] All the water parameters are Class IV standard, as project river quality for all rivers within the project have Class IV protection target.

[a] Original water parameters in the EMP table 5

[b] Additional water parameters required by EMP Tables 7 & 8.

[c] Additional surface water monitoring parameters required in the approved Chinese Project EIA document.

Table 6.1 – 5 Environmental Reporting Plan

Report	From	To	Frequency of Reporting
A. Construction Phase			
Progress reports	Contractor/CSCs	LPMOs	Monthly
Environmental impact monitoring reports	Local EMSs	LPMOs, PIUs	Quarterly
EMP monitoring and progress report	LPMOs, PIUs	CPPMO	Quarterly
EMP monitoring and progress report	CPPMO, LIEC	ADB	Semi-annually
Environmental acceptance monitoring and audit reports	Licensed institute	City/county EPBs, CPPMO, IAs, PIUs, ADB	Within three month after component completion

34. Environmental Monitoring Performed by Environmental Monitoring Station:

A. Chuxiong Prefecture Environmental Monitoring Station was retained to conduct the existing environmental monitoring, environmental impact monitoring (to 31st March, 2017) accordance with EMP monitoring program, a detail environmental monitoring plan was developed by the Chuxiong prefecture EMS with the help from LIEC.

B. Environmental monitoring for existing environmental conditions of project sites in Chuxiong city, Wuding County and Lufeng County were carried out by the Chuxiong prefecture Environmental Monitoring Station (CPEMS) in order to gain an understanding of the background information in accordance with the EMP monitoring program, meanwhile considering the monitoring platform at the prefecture level superior to the County level.

C. Prior to commencement of site construction activities, CPEMS carried out existing environmental condition monitoring which covered air, noise and surface water quality in Chuxiong Road construction site, Wuding site, Chuxiong River Enhancement site and Lufeng site on 10th-12th November, 2015, 2nd-4th December 2015, 17th -22nd February, 2016, and 19th-21st July, 2016, respectively. The requirements of monitoring parameters, sampling sites and frequency are listed in table 6.1-1. The first two results have been discussed in the 1st semi-annual environmental monitoring report (EMR); the third one has been discussed in the 2nd semi-annual EMR; the fourth one has been discussed in the 3rd semi-annual EMR.

D. During this semi-annual reporting period, CPEMS conducted all environmental monitoring activities until March 31, 2017 in Chuxiong Road site, covering air, noise and surface water quality. Specific monitoring activities were undertaken from February 23rd to 25th, from June 21st to 23rd, 2016 and from February 20th to 22nd, 2017. There was no construction activities in Chuxiong in the 3rd quarter 2016, (CCX1 was mobilized in December 2016). As such, there was no need to conduct any environmental impact monitoring during the 3rd and 4th quarter. The requirements of monitoring parameters, sampling sites and frequency are listed in table 6.1-2. The results of 1st and 2nd quarter impact monitoring in 2016 has been discussed in the 2nd semi-annual EMR, and the result of 1st quarter impact monitoring in 2017 will be discussed in the section 6.2.

E. Until 31st March, 2017, for sub-projects in Lufeng, CPEMS carried out the 1st quarterly impact monitoring in 2017, covering air, noise and surface water quality, implemented on 7th -9th March, 2017. Since sub-project CLFR1 was mobilized in November 2016, there was no need to conduct impact monitoring during 4th quarter in 2016. The requirements of monitoring parameters, sampling sites and frequency are listed in table 6.1-2. The result of 1st quarter impact monitoring in 2017 will be discussed in the section 6.5.

F. Until 31st March, 2017, CPEMS carried out the 1st, 2nd, 3rd and 4th quarterly impact monitoring in 2016, and the 1st quarterly impact monitoring in 2017 in Wuding site, covering air, noise and surface water quality. Specific monitoring activities were conducted from 8th-13th March, 24th-29th May, 20th-23rd September, 21st -24th November, 2016 and 13th-16th February, 2017. The requirements of monitoring parameters, sampling sites and frequency are listed in table 6.1-2. The results of 1st and 2nd quarter impact monitoring in 2016 has been discussed in the 2nd semi-annual EMR, the results of

3rd and 4th quarter impact monitoring in 2016 has been discussed in the 3rd semi-annual EMR, and the result of 1st quarter impact monitoring in 2017 will be discussed in the section 6.7.

G. Affected by the newly announced State Policy on functions of government owned environmental monitoring stations, the CPEMS will no longer be able to conduct monitoring services for this Chuxiong Prefecture project (3115-PRC) starting April 2017. The LPMOs and PIUs in Chuxiong City, Wuding County and Lufeng County have to seek the third party with quality of monitoring to conduct the impact monitoring at the constructive sites. Yunnan Gaoke Environmental Protection Co. Ltd. was retained to conduct the impact monitoring at the Chuxiong Road construction site and Chuxiong Longchuanjiang river enhancement site; Yunnan Fangyuan Technical Co. Ltd was retained to conduct the impact monitoring at Wuding site and Lufeng urban road construction site, and Yunnan Chenqing environmental monitoring Co. Ltd was retained to conduct the impact monitoring at Lufeng River enhancement site.

H. During this report period, the 2nd quarter impact monitoring in 2017 was carried out Chuxiong Road site, Chuxiong Longchuanjiang River enhancement site, Lufeng urban road site and Wuding site by Yunnan Gaoke Environmental Protection Co. Ltd. and Yunnan Fangyuan Technical Co. Ltd, implemented on 12th -14th July, 14th -16th June, and 18th -20th June, 2017, covering air, noise and surface water quality. The monitoring results will be discussed in section 6.2, 6.3, 6.5 and 6.7.

35. **Environmental Monitoring Performed by Construction Supervision Company:** During this reporting period, three CSCs has been involved in the internal environmental monitoring, namely Kunming Construction Consulting & Supervising Co. Ltd. , Yunnan Urban Construction Consulting & Supervising Co. Ltd. and Yunnan Rundian Project Technology Consulting Co. Ltd. Kunming Construction Consulting & Supervising Co. Ltd. supervised the performance of contractors of CCX1,CCX4,CWD1,CWD2,CWD3,CWD4-1 and CWD4-2; and Yunnan Urban Construction Consulting & Supervising Co. Ltd. supervised the performance of contractor of CLFR1 and CLF1. Yunnan Rundian Project Technology Consulting Co. Ltd supervising the performance of contractors of CCXR1&2. According to requirement of EMP monitoring program as outlined in table 6.1-2 & table 6.1-3, CSCs need to do weekly visual inspection on dust mitigation measures (water spraying, cover transport vehicles etc), on maintenance of vehicles and construction equipment, for waste management activities at work-camps and construction waste at construction sites; they do monthly visual inspection on work camp hygiene and safety, availability of clean water and emergency response plans; they do quarterly visual inspection on slope stability, topsoil stockpile and rehabilitation of construction sites, on compensatory planting and re-vegetation of borrow pits, spoil disposal sites and construction sites; and they do random visual inspection on soil erosion intensity and re-vegetation after rainstorm. The CSCs have implemented weekly, monthly and quarterly visual inspection and prepared the monthly progress reports since the contractors mobilized.

36. **Environmental Monitoring Performed by Construction Contractor:**

A. During the reporting period, the construction contractor of CLFR1 conducted three surface water internal monitoring on 17th -19th January, 5th -7th April, and 28th -30th May 2017 according to the requirement of EMP. The monitoring was awarded to Yunnan Fangyuan Technical Co. Ltd which is a non-governmental third party impartial

inspection agency with China Metrology Accreditation (CMA) (Certification No: 2012250143U). The lab management and operation in Yunnan Fangyuan Technical Co.Ltd is strictly in accordance with international norms, and tests in the lab strictly follow the latest national accreditation standards. The monitoring report from the lab can be credible. The result of the 2nd, 3rd, and 4th internal monitoring report will be discussed in the section 6.6.

B. During the reporting period, the construction contractor of CCXR1&2 conducted one surface water internal monitoring on 7th -10th May 2017 according to the requirement of EMP. The monitoring was awarded to Yunnan Nuclear Industry Institute of 209 Geological Survey, which is a national enterprise with China Metrology Accreditation (CMA) (Certification No: 172516180004). The lab management and operation in Yunnan Nuclear Industry Institute of 209 Geological Survey is strictly in accordance with international norms, and tests in the lab strictly follow the latest national accreditation standards. The monitoring report from the lab can be credible. The result of the 1st internal monitoring report will be discussed in the section 6.4.

6.2 Summary and Assessment of Impact Monitoring Results of Chuxiong Urban Road Construction

37. CPEMS was retained to perform the 1st environmental sampling and monitoring in Chuxiong City project and reported monitoring results to PIUs accordingly. The 1st quarterly impact monitoring was conducted on 20th -23rd February 2017, covering air, noise and surface water quality. Sampling locations were listed in the table 6.2-1, including 4 boundary sites(No.1 to No.4) and 3 sensitive receivers(No.5 to No.7) for air monitoring, and 4 boundary sites(No.1 to No.4) and 4 sensitive receivers(No.5 to No.8) for noise monitoring, and 2 sites for water quality of No.11 Road crossing Qinglong River (No.10 and No.11).

38. The 2nd quarterly impact monitoring was conducted on 12th -14th July 2017 by Yunnan Gaoke Environmental Protection Co. Ltd, covering air, noise and surface water quality. Sampling locations were listed in the table 6.2-1, including 4 boundary sites(No.1 to No.4) for noise and air monitoring, 4 sensitive receivers(No.5 to No.7, and No.9) for air monitoring, 5 sensitive receivers(No.5 to No.9) for noise monitoring, of No.11 Road crossing Qinglong River (No.10 and No.11).

39. The parameters and frequency of environmental impact monitoring is summarized in Table 6.1-2. The 1st impact monitoring report of 10 sites are provided by CPEMS (see APPENDIX Ⅰ), and The 2nd impact monitoring report of 11 sites are provided by Yunnan Gaoke Environmental Protection Co. Ltd (see APPENDIX Ⅱ).

Table 6.2-1 Sampling locations for air, noise and water quality in Chuxiong Urban Road

NO	TYPE	Name	Longitude (° ′ ″)	Latitude (° ′ ″)	NOTE
No.1	Construction boundaries: air/noise	楚雄州特殊教育学校 Chuxiong Special School	101° 34′ 51″	24° 59′ 09″	South
No.2		绿化公司 Garden Company	101° 35′ 41″	24° 59′ 02″	North
No.3		意林苗圃 Plant Seedling Field	101° 36′ 16″	25° 00′ 11″	East

NO	TYPE	Name	Longitude (° ′ ″)	Latitude (° ′ ″)	NOTE
No.4		许杨三组 Xuyang Sanzu	101° 34′ 54″	25° 00′ 04″	West
No.5	Sensitive receiver: air/noie	杨基屯 Yangji Village	101° 34′ 57″	24° 59′ 24″	Sensitive Receiver
No.6		富民村 Fuming Village	101° 35′ 42″	24° 59′ 10″	Sensitive Receiver
No.7		鹿城中学 Lucheng Middle School	101° 35′ 46″	24° 59′ 56″	Sensitive Receiver
No.8		楚雄市职教园区 Chuxiong Vocational District	101° 34′ 24″	24° 59′ 19″	Sensitive Receiver
No.9		荷花村 Hehua Village	101° 34′ 49″	25° 00′ 10″	Sensitive Receiver
No.10	Water	11 号路与青龙河交叉处上游 50 米 50m upper-stream the intersection of Qinglong River and 11 Road	101° 35′ 12 ″	24° 59′ 23 ″	project bridge upper-stream 50m
No.11		11 号路与青龙河交叉处下游 100 米 100m down-stream the intersection of Qinglong River and 11 Road	101° 35′ 09 ″	24° 59′ 29 ″	project bridge down-stream 100m
No.12		10 号路与青龙河交叉处上游 50 米 50m upper-stream the intersection of Qinglong River and 10 Road	101° 35′ 57 ″	24° 59′ 26 ″	project bridge upper-stream 50m
No.13		10 号路与青龙河交叉处下游 100 米 100m down-stream the intersection of Qinglong River and 10 Road	101° 35′ 52 ″	24° 59′ 28 ″	project bridge down-stream 100m

40. Air Quality Monitoring

A. Air Quality at the construction boundary

- The hourly concentration of SO_2, NO_x and TSP (four times per day for 3 consecutive days, and one hour each time) at northern, eastern, southern and western boundary of the construction site in Chuxiong Urban Road for the 1st and 2nd quarterly impact monitoring in 2017 was illustrated in Figure 6.2-1, Figure 6.2-2 and Figure 6.2-3.
- The hourly concentration of SO2 ranges between 0.007 mg/m^3 and 0.046 mg/Nm^3; the hourly concentration of NOx ranges between 0.006 mg/m^3 and 0.11mg/Nm^3; the hourly concentration of TSP ranges between 0.022 mg/m^3 and1.256mg/Nm^3.
- According to the Integrated Emission Standard of Air Pollutants (GB16297-1996), standard maximum emission of hourly concentration of SO_2, NO_x, and TSP are 0.4mg/m^3,0.12 mg/m^3 and 1.0 mg/m^3 respectively. The monitoring values of three parameters at three sites were less than the standard maximum emission values and the concentration of TSP at No.3 was exceeded the standard value by 2.3%-25.6% on 22nd and 23rd February, 2017.

- Conclusion: The emission of air pollutants at the three boundary sites (except No.3) was accordance with the standard maximum emission values during the 1st quarter,2017; and the emission of air pollutants at the four boundary sites was accordance with the standard maximum emission values during the 2nd quarter,2017.

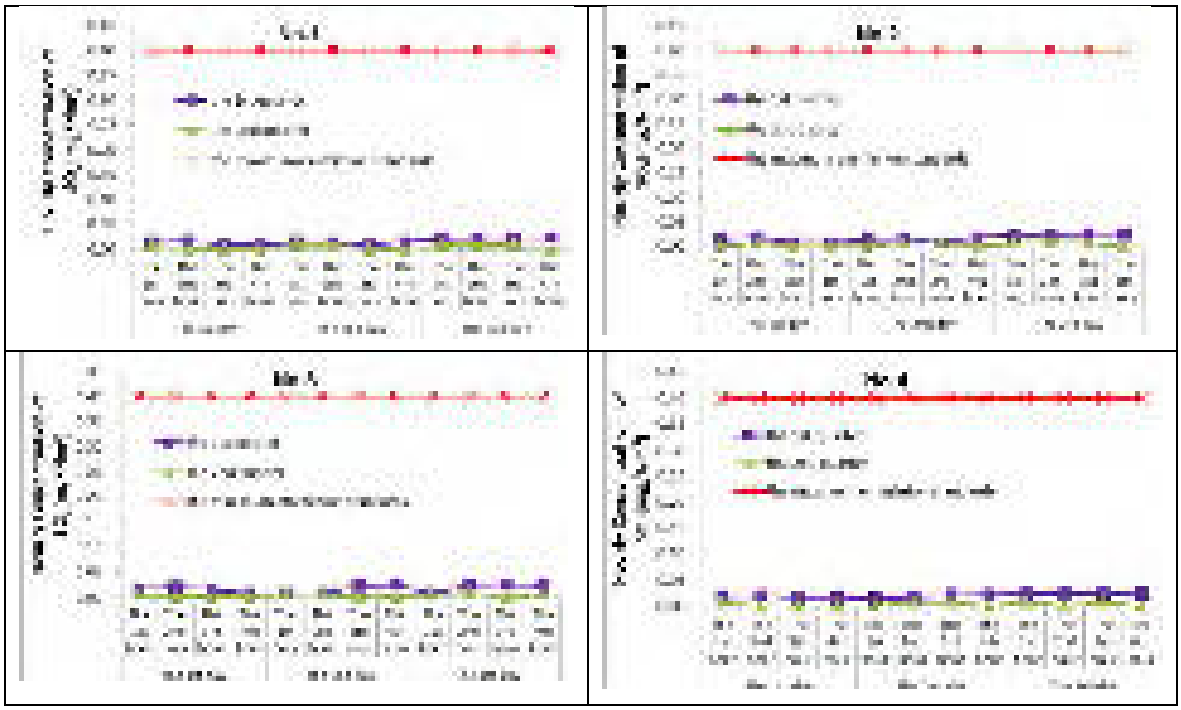


Figure 6.2-1 the hourly concentration of SO_2 at the boundary sites in Chuxiong Urban Road (January to June, 2017)

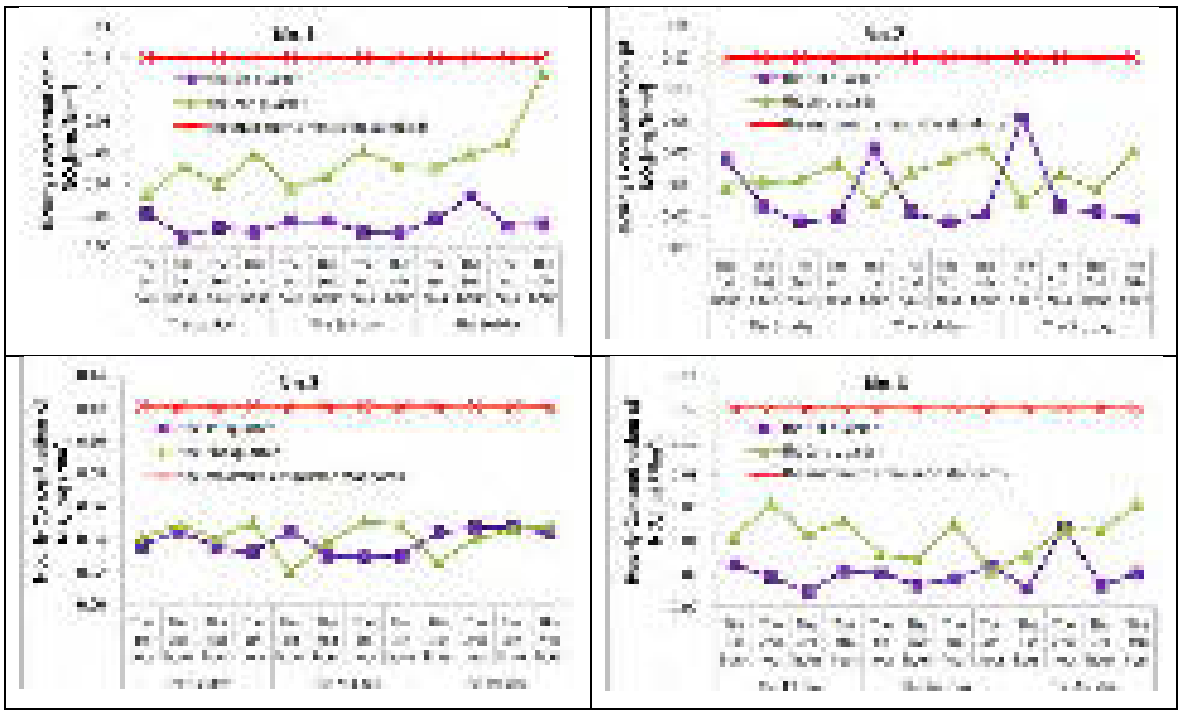


Figure 6.2-2 the hourly concentration of NO_X at the boundary sites in Chuxiong Urban Road

(January to June, 2017)

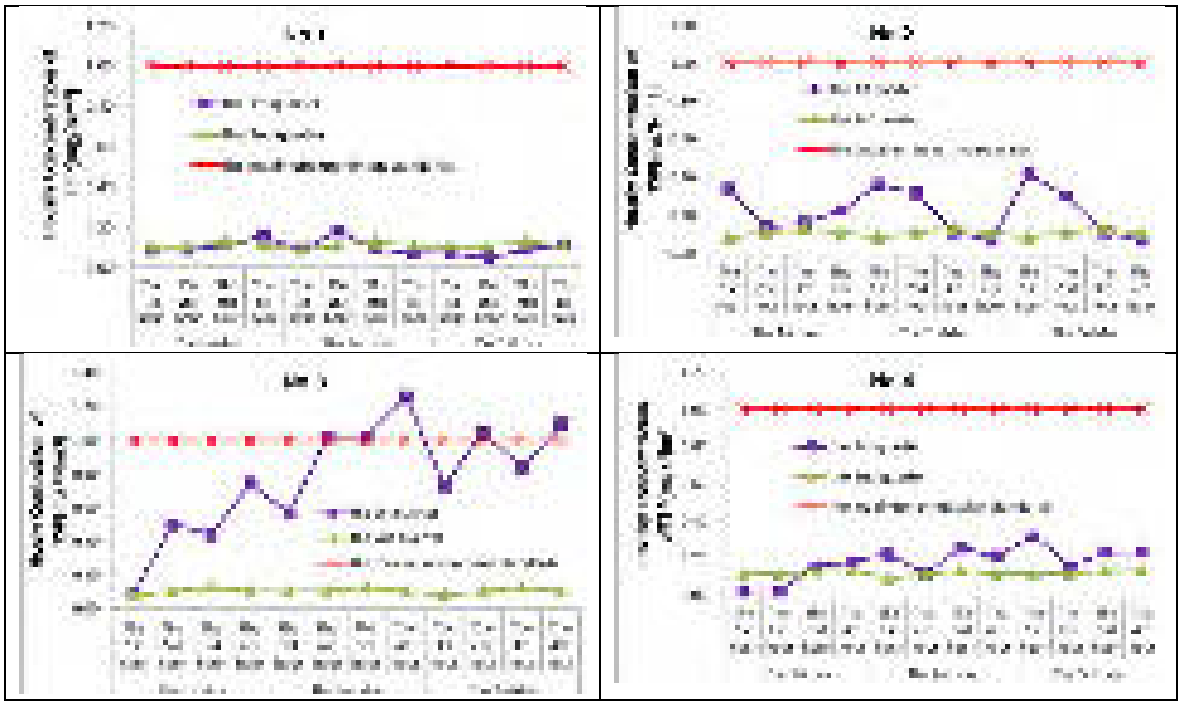


Figure 6.2-3 the hourly concentration of TSP at the boundary sites in Chuxiong Urban Road (January to June, 2017)

B. Air Quality at the sensitive receivers

- CCX4 restarted on 18th March, 2017. So one more sensitive receiver (No.9) was added in the 2nd quarter. Air quality was measured at 3 sensitive receivers (No.5 to No.7) in February and at 4 sensitive receivers (No.5 to No.7, and No.9) in July, 2017.
- The average 24hours concentration of SO_2, NO_2, TSP and PM_{10} (24 hours over three consecutive days) at the sensitive receivers was illustrated in Figure 6.2-4 during the reporting period.
- According to the *Ambient Air Quality Standard* (GB3095-2012), standard average 24hours concentration of SO_2, NO_2, TSP and PM_{10} are 150ug/m^3, 80ug/m^3, 300ug/m^3 and 150ug/m^3 respectively, for Grade II level. From Figure 6.2-4, the average 24hours concentration of SO_2, NO_2, TSP and PM_{10} at 2 sensitive receivers (No.5 and No.7) was less than the Grade II values, respectively, during the 1st quarter (in February, 2017); the average 24hours concentration of SO_2, NO_2, TSP and PM_{10} at 4 sensitive receivers (No.5, No.6, No.7, No.9) was less than the Grade II values, respectively, during the 2nd quarter (in July, 2017). The average 24hours concentration of PM_{10} at No.6 site was greater than the Grade II value by 6% on 23rd February, 2017.
- Conclusion: The ambient air quality at 2 sensitive receivers was accordance with the Grade II level, and the ambient air quality at No.6 site was beyond the Grade II level in terms of the pollutants of PM_{10} during the 1st quarter, 2017; during the 2nd quarter, the ambient air quality at 4 sensitive receivers was accordance with the Grade II level.

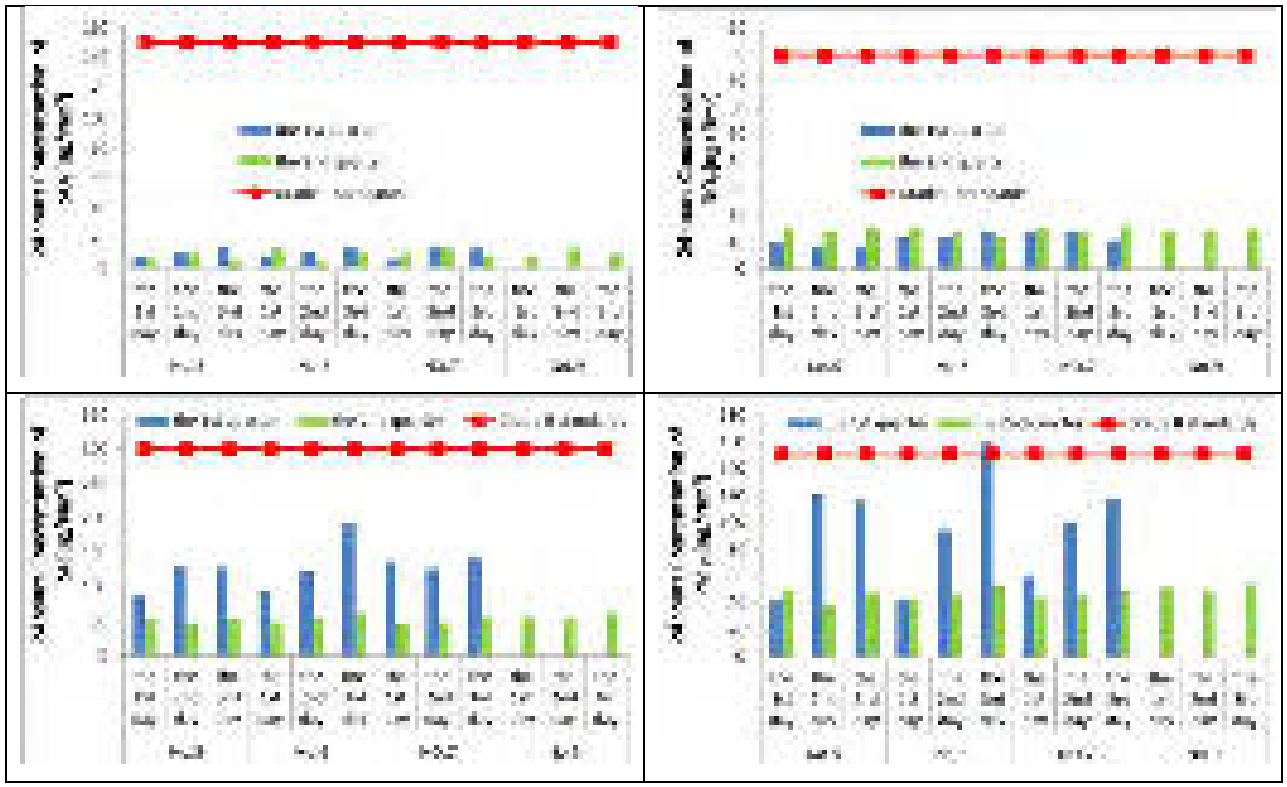


Figure 6.2-4 the average 24 hours concentration of SO_2,NO_2,TSP and PM_{10} at sensitive receivers in Chuxiong Urban Road site (January to June, 2017)

C. Summary

- Air quality of the four boundary sites and the sensitive receivers indicated the ambient air quality at No.3 and No.6 was beyond the standard values in terms of the pollutants of TSP and PM_{10} during the 1st quarter, 2017.
- A temporary municipal pile was set nearby the red line of No.11 road (CCX1), without covering or other measures. The concentration of TSP at No.3 and PM_{10} at No.6 may be influenced by the pile. Necessary measures should be taken into account in terms of the temporary municipal pile. Meanwhile, the water spraying mitigation measures should be strengthened at construction site during construction period, especially in dry season.

41. Noise Level Monitoring

A. Noise at construction boundary

- The daytime noise, the night-time noise over the consecutive two days at the four construction boundary sites in Chuxiong Urban Road site during the reporting period was illustrated in Figure 6.2-5.
- According to *Construction Site Noise Emission Standards* (GB12523-2011), the emission limit daytime noise and night-time noise are 70 dB (A) and 55 dB (A). From Figure 6.2-5, the daytime noise at the four boundary sites was less than the emission limit value during the reporting period; the night-time noise at the four boundary sites was less than the emission limit value during the 2nd period; and the night-time noise at three boundary sites (No.2, No.3 and No.4) was greater than the emission limit value by 1.8%-9.1% in the 1st quarter, 2017.

- Conclusion: during the 1st quarter, the noise environmental quality at No.1 site was accordance with the *Construction Site Noise Emission Standards* (GB12523-2011); night-time noise at No.2, No.3 and No.4 were beyond the standards. During the 2nd quarter, the noise environmental quality at the four boundary sites was accordance with the *Construction Site Noise Emission Standards* (GB12523-2011).

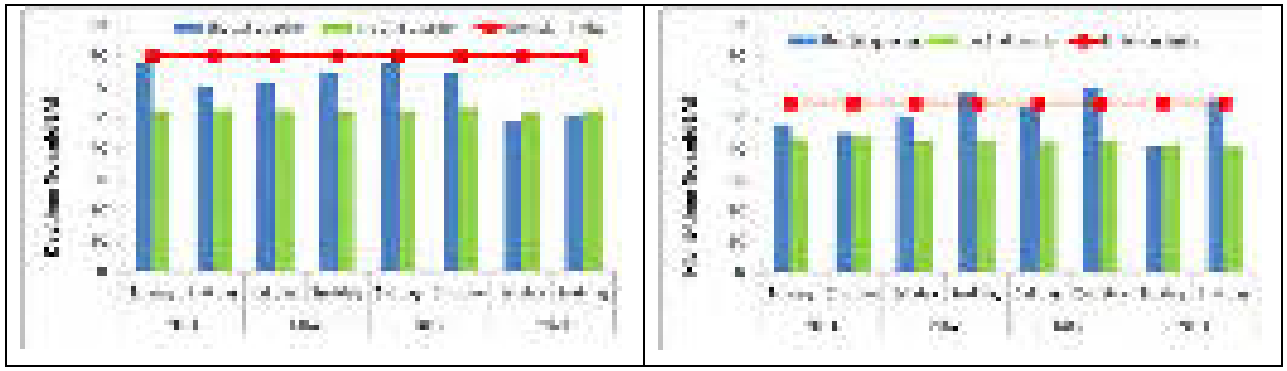


Figure 6.2-5 Noise at the construction boundary sites around Chuxiong Road site (January to June, 2017)

B. Noise at the sensitive receivers

- One sensitive receiver (No.7) was added during the 1st quarter noise monitoring, and one more sensitive receiver (No.9) was added during the 2nd quarter noise monitoring. Noise monitoring was conducted at 4 sensitive receivers (No.5, No.6, No.8, and No.9) pre-construction, at 4 sensitive receivers (No.5 to No.8) in February, and at 5 sensitive receivers (No. 5 to No.9) in July, 2017.
- The daytime noise and night-time noise at the sensitive receivers over two consecutive days for three phases (pre-construction, the 1st quarter, and 2nd quarter) were illustrated in Figure 6.2-6.
- Basing on *Environmental Quality Standard for Noise* (GB3096-2008), the standard daytime noise and night-time noise are 60 dB (A) and 50dB (A) respectively, for Grade II level. From Figure 6.2-6, during the 1st quarter, the daytime and night-time noise at No.6 was greater than the Grade II level by 13.3% and 2.0%, and the daytime noise at No.8 was exceeded the Grade II level by 1.7-8.3%.
- Conclusion: During the 1st quarter 2017, the noise at No.5 and No.7 was accordance with the Grade II level; the noise at 2 sites (No.6 and No.8) was beyond the standards. During the 2nd quarter 2017, the noise at 5 sites (No.5 to No.9) was accordance with the Grade II level.

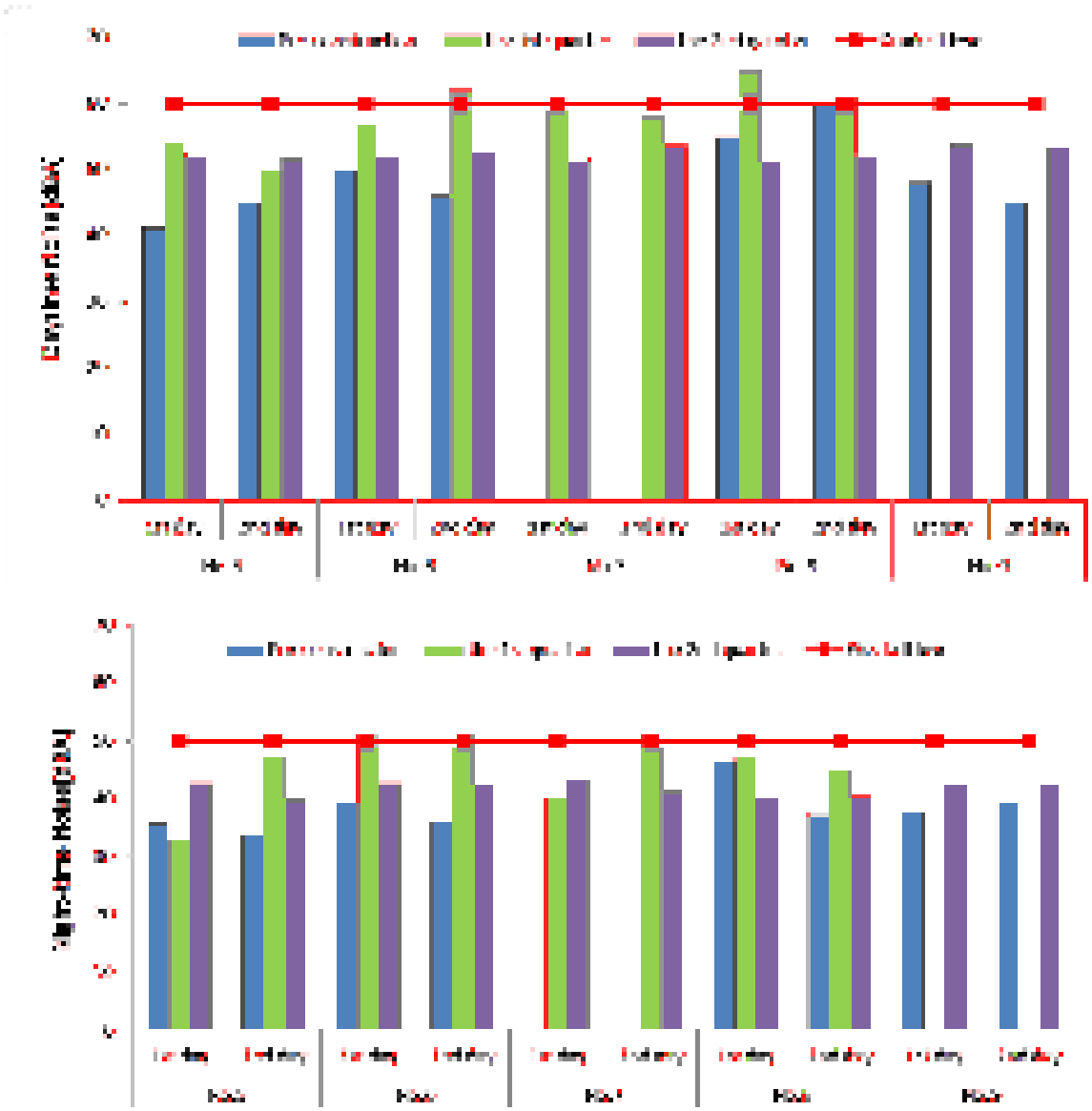


Figure 6.2-6 Noise at sensitive receivers in Chuxiong Urban road site during three phases (Pre-construction, the 1st quarter, and the 2nd quarter, 2017)

C. Summary

- Noise monitoring results at the construction boundary sites indicated that the noise at the boundary sites was possible influenced by the road construction at night.
- Noise monitoring results at the sensitive receivers the noise at 2 sites (No.6 and No.8) was possible influenced by the road contracts construction during the 1st quarter 2017.

42. Surface Water Quality Monitoring

A. Sampling sites: one bridge was to be built crossing the Qinglong River in terms of CCX1 during the 1st and 2nd quarter 2017; Water quality at two sites (No. 10 and No.11) was detected in the lab.

B. The concentrations range of 12 parameters over three days at the upper-stream and down-stream of the bridge were listed in the table 6.2-2, following with the standard values for grade IV level from Environmental Quality Standards for Surface Water (GB3838-2002), including pre-construction and the reporting period. According to the Yunnan Environmental Functional zoning, the surface water quality in the construction sites should be up to grade IV.

C. The monitoring results showed 1)During the pre-construction period, water quality at the two sites was beyond the Grade IV level in terms of the concentration of TN, NH3-N, fecal coliforms and BOD_5; 2)During the 1st quarter 2017, water quality at 2 sites was all beyond the Grade IV level in terms of the concentration of TN; 3)During the 2nd quarter 2017, water quality at the two sites was beyond the Grade IV level, in which the concentration of TN at the upper-stream and down-stream of bridge was beyond the standards, and the concentration of fecal coliforms at the down-stream of the bridge was beyond the standards.

D. The concentration of TN during the constructive period was less than the corresponding value during pre-construction period, and the concentration of NH_3-N and BOD_5 during the construction period was accordance with the standards of Grade IV level, which was much worse during the pre-construction period.

E. Conclusion: Although surface water quality at the two sites along the Qinglong River all exceeded the Grade IV level, the water quality of Qinglong River was not influenced by constructive activities of No. 11 Road.

Table 6.2-2 Comparison of daily concentration of 12 parameters and standard values for Grade IV at bridge crossing river sites (Pre-construction, the 1st quarter, and the 2nd quarter, 2017)

Parameter	Unit	Standard	Pre-construction		The 1st quarter		The 2nd quarter	
		(IV)	No.10	No.11	No.10	No.11	No.10	No.11
pH		6~9	7.30-7.38	7.41-7.51	7.84-7.90	7.56-7.81	7.5-7.7	7.5-7.8
anionic surfactants	mg/l	≤0.3	0.09-0.10	0.12-0.23	0.06-0.07	0.10-0.12	0.05L	0.05L
Oil	mg/l	≤0.5	0.013-0.025	0.013-0.014	0.02	0.02	0.04L	0.04L
SS	mg/l	-	4.0-5.0	4.0-8.0	4--5	4	119-129	183-322
COD_{Mn}	mg/l	≤10	5.1-5.4	5.2-6.0	3.2-3.7	3.2-3.8	6.0-6.6	5.0-6.3
TN	mg/l	≤1.5	**4.75-5.67**	**5.26-7.37**	1.44-**1.59**	**1.74-1.80**	**3.14-3.23**	**3.40-3.59**
NH3-N	mg/l	≤1.5	**3.14-3.91**	**2.83-6.02**	0.254-0.414	0.391-0.507	0.216-0.279	0.395-0.44
TP	mg/l	≤0.3	0.13-0.22	0.23-0.40	0.05-0.06	0.06-0.08	0.06	0.07-0.08
Fecal coliforms	mg/l	≤20000	**≥24000**	**≥24000**	3500-16000	5400-16000	16000-92000	**≥24000**
DO	mg/l	≥3	1.1-2.1	3.1-4.3	11.4-14.1	5.3-6.2	7.3-7.5	7.6-7.7
BOD5	mg/l	≤6	**6.9-7.7**	5.26-**7.37**	4.0-5.3	4.9-5.4	2.6-3.1	2.8-3.2

Parameter	Unit	Standard	Pre-construction		The 1st quarter		The 2nd quarter	
		(IV)	No.10	No.11	No.10	No.11	No.10	No.11
COD_{cr}	mg/l	≤30	21.0-21.4	26.0-28.3	14.1-14.5	14.6-16.8	15-16	14-15

6.3 Summary and Assessment of Impact Monitoring Results of Longchuanjiang River Enhancement site

43. Yunnan Gaoke Environmental Protection Co. Ltd was retained to perform the first semi-annual environmental sampling and monitoring in CCXR1&2 site and reported monitoring results to PIUs accordingly. The impact monitoring was conducted on 12th -14th July, 2017, covering air, noise and surface water quality. Sampling locations were listed in the table 6.3-1, including 4 boundary sites (No.1 to No.4) and 1 sensitive receiver (No.5) for air monitoring, and 4 boundary sites (No.1 to No.4) and 3 sensitive receivers (No.5 to No.7) for noise monitoring, and 2 sites for water quality at 50m upper-stream and 100m downstream of construction activities on Longchuanjiang River (No.8 and No.9).

44. The parameters and frequency of environmental impact monitoring is summarized in Table 6.1-3. The 1st impact monitoring report of 9 sites are provided by Yunnan Gaoke Environmental Protection Co. Ltd (see APPENDIX Ⅲ).

Table 6.3-1 Sampling locations for air, noise and water quality in Chuxiong Urban Road

NO	TYPE	Name	Longitude (° ′ ″)	Latitude (° ′ ″)	NOTE
No.1	Construction boundaries：air/noise	刘家村刘德仁家 Liu Deren house, Liu Jia Village	101°34′51″	24°59′09″	South
No.2		兴品农家乐 Xingping Farm Tour	101°30′21″	25°05′32″	North
No.3		东瓜庄张定灿家 Zhang Dingcai house, Dongguazhuang Village	101°30′46″	25°05′11″	East
No.4		东风山村 Dong Fengshan Village	101°31′ 44″	25°05′ 04″	West
No.5	Sensitive receiver：air/noie	汪官山村 Wangguangshan Village	101°31′ 33.13 ″	25°04′ 51.75 ″	Sensitive Receiver
No.6		大屯村 Datun Village	101°29′ 48.72 ″	25°07′ 01.76 ″	Sensitive Receiver
No.7		东瓜庄村 Dongguazhuang Village	101°30′ 44.73 ″	25°05′ 12.81 ″	Sensitive Receiver
No.8	Water	龙川江 CCXR1&2 项目区域上游 50 米 50m upper-stream at the starting of CCXR1&2 region	101°29′29 ″	25°06′56 ″	Project upper-stream 50m
No.9		CCXR1&2 项目区域终点下游 100 米 100m down-stream at the end of CCXR1&2 region	101°31′25 ″	25°04′15 ″	project down-stream 100m

45. Air Quality Monitoring

A. Air Quality at the construction boundary

- The hourly concentration of SO_2, NO_x and TSP (four times per day for 3 consecutive days, and one hour each time) at northern, eastern, southern and western boundary of the construction site for the 1st semi-annual impact monitoring in 2017 was illustrated in Figure 6.3-1, Figure 6.3-2 and Figure 6.3-3.
- The hourly concentration of SO_2 ranges between 0.007 mg/m^3 and 0.008mg/Nm^3; the hourly concentration of NOx ranges between 0.017 mg/m^3 and 0.025mg/Nm^3; the hourly concentration of TSP ranges between 0.009 mg/m^3 and0.23mg/Nm^3.
- According to the Integrated Emission Standard of Air Pollutants (GB16297-1996), standard maximum emission of hourly concentration of SO_2, NO_x, and TSP are 0.4mg/m^3,0.12 mg/m^3 and 1.0 mg/m^3 respectively. The monitoring values of three parameters at four sites were less than the standard maximum emission values.
- Conclusion: The emission of air pollutants at the four boundary sites was accordance with the standard maximum emission values in the first half of 2017.

Figure 6.3-1 the hourly concentration of SO_2 at the boundary sites in Longchuanjiang River

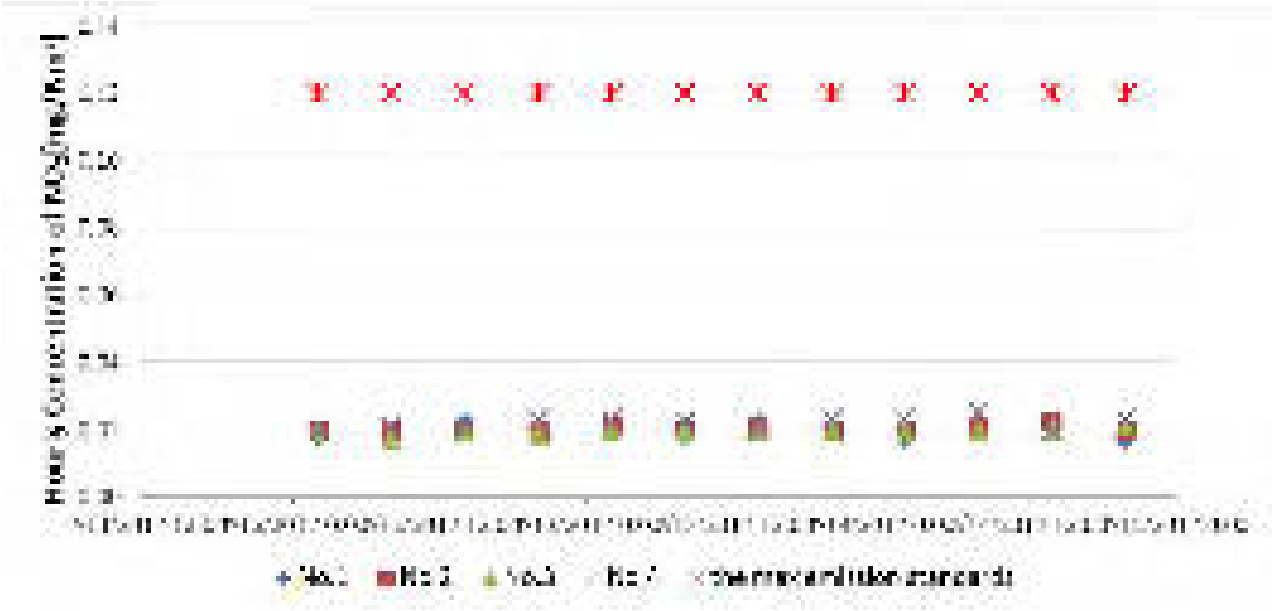


Figure 6.3-2 the hourly concentration of NO_X at the boundary sites in Longchuanjiang River

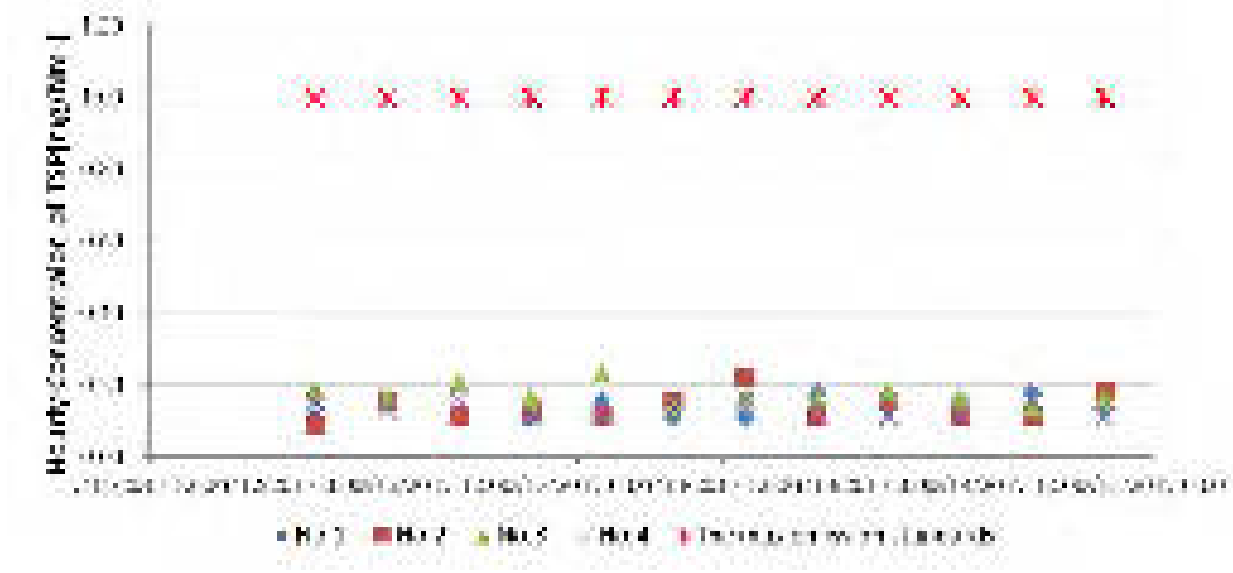


Figure 6.3-3 the hourly concentration of TSP at the boundary sites in Longchuanjiang River

B. Air Quality at the sensitive receivers

- Air quality was measured at 1 sensitive receiver (No.5) in July, 2017. The average 24hours concentration of SO_2, NO_2, TSP and PM_{10} (24 hours over three consecutive days) at the sensitive receivers was illustrated in Figure 6.3-4 during the reporting period.
- According to the *Ambient Air Quality Standard* (GB3095-2012), standard average 24hours concentration of SO_2, NO_2, TSP and PM_{10} are 150ug/m^3, 80ug/m^3, 300ug/m^3 and 150ug/m^3 respectively, for Grade II level. From Figure 6.3-4, the average 24hours concentration of SO_2, NO_2, TSP and PM_{10} at No.5 site was less than the Grade II values during the reporting period.

- Conclusion: The ambient air quality at No.5 site was accordance with the Grade II level during the report period

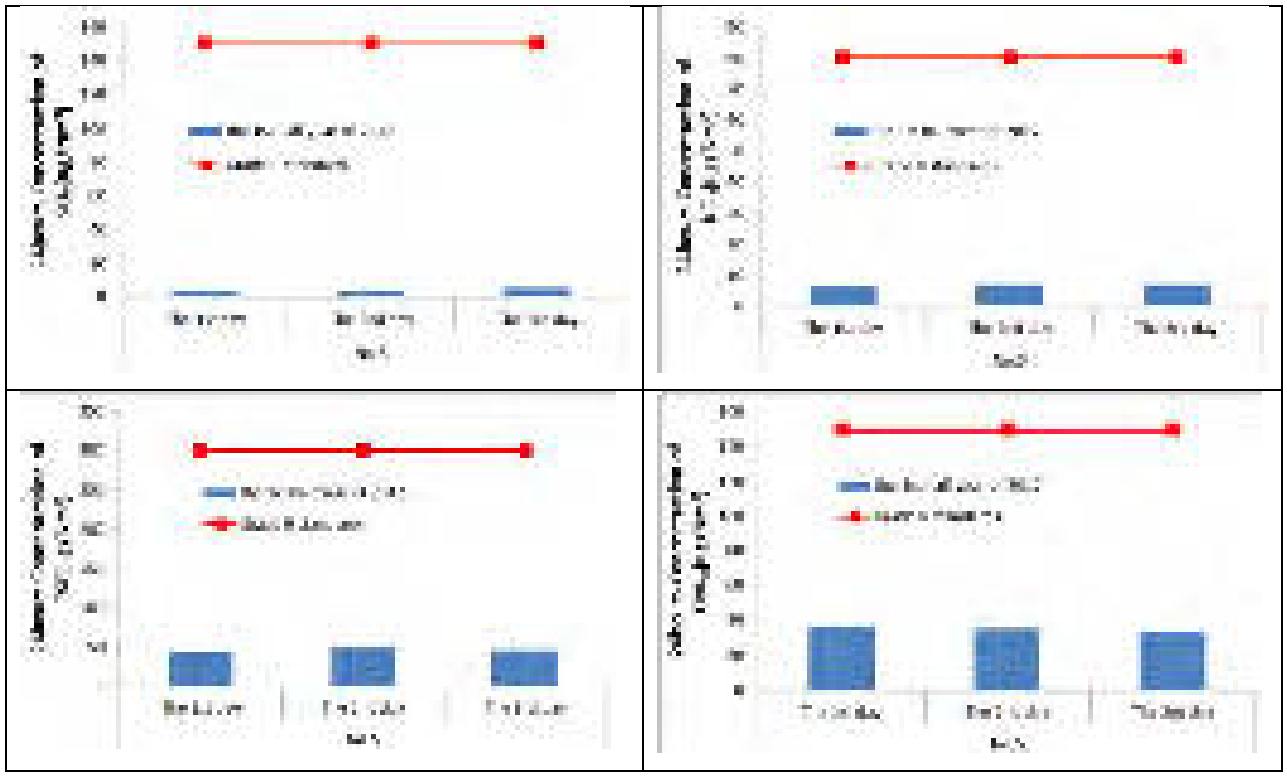


Figure 6.3-4 the average 24 hours concentration of SO_2,NO_2,TSP and PM_{10} at sensitive receiver in Longchuanjiang River site (January to June, 2017)

C. Summary

- Air quality of the four boundary sites and the sensitive receivers indicated the ambient air quality at construction boundary and sensitive receiver was not influenced by the constructive activities during the reporting period.

46. Noise Level Monitoring

A. Noise at construction boundary

- The daytime noise, the night-time noise over the consecutive two days at the four construction boundary in Longchuanjiang River site during the reporting period was illustrated in Figure 6.3-5.
- According to *Construction Site Noise Emission Standards* (GB12523-2011), the emission limit daytime noise and night-time noise are 70 dB (A) and 55 dB (A). From Figure 6.3-5, the daytime noise and night-time noise at the four boundary sites was less than the emission limit value during the reporting period.
- Conclusion: the noise environmental quality at the four boundary sites was within the limits of the *Construction Site Noise Emission Standards* (GB12523-2011).

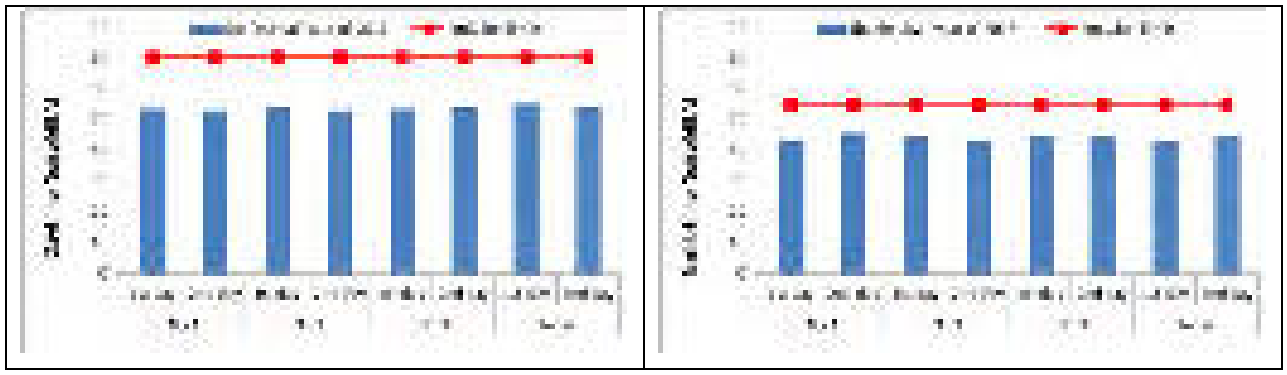
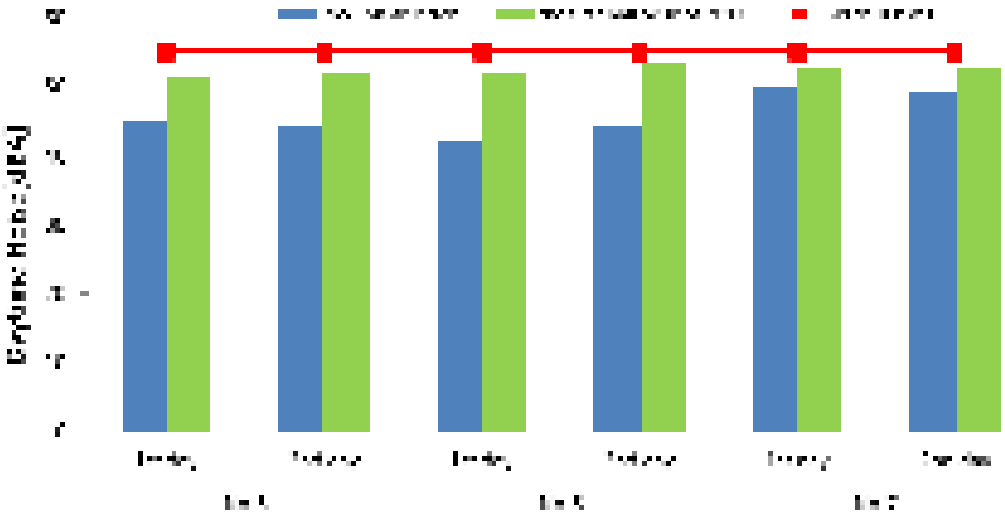


Figure 6.3-5 Noise at the construction boundary sites around Longchuanjiang River site (January to June, 2017)

B. Noise at the sensitive receivers

- Noise monitoring was conducted at 3 sensitive receivers (No.5, No.6, and No7) during pre-construction period and the first half of year in 2017. The daytime noise and night-time noise at the sensitive receivers over two consecutive days for two phases were illustrated in Figure 6.3-6.
- Basing on *Environmental Quality Standard for Noise* (GB3096-2008), the standard daytime noise and night-time noise are 55dB (A) and 45dB (A) respectively, for Grade I level. From Figure 6.3-6, during the pre-construction period, the night-time noise at No.7 was greater than the Grade I level by 4.2%. The daytime and night-time noise at three sensitive receivers was less than the standards, respectively during the 1st half year of 2017.
- Conclusion: During the 1st half year of 2017, the noise at three sensitive receivers was within the limits of Grade I levels in Longchuanjiang River site.



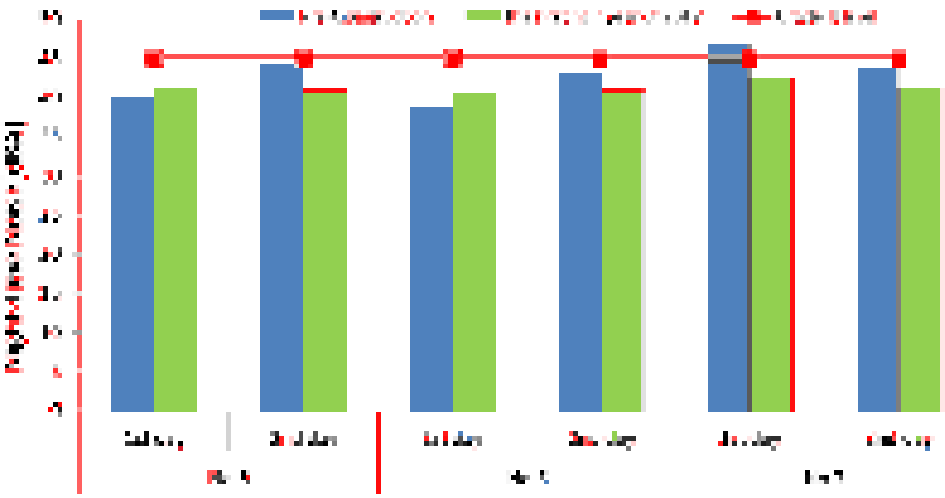


Figure 6.3-6 Noise at sensitive receivers in Longchuanjiang River site during two phases (Pre-construction, and the 1st half year of 2017)

C. Summary

- Noise monitoring results at the construction boundary sites and the sensitive receivers indicated that the noise at Longchuanjiang River site was not influenced by the river enhancement activities.

47. Surface Water Quality Monitoring

A. Water quality monitoring was conducted at two sites (No.8 and No.9) along the Longchuanjiang River over continuous three days during the reporting period.

B. The concentrations range of 14 parameters over three days at the upper-stream and down-stream of the construction site were listed in the table 6.3-2, following with the standard values for grade IV level from Environmental Quality Standards for Surface Water (GB3838-2002), including pre-construction and the 1st half year of 2017. According to the Yunnan Environmental Functional zoning, the surface water quality in the construction sites should be up to grade IV.

C. The monitoring results showed 1) During the pre-construction period, water quality at No.9 site was beyond the Grade IV level in terms of the concentration of TN, and water quality at No.8 site was accordance with the Grade IV level; 2) During the 1st half of 2017, water quality at 2 sites (No.8 and No.9) was all beyond the Grade IV level in terms of the concentration of TN.

D. The concentration of TN at the two sites during the constructive period was greater than the corresponding value during pre-construction period, and the concentration of TN at the downstream was greater than the value at the upper-stream by around 50% during the reporting period. Water quality of Longchuanjiang River was influenced by non-pollution from agricultural land to some extent, so it is difficult to tell whether water quality of river has been influenced by the construction activities.

E. Conclusion: surface water quality at the two sites along the Longchuanjiang River exceeded the Grade IV level in term of TN. Although there was no evidence to link the

exceedances to construction activities, mitigation measures to prevent potential water pollution should be strengthened at the River construction site.

Table 6.3-2 Comparison of daily concentration of 14 parameters and standard values for Grade IV at Longchuanjiang River sites (Pre-construction, the 1st half year of 2017)

Parameters	Unit	Standard (IV)	Pre-construction		1st half year of 2017	
			No.8	No.9	No.8	No.9
pH		6-9	8.01-8.09	7.74-8.03	7.08-7.20	7.21-7.34
DO	mg/l	≥3	8.3-8.5	8.7-9.8	7.2-7.5	7.4-7.9
SS	mg/l	-	42403	4-160	4L-10	44-66
COD_{cr}	mg/l	≤30	12.6-13	11.3-14.5	7.0-8.0	10.0-11.0
OIL	mg/l	≤0.5	0.01L-0.01	0.01L-0.01	0.04L	0.04L
anionic surfactants	mg/l	≤0.3	0.06-0.07	0.06-0.09	0.05L	0.05L
NH3-N	mg/l	≤1.5	0.159-0.167	0.411-0.442	0.498-0.566	0.83-0.913
COD_{Mn}	mg/l	≤10	3.4-4.01	3.35-4.47	3.2	3.8-4.2
BOD5	mg/l	≤6	0.9-1.1	1.0-1.9	0.9-1.2	4.3-4.4
TN	mg/l	**≤1.5**	1.18-1.37	1.24-**1.79**	**2.57-2.60**	**3.73-4.08**
TP	mg/l	≤0.3	0.02-0.03	0.02-0.03	0.05-0.06	0.05-0.06
Fecal coliforms	mg/l	≤20000	<20-20	80-790	2800-3500	9200-16000
Se	mg/l	≤0.1	0.0014-0.0019	0.0009-0.0015	0.0025	0.0017
Cd	mg/l	≤0.005	0.0001L	0.0001L	0.0005-0.0008	0.0001L

6.4 Summary and Assessment of Monitoring Results of Chuxiong river enhancement component (Internal Monitoring by the Contractor)

48. Yunnan Nuclear Industry Institute of 209 Geological Survey was retained to conduct the 1st internal monitoring of Longchuanjiang River on 7th-10th May, 2017 by construction contractor. The table 6.1-3 described the requirement on parameters and frequency. According to updated EMP, water sampling was taken from 2sites (No8 and No.9 in the table 6.3-1).The internal surface water monitoring report was provided by Yunnan Nuclear Industry Institute of 209 Geological Survey (see APPENDIX Ⅳ).

49. And the range of monitoring values over three consecutive days at 2 sites is summarized in the table 6.4-1. The 14 monitoring parameters at the upper-stream and downstream of project site was less than the Grade IV standards level (Environmental Quality Standards for Surface Water, GB3838-2002). The surface water quality of Longchuanjiang River was within the limits of Grade IV standards.

Table 6.4-1 Comparison of daily concentration of 14 parameters and standard values for Grade IV at 2 sites in Longchuanjiang River (2017)

Parameters	No.8			No.9			Standard
	28th May	29th May	30th May	28th May	29th May	30th May	Grade IV
pH	7.60	7.64	7.52	7.63	7.70	7.44	6-9
DO(mg/l)	6.00	6.51	6.12	6.60	6.00	6.61	≥3

Parameters	No.8			No.9			Standard
	28th May	**29th May**	**30th May**	**28th May**	**29th May**	**30th May**	Grade IV
COD(mg/l)	19	20	19	20	21	21	≤30
BOD_5 （mg/l）	1.5	1.6	1.5	1.5	1.6	1.8	≤6
SS(mg/l)	7	4	6	14	18	20	/
NH_3-N (mg/l)	0.134	0.153	0.174	0.428	0.542	0.447	≤1.5
COD_{cr}(mg/l)	3.1	2.9	3.0	3.6	3.5	3.7	≤10
TP(mg/l)	0.05	0.04	0.05	0.07	0.06	0.07	≤0.3
TN(mg/l)	1.00	0.86	0.99	1.40	1.31	1.40	≤1.5
oil(mg/l)	0.04L	0.04L	0.04L	0.04	0.04	0.05	≤0.5
anionic surfactants (mg/l)	0.05L	0.05L	0.05L	0.054	0.056	0.054	≤0.3
Fecal coliforms （MPN/L）	220	260	210	2200	2800	2200	≤20000
Se(mg /L)	0.003L	0.003L	0.003L	0.003L	0.003L	0.003L	≤0.1
Cd（mg/L）	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	≤0.005

50. Conclusion: the results of existing monitoring and 1st internal monitoring indicated the effect of river enhancement construction on water quality of the river was insignificant during this reporting period.

6.5 Summary and Assessment of Impact Monitoring Results of Lufeng County components

51. CPEMS was retained to perform the 1st environmental sampling and monitoring in Lufeng County project and reported monitoring results to PIUs accordingly. The 1st quarterly impact monitoring was conducted on 7th -9th March 2017, covering air, noise and surface water quality. Sampling locations were listed in the table 6.5-1, including 4 boundary sites (No.1 to No.4) and 5 sensitive receivers (No.5 to No.9) for air and noise monitoring, and 6 sites for water quality of East-western River (No.12 and No.17).

52. The 2nd quarterly impact monitoring was conducted on 14th-16th June 2017 by Yunnan Fangyuan Technical Co. Ltd, covering air and noise. Sampling locations were listed in the table 6.5-1, including 4 boundary sites (No.1 to No.4) and 2 sensitive receivers (No.10 and No.11) for noise and air monitoring.

53. The parameters and frequency of environmental impact monitoring is summarized in Table 6.1-2. The 1st impact monitoring report of 15 sites are provided by CPEMS (see APPENDIX Ⅴ), and The 2nd impact monitoring report of 6 sites are provided by Yunnan Fangyuan Technical Co. Ltd (see APPENDIX Ⅵ).

Table 6.5-1 Sampling locations for air, noise and water quality in Lufeng County Road

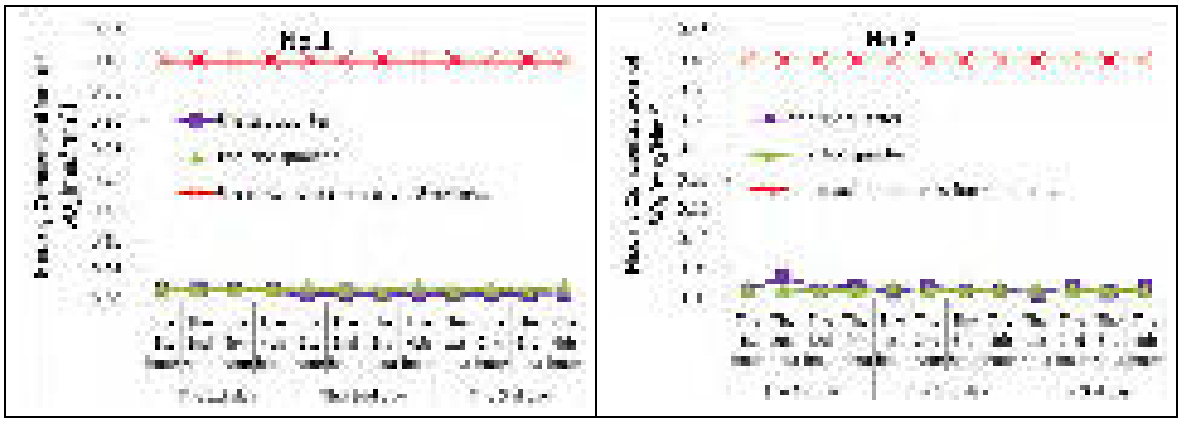
NO	TYPE	NAME	LONGITUDE (°′″)	LATITUE (°′″)	Elevation （meter）
No.1	Boundary：air/noise	官洼小区 Guanwa Xiaoqu	102°03′48″	25°10′16.87″	1586
No.2		禄丰一中 Lufeng No.1 Middle Schoole	102°04′40.49″	25°09′42.24″	1583
No.3		禄丰职中 Lufeng Vocational Middle School	102°04′13.22″	25°09′34.45″	1575
No.4		上营三组 Shangying Sanzu	102°04′30.91″	25°10′39.37″	1609
No.5	Sensitive receivers：air/noise	松园中学 Songyuan Middle School	102°04′52″	25°09′39″	1590
No.6		禄丰职中 Lufeng Vocational Middle School	102°04′14″	25°09′35″	1589
No.7		厂房村 Changfang Village	102°04′03″	25°09′37″	1567
No.8		旧学村 Jiuxue Village	102°03′42″	25°09′32″	1574
No.9		秦家营 Qingjiaying	102°04′35″	25°09′36″	1565
No.10		官洼小区 Guanwa District	102°03′48″	25°10′15″	1578
No.11		庄科村 Zhuangke Village	102°04′03″	25°10′11″	1568
No.12	Surface water	CLFR1 东河河道治理起始端上游 50 米 50m upper-stream of construction activities on East River	102°05′07″	25°09′30″	1573
No.13		CLFR1 西河河道治理起始端上游 50 米 50m upper-stream of construction activities on West River	102°04′06″	25°10′31″	1581
No.14		CLFR1 东河汇入西河交叉口西河上游 50 米 50m upper-stream of West River intersection of East River and West River	102°03′58″	25°09′38″	1566
No.15		CLFR1 东河汇入西河交叉口东河上游 50 米 50m upper-stream of East River intersection of West River and East River	102°03′56″	25°09′39.4″	
No.16		CLFR1 东河汇入西河交叉口下游 100 米 100m down-stream of West River intersection of West River	102°03′56.6″	25°09′36.7″	

NO	TYPE	NAME	LONGITUDE (°′″)	LATITUE (°′″)	Elevation （meter）
		and East River			
No.17		CLFR1 施工区域终点西河下游 100 米 100m down-stream of construction activities on West River	102°03′35″	25°08′54″	1568

54. Air Quality Monitoring

A. Air Quality at the construction boundary

- The hourly concentration of SO_2, NO_x and TSP (four times per day for 3 consecutive days, and one hour each time) at northern, eastern, southern and western boundary of the construction site in Lufeng County component for the 1st and 2nd quarterly impact monitoring in 2017 was illustrated in Figure 6.5-1, Figure 6.5-2 and Figure 6.5-3.
- The hourly concentration of SO_2 ranges between 0.008 mg/m^3 and 0.038 mg/Nm^3; the hourly concentration of NO_x ranges between 0.005 mg/m^3 and 0.085mg/Nm^3; the hourly concentration of TSP ranges between 0.042 mg/m^3 and 0.745mg/Nm^3.
- According to the Integrated Emission Standard of Air Pollutants (GB16297-1996), standard maximum emission of hourly concentration of SO_2, NO_x, and TSP are 0.4mg/m^3,0.12 mg/m^3 and 1.0 mg/m^3 respectively. The monitoring values of three parameters at four sites were less than the standard maximum emission values.
- Conclusion: During the reporting period, the emission of air pollutants at the four boundary sites was within maximum emission values of the Standards.



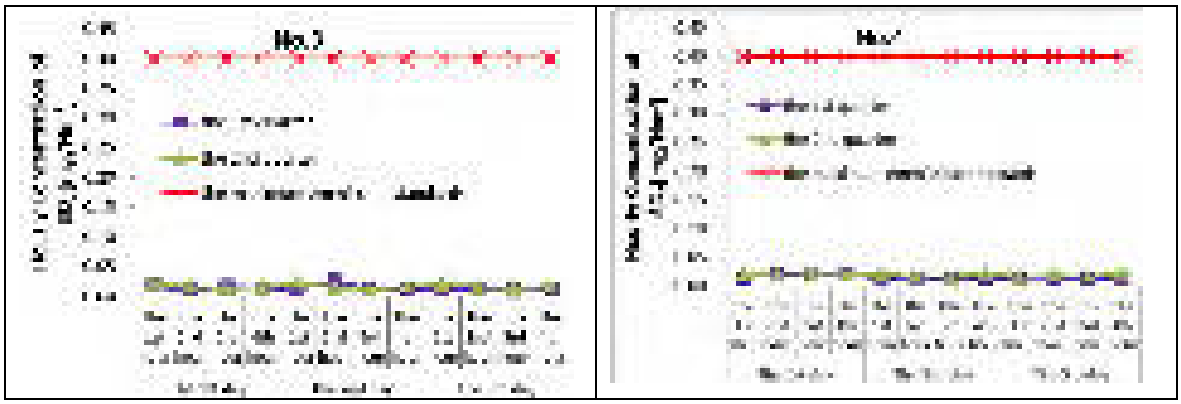


Figure 6.5-1 the hourly concentration of SO_2 at the boundary sites in Lufeng County component (January to June, 2017)

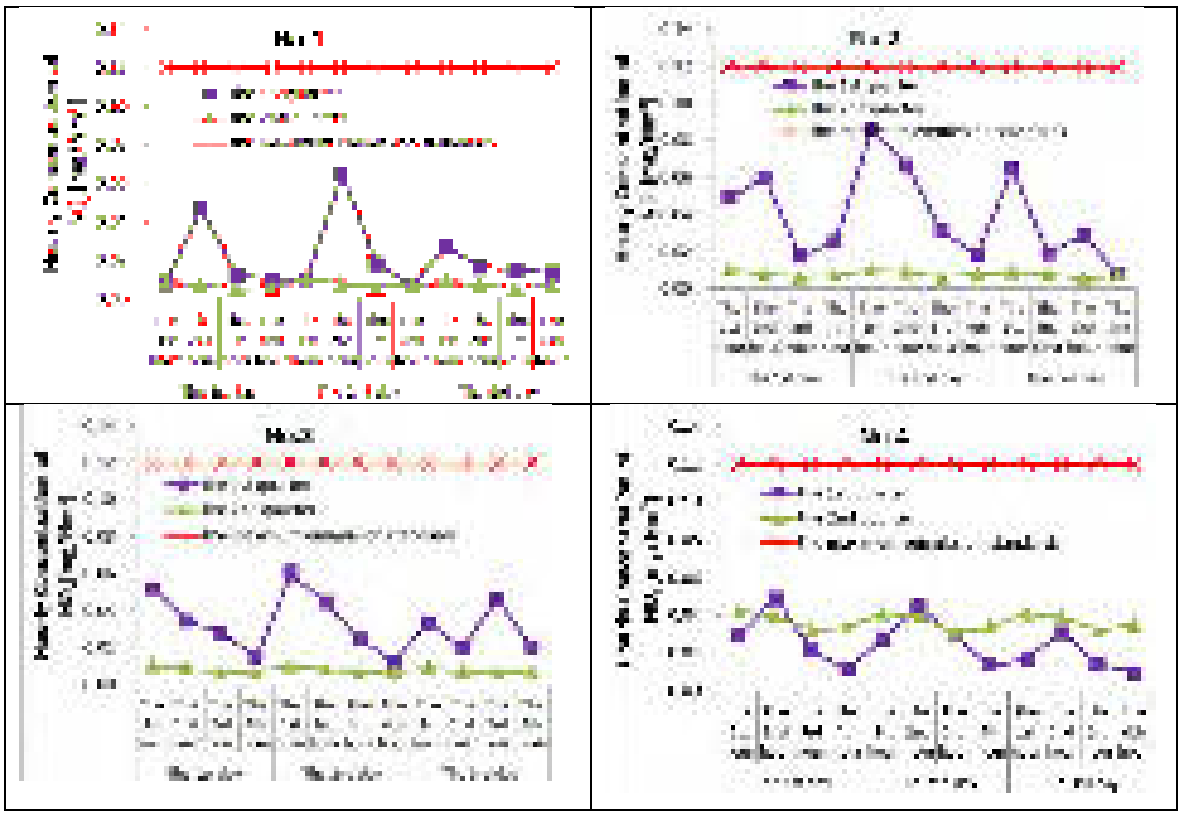


Figure 6.5-2 the hourly concentration of NO_X at the boundary sites in Lufeng County component (January to June, 2017)

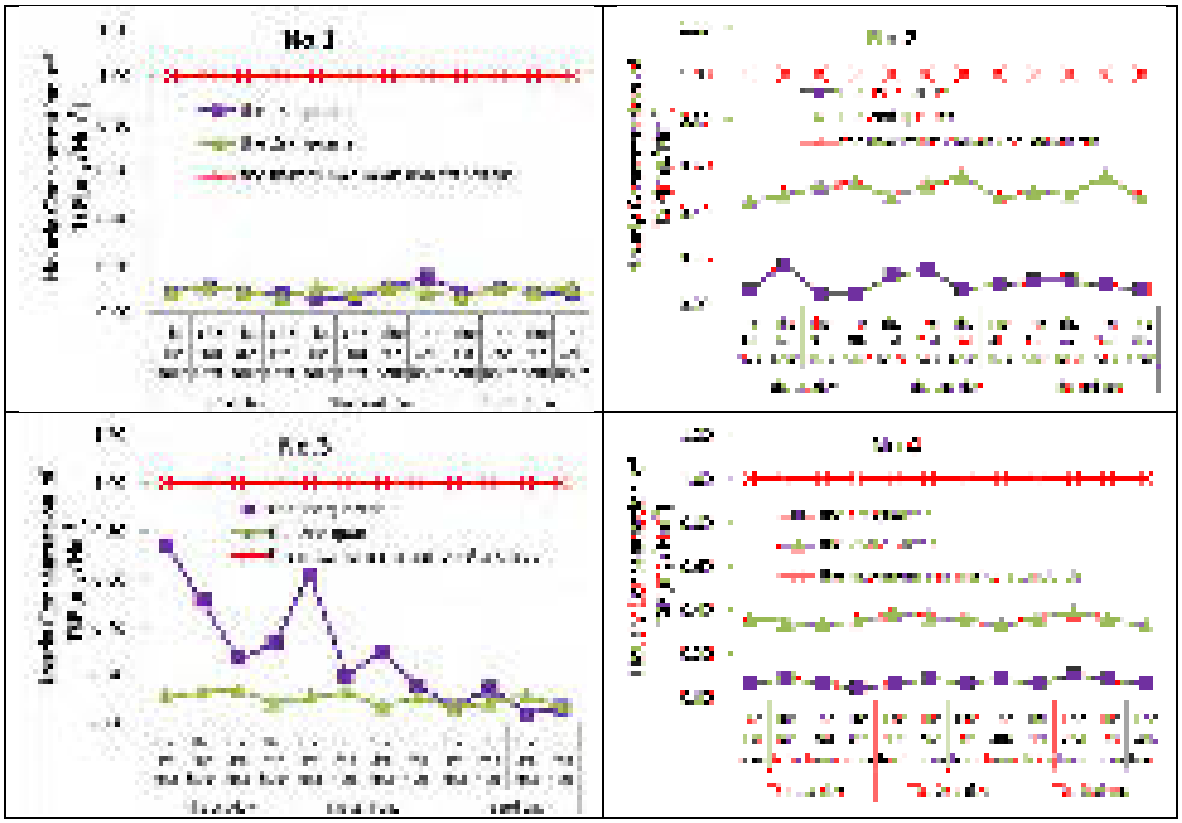


Figure 6.5-3 the hourly concentration of TSP at the boundary sites in Lufeng County component (January to June, 2017)

B. Air Quality at the sensitive receivers

- Air quality was measured at 5 sensitive receivers (No.5 to No.9) in March, 2017 for Lufeng County component. CLF1 was mobilized in April, so Air quality was only conducted at the two sensitive receivers (No.10 and No.11) in June, 2017 for Lufeng Urban Road.
- The average 24hours concentration of SO_2, NO_2, TSP and PM_{10} (24 hours over three consecutive days) at the sensitive receivers was illustrated in Figure 6.5-4 during the reporting period.
- According to the *Ambient Air Quality Standard* (GB3095-2012), standard average 24hours concentration of SO_2, NO_2, TSP and PM_{10} are 150ug/m^3, 80ug/m^3, 300ug/m^3 and 150ug/m^3 respectively, for Grade II level. From Figure 6.5-4, during the 1st quarter, the average 24hours concentration of TSP and PM_{10} at No.5 site was greater than the Grade II values by 5.6% (on 8th March) and 16.0-22.0% (on 7th &8th March), respectively; the average 24hours concentration of PM_{10} at No.6 and No.7 sites was greater than the Grade II values by 30.7% (on 8th March) and 26.0-94.7% (on 7th &8th March). During the 2nd quarter, the average 24hours concentration of SO_2, NO_2, TSP and PM_{10} at 2 sensitive receivers (No.10 and No.11) was less than the Grade II level.
- Conclusion: The ambient air quality at 2 sensitive receivers (No.8 and No.9) was accordance with the Grade II level, and the ambient air quality at other 3 sensitive receivers (No.5, No.6 and No.7) was beyond the Grade II level in terms of the pollutants

of TSP and PM_{10} during the 1st quarter, 2017; during the 2nd quarter, the ambient air quality at 2 sensitive receivers was consistent with the Grade II level.

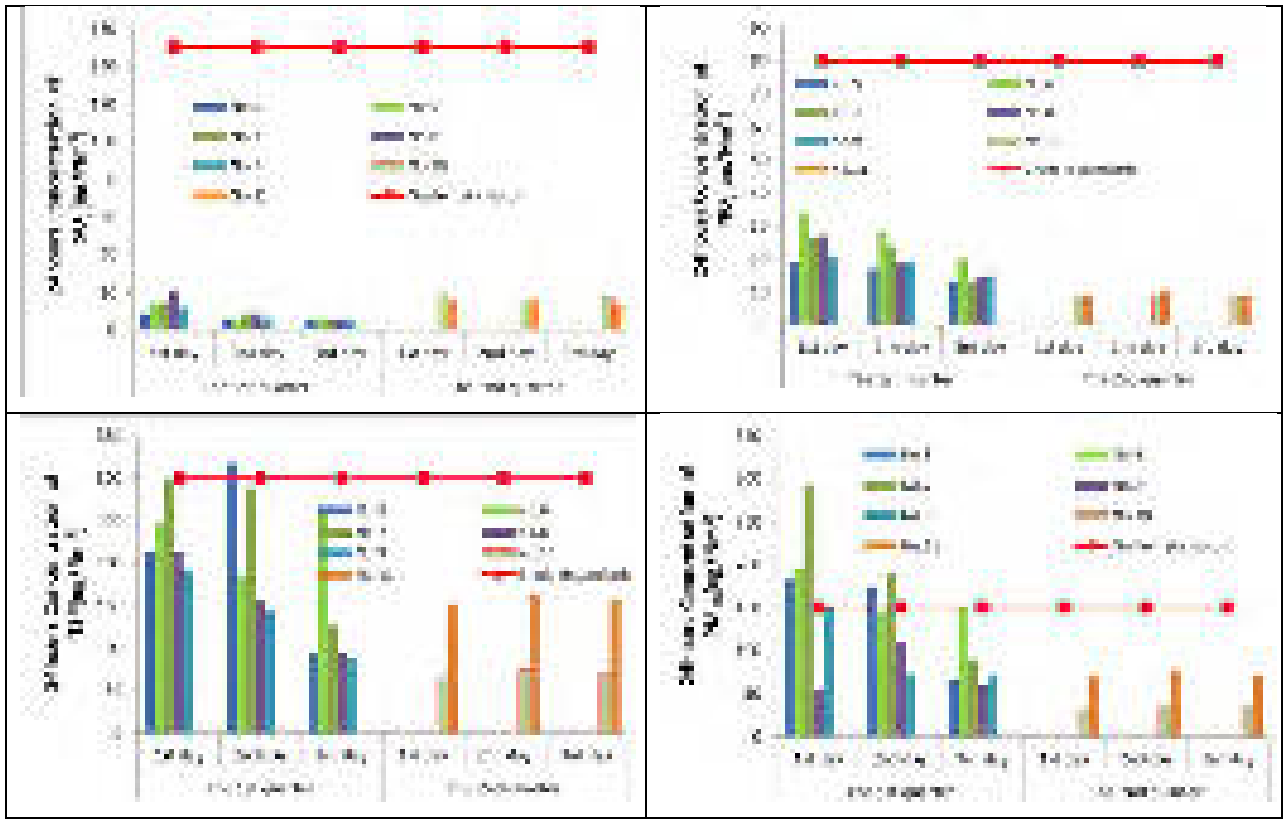


Figure 6.5-4 the average 24 hours concentration of SO_2,NO_2,TSP and PM_{10} at sensitive receivers in Lufeng County component (January to June, 2017)

C. Summary

- Air quality of the four boundary sites was accordance with the standard maximum emission values during the 1st and 2nd quarter, 2017, which indicated the ambient air quality at the construction boundary sites was less influenced by the construction activities in Lufeng County component.
- Air quality monitoring at the sensitive receivers indicated 1) During the 1st quarter, the air quality at the sensitive receivers was influenced by the construction activities of CLFR1; 2) During the 2nd quarter, air quality at the sensitive receivers was not influenced by the construction activities of CLF1. Dust mitigation measures should be strengthened at construction site (CLFR1) during construction period, especially in dry season.

55. Noise Level Monitoring

A. Noise at construction boundary

- The daytime and night-time noise over the consecutive two days at the four construction boundary sites in Lufeng County component during the reporting period was illustrated in Figure 6.5-5.

- According to *Construction Site Noise Emission Standards* (GB12523-2011), the emission limit for daytime noise and night-time noise are 70 dB (A) and 55 dB (A). From Figure 6.5-5, the daytime and night-time noise at the four boundary sites was less than the emission limit value during the 1st and 2nd quarter, 2017.
- Conclusion: during the reporting period, the noise environmental quality at 4 boundary sites was accordance with the *Construction Site Noise Emission Standards* (GB12523-2011).

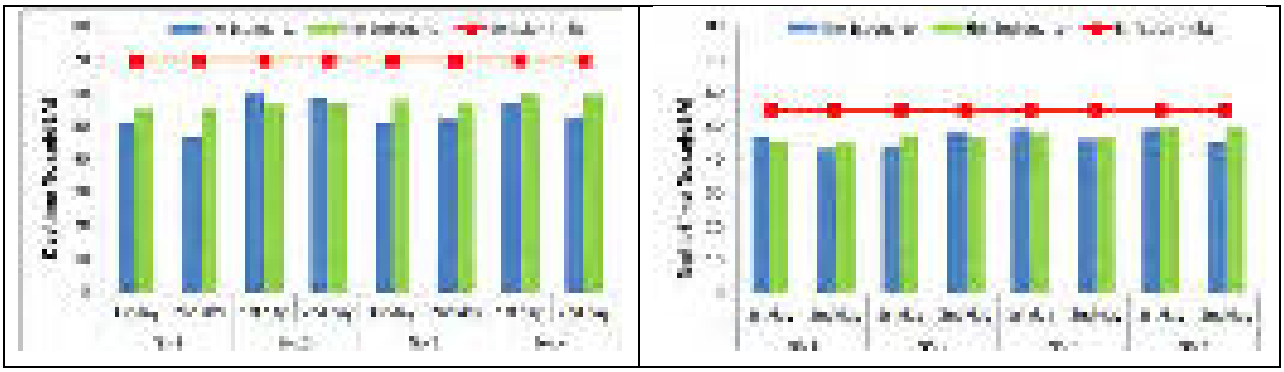


Figure 6.5-5 Noise at the construction boundary sites around Lufeng County component (January to June, 2017)

B. Noise at the sensitive receivers

- Same as air sensitive receivers, the noise monitoring was conducted at 5 sensitive receivers (No.5 to No.9) during the 1st quarter, 2017, and at 2 sensitive receivers (No.10 and No.11) during the 2nd quarter, 2017.
- The daytime and night-time noise at the sensitive receivers over two consecutive days for three phases (pre-construction, the 1st quarter, and 2nd quarter) were illustrated in Figure 6.5-6.
- Basing on *Environmental Quality Standard for Noise* (GB3096-2008), the standard daytime noise and night-time noise are 60 dB (A) and 50dB (A) respectively, for Grade II level. From Figure 6.5-6, during the 1st and 2nd quarter 2017, the daytime and night-time noise at 7 sensitive receivers was less than the Grade II level.
- Conclusion: During the 1st quarter 2017, the noise at 5 sensitive receivers of river enhancement component was accordance with the Grade II level; during the 2nd quarter 2017, the noise at 2 sensitive receivers of urban road component was within standards of the Grade II level.

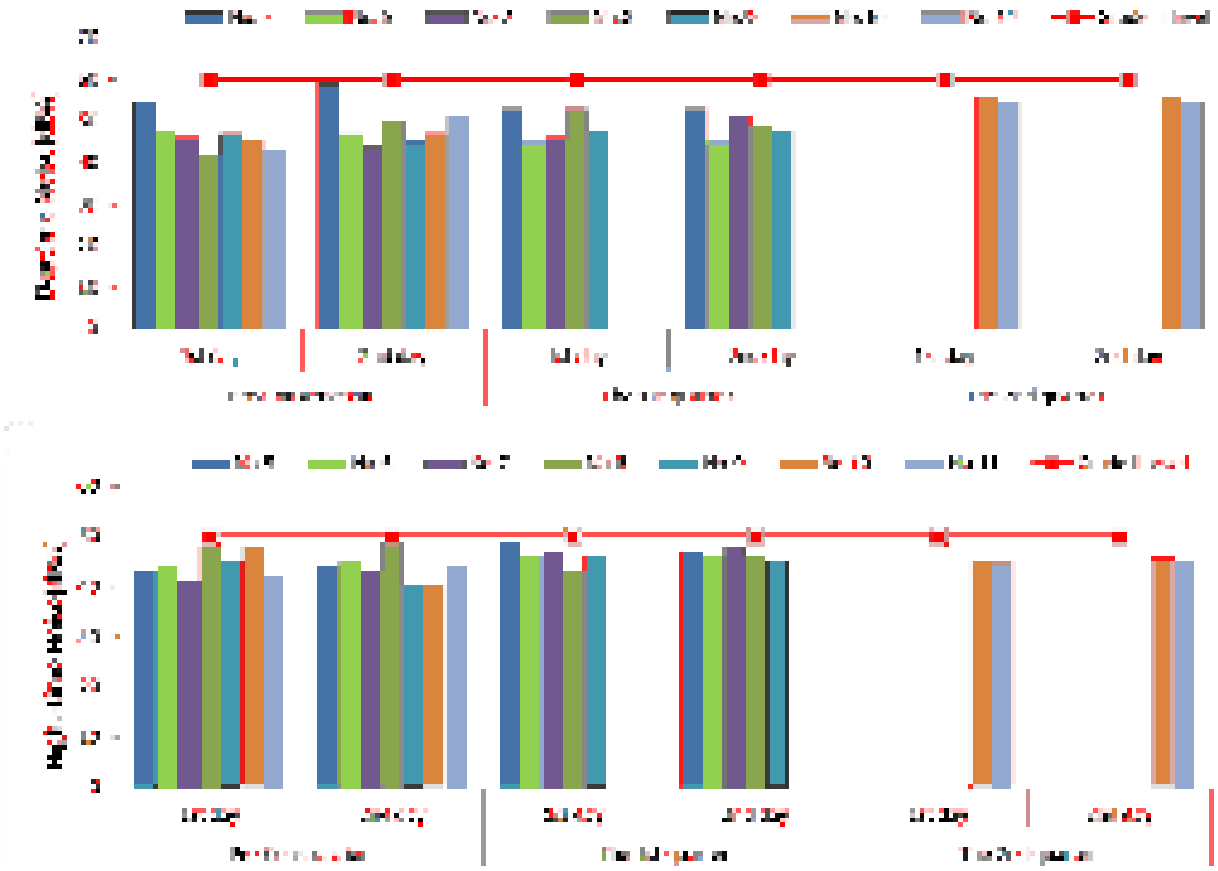


Figure 6.5-6 Noise at sensitive receivers in Lufeng County component during three phases (Pre-construction, the 1st quarter, and the 2nd quarter, 2017)

C. Summary

- Noise monitoring results at the construction boundary sites indicated that sound environmental quality at the boundary sites was not influenced by the construction activities of CLFR1 and CLF1 during the reporting period.
- Noise monitoring results at the sensitive receivers indicated that sound environmental quality at sensitive receivers was not influenced by the construction activities of CLFR1 and CLF1 during the reporting period.

56. Surface Water Quality Monitoring

A. During the 1st quarter 2017, 6 water sampling sites (No.12 to No.17) along the East-West River were selected for surface water monitoring by CPMS. During the 2nd quarter 2017, no surface water monitoring plan for East-West River according to EMP, an no bridge need to construct in terms of CLF1, so no water quality monitoring undertaken.

B. The concentrations range of 14 parameters over three days at 6 sites were listed in the table 6.5-2, following with the standard values for grade IV level from Environmental Quality Standards for Surface Water (GB3838-2002), during the 1st quarter 2017. According to the Yunnan Environmental Functional zoning, the surface water quality in the construction sites should be up to grade IV.

C. The monitoring results showed

- Water quality at the two sites (No.12 and No.13) was accordance with the Grade IV level (GB3838-2002), which located in the upper-stream of East River and West River;
- Water quality at the other sites (No.14 to No.17) was beyond the Grade IV level in terms of the concentration of TN and fecal coliforms, in which the concentration of TN at No.15 was beyond the standards by 48%.

D. Comparison the water quality monitoring results during pre-construction period and the 1st quarter 2017, the water quality at No. 12, No. 13, No.14, and No.17 was beyond the Grade IV level in terms of the concentration of TN and fecal coliforms during the pre-construction period. Water quality of the East-West River was most influenced by the non-point pollution from the agricultural land around.

E. Conclusion: The effect of constriction activities of CLFR1 on water quality was less.

Table 6.5-2 Comparison of daily concentration of 14 parameters and standard values for Grade IV at East-West river sites (on 7th -9th March, 2017)

Parameter	Unit	Standard (IV)	No.12	No.13	No.14	No.15	No.16	No.17
pH		6~9	8.27-8.68	7.74-8.21	7.66-8.27	8.13-8.31	7.88-8.11	7.66-7.76
anionic surfactants	mg/l	⩽0.3	0.05L-0.07	0.05L-0.05	0.05L-0.11	0.08-0.14	0.07-0.09	0.07-0.11
Oil	mg/l	⩽0.5	0.02-0.03	0.01-0.02	0.01-0.02	0.01-0.03	0.02	0.02
SS	mg/l	-	5	4.00-5.00	4.00-5.00	38.00-44.00	33.00-36.00	10.00-11.00
COD_{Mn}	mg/l	⩽10	1.7-2.0	1.7-1.9	1.6-2.0	2.6-3.0	2.6-2.8	2.8
TN	mg/l	⩽1.5	0.5-0.61	0.50-0.56	0.54-0.62	**1.98-2.23**	1.35-1.47	0.82-1.32
NH3-N	mg/l	⩽1.5	0.11-0.138	0.102-0.128	0.146-0.221	1.09-1.41	0.816-0.898	0.526-0.728
TP	mg/l	⩽0.3	0.08-0.12	0.13-0.15	0.09-0.12	0.24-0.26	0.15-0.23	0.17-0.20
Fecal coliforms	mg/l	⩽20000	330-700	3500-5400	**⩾24000**	**⩾24000**	**⩾24000**	**⩾24000**
DO	mg/l	⩾3	8.6-11.4	8.3-10.1	9.8-11.4	7.8-8.5	7.0-8.4	6.2-7.1
BOD5	mg/l	⩽6	1.1-1.7	1.2-1.8	1.7-2.3	3.8-4.4	2.5-2.8	3.5-3.9
COD_{cr}	mg/l	⩽30	10L	10L	12.8-13.8	15.6-18.1	11.8-13.3	10.7-12.0
Se	mg /l	⩽0.1	0.0005-0.0006	0.0003-0.0005	0.0004	0.0007	0.0006-0.0007	0.0006-0.0007
Cd	mg/l	⩽0.005	0.0001L	0.0001L	0.0001L	0.0001L	0.0001L	0.0001L

6.6 Summary and Assessment of Monitoring Results of Lufeng river enhancement component (Internal Monitoring by the Contractor)

57. The 2nd, 3rd, 4th surface water internal monitoring was conducted by Yunnan Fangyuan Technical Co. Ltd on 17th -19th January, 5th-7th April, and 28th -30th May 2017, respectively. The table 6.1-3 described the requirement on parameters and frequency. Water sampling sites 1#, 2#, 3#, 4#, 5# and 6# was corresponding to the counterpart No.12, No.13, No.14, No.15, No.16 and No.17 in the Table 6.5-1. The internal surface water monitoring reports were provided by Yunnan Fangyuan Technical Co. Ltd (see APPENDIX Ⅶ, APPENDIX Ⅷ, and APPENDIX Ⅸ).

58. And the range of monitoring values over three consecutive days at 6 sites covering the 2nd, 3rd and 4th internal monitoring periods is summarized in the table 6.6-1, table 6.6-2 and table 6.6-3, following with the standard values for grade IV level from Environmental Quality Standards for Surface Water (GB3838-2002). According to the Yunnan Environmental Functional zoning, the surface water quality in the construction sites should be up to grade IV.

59. The monitoring results showed

A. Surface water quality at the 6 sites in East-West River was accordance with the Grade IV level (GB3838-2002) in January 2017.

B. During the 3rd internal monitoring period, surface water quality at 1# site (No. 12) in East-West River was accordance with the Grade IV level (GB3838-2002), and water quality at the other five sites was beyond the Grade IV level. The concentration of TN and fecal coliforms at 2# site (No.13) was greater than the standards, and the concentration of fecal coliforms at 3# - 6# sites (No. 14 to No.17) was greater than the standard. The concentration of TN at 2# site was greater than the standard by 10.0-12.7%.

C. During the 4th internal monitoring period, surface water quality at 1# site (No. 12) in East-West River was accordance with the Grade IV level (GB3838-2002), and water quality at the other five sites was beyond the Grade IV level. The concentration of TN at 2# (No.13), 3# (No.14) and 6# (No.17) sites was greater than the standard by 17.0-20.0%, 13.3-27.0%, and 8.0-23.0%, respectively. The concentration of TN and fecal coliforms at 4# site (No.15) was greater than the standards, and the concentration of fecal coliforms at 5# sites (No. 16) was greater than the standard. The concentration of TN at 5# site was greater than the standard by 8.0-17.0%.

Table 6.6-1 Comparison of daily concentration of 14 parameters and standard values for Grade IV at 6 sites in East-West River (2nd internal monitoring, 2017)

Parameter	Unit	Standard (IV)	1#	2#	3#	4#	5#	6#
pH		6~9	7.75-7.90	8.41-8.55	8.56-8.62	8.02-8.17	8.34-8.44	8.29-8.47
Oil	mg/l	≤0.5	＜0.01	0.01	0.01	＜0.01	＜0.01	≤0.01
TP	mg/l	≤0.3	0.02-0.03	0.09-0.10	0.02-0.03	0.08-0.09	0.06-0.07	0.04-0.05
anionic surfactants	mg/l	≤0.3	0.10-0.13	0.20-0.23	0.16-0.18	0.10-0.12	0.15-0.16	0.19-0.20
NH3-N	mg/l	≤1.5	0.136-	0.270-	0.158-	0.630-	0.524-	0.319-

Parameter	Unit	Standard (IV)	1#	2#	3#	4#	5#	6#
			0.145	0.280	0.165	0.640	0.534	0.330
TN	mg/l	≤1.5	0.936-0.984	1.12-1.16	0.431-0.479	1.14-1.16	1.18-1.20	0.622-0.646
COD_{Mn}	mg/l	≤10	1.5-1.7	1.6-2.2	1.9-2.3	1.9-2.2	2.0-2.2	1.8-2.3
COD_{cr}	mg/l	≤30	<10	≤10	≤10	11-13	25-30	18-22
BOD5	mg/l	≤6	1.0-1.5	1.3-1.4	2.0-2.6	2.3-2.7	5.5-5.7	1.8-4.7
DO	mg/l	≥3	8.8-8.9	8.6-8.8	8.2-8.4	8.5-8.8	7.6-7.7	7.8-7.9
SS	mg/l	-	<4	≤4	<4	9-10	5-6	6-7
Fecal coliforms	mg/l	≤20000	460-630	6300-7000	6300-7900	1400-1800	1100-9400	11000 -17000
Se	mg /l	≤0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cd	mg/l	≤0.005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Table 6.6-2 Comparison of daily concentration of 14 parameters and standard values for Grade IV at 6 sites in East-West River (3rd internal monitoring, 2017)

Parameter	Unit	Standard (IV)	1#	2#	3#	4#	5#	6#
pH		6~9	7.80-7.98	8.52-8.67	8.62-8.75	8.18-8.24	8.40-8.46	8.00-8.14
Oil	mg/l	≤0.5	0.06-0.10	0.09-0.10	0.08-0.11	0.09-0.12	0.06-0.11	0.09-0.12
TP	mg/l	≤0.3	0.05-0.07	0.14-0.18	0.10-0.11	0.14-0.16	0.13-0.16	0.12-0.14
anionic surfactants	mg/l	≤0.3	0.14-0.18	0.21-0.31	0.16-0.26	0.14-0.18	0.18-0.25	0.16-0.20
NH3-N	mg/l	≤1.5	0.172-0.190	1.27-1.30	0.578-0.596	0.800-0.830	0.770-0.792	0.736-0.754
TN	mg/l	≤1.5	0.649-0.678	**1.65-1.69**	0.630-0.697	0.938-0.966	0.870-0.909	0.910-0.966
COD_{Mn}	mg/l	≤10	2.3-2.5	2.4-2.6	2.0-2.2	2.1-2.3	2.4-2.6	2.7-2.9
COD_{cr}	mg/l	≤30	<10	<10-11	≤10	<10-11	≤10	10-13
BOD5	mg/l	≤6	1.3-1.8	2.7-3.2	2.2-2.9	1.9-2.2	1.8-2.8	3.0-3.6
DO	mg/l	≥3	7.5-7.8	8.6-8.9	8.5-8.8	7.0-7.3	8.2-8.6	7.3-7.6
SS	mg/l	-	<4	<4	<4	14-18	5-6	6-9
Fecal coliforms	mg/l	≤20000	170-220	**$1.8*10^5$ -$2.4*10^5$**	**$2.8*10^5$ -$3.5*10^5$**	$1.4*10^4$ -$2.1*10^4$	**$3.3*10^4$ -$3.4*10^4$**	**$2.3*10^4$ -$2.7*10^4$**

Parameter	Unit	Standard (IV)	1#	2#	3#	4#	5#	6#
Se	mg /l	≤0.1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5
Cd	mg/l	≤0.005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Table 6.6-3 Comparison of daily concentration of 14 parameters and standard values for Grade IV at 6 sites in East-West River (4th internal monitoring, 2017)

Parameter	Unit	Standard (IV)	1#	2#	3#	4#	5#	6#
pH		6~9	8.06-8.33	8.11-8.33	8.34-8.36	8.36-8.41	8.37-8.41	8.31-8.38
Oil	mg/l	≤0.5	≤0.01-0.01	≤0.01-0.02	0.01-0.03	0.01-0.02	0.02-0.03	0.03-0.04
TP	mg/l	≤0.3	0.05-0.07	0.06-0.08	0.09-0.11	0.08-0.10	0.10-0.12	0.10-0.13
anionic surfactants	mg/l	≤0.3	0.14-0.16	0.18-0.20	0.12-0.15	0.11-0.17	0.14-0.18	0.12-0.18
NH3-N	mg/l	≤1.5	0.342-0.368	0.808-0.858	0.482-0.540	0.342-0.376	0.522-0.664	0.620-0.658
TN	mg/l	≤1.5	1.28-1.40	**1.73-1.80**	**1.70-1.91**	0.85-0.95	**1.62-1.76**	**1.63-1.85**
COD_{Mn}	mg/l	≤10	2.5-2.7	2.6-2.7	2.8-3.0	2.6-2.8	2.9	3.6-3.8
COD_{cr}	mg/l	≤30	12	11-12	12-14	14	16-17	14-16
BOD5	mg/l	≤6	1.8-2.1	3.0-3.1	3.4-3.7	2.3-3.0	1.6-1.9	2.1-2.8
DO	mg/l	≥3	5.5-5.7	6.4-6.8	7.1-7.4	6.3-6.6	6.4-6.5	6.1-6.3
SS	mg/l	-	4.0-5.0	4-5	5-6	13-15	10-11	8-9
Fecal coliforms	mg/l	≤20000	20-80	90-130	140-210	**$2.4*10^4$** **$3.5*10^4$**	**$1.3*10^5$** **$2.2*10^5$**	230-330
Se	mg /l	≤0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cd	mg/l	≤0.005	0.0048-0.0049	0.0047	0.0043-0.0044	0.0045	0.0045-0.0046	0.0044-0.0046

60. According to the existing condition monitoring results, the water quality at 1#, 2#, 3# and 6# sites was exceeded the Grade IV(GB3838-2002) in terms of TN and Fecal coliforms; the internal monitoring showed that the concentration of TN at 2#, 3#, 5# and 6# sites was exceeded the Grade IV(GB3838-2002) by 8.0-27.0%. The down-stream of West River is surrounded by agricultural land. Comparison with the existing condition monitoring and internal monitoring results, the water quality at 2#, 3#, 5# and 6# sites was mainly polluted by the agricultural land.

61. Conclusion: the effect of construction activities of CLFR1 on water quality of the East-West River was insignificant during this reporting period.

6.7 Summary and Assessment of Monitoring Results of Wuding County urban infrastructure components

62. The 1st quarterly impact monitoring was conducted on 13th -16th February 2017 by CPEMS, covering air, noise and surface water quality. Sampling locations were listed in the table 6.7-1, including 4 boundary sites (No.1 to No.4) and 5 sensitive receivers(No.5 to No.9) for noise and air monitoring, 12 sites for water quality of 6 bridges crossing Wulong River and Caiyuan River (No.13 to No.24).

63. The 2nd quarterly impact monitoring was conducted on 18th -20th June 2017 by Yunnan Fangyuan Technical Co. Ltd, covering air, noise and surface water quality. Sampling locations were listed in the table 6.9, including 4 boundary sites(No.1 to No.4) and 6 sensitive receivers(No.5 to No.10) for noise and air monitoring, 12 sites for water quality of 6 bridges crossing Wulong River and Caiyuan River (No.13 to No.24).

64. The parameters and frequency of environmental impact monitoring is summarized in Table 6.1-2. The 1st impact monitoring report of 21 sites are provided by CPEMS (see APPENDIX Ⅹ), and The 2nd impact monitoring report of 22 sites are provided by Yunnan Fangyuan Technical Co. Ltd (see APPENDIX Ⅺ).

Table 6.7-1 List of sampling locations for air, noise and water quality in Wuding County project

NO.	Type	Name	Longitude (° ′ ″)	Latitude (° ′ ″)	Note
No.1	Air/Noise	武定县政协 Wuding Chinese People's Political Consultative Conference	102° 24′ 18″	25° 32′ 32″	West
No.2		北街社区院内 Beijie Community	102° 24′ 41″	25° 32′ 11″	South
No.3		旧城社区院内 Jiucheng Community	102° 24′ 4″	25° 32′ 38″	East
No.4		西和村委会院内 Xihe Village Committee	102° 24′ 29″	25° 32′ 53″	North
No.5		西和村 Xihe Village Committee	102° 24′ 30″	25° 32′ 52″	sensitive receiver
No.6		旧城社区 Jiucheng Community	102° 24′ 49″	25° 32′ 21″	sensitive receiver
No.7		武定县中医院 Wuding Chinese Medicine Hospital	102° 24′ 38″	25° 32′ 07″	sensitive receiver
No.8		思源实验中学 Siyuan Shiyan Middle School	102° 24′ 47″	25° 32′ 15″	sensitive receiver
No.9		白邑村 Baiyi Village	102° 25′ 06″	25° 32′ 43″	sensitive receiver
No.10		县交警大队 Traffic Police Group	102° 24′ 18″	25° 32′ 29″	sensitive receiver
No.11	Water	乌龙河治理起点上游 50 米 50m upper-stream of River rehabilitation start point	102° 24′ 2″	25° 33′ 12″	River rehabilitation upper-stream 50m
No.12		乌龙河治理末端下游 100 米 100m down-stream of River rehabilitation end	102° 25′ 10″	25° 32′ 38″	River rehabilitation down-stream

NO.	Type	Name	Longitude (° ′ ″)	Latitude (° ′ ″)	Note
		point			100m
No.13		CWD3（城北路）跨域乌龙河 1 号中桥上游 50 米 50m upper-stream of project bridge (No1 medium bridge)	102° 24′ 18″	25° 32′ 56″	project bridge upper-stream 50m
No.14		CWD3（城北路）跨域乌龙河 1 号中桥下游 100 米 100m down-stream of project bridge (No1 medium bridge)	102° 24′ 19″	25° 32′ 51″	project bridge down-stream 100m
No.15		CWD4-2（牡丹路）跨域乌龙河 2 号中桥上游 50 米 50m upper-stream of project bridge (No2 medium bridge)	102° 24′ 18″	25° 32′ 44″	project bridge upper-stream 50m
No.16		CWD4-2（牡丹路）跨域乌龙河 2 号中桥下游 100 米 100m down-stream of project bridge (No2 medium bridge)	102° 24′ 20″	25° 32′ 33″	project bridge down-stream 100m
No.17		CWD2(武续路)跨越乌龙河 3 号中桥上游 50 米 50m upper-stream of project bridge (No3 medium bridge)	102° 24′ 21″	25° 32′ 29″	project bridge upper-stream 50m
No.18		CWD2(武续路)跨越乌龙河 3 号中桥下游 100 米 100m down-stream of project bridge (No3 medium bridge)	102° 24′ 20″	25° 32′ 29″	project bridge down-stream 100m
No.19		CWD1（北城大道）跨越乌龙河 4 号中桥上游 50 米 50m upper-stream of project bridge (No4 medium bridge)	102° 24′ 31″	25° 32′ 18″	project bridge upper-stream 50m
No.20		CWD1（北城大道）跨越乌龙河 4 号中桥下游 100 米 100m down-stream of project bridge (No4 medium bridge)	102° 24′ 32″	25° 32′ 13″	project bridge down-stream 100m
No.21		CWD4-2(滨河路)跨越乌龙河 5 号中桥上游 50 米 50m upper-stream of project bridge (No5 medium bridge)	102° 24′ 43″	25° 32′ 15″	project bridge upper-stream 50m

NO.	Type	Name	Longitude (° ′ ″)	Latitude (° ′ ″)	Note
No.22		CWD4-2(滨河路)跨越乌龙河 5 号中桥下游 100 米 100m down-stream of project bridge (No5 medium bridge)	102° 24′ 48″	25° 32′ 18″	project bridge down-stream 100m
No.23		CWD4-2（牡丹路）跨越菜园河菜园河中桥上游 50 米 50m upper-stream of project bridge (Caiyuanhe medium bridge)	102° 24′ 56″	25° 32′ 38″	project bridge upper-stream 50m
No.24		CWD4-2（牡丹路）跨越菜园河菜园河中桥下游 100 米 100m down-stream of project bridge (Caiyuanhe medium bridge)	102° 24′ 59″	25° 32′ 43″	project bridge down-stream 100m

65. Air Quality Monitoring

A. Air Quality at the construction boundary

- The hourly concentration of SO_2, NO_x and TSP (four times per day for 3 consecutive days, and one hour each time) at northern, eastern, southern and western boundary of the construction site in Wuding County component for the 1st and 2nd quarterly impact monitoring in 2017 was illustrated in figure 6.7-1, figure 6.7-2 and figure 6.7-3.
- The hourly concentration of SO_2 ranges between 0.007 mg/m^3 and 0.037 mg/Nm^3; the hourly concentration of NO_x ranges between 0.005 mg/m^3 and 0.120mg/Nm^3; the hourly concentration of TSP ranges between 0.001 mg/m^3 and 0.822mg/Nm^3.
- According to the Integrated Emission Standard of Air Pollutants (GB16297-1996), standard maximum emission of hourly concentration of SO_2, NO_x, and TSP are 0.4mg/m^3,0.12 mg/m^3 and 1.0 mg/m^3 respectively. From figure 6.7-1, figure 6.7-2 and figure 6.7-3, the hourly concentration of SO2, NO_x and TSP at four boundary sites were less than the standard maximum emission values.
- Conclusion: During the reporting period, the emission of air pollutants at the four boundary sites was accordance with the standard maximum emission values.

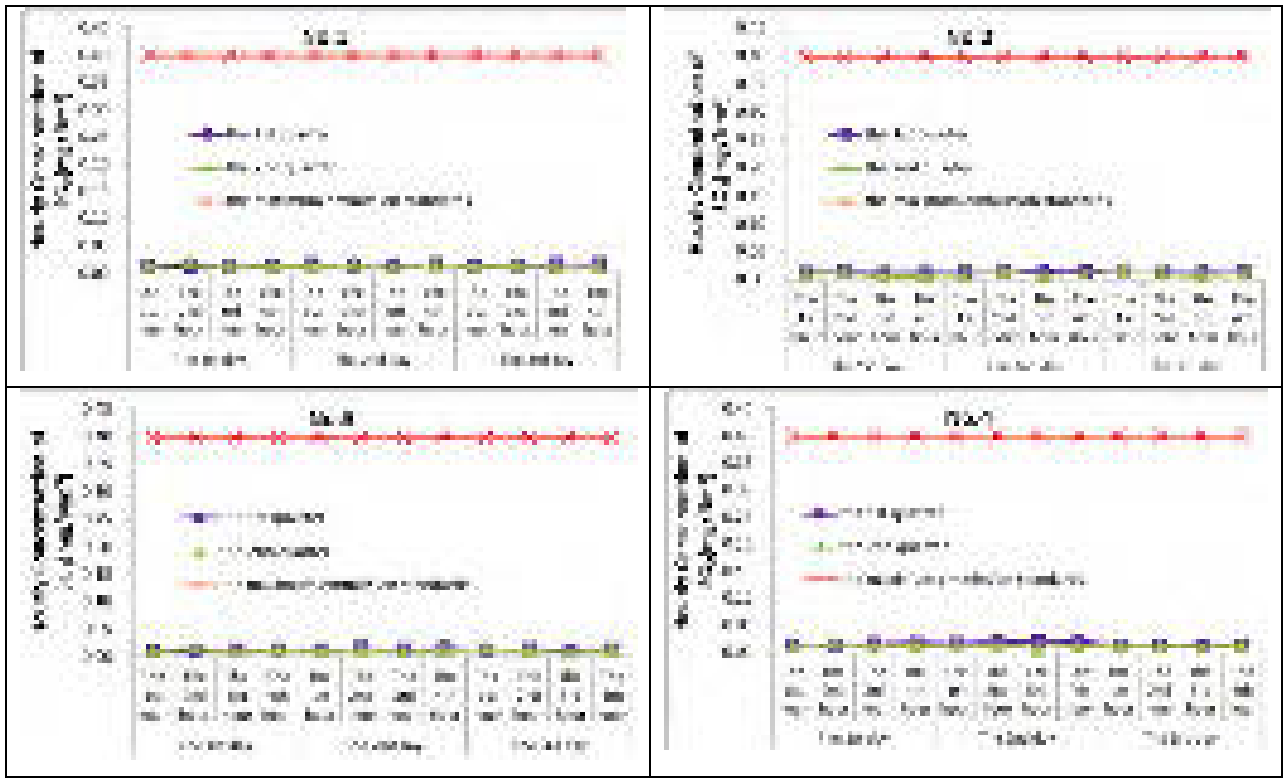


Figure 6.7-1 the hourly concentration of SO_2 at the boundary sites in Wuding County component (January - June, 2017)

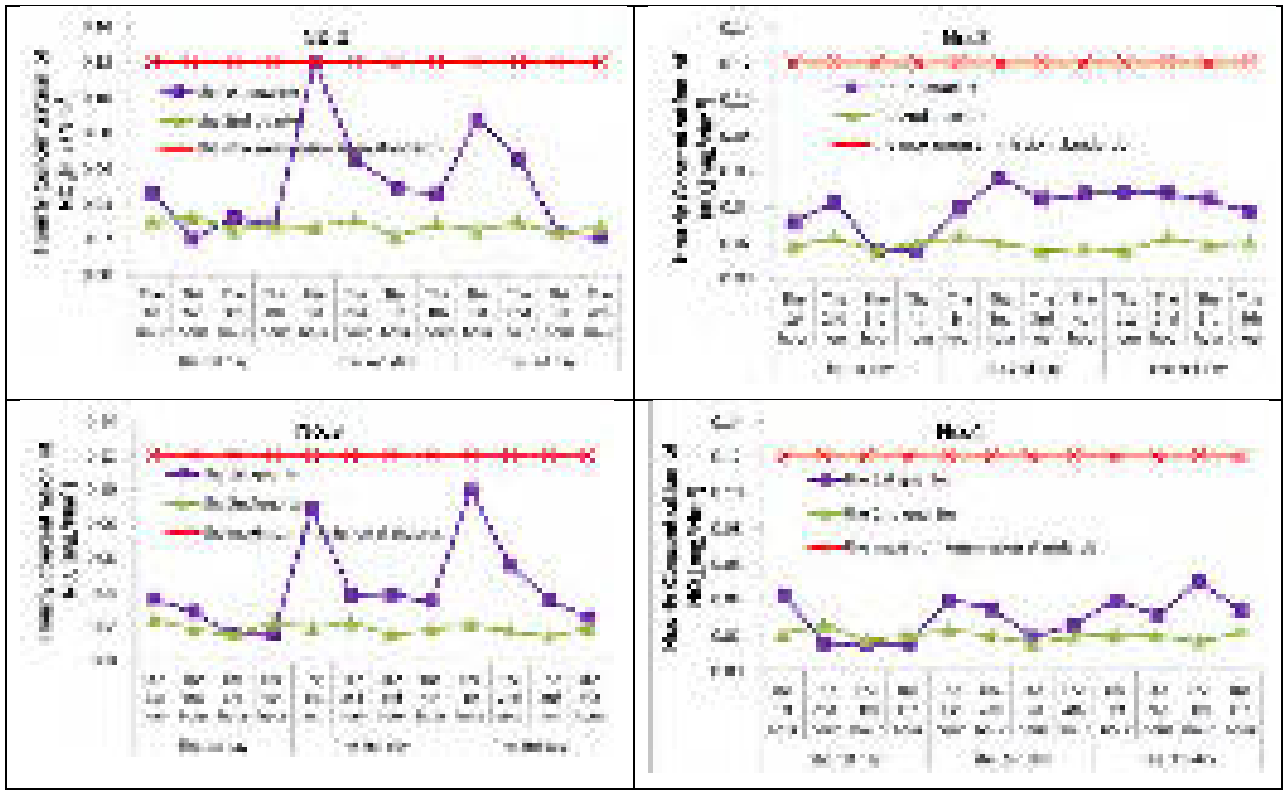


Figure 6.7-2 the hourly concentration of NO_X at the boundary sites in Wuding County component (January-June, 2017)

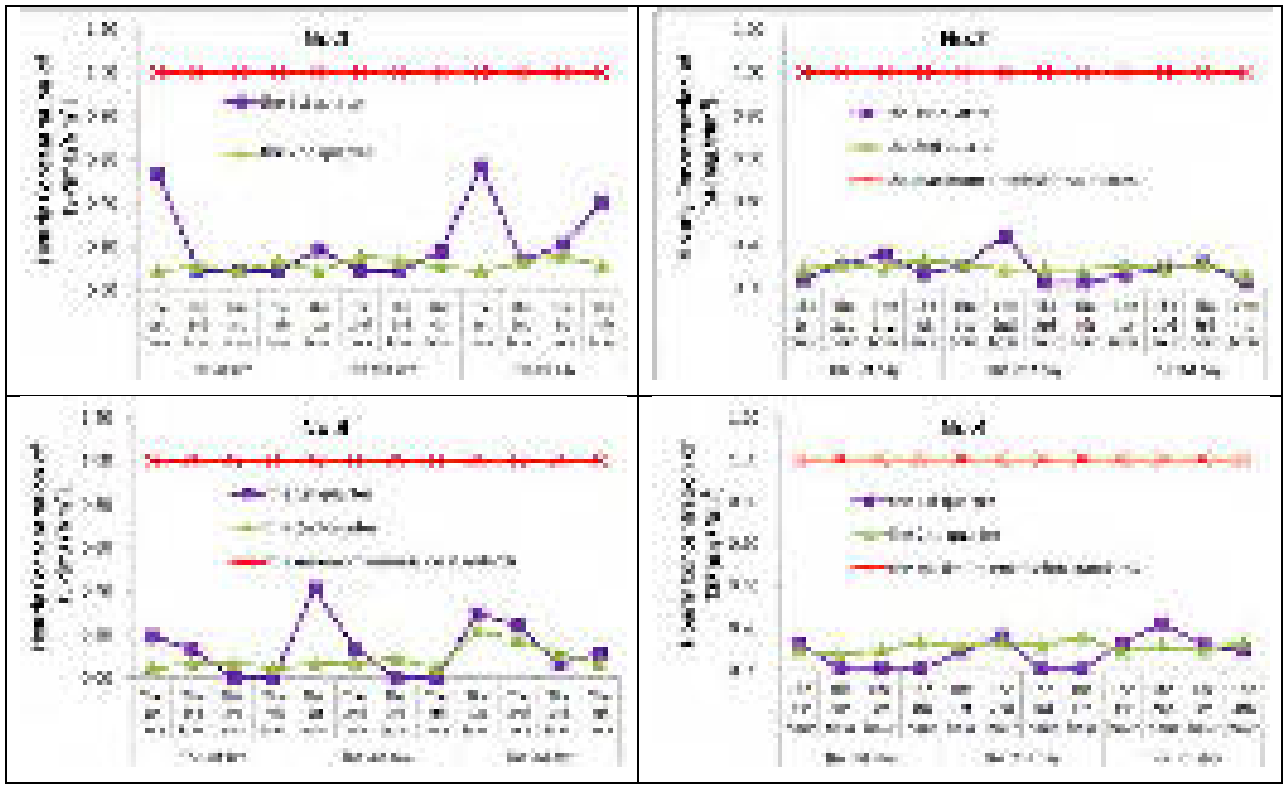


Figure 6.7-3 the hourly concentration of TSP at the boundary sites in Wuding County component (January – June, 2017)

B. Air Quality at the sensitive receivers

- Air quality was measured at 5 sensitive receivers (No.5 to No.9) in February, 2017 for Wuding County component. One more sensitive receiver was added in the 2nd quarterly impacting monitoring in Wuding County component.
- The average 24hours concentration of SO_2, NO_2, TSP and PM_{10} (24 hours over three consecutive days) at the sensitive receivers was illustrated in Figure 6.7-4 during the reporting period.
- According to the *Ambient Air Quality Standard* (GB3095-2012), standard average 24hours concentration of SO_2, NO_2, TSP and PM_{10} are 150ug/m^3, 80ug/m^3, 300ug/m^3 and 150ug/m^3 respectively, for Grade II level. From Figure 6.5-4, during the 1st quarter, the average 24hours concentration of PM_{10} at No.6 site was greater than the Grade II values by 6.7% (on 13th February) and13.3% (on 14th February). During the 2nd quarter, the average 24hours concentration of SO_2, NO_2, TSP and PM_{10} at 2 sensitive receivers (No.10 and No.11) was less than the Grade II level.
- Conclusion: The ambient air quality at 4 sensitive receivers (No.5, No.7, No.8 and No.9) was accordance with the Grade II level, and the ambient air quality at No.6 was beyond the Grade II level in terms of the pollutants of PM_{10} during the 1st quarter, 2017; during the 2nd quarter, the ambient air quality at 6 sensitive receivers was accordance with the Grade II level.

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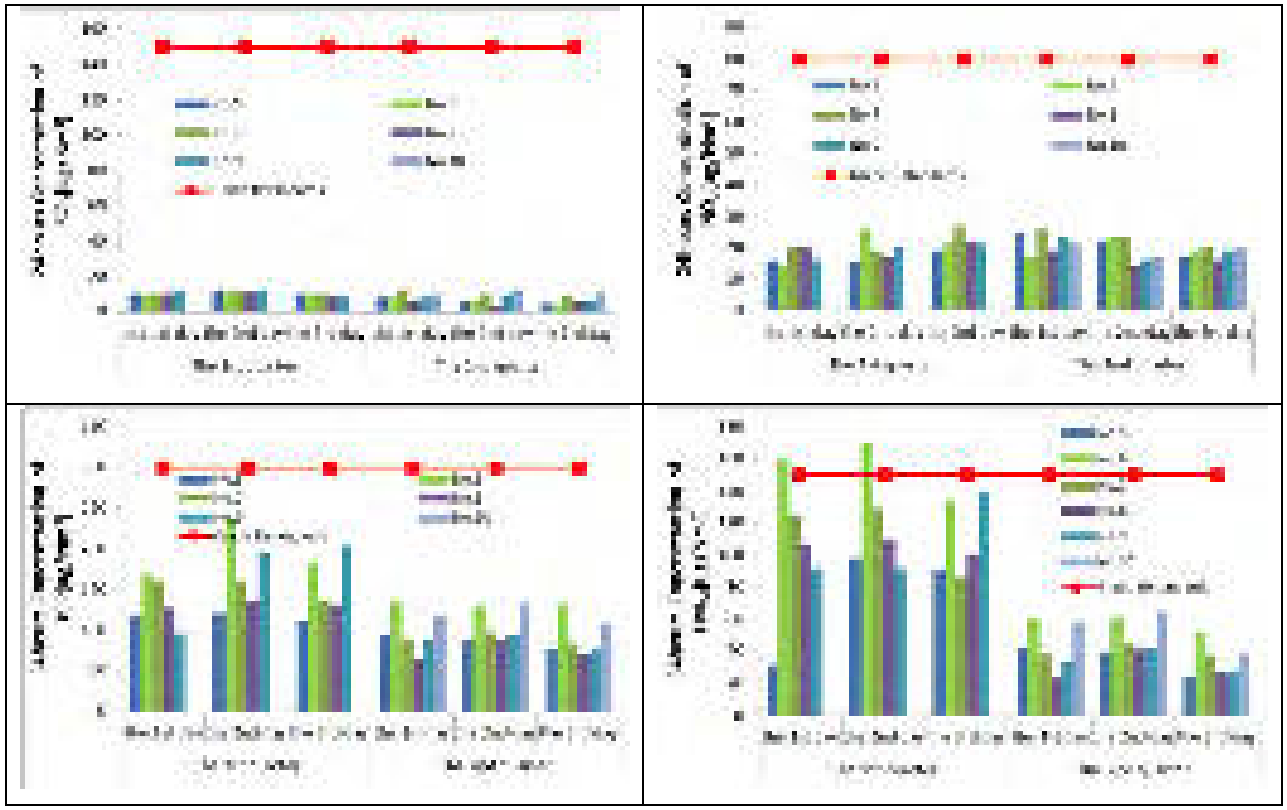


Figure 6.7-4 the average 24 hours concentration of SO_2, NO2, TSP and PM_{10} at sensitive receivers in Wuding County component (January – June, 2017)

C. Summary

- The emission of air pollutants at the four boundary sites was accordance with the standard maximum emission values indicated air quality of boundary sites was less influenced by the road construction during the reporting period.
- Comparison of air quality at the sensitive receivers during this reporting period with the value of the 4th quarter 2016, air quality at two sensitive receivers (No.7 and No.9) was accordance with the Grade IV level which was beyond the Grade IV level during the 4th quarter 2016, indicating the dust mitigation measures have been carried out during the reporting period. However the concentration of PM_{10} at No. 6 (Jiucheng Community) was exceeded the Grade II level during the 1st quarter 2017 which indicated air quality at the site might be influenced by the road construction. The water spraying mitigation measures should be strengthened during construction period, especially in dry season.

66. Noise Level Monitoring

A. Noise at construction boundary

- The daytime and night-time noise (including the maximum night-time noise) over the consecutive two days at the four construction boundary sites in Wuding County component during the reporting period was illustrated in Figure 6.7-5.

- According to *Construction Site Noise Emission Standards* (GB12523-2011), the emission limit daytime noise, and night-time noise are 70 dB (A) and 55 dB (A) respectively. From Figure 6.7-5, the daytime noise at the four boundary sites was less than the emission limit value during the reporting period; the night-time noise at the two boundary sites (No.1: Wuding Chinese People's Political Consultative Conference, and No.4: Xihe Village Committee) was greater than the emission limit value during the 1st quarter 2017, in which the night-time noise at No.1 and No.4 was greater than the emission limit value by 18.1-20.0% and 5.5%.
- Conclusion: during the 1st quarter 2017, the noise environmental quality at the No.2 and No.3 was accordance with the *Construction Site Noise Emission Standards* (GB12523-2011); night-time noise at No.1 and No.4 were beyond the standards. During the 2nd quarter 2017, noise at the four boundary sites was all accordance with the *Construction Site Noise Emission Standards* (GB12523-2011).

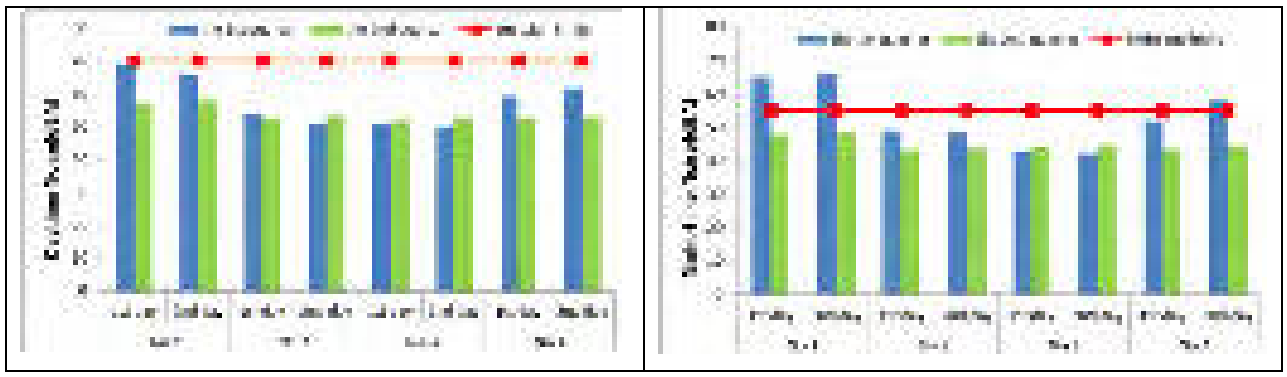


Figure 6.7-5 Noise at the construction boundary sites in Wuding County component (January - June, 2017)

B. Noise at the sensitive receivers

- Noise monitoring during the 1st quarter 2017 was conducted at 5 sensitive receivers as defined in 4th quarter 2016. And one more sensitive receiver was added in the 2nd quarter 2017.
- The daytime and night-time noise at the sensitive receivers over two consecutive days for three phases (pre-construction, the 1st quarter, and 2nd quarter) were illustrated in Figure 6.7-6. The number of the sensitive receivers is 4, 5 and 6 for pre-construction, the 1st quarter, and 2nd quarter, respectively.
- Basing on *Environmental Quality Standard for Noise* (GB3096-2008), the standard daytime noise and night-time noise are 60 dB (A) and 50dB (A) respectively, for Grade II level. From Figure 6.7-6, the night-time noise at No.6 (Jiucheng Community) was greater than the Grade II level by 4.0% during the 1st quarter 2017; and the daytime and night-time noise at the other sensitive receivers was less than the Grade II level during the reporting period,
- Conclusion: the noise environmental quality at the sensitive receivers was accordance with the Grade II level during the pre-construction period and the 2nd quarter, 2017; and the noise at No.5, No.7, No.8 and No.9 was accordance with the Grade II level (GB3096-2008); and the noise at No. 6 was beyond the standards.

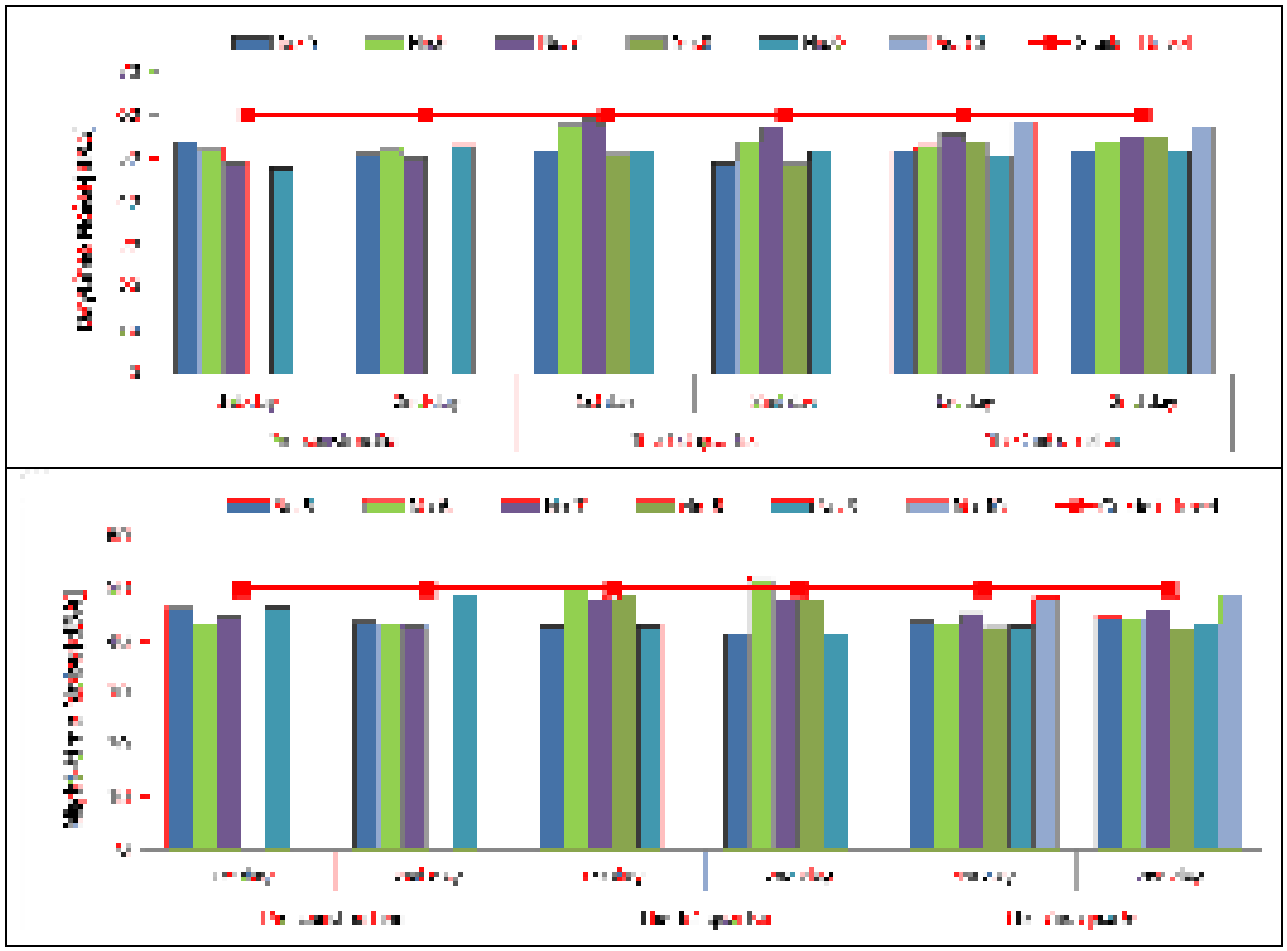


Figure 6.7-6 Noise at sensitive receivers in Wuding County component during three phases (Pre-construction, the 1st quarter, and the 2nd quarter, 2017)

C. Summary

- Noise monitoring results at the construction boundary sites showed the noise at No.1 and No.4 was beyond the emission limit value in the 1st quarter 2017, and there were 5 road-contracts (CWD1, CWD2, CWD3, CWD4-1, and CWD4-2) being construction, the night-time noise at No.1 and No.4 was possible influenced by the road construction at night.
- Noise monitoring results at the sensitive receivers showed the noise environmental quality at the sensitive receivers has been improved a lot; the noise at No.5 and No.7 was accordance with the Grade II level which was beyond the standard during the 4th quarter 2016. Meanwhile, the night-time noise at No.6 was still beyond the standard by 4% which indicated the noise control should be strengthen in the following construction period, special no construction activities at night.

67. Surface Water Quality Monitoring

A. Sampling sites: During the reporting period, six bridges crossing Wulong River and Caiyuan River were to be built in terms of CWD1, CWD2, CWD3, CWD4-1 and CWD4-2, namely No.1 medium bridge, No.2 medium bridge, No.3 medium bridge,

No.4 medium bridge, and No.5 medium bridge and Caiyuanhe medium bridge. Water quality at 12 sites (No.15– No.26) was detected in the lab.

B. The concentrations range of 12 parameters over three days at the upper-stream and down-stream of 6 bridges were listed in the table 6.7-2 - table 6.7-7, following with the standard values for grade IV level from *Environmental Quality Standards for Surface Water* (GB3838-2002), including pre-construction and the reporting period. According to the Yunnan Environmental Functional zoning, the surface water quality in the construction sites should be up to grade IV.

C. The monitoring results showed during the reporting period, water quality at 12 sites was all beyond the Grade IV level, in which the concentration of TN and fecal coliforms at the upper-stream and down-stream of bridges (No.1, No.3 and No.4 medium bridge) was beyond the standards during the pre-construction, the 1st and 2nd quarter 2017; In terms of No.2 medium bridge, the concentration of TN and fecal coliforms at the two sites was beyond the standards during the pre-construction and the 1st quarter 2017, and the concentration of TN, NH_3-N and fecal coliforms at the two sites was beyond the standards during the 2nd quarter 2017. In terms of No.5 medium bridge, the concentration of TN, NH_3-N and fecal coliforms at the two sites was beyond the standards during the pre-construction period; the concentration of TN and fecal coliforms at the two sites was beyond the standards during the 1st quarter 2017; During the 2nd quarter 2017, the concentration of two parameters (TN and fecal coliforms) at the upper-stream was greater than the standard, and three parameters (TN, NH_3-N and fecal coliforms) at the downstream was beyond the standards. In terms of Caiyuanhe medium Bridge, during the pre-construction period, the concentration of TN, NH_3-N and fecal coliforms at the upper-stream was beyond the standards, and the concentration of TN and fecal coliforms at the down-stream was beyond the standards; During the 1st and 2ndquarter 2017, the concentration of TN, NH_3-N and fecal coliforms at the two sites was beyond the standards.

D. Comparison analysis

- In terms of TN, the average concentration of TN over three days at the 12 sites during the reporting period and pre-construction phase was illustrated in figure 6.7-7. And comparison of the down-stream with the upper stream in terms of the average concentration of TN over 3 consecutive days was shown in figure 6.7-8. From the figure 6.7-7, the average concentration of TN at upper-stream and down-steam of No.1 and No.2 bridge during the 1st quarter 2017 was greater than the corresponding value in the pre-construction phase by 132% (upper-stream)-139% (downstream), and 80.9% (upper-stream)-87.8% (downstream) respectively. The difference of TN at two bridges between the upper-stream and the downstream was narrow, the increment of the concentration of TN at the downstream VS the upper-steam was 14.4% and 18.9% for No.1 and No.2 bridge respectively. The high concentration of TN during the 1st quarter 2017 at No.1 and No.2 bridge might be influenced by no-point agricultural pollution, and less influenced by the construction of bridge across the Wulong River. From figure 6.7-8, the concentration of TN at the downstream of No.5 medium bridge was greater than the value at the upper-stream by 61.4% during the 2nd quarter 2017, and the difference of concentration of TN at two sites between the pre-construction phase and the 2nd quarter 2017 was insignificant with 18.2% decrease at the upper-stream and 4.5%

increase at the downstream. The increment of the concentration of TN at the downstream of No.5 medium bridge might be influenced the construction activities of No.5 medium bridge during the 2nd quarter 2017.

- In terms of NH_3-N, the concentration of NH_3-N over 3 consecutive days at the upper-stream and downstream of No.2 medium bridge, No.5 medium bridge and Caiyuanhe bridge was illustrated in figure 6.7-9. At No.2 medium bridge, the concentration of NH_3-N during the pre-construction phase and the 2nd quarter 2017 was accordance with the Grade IV level, and the average value of 3 days at the downstream was greater than the value at the upper-stream by 47.3% during the 1st quarter 2017 which indicated the water quality of Wulong River might be influenced by the No.2 medium bridge construction activities. At No.5 medium bridge, the average value of 3days at the downstream was greater than the value at the upper-stream by 79.9% during the 2nd quarter 2017 which indicated the water quality of Wulong River was might be influenced by the No.5 medium bridge construction. At Caiyuanhe Bridge, the concentration of NH_3-N during the pre-construction phase was accordance with the Grade IV level. The increment of the average concentration of NH_3-N at the downstream was greater than the value at the upper-stream by 33% and 3.9% for the 1st quarter and the 2nd quarter 2017 respectively which indicated the water quality of Caiyuanhe River was less influenced by the bridge construction.

E. Summary

- The monitoring results revealed the water quality in the Wulong River (No.5 medium bridge and No.2 medium bridge) was possible influenced by Binghe Road construction during the 2nd quarter 2017 and Mudan Road construction during the 1st quarter 2017.
- Measures need to be strengthened: waste water produced from construction site need to be treated before discharge to the River. Soil and water conservation measures need to be place in the construction site.

Table 6.7-2 Comparison of daily concentration of 12 parameters and standard values for Grade IV at No.1 medium bridge (Pre-construction phase, 1st and 2nd quarter 2017）

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
pH		6~9	7.98-8.02	8.11-8.55	7.87-8.01	8.0-8.12	8.14-8.48	7.97-7.99
anionic surfactants	mg/l	⩽0.3	0.05L	0.05L-0.07	0.10-0.12	0.05L	0.11-0.12	0.05-0.08
oil	mg/l	⩽0.5	0.013-0.039	0.01L	<0.01-0.01	0.027-0.044	0.01L-0.01	0.01
SS	mg/l	-	6--9	16-17	<4.0-4.0	6--9	17-19	<4.0-4.0
COD_{Mn}	mg/l	⩽10	1.2-1.4	1.6-1.7	0.9-1.1	1.0-1.4	1.6-1.8	2.2-2.4
TN	mg/l	⩽1.5	1.44-1.49	**1.82-1.87**	**2.15-2.43**	**1.49-1.72**	**2.28-2.44**	**2.40-2.61**
NH_3-N	mg/l	⩽1.5	0.21-0.28	0.301-0.337	0.708-0.758	0.23-0.36	0.857-0.818	0.772-0.812
TP	mg/l	⩽0.3	0.03-0.08	0.10-0.11	0.08-0.09	0.05-0.11	0.13-0.15	0.07-0.09
fecal coliforms	mg/l	⩽20000	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**
DO	mg/l	⩾3	7.8-8.2	8.7-8.9	6.0-6.1	8.0-8.12	8.2-8.6	5.9-6.0

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
BOD_5	mg/l	≤6	2L-3.3	2.2-2.4	3.0-5.7	2L-2.7	3.5-3.6	3.5-4.2
COD_{cr}	mg/l	≤30	7.0-10.0	10L	5.0-9.0	5.0-7.0	10L-10.6	6.0-8.0

Table 6.7-3 Comparison of daily concentration of 12 parameters and standard values for Grade IV at No.2 medium bridge（Pre-construction phase, 1st and 2nd quarter 2017）

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
pH		6~9	8.03-8.06	8.16-8.24	8.04-8.13	8.02-8.05	7.92-7.94	7.92-8.15
anionic surfactants	mg/l	≤0.3	0.05L	0.10-0.11	0.16-0.18	0.05L-0.07	0.12-0.13	0.10-0.11
oil	mg/l	≤0.5	0.011-0.020	0.01-0.02	<0.01-0.01	0.018-0.024	0.01L-0.01	0.01-0.02
SS	mg/l	-	7--10	18-23	<4.0-5.0	8--11	24-27	<4.0-5.0
COD_{Mn}	mg/l	≤10	1.2-1.4	1.8-2.0	1	1.6-1.8	2.0-2.1	1.4-1.8
TN	mg/l	≤1.5	**1.81-1.93**	**4.3-4.4**	**2.04-2.27**	**2.04-2.25**	**5.12-5.17**	**2.49-2.81**
NH_3-N	mg/l	≤1.5	0.230-0.280	**1.63-1.64**	0.555-0.654	0.580-0.980	**2.4-2.43**	1.16-1.28
TP	mg/l	≤0.3	0.05-0.08	0.17-0.22	0.06-0.08	0.09-0.12	0.19-0.29	0.12-0.14
fecal coliforms	mg/l	≤20000	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**
DO	mg/l	≥3	7.8-8.2	6.3-7.8	6.1-6.3	7.7-8.0	6.2-6.8	5.9-6.1
BOD_5	mg/l	≤6	2L	4.2-4.4	3.7-4.8	2.6-3.0	4.5-4.6	3.6-5.4
COD_{cr}	mg/l	≤30	4.0-7.0	12.5-12.9	7.0-14.0	9.0-10.0	11.2-12.0	6.0-9.0

Table 6.7-4 Comparison of daily concentration of 12 parameters and standard values for Grade IV at No.3 medium bridge (Pre-construction phase, 1st and 2nd quarter 2017）

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
pH		6~9	8.04-8.06	8.11-8.55	7.98-8.16	8.03-8.09	8.14-8.48	7.96-8.20
anionic surfactants	mg/l	≤0.3	0.05L-0.07	0.05L-0.07	0.09-0.11	0.05L-0.10	0.11-0.12	0.11-0.13
oil	mg/l	≤0.5	0.020-0.029	0.01L	<0.01-0.01	0.019-0.025	0.01L-0.01	<0.01-0.01
SS	mg/l	-	5--8	16-17	<4.0-4.0	4--6	17-19	<4.0-4.0
COD_{Mn}	mg/l	≤10	1.4-1.9	1.6-1.7	1.5-1.9	1.4-1.7	1.6-1.8	2.1-2.5
TN	mg/l	≤1.5	**1.87-2.36**	**1.82-1.87**	**2.37-2.66**	**2.31-2.47**	**2.28-2.44**	**2.53-2.79**
NH_3-N	mg/l	≤1.5	0.60-0.70	0.301-0.337	1.15-1.29	0.62-0.64	0.857-0.818	1.34-1.48
TP	mg/l	≤0.3	0.07-0.14	0.10-0.11	0.12-0.13	0.06-0.12	0.13-0.15	0.13-0.14
fecal coliforms	mg/l	≤20000	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**
DO	mg/l	≥3	7.8-8.0	8.7-8.9	5.8-6.0	7.7-8.0	8.2-8.6	5.3-5.7

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
BOD_5	mg/l	≤6	2L-3.4	2.2-2.4	3.4-5.4	2.3-2.6	3.5-3.6	4.8-5.2
COD_{cr}	mg/l	≤30	11.0-14.0	10L	6.0-15.0	8.0-11.0	10L-10.6	10.0-18.0

Table 6.7-5 Comparison of daily concentration of 12 parameters and standard values for Grade IV at No.4 medium bridge (Pre-construction phase, 1st and 2nd quarter 2017）

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
pH		6~9	8.0-8.06	8.01-8.49	8.16-8.18	8.01-8.06	8.02-8.58	8.14-8.16
anionic surfactants	mg/l	≤0.3	0.05L-0.06	0.05L	0.10-0.14	0.05L-0.07	0.05L	0.08-0.12
oil	mg/l	≤0.5	0.014-0.026	0.01L-0.02	0.01-0.02	0.024-0.042	0.01L	0.01-0.04
SS	mg/l	-	7--9	16--17	<4.0-4.0	5--6	17--18	<4.0-4.0
COD_{Mn}	mg/l	≤10	1.3-1.6	1.5-1.6	1.3-1.6	1.4-1.5	1.6	1.3-1.7
TN	mg/l	≤1.5	**1.53-2.14**	**1.78-1.89**	**2.36-2.81**	**2.23-2.55**	**1.99-2.12**	**2.72-3.03**
NH_3-N	mg/l	≤1.5	0.67-0.77	0.244-0.288	1.31-1.34	0.74-0.87	0.383-0.393	1.2-1.3
TP	mg/l	≤0.3	0.08-0.12	0.09-0.13	0.12-0.13	0.07-0.09	0.1	0.13-0.16
fecal coliforms	mg/l	≤20000	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**
DO	mg/l	≥3	7.5-7.9	8.6-8.9	5.3-5.6	7.4-7.7	8.7-9.3	5.1-5.6
BOD_5	mg/l	≤6	2L-2.0	1.8-2.0	4.2-4.6	2L-2.2	1.9	4.6-4.9
COD_{cr}	mg/l	≤30	4.0-9.0	10L	7.0-8.0	9.0-12.0	10L	10.0-11.0

Table 6.7-6 Comparison of daily concentration of 12 parameters and standard values for Grade IV at No.5 medium bridge (Pre-construction phase, 1st and 2nd quarter 2017）

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
pH		6~9	8.02-8.08	8.15-8.39	8.12-8.18	7.98-8.01	8.15-8.24	7.94-8.07
anionic surfactants	mg/l	≤0.3	0.13-0.25	0.12-0.14	0.16-0.18	0.04-0.044	0.13-0.16	0.09-0.12
oil	mg/l	≤0.5	0.026-0.031	0.01L-0.01	<0.01-0.01	-	0.01L-0.02	0.01-0.02
SS	mg/l	-	6--8	17--20	<4.0-4.0	10--14	19--20	<4.0-4.0
COD_{Mn}	mg/l	≤10	2.0-2.7	1.8-2.0	1.4-1.9	1.8-2.0	1.9-2.0	1.9-2.0
TN	mg/l	≤1.5	**2.72-3.38**	**2.65-2.74**	**2.28-2.68**	**3.66-3.91**	**2.94-3.16**	**3.76-4.13**
NH_3-N	mg/l	≤1.5	**1.28-2.11**	0.898-0.978	1.23-1.29	**1.27-1.83**	1.15-1.19	**2.12-2.39**
TP	mg/l	≤0.3	0.07-0.14	0.14-0.15	0.12-0.14	0.15-0.35	0.17-0.18	0.20-0.26
fecal coliforms	mg/l	≤20000	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**
DO	mg/l	≥3	7.4-7.9	7.3-8.0	5.2-5.7	6.9-7.0	6.7-7.9	5.1-5.2

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
BOD_5	mg/l	≤6	2.0-2.1	3.7-3.8	4.6-4.8	3.4-3.8	4.0-4.2	2.9-5.1
COD_{cr}	mg/l	≤30	5.0-7.0	10L	9.0-12.0	8.0-13.0	11.4-12.2	5.0-10.0

Table 6.7-7 Comparison of daily concentration of 12 parameters and standard values for Grade IV at Caiyuanhe medium bridge(Pre-construction phase, 1st and 2nd quarter 2017）

Parameters	Unit	Standard	50m upper-stream			100m down-stream		
		Grade IV	Pre-Construction	The 1st quarter	The 2nd quarter	Pre-Construction	The 1st quarter	The 2nd quarter
pH		6~9	7.95-7.99	8.02-8.12	7.95-8.01	7.94-7.95	8.02-8.13	7.99-8.07
anionic surfactants	mg/l	≤0.3	0.13-0.17	0.14-0.16	0.08-0.09	0.10-0.12	0.15-0.16	0.06-0.08
oil	mg/l	≤0.5	0.029-0.044	0.01-0.02	<0.01	0.031-0.041	0.02-0.05	0.02-0.03
SS	mg/l	-	5--7	42-79	<4.0-5.0	4--6	49-56	<4.0-4.0
COD_{Mn}	mg/l	≤10	1.9-2.3	2.0-2.1	2.4-2.8	1.9-2.1	2	2.6-3.0
TN	mg/l	≤1.5	**3.40-4.00**	**3.68-3.86**	**4.55-4.88**	**3.27-4.45**	**4.26-4.38**	**4.85-5.01**
NH_3-N	mg/l	≤1.5	**1.28-1.64**	**1.79-1.89**	**3.07-3.28**	1.24-1.40	**2.34-2.47**	**3.20-3.44**
TP	mg/l	≤0.3	0.12-0.22	0.25-0.26	0.27-0.33	0.11-0.18	0.26	0.28-0.36
fecal coliforms	mg/l	≤20000	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**	**≥24000**
DO	mg/l	≥3	6.6-6.9	6.8-6.9	5.4-5.7	6.6-7.0	6.5-6.9	5.0-5.3
BOD_5	mg/l	≤6	3.0-3.4	4.9-5.1	5.0-5.6	2.6	5.2-5.3	4.85.0
COD_{cr}	mg/l	≤30	9.0-13.0	14.1-14.2	11.0-18.0	9.0-10.0	16.1-16.9	11.0-18.0

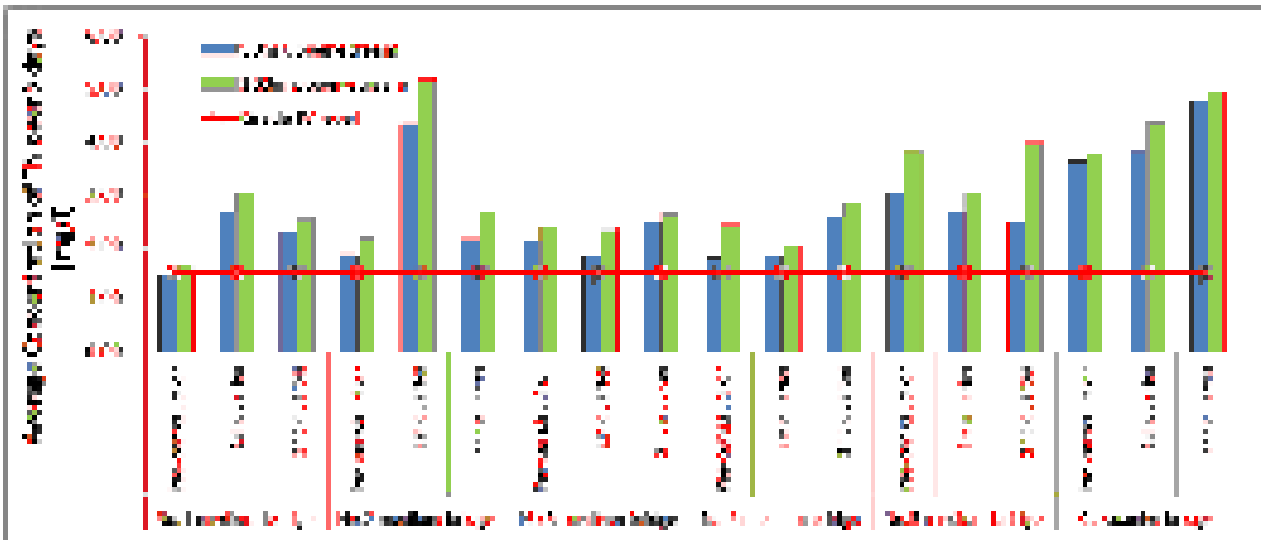


Figure 6.7-7 the average concentration of TN over three days at the upper-stream and down-stream of 6 bridges (pre-construction phase, the 1st and 2nd quarter 2017)

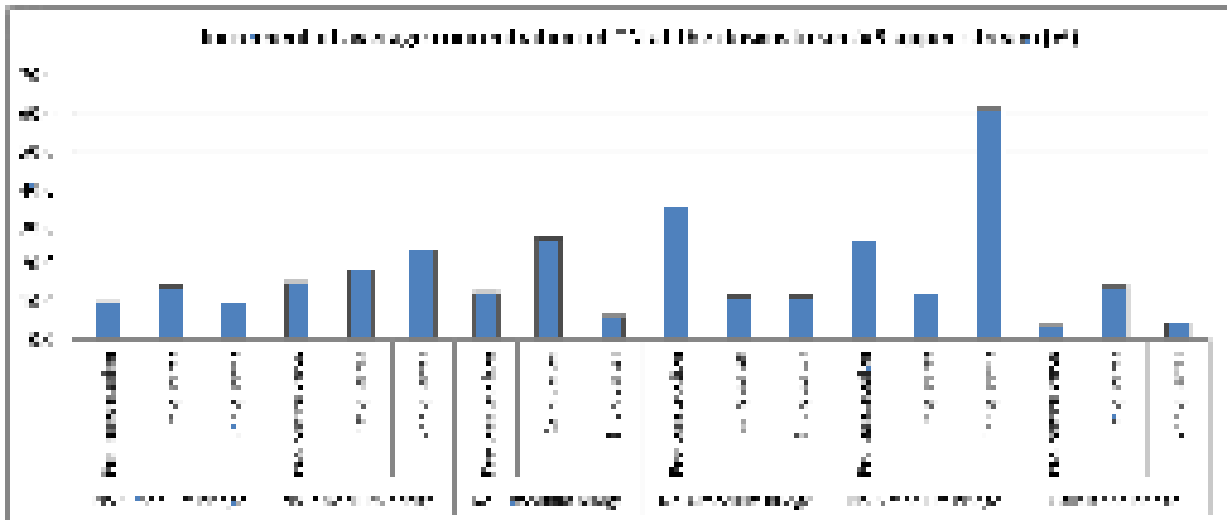
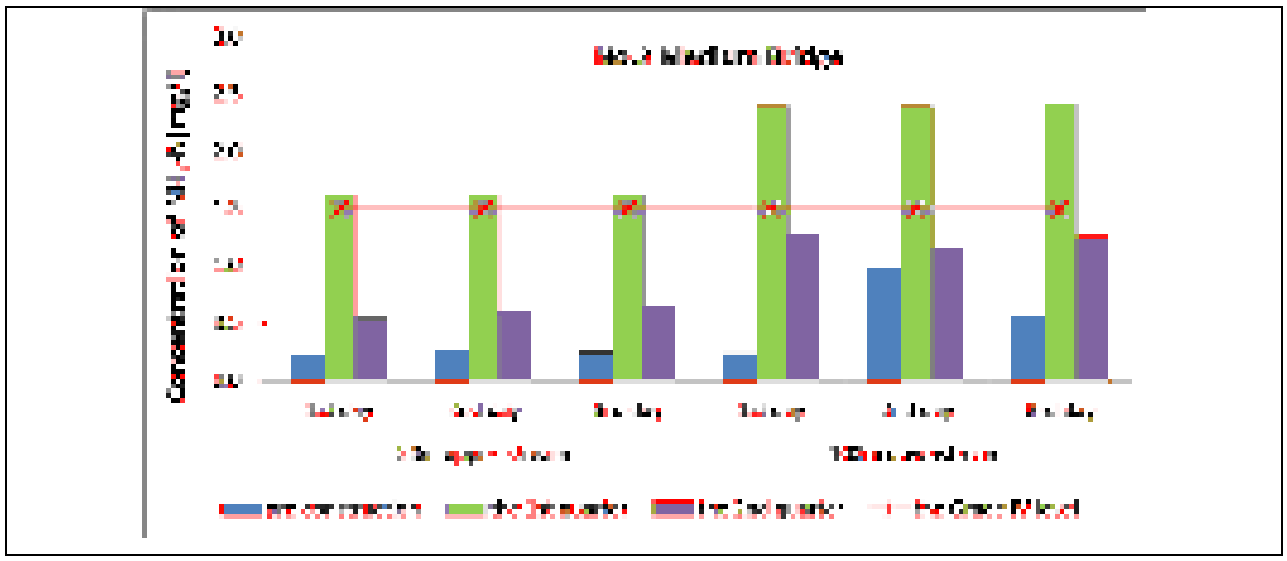


Figure 6.7-8 the increment of the average concentration of TN at the downstream VS upper-stream of 6 bridges (pre-construction phase, the 1st and 2nd quarter 2017)



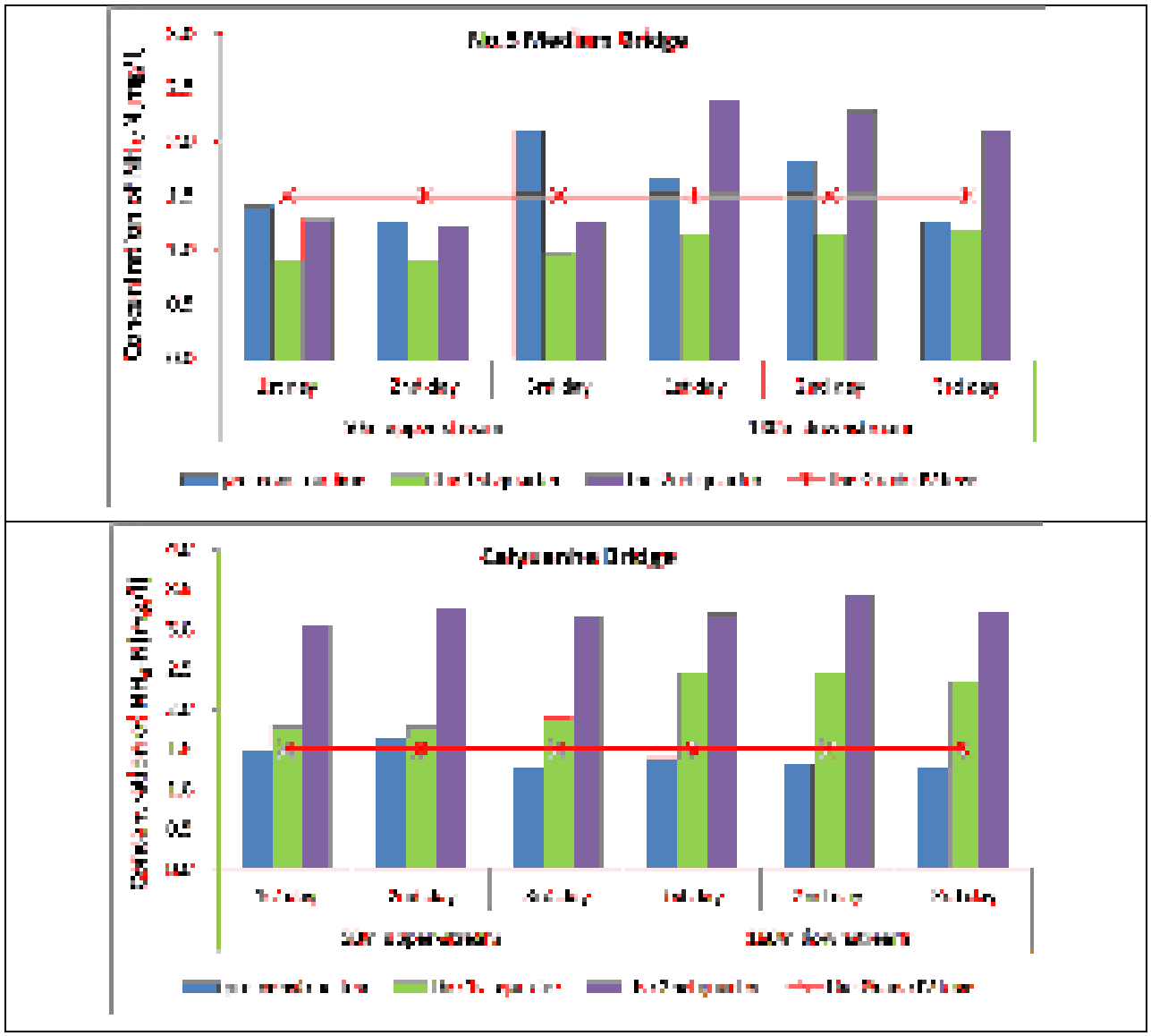


Figure 6.7-9 the concentration of NH_3-N at the upper-stream and down-stream of 3 bridges (Pre-construction phase, the 1st and 2nd quarter 2017)

7.0 PUBLIC CONSULTATION AND GRIEVANCE REDRESS STATUS

7.1 Public Consultation Activities

68. The EMP proposed a plan for public consultation and participation. Specific details of the plan are summarized in the following table 7.1.

Table 7.1 – Public Consultation and Participation Plan

Organizer	Approach	Times/Frequency	Subjects	Participants
Project preparation				
EIA preparation authors (Institutes)	Questionnaires and interviews	During field work for EIA	Project priority, effects, attitudes to the Project/ components, and suggestions	Residents within subproject areas and construction area
TA Consultants, ADB	Site visits, and public consultations	Two rounds of formal consultation in each city, 5 review missions	Comments and recommendations of affected people and stakeholders	Representatives of affected people and stakeholder agencies
TA Consultants, and LPMOs	Establish Grievance Redress Mechanism arrangements in each county/city	Ongoing	Pathway for complaints from and resolution of environmental problems in construction and operation	Affected persons, AP representatives and other stakeholders
Construction				
PIUs, LPMOs, LIEC	Public consultation through questionnaire survey, site visits	At least once a year	Adjusting mitigation measures if necessary, construction impacts, comments and suggestions	Work staff within construction area; Residents within construction area
	Expert workshops	As needed, based on public consultation	Comments and suggestions on mitigation measures, public opinions; adjusting mitigation measures accordingly	Experts from various sectors
	Public workshops	At least once prior to mid-term review mission	EMP implementation progress, adjusting	Representatives of residents and social sectors

Organizer	Approach	Times/Frequency	Subjects	Participants
			mitigation measures if necessary, construction impacts, comments and suggestions	
Test Operation				
LPMOs, PIUs, Operators	Site visits	Multiple, depending on results of Project completion environmental audit	Comments and suggestions on operational impacts, public suggestions on corrective actions	Local residents and social sectors, EPBs
Operation				
LPMOs, PIUs, Operators	Public satisfaction survey	At least once after one year of operation	Comments and suggestions	Project beneficiaries

69. Public Consultation:

A. According to Public Consultation and Participation Plan, public consultation should be held by PIU, LPMO and LIEC at least once a year during the construction phase through questionnaire survey, site visits. Public consultation has been held in Wuding County during this reporting period. And PIU&LPMO in Chuxiong City and Lufeng County plan to conduct public consultation in 2017.

B. Four times public consultations have been conducted by PIU&LPMO in Wuding County on 16th August, 20th September, 11th October, and 28th December 2016. The participants included Shishan Town People's government and representatives of the Xihe Village Committee. The PIU&LPMO consulted the stakeholders' suggestions and recommendations on the compensation for farmland requisition through field survey and group meeting which promoted the project progress (Figure 7.1-1). The PIU&LPMO also consulted the stakeholders' comments and suggestions on mitigation measures undertaken in the construction site in order to get the understanding and support from the residents within the construction area(Figure 7.1-1).

Figure 7.1-1 Public consultations conducted by PIU&LPMO in Wuding County

70. Interviews:

A. During reporting period, five contracts were in construction at the same time especially in the 4th quarter 2016 in Wuding County. The construction contractors in Wuding County conducted monthly interviews with residents living adjacent to construction sites according to requirement of EMP.

B. The contractors of CWD1, CWD2, CWD3, and CWD4-2 visited the villages or community adjacent to construction sites to investigate the potential impact of road construction, interviewed with the residents to consult the comments on construction noise and dust caused by road construction (Figure 7.1-2).


Figure 7.1-2 Interview conducted by the construction contractors in Wuding County

7.2 Grievance Redress Mechanism and Implementation

71. As part of the capacity development, the LIEC assisted the CPPMO and LPMO in developing a Grievance Redress Mechanism. The GRM provided specific guidance and procedure in handling complaints from individuals living nearby the construction sites, groups or institutes influenced by the construction activities. The GRM was fully delineated in the EMP training workshop in May, 2015.

72. Three Project Public Complaint Units (PPCUs) has been established in the each LPMO in Chuxiong city, Wuding County and Lufeng County.

A. PPCU has been set up in LPMO in Chuxiong City and GRM was developed to handle complaints from individuals, groups or institutes influenced by the construction activities on 24th March 2016. Chenglei (陈磊) was nominated as the team leader in PPCU, and two members, Wu Yongxiang (吴永祥) and Li Guangli (李光丽), were nominated. The information of PPCU and the contact information including phone number, fax, address, and email, were published to the public through Chuxiong Prefecture Environmental Bureau's website (http://www.cxs.gov.cn/file_read.aspx?id=112029) (Figure 7.2-1) and information boards at CCX4 construction site (Figure 7.2-2). CCX1 contract mobilized in December 2016, the PPCU information board was built at the construction site (Figure7.2-3A); CCXR1&2 contract mobilized in April 2017, the PPCU information board was built at the construction site (Figure7.2-3B).

Figure 7.2-1 GRM website announcement in Chuxiong City

Figure 7.2-2 PPCU information board at CCX4 construction site

A) GRM board at CCX1 site

B) GRM board at CCXR1&2 site

Figure 7.2-3 PPCU information board in Chuxiong City component

B. PPCU has been set up in LPMO in Wuding County and GRM was developed to handle complaints from individuals, groups or institutes influenced by the construction activities on 20th April 2016. Tuo Guangyan (妥光彦) was nominated as the team leader in PPCU, and three members, Zhang Lei (张磊), Cao Dengyu (曹登宇) and Zhao ChunLin(赵春林), were nominated. The information of PPCU and the contact information including phone number, fax, address, and email, were published to the public through Wuding County Environmental Protection Bureau's website (http://xxgk.yn.gov.cn/Z_M_004/Info_Detail.aspx?DocumentKeyID=2232F6E3C16441B89CC5FA94270FA25E) (Figure 7.2-4). And five information boards were set up at construction sites in which two has been set at CWD1 and CWD4-1 sites in April, 2 set

at CWD2 and CWD3 sites in October, 1 set at CWD4-2 in November, 2016 (Figure 7.2-5).

Figure 7.2-4 GRM website announcements in Wuding County

A) GRM announcement at CWD1 site

B) GRM announcement at CWD4-1 site

C) GRM announcement at CWD2 site

D) GRM announcement at CWD3 site

E) GRM announcement at CWD4-2 site

Figure 7.2-5 GRM announcement board at construction sites in Wuding County

C. PPCU has been set up in LPMO in Lufeng County and GRM was developed to handle complaints from individuals, groups or institutes influenced by the construction activities on 3rd November 2016. Liao Yuhong (廖钰虹) was nominated as the team leader in PPCU, and three members, Yin Ziqing (尹自清), Chen Zhijuan (陈志娟) and Chen Junyu(陈俊雨), were nominated. The information of PPCU and the contact information including phone number, fax, address, and email, were published to the public through Lufeng County e-government website (http://www.ynlf.gov.cn/ContentView.aspx?id=25823&tag=44) (Figure 7.2-6) and information boards at CLFR1 construction site (Figure 7.2-7). CLF1 contact mobilized in April 2017, and the PPCU information board was set at CLF1 construction site (Figure 7.2-8).

Figure 7.2-6 GRM website announcements in Lufeng County

Figure 7.2-7 GRM announcement boards at CLFR1 site in Lufeng County

Figure 7.2-8 GRM announcement boards at CLF1 site in Lufeng County

73. There has been no complaint received by the PPCUs in Chuxiong City, Wuding County and Lufeng County since GRM established in the city and county.

8.0 INSTITUTIONAL STRENGTHENING AND TRAINING

74. The first EMP training workshop was held in Chuxiong city, on May 27th, 2015. The international and national environmental experts from the LIEC gave five lectures covering ADB Loan Project Environmental Management Manual, Safeguarding Policy, Environmental Impact Assessment, Environmental Management Plan (EMP), and Environmental Policy and law in China. Around 30 attendees participated in the training workshop, covering staff from CPPMO, LPMOs, PIUs, Water & Soil Conservation Bureaus, local EMS and one Wuding's CSC. Throughout one day's workshop, the participants got some ideas about the safeguard concepts, EIA, EMP, ADB Safeguard Policy 2009, and regulatory requirements for Environmental Management.

75. The second EMP in-depth 2-day training workshop was proposed by the international and national environmental experts when the first training workshop ended because the participants have not read the EMP document before they came to the training workshop, and no one had previous experiences in relating to environmental management. The 2-day in-depth training workshop was held on June, 15th -16th, 2015, after sites inspection and discussion with nominated environmental staffs from CPPMO, LPMOs, and PIUs. The training topics included specific procedures in carrying out prescribed EMP activities and tasks, report preparation and reporting procedures. The responsibility of contractor, CSCs and EMS in EMP was emphasized and explained step by step. Workshop also focused on sampling and laboratory analytical procedures, national standards, identified specific sampling locations for air, water and noise, as well as ensuring requirements for both EMP and EIA implementation are carried out concurrently. Throughout the in-depth training shop, EMP reports prepared for other similar ADB financed projects in China were used as samples to demonstrate the scope and structure of EMR reports. The workshop enhanced the capacity of EMP implementation at the different levels.

76. The 3rd EMP training workshop was held in Wuding County on November 11th, 2015, and in Chuxiong city on November 13th, 2015, corresponding to three construction activities commenced (CCX4 in Chuxiong city, CWD1&CWD4-1 in Wuding County). The aim of the site environmental management workshop is to give specific guidance on procedure in carrying out the EMP at the three construction sites. Staffs form LPMO, PIU, Two contractors and one CSC took part in the workshop in Wuding County, and staffs from LPMO, PIU, one contractor and one CSC attended the workshop in Chuxiong city. Key points on environmental management requirement in EIA and PA was highlighted and explained to all participants. The potential environmental impacts of the road construction and mitigated measures needed to implement was clearly clarified. Three responsibilities for road Contractors (Establish site environmental management plan, Implement mitigated measures, and summarize the progress of project monthly, and submit monthly progress report to PIU and LPMO.) were summarized and template of monthly progress report was prepared and handed over. Two responsibilities for CSCs (implement internal monitoring to supervise the mitigation measures undertaken by the contractors, and summarized and wrote monthly supervise report.) were outlined and template of monthly supervise report was prepared and handed over. The 3rd EMP training workshop with detailed materials has strengthened the environmental management capacity for the contractors, CSCs, and EMUs in CPPMO, LPMOs, and PIUs.

77. The 4th EMP training workshop was held in CPPMO on 19th May, 2016. The main objective of the workshop was to enhance the capacity of the contractors, CSCs, and PIUs & LPMO on report preparation and report procedures. The staffs from CPPMO and LPMO in Chuxiong city, Wuding County and Lufeng County, 3 contractors of CCX4, CWD1 and CWD4-1, CSCs and EEMs attended the training workshop. The existing problems from the monthly progress reports prepared by the contractors and CSCs, from the quarterly progress reports prepared by PIUs and LPMOs were highlighted and discussed in-detail. The guidance to implement EMP was re-interpreted by LIEC technically. The reports submitting schedules in 2016 was clearly required by LIEC also.

78. The 5th EMP training workshop was held LPMOs in Wuding County, Lufeng County and Chuxiong City on 25th – 28th October, 2016, respectively.

A. On 25th October, the national environmental expert and the environmental coordinator at CPPMO inspected the construction sites in Wuding County. And the EMP training workshop was held in Wuding LPMO meeting room on 26th October. The participants including the staff from PIU and LPMO, 3 contractors (1 retained to implement CWD1&CWD2, 1 retained to implement CWD3, and 1 retained to implement CWD4-1&CWD4-2), and 1 CSC attended the training workshop. Most of the participants attended the 2nd, 3rd, 4th EMP training workshop before. Two participants were laymen in terms of EMP; one is the new nominated the EMU leader at LPMO in Wuding County (Yang Youqing), another is the contractor of CWD3 (Beijing Xinchang Road & Bridge Co.Ltd) who was a new admission in Wuding County project. So the first agenda was to briefly introduce the framework of EMP, the requirement of EMP, the responsibility of contractor and the EMU, and the report submitting system. The second agenda was to concern over the issues arising during the road construction and report preparation. The requirement of site environment management was outlined and a temple of monthly progress report was prepared and hand over to the contractor of CWD3.

B. On 27th October, the national environmental expert and the environmental coordinator at CPPMO inspected the construction site in Lufeng County where no roads and river was in construction yet. And the EMP training workshop was held in Lufeng LPMO meeting room in the afternoon. The participants excluded the staff from PIU and LPMO, one contractor of CLFR1 (Guangdong Dayu Water Resource Construction Co.Ltd) and one CSC of CLFR1 (Yunnan Urban Construction Consulting & Supervising Co. Ltd) attended the training workshop. The CLFR1 was the first contract to commence in Lufeng County and planned to mobilize in November. It was first time for the contractor and CSC of CLFR1 to attend the EMP training workshop. So in-depth introduction of EMP framework, EMP requirement, reasonability of contractor and CSC was addressed by the national environmental expert. Then using the monthly report prepared by the contractor of CWD1 in Wuding as case study, to emphases the responsibility of contractor (Establish site environmental management plan, Implement mitigated measures, and summarize the progress of project monthly, and submit monthly progress report to PIU and LPMO). Similarly, the responsibility of CSC (implement internal monitoring to supervise the mitigation measures undertaken by the contractors, and summarized and wrote monthly supervise report) was illustrated by the case study report in Wuding. The responsibility of PIU & LPMO was highlighted and the quarterly report

requirement was explained by analyzing the quarterly report prepared by PIU & LPMO in Wuding. Finally, the temple of monthly progress report and supervise report, and quarterly progress report were prepared and hand over to the contractor, CSC and LPMO in Lufeng County.

C. On 28th October 2016, the EMP training workshop was held in Chuxiong City LPMO meeting room. The staffs from PIU & LPMO in Chuxiong City, the contractor of CCX4, and two CSCs (Kunming Construction Consulting & Supervising Co. Ltd for road construction; and Yunnan Rundian Project Technology Consulting Co. Ltd for river enhancement) attended the workshop. The major topic of the training workshop was to analyze and discuss the issues met and arose in the implementation of EMP. Advise on improve the report quality prepared by contractor, CSC and LPMO was addressed by the national environmental expert. At the same time, the brief introduction of EMP framework, EMP requirement, and responsibility of CSC was outlined to the CSC of Longchuan River enhancement. The template of the report has not been handed over to CSC for the River enhancement was not to commence in recent phase.

D. The 5th EMP training workshop enhanced the capacity of the contractors, the CSCs, and the LPMO to implement EMP during construction phase. A notification was issued by CPPMO after the 5th EMP training workshop. The notification re-clarified the responsibility of LIEC, EMP coordinator in CPPMO, environmental leader and coordinator in EMU; and performed the duties to the people; unified the audit procedure and submission schedule for environmental report; unified the relevant matters of environmental monitoring during the construction phase and stressed the need to pay attention to the important matters in EMP.

79. The 6th EMP training workshop was held in Chuxiong City LPMO meeting room on 10th May 2017. LIEC and environmental coordinator of CPPMO inspected the construction site of CCX1, CCX4 and CCXR1&2 in the morning. The training workshop was held in the afternoon. The participants including the staff from PIU and LPMO, CCX1 contractors, CCX4 contractors, CCXR1&2 contractors, CCX1&CCX4's CSC, and CCXR1&2's CSC attended the training workshop. Major issues existing in the monthly EMR reports prepared the contractors and CSS from CCX1&CCX4, and the quarterly EMR reports prepared by the LPMO in Chuxiong was outlined and explained by LIEC. The EMR report submitting system was re-highlighted in the workshop. In-depth introduction of EMP framework, EMP requirement, reasonability of contractor and CSC was addressed by the national environmental expert to China No.6 Water Conservancy and Hydropower Engineering Co. Ltd (CCXR1&2's contractor) and Yunnan Rundian Project Technology Consulting Co. Ltd (CCXR1&2's CSC). And the temple of monthly progress report and supervise report were prepared and handed over to the contractor, CSC of CCXR1&2.

80. The 7th EMP training workshop was held in Lufeng County LPMO meeting room on 6th June 2017. LIEC and environmental coordinator of CPPMO inspected the construction site of CLF1 and CLFR1 sites in the morning. The training workshop was held in the afternoon. Participants including the staff from PIU and LPMO, CLFR1's contractor, CLF1's contractor, CLFR1&CLF1's CSC attended the workshop. Major issues existing in the monthly EMR reports prepared the contractors and CSS from CLFR1, and the quarterly EMR reports prepared by the LPMO in Lufeng was outlined and explained by LIEC. In-depth introduction of EMP framework, EMP requirement, reasonability of contractor and CSC was addressed by the national

environmental expert to Henan Qiankun Road&Bridge Engineering Co. Ltd (CLF1's contractor). And the temple of monthly progress report and supervise report were prepared and handed over to the contractor of CLF1.

9.0 CONCLUSIONS

9.1 Progress of EMP Implementation

81. Environmental management system has been established for the project of 3115-PRC. The CPPMO also retained CUCD as the LIEC (Loan Implementation Environmental Consultant with international and national environmental experts). An EMP Coordinator (Environmental Specialist) was designated at the CPPMO level, and EMUs (Environmental Management Units) were established at the LPMO level. Three CSCs have been retained by PIUs in Chuxiong city, Wuding County and Lufeng County, and one environmental engineer was appointed at the ten construction sites by CSCs. GRM was introduced to CPPMO, LPMO and PIUs by LIEC, and GRM has been established in Chuxiong City, Wuding County and Lufeng County sites in 2016 respectively.

82. The LIEC updated the EMP and Monitoring programs of the project after site inspection and discussion with staffs from CPPMO, LPMOs, PIUs, and EMS. Seven EMP training workshops were presented by LIEC which guided the environmental staffs from CPPMO, LPMO, PIUs, Contractors, CSCs, and EMS to implement EMP prior to construction and throughout construction. LIEC gave advice on the bid documents (ten contractors and three CSCs) to make sure the EMP requirements were included.

83. During the report period, ten contractors of CCX1, CCX4, CCXR1&2, CWD1, CWD2, CWD3, CWD4-1, CWD4-2, CLF1 and CLFR1 have carried out the mitigation measures as specified in the contract agreement; and the contractors submitted the monthly progress reports to PIUs. Yunnan Fangyuan Technical Co. Ltd was retained by contractor of CLFR1 to do internal water quality monitoring of East-West River; the 2nd, 3rd and 4th monitoring reports was submitted to the contractor and the monitoring results was analyzed in the monthly progress report. China No.6 Water Conservancy and Hydropower Engineering Co. Ltd was committed by the contractor of CCXR1&2 to do internal water quality monitoring of Longchuanjiang River. The 1st monitoring was carried in May and the report was submitted to the contractor. The result of monitoring was presented in the monthly progress report in June. The environmental engineer from CSCs did visual inspection on surface water, air, noise, solid waste, soil erosion, occupational health and safety weekly and monthly to evaluate the environmental management performance of the contractors. The performance monitoring reports were prepared and submitted to PIUs and LPMOs. CPEMS conducted the 1st quarter impact environmental monitoring in Chuxiong urban road site, Wuding County component site and Lufeng County component site, the 1st quarter impact monitoring reports were submitted to PIUs&LMPOs. Yunnan Fangyuan Technical Co. Ltd conducted the 2nd impact environmental monitoring in Wuding County component site and Lufeng Urban road site; Yunnan Gaoke environmental Protection Co.Ltd conducted the 2nd impact environmental monitoring in Chuxiong Urban road site and Longchuanjiang Enhancement site. The 2nd impact environmental monitoring reports were submitted to PIUs & LPMOs. The quarterly reports were prepared by the PIUs & LPMOs in Chuxionag City, Wuding County and Lufeng County and submitted to CPPMO.

84. The internal monitoring implemented by CSCs showed the most contractors have taken proper mitigation measures to alleviate the potential impacts of construction activities on air, noise, solid waste, soil erosion, and surface water.

85. The 1st quarterly impact environmental monitoring in Chuxiong Urban road site showed:

A. air emission at one boundary site (No.3) was exceeded the maximum emission standards in terms of TSP, and air quality at one sensitive receiver (No.6) was beyond the Grade II standards in terms of PM_{10}.

B. The night-time noise at the three boundary sites (No.2, No.3 and No.4) was exceeded the emission limit; the noise quality at two sensitive receivers (No.6 and No.8) was beyond the Grade II level in terms of daytime noise.

C. Water quality at two sites was not accordance with the Grade IV level in terms of TN.

D. According to monitoring results and site inspection, the air quality might be influenced by the temporary municipal pile nearby the construction site; and the daytime noise maybe caused by the construction activities of CCX1. Noise mitigation measures have to be strengthened in the following construction period. Water quality of the Qinglong River was not influenced by the road construction for the water quality was also not accordance with the Grade IV level in terms of TN, NH_3-N, fecal coliforms and BOD_5.

86. The 2nd quarterly impact environmental monitoring in Chuxiong Urban road site showed:

A. Air emission at the four boundary sites was all less than the maximum emission standards; air quality at the 4 sensitive receivers was all accordance with the Grade II standards.

B. Noise emission at the four boundary sites was less than the emission limits; noise quality at 5 sensitive receivers was all accordance with the Grade II level.

C. Water quality at two sites was not accordance with the Grade IV level in terms of TN and fecal coliforms. Water quality of Qinglong River was less influenced by No.11 road construction for the water quality was also not accordance with the Grade IV level in terms of TN, NH_3-N, fecal coliforms and BOD5.

D. During the 2nd quarter 2017, the contractors of CCX1 and CCX4 have properly implemented the environmental mitigation measures to reduce the environmental impacts caused by the construction activities.

87. The 1st semi-annual environmental impact monitoring in Chuxiong Longchuanjiang River Enhancement site showed:

A. Air emission at the four boundary sites was all less than the maximum emission standards; air quality at one sensitive receiver was accordance with the Grade II standards.

B. Noise emission at the four boundary sites was all less the emission limits; noise quality at the three sensitive receivers was all accordance with the Grade I level.

C. Water quality at the two sites was not accordance with the Grade IV level in terms of TN.

D. According to the monitoring results and site inspection, the air quality and noise has not been affected by construction activities of CCXR1&2; the concentration of TN at the down-stream of Longchuanjiang River was greater than the value at the 50m upper-stream of start point of construction region by 50%, and Longchuanjinag River is

surround by massive agricultural land along 9km river bed. It is hard to distinguish the contribution of TN from non-point pollution and the construction activities of CCXR1&2. Surface water pollution mitigation measures and water and soil conservation measures have to be strengthened during the construction period.

88. The 1st internal environmental monitoring in Chucxiong Longchuanjiang River Enhancement site showed: water quality at the two sites was accordance with the Grade IV level. Water quality of Longchuanjiang River has less influenced by the construction activities of CCXR1&2.

89. The 1st quarterly impact environmental monitoring in Lufeng County component site showed:

A. Air emission at the four boundary sites was all less than the maximum emission standards; and air quality at three sensitive receivers (No.5, No.6 and No.7) was beyond the Grade II standards in terms of TSP and PM_{10}.

B. Noise emission at the four boundary sites was less than the emission limit; noise quality at 5 sensitive receivers was all accordance with the Grade II level.

C. Water quality at two sites (No.12 and No.13) was accordance with the Grade IV level, and water quality at four sites (No.14 to No.17) was not accordance with the Grade IV level in terms of TN and fecal coliforms.

D. According to monitoring results and site inspection, the air quality at the sensitive receivers might be influenced by construction activities of CLFR1. Dust mitigation measures should be strengthened during the construction period. Water quality of East-West River was most influenced by the non-point pollution from the agricultural land around for the water quality at No. 12, No. 13, No.14, and No.17 was beyond the Grade IV level in terms of the concentration of TN and fecal coliforms during the pre-construction period.

90. The 2nd quarterly impact environmental monitoring in Lufeng Urban Road site showed:

A. Air emission at the four boundary sites was all less than the maximum emission standards; air quality at the 2 sensitive receivers was all accordance with the Grade II standards.

B. Noise emission at the four boundary sites was less than the emission limits; noise quality at 2 sensitive receivers was all accordance with the Grade II level.

C. The monitoring results indicate the air quality and sound environmental quality has not affected by the construction activities of CLF1 during the 2nd quarter 2017.

91. The 2nd, 3rd and 4th internal environmental monitoring in the Lufeng River Enhancement site showed: water quality at the six sites was accordance with the Grade IV level in the 2nd reporting period; water quality at the five sites (except 1#) was not accordance with the Grade IV level in terms of TN and fecal coliforms during the 3rd and 4th reporting period. Water quality at 2#, 3#, 5# and 6# sites was mainly polluted by the agricultural land and was less influenced by the construction activities of CLFR1 for water quality of 1#, 2#, 3# and 4# sites was exceeded the Grade IV standards during the pre-construction period.

92. The 1st quarterly impact environmental monitoring in Wuding County component site showed:

A. Air emission at four boundary site was less than the maximum emission standards, and air quality at one sensitive receiver (No.6) was beyond the Grade II standards in terms of PM_{10}.

B. The night-time noise at the two boundary sites (No.1, and No.4) was exceeded the emission limit; the noise quality at one sensitive receiver (No.6) was beyond the Grade II level in terms of night-time noise.

C. Water quality at 12 sites was not accordance with the Grade IV level, in which the concentration of TN and fecal coliforms was exceeded the standards at the upper-stream and downstream of No.1 medium bridge, No.3 medium bridge, No.4 medium bridge and No.5 medium bridge. And the concentration of TN, NH3-N and fecal coliforms was exceeded the standards at the upper-stream and downstream of No.2 medium bridge and Caiyuanhe bridge.

D. Monitoring results indicated water spraying mitigation measures should be strengthened during construction period, especially in dry season although the air quality at the sensitive receivers have been improved by comparing the air quality during the 4th quarter 2016. Similarly, the noise control should be strengthened in the following construction period, special no construction activities at night in order to alleviate the noise at No.6 site. Water quality monitoring results indicated the concentration of TN in Wulong River might be influenced by the No.2 medium bridge construction activities during the 1st quarter 2017. Water pollution mitigation measures and water and soil conservation measures have to be strengthened during the construction period.

93. The 2nd quarterly impact environmental monitoring in Wuding County component site showed:

A. Air emission at four boundary site was less than the maximum emission standards, and air quality at 6 sensitive receivers (No.6) was accordance with the Grade II standards.

B. Noise emission at the four boundary sites was less than the emission limits; noise quality at 6 sensitive receivers was all accordance with the Grade II level.

C. Water quality at 12 sites was not accordance with the Grade IV level, in which the concentration of TN and fecal coliforms was exceeded the standards at the upper-stream and downstream of No.1 medium bridge, No.2 medium bridge, No.3 medium bridge and No.4 medium bridge. And the concentration of TN, NH3-N and fecal coliforms was exceeded the standards at the upper-stream and downstream of Caiyuanhe bridge.

D. The monitoring results indicate the air quality and sound environmental quality has not affected by the construction activities during the 2nd quarter 2017; water quality of Wulong River might be influenced by No.5 medium bridge construction activities in terms of TN and NH3-N. Water pollution mitigation measures and water and soil conservation measures have to be strengthened during the construction period.

9.2 Issues and Corrective Actions

94. During the reporting period, the mitigation measures on solid waste, community health and safety, and occupational health and safety have been established at the CCX1 construction site in Chuxiong City by the contractor, including, 1) Provide appropriate waste collection and storage containers at the construction site; 2) Set up appropriate fencing, security warning signs and GRM information board; 3) Provide personal protection equipment, such as helmets and gloves; 4) Establish the records management system; 5) Train all construction workers in basic sanitation, general health and safety matters; 6) Conduct monthly interview with the residents living adjacent to construction sites.

95. During the reporting period, sound environmental quality at two sensitive receivers was possible influenced by No.11 road construction activities in Chuxiong Urban Road site. Noise mitigation measures should be strengthened during the construction period.

96. During the reporting period, air quality at 3 sensitive receivers was beyond the Grade II level in terms of TSP and PM_{10} in Lufeng County component site, which indicated the dust mitigation measures, was not in place at the CLFR1 construction site. And the dust mitigation measures should be strengthened during construction period especially in dry season, including 1) increasing the frequency of water spraying when fugitive dust is being generated; 2) strengthening the vehicles maintain; 3) covering all materials during truck transportation.

97. During the reporting period, air quality in Wuding County component site has been improved by comparing the value in 4th quarter, 2016. However, air quality at No.6 (Jiucheng Community) was still beyond the standards. So the dust mitigation measures should be strengthened during construction period especially in dry season, including 1) increasing the frequency of water spraying when fugitive dust is being generated; 2) strengthening the vehicles maintain; 3) covering all materials during truck transportation.

98. During the reporting period, sound environmental quality in Wuding County component site has been improved by comparing the value in 4th quarter 2016. Similarly to air quality, noise at No.6 (Jiucheng Community) was still beyond the standards. So the mitigation measures on noise generated by construction activities need to be strengthen during the construction period, To reduce noise at night, restrict the operation of machinery and movement of heavy vehicles along urban and village roads between 22:00 and 06:00 the next day. If the operation of machinery has to be done at night, the residents living adjacent to construction site should be informed, and only with the consent of the inhabitant, the operation can be done at night.

99. During the reporting period, water quality of Wulong River could have been affected by the construction activities of No.2 and No.5 medium bridge. The mitigation measures for wastewater control and treatment, and soil erosion should be strengthened at the construction site during the construction period.

100. The 2nd quarterly environmental impact monitoring in Chuxiong City was not complted by the end of June, 2017, due to changes made to the monitoring organizations. However, monitoring activities were completed in the month of July 2017. The communication between the PIUs & LPMOs and the EMS should be improved in order to ensure that the 3rd and 4th quarterly impact monitoring activities can be carried out on schedule.

101. EMP reporting system was established in 2015 requiring the date of submitting monthly, quarterly, and semi-annual EMR reports. However, the submitting of monthly and quarterly

EMR reports was always delayed during the past. So the semi-annual EMR also has to be delayed. CPPMO should pay more attention to EMP supervising on the project.

10.0 APPENDICES

10.1 APPENDIX Ⅰ –The First Quarterly Impact Monitoring Results of Chuxiong Road, 2017

10.2 APPENDIX Ⅱ –The Second Quarterly impact Monitoring Results of Chuxiong Road, 2017

10.3 APPENDIX Ⅲ–The First semi-annual impact Monitoring Results of Chuxiong River, 2017

10.4 APPENDIX Ⅳ– The 1st Internal Monitoring Results of Longchuanjiang River, Chuxiong, 2017

10.5 APPENDIX Ⅴ– The First Quarterly Impact Monitoring Results of Lufeng County, 2017

10.6 APPENDIX Ⅵ– The Second Quarterly Impact Monitoring Results of Lufeng urban road, 2017

10.7 APPENDIX Ⅶ – The 2nd Internal Monitoring Results of East-West River, Lufeng, 2017

10.8 APPENDIX Ⅷ – The 3rd Internal Monitoring Results of East-West River, Lufeng, 2017

10.9 APPENDIX Ⅸ– The 4th Internal Monitoring Results of East-West River, Lufeng, 2017

10.10 APPENDIX Ⅹ – The First Quarterly Impact Monitoring Results of Wuding County, 2017

10.11 APPENDIX Ⅺ –The Second Quarterly Impact Monitoring Results of Wuding County, 2017

附件I

楚雄市城市道路建设环境影响监测报告

（2017 年第一季度）

CMA 证书

监 测 报 告

[illegible]

委托单位：[illegible]

委托单位：[illegible]

检测类别：[illegible]

检测日期：[illegible]

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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

5. 監視項目、方法、頻度

表-3 [illegible]

監視項目	[illegible]	[illegible]	頻度	その他方法
[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

五、监测结果

[illegible]

[illegible]	[illegible]	pH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

表 [illegible] 月末[illegible]比率及[illegible]

[illegible]	[illegible]	上期[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

表 [illegible] 月末[illegible]比率比較

[illegible]	[illegible]			[illegible]		
	[illegible]			[illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

表1　[illegible]

調査対象	調査期間　[illegible] 2011年[illegible]月[illegible]日		[illegible] 2011年[illegible]月[illegible]日	
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

(1) [illegible]

表2　[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

(2) [illegible]

表[illegible]　[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

表[illegible]　[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

表[illegible]　[illegible]

[illegible]	[illegible]					
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

監 査 報 告 書

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

附件II

楚雄市城市道路建设环境影响监测报告

（2017 年第二季度）

正本

检 测 报 告

YNK-[2017]-0134 号

委托单位： [illegible]有限公司

项目名称： [illegible]（[illegible]）

（261 [illegible]、11 号[illegible]、11 号[illegible]）

检测类型： 委托检测

报告日期： 2017 年 7 月 27 日

云南[illegible]矿科技有限公司

检测报告说明及声明

一、报告带“检验检测机构资质认定（CMA）”章、“江西省标准计量检测研究院有限公司检验检测专用章”及“骑缝章”和“江章”有效。

二、委托检验方提供信息、送检样品、检验、检测方法及数据真实性、完整性、准确性、有效性、合法性由委托方负责。

三、委托方提供的样品、实物检测数据、结果及信息等资料，本院仅对所提供的资料进行真实性核对，委托方提供的检测样品、资料及信息不予核实。

四、委托检测项目，未告知检测结果。

五、委托检测的样品、检测、数据及结果只对委托方负责，未经委托方同意不得向其他单位或个人提供检测结果。

六、对检测报告有异议，应于收到报告之日起，十五日内向本公司提出。

七、未经同意本报告不得用于广告、宣传等用途。

本公司通讯资料：

检测及校准机构名称：[illegible]

传　真：[illegible]

网　址：www.[illegible].com

E-mail：[illegible]@[illegible].com

检验检测机构法人名称：[illegible]

邮政编码：[illegible]

[illegible]

编制：[illegible]　　日期：[illegible]

审核：[illegible]　　日期：[illegible]

批准：[illegible]　　日期：[illegible]

授权：[illegible]　　日期：[illegible]

1、前言

[illegible]

表1 委托单位信息

委托单位：[illegible]公司	
单位地址：[illegible]	
联系人：[illegible]	联系电话：[illegible]

2、检测项目及方法

表2 检测项目及方法

检测项目	检测方法及标准编号	检出限	仪器名称	仪器编号
噪声	[illegible]	/	[illegible]	[illegible]
水污染物排放	[illegible]			
氨氮	[illegible]	[illegible]	[illegible]	[illegible]
石油类	[illegible]	[illegible]	[illegible]	[illegible]
悬浮物	[illegible]	[illegible]	[illegible]	[illegible]
化学需氧量	[illegible]	[illegible]	[illegible]	[illegible]
五日生化需氧量	[illegible]	[illegible]	[illegible]	[illegible]
总磷	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

续表：

检测项目	分析方法-国标编号	检出限	仪器设备	实验编号
氨氮	水质 氨氮的测定 纳氏试剂分光光度法 HJ 535-2009	0.025mg/L	紫外可见分光光度计	DNZ-YQ-02
高锰酸盐指数	水质 高锰酸盐指数的测定 GB/T 11892-1989	0.5mg/L	酸式滴定管	DNZ-YQ-05
总磷	水质 总磷的测定 钼酸铵分光光度法 GB/T 11893-1989	0.01mg/L	紫外可见分光光度计	DNZ-YQ-02
总氮	水质 总氮的测定 碱性过硫酸钾消解紫外分光光度法 HJ636-2012	0.05mg/L	UV-6100型紫外可见分光光度计	DNZ-YQ-22
环境空气质量监测	《GB/T 3095-2012 《环境空气质量标准》及其修改单》			
氮氧化物	环境空气 氮氧化物的测定 盐酸萘乙二胺分光光度法 HJ 479-2009	0.005mg/m³	紫外可见分光光度计 UV-6100型紫外可见分光光度计	DNZ-YQ-07 DNZ-YQ-23 DNZ-YQ-03 DNZ-YQ-04 DNZ-YQ-08
臭氧	环境空气 臭氧的测定 靛蓝二磺酸钠分光光度法 HJ 504-2009	0.01mg/m³	紫外可见分光光度计 UV-6100型紫外可见分光光度计	DNZ-YQ-23 DNZ-YQ-04 DNZ-YQ-05 DNZ-YQ-03 DNZ-YQ-02
二氧化硫	环境空气 二氧化硫的测定 甲醛吸收-副玫瑰苯胺分光光度法 HJ 482-2009	小时值：0.007mg/m³ 日均值：0.004mg/m³	紫外可见分光光度计 UV-6100型紫外可见分光光度计	DNZ-YQ-07 DNZ-YQ-03 DNZ-YQ-07 DNZ-YQ-23 DNZ-YQ-07 DNZ-YQ-23 DNZ-YQ-03 DNZ-YQ-04 DNZ-YQ-08
PM₂.₅	环境空气 PM2.5和PM10的测定 重量法 HJ618-2011	0.015mg/m³	电子天平 ME204/02 分析天平	DNZ-YQ-22 DNZ-YQ-03 DNZ-YQ-23 DNZ-YQ-12 DNZ-YQ-13

[illegible]

[illegible]

附录 2

检测项目	检测方法及依据	检出限	仪器名称	仪器编号
一氧化碳	环境空气 一氧化碳的测定 非分散红外法 HJ/T 28-1999	0.1mg/m³	明达 2050 型空气/烟尘采样器	19C1-12-001 19C1-12-002 19C1-12-003 19C1-12-004 19C1-12-130
氡	环境空气 氡的测定 连续采样-静电收集法 GB/T 15952-1995	2.0Bq/m³	明达 2050 型空气/烟尘采样器 崂应 3060 型烟尘/气综合采样器	19C1-12-131 19C1-12-132 19C1-12-133 19C1-12-134 19C1-12-135

[illegible]

[illegible]

1. 检测结果

表 1：[illegible]检测结果　　单位：[illegible]

样品种类：噪声			检测点位：4个										
序号	检测地点	检测日期	环境噪声					背景噪声					
			时间	测量值(L)	时间	背景值(L)	修正值(L)	时间	测量值(L)	时间	背景值(L)	修正值(L)	[illegible]
1	东侧校园学校	2021.07.12	12:10	52.4	12:20	50.3	52.4	22:10	43.2	22:30	41.5	43.3	45.1
2	南侧小区[illegible]	2021.07.12	12:40	52.9	12:50	51.4	52.9	22:10	42.9	22:40	41.3	42.9	44.6
3	西侧道路[illegible]	2021.07.12	13:10	53.1	13:40	50.2	52.5	23:10	42.5	22:50	41.4	42.7	45.6
4	北侧一[illegible]	2021.07.12	13:40	51.4	14:20	50.2	51.9	23:10	41.9	23:40	40.6	41.9	43.9
5	东侧校园学校	2021.07.13	12:10	52.9	12:32	50.2	52.9	22:10	43.2	22:30	42.9	43.4	45.2
6	南侧小区[illegible]	2021.07.13	12:40	52.1	13:20	51.1	52.1	22:10	43.0	22:20	41.3	43.0	45.3
7	西侧道路[illegible]	2021.07.13	13:10	53.6	13:50	51.7	53.5	23:10	42.5	23:10	41.4	42.6	45.9
8	北侧二[illegible]	2021.07.13	13:30	52.7	14:15	51.4	52.7	23:10	41.1	23:10	40.2	41.1	43.3
检验检测人员			主检员：[illegible]										

[illegible]　　[illegible]

序号	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	07.12 [illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	07.12 [illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	07.12 [illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	07.12 [illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	07.12 [illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]						

[illegible]

表2.3 [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]							

[illegible]

[illegible]

表3-1 水质测定结果

样品种类：[illegible]	样品数量：[illegible]个	采样日期：[illegible]	检测单位名称：[illegible]

样品状态描述：[illegible]

序号	样品编号	采样点名	采样时间	水样温度（℃）	溶解氧（mg/L）	高锰酸盐指数（mg/L）	氨氮（mg/L）	总磷（mg/L）	总氮（mg/L）
1	[illegible]	[illegible]河[illegible]桥断面上游[illegible]米	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]河[illegible]桥断面下游[illegible]米	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
分析日期				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
检测人员				刘[illegible]		张[illegible]	杨[illegible]		

备注：表中[illegible]为[illegible]，[illegible]为仪器检测最小检出浓度。

[illegible]

[illegible]

样品类型：地表水	样品数量：6个	采样日期：[illegible]	现场采样人员：[illegible]
[illegible]			

序号	样品编号	采样地点	采样时间	氨氮 (mg/L)	总磷 (mg/L)	阴离子表面活性剂 (mg/L)	[illegible] (mg/L)	[illegible] (mg/L)	高锰酸盐指数 (mg/L)
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
分析日期				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
检测人员				[illegible]	[illegible]		[illegible]	[illegible]	

备注：[illegible]

[illegible]

[illegible]：[illegible]　　单位：[illegible]

[illegible]	[illegible]：十	[illegible]：[illegible]		
[illegible]：[illegible]、[illegible]		[illegible]：[illegible]、土壤[illegible]、[illegible]		
序号	检测项目	采样时间 / 监测时间	[illegible].22	[illegible].23	[illegible].24
1	[illegible]时段	[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
2		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
3		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
4		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
5	夜间时段	[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
6		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
7		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
8		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
9	昼间时段	[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
10		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
11		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
12		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
噪声[illegible]			[illegible]		

[illegible]

[illegible]

[illegible]二氧化氮小时浓度监测记录　　单位（mg/m³）

[illegible]二氧化氮	监测地点：[illegible]	分析仪器：[illegible]
采样点：[illegible]	监测[illegible]：[illegible]	

序号	监测时间	采样时间 / 监测时间	[illegible].12	[illegible].13	[illegible].14
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3		[illegible]	[illegible]	[illegible]	[illegible]
4		[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6		[illegible]	[illegible]	[illegible]	[illegible]
7		[illegible]	[illegible]	[illegible]	[illegible]
8		[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10		[illegible]	[illegible]	[illegible]	[illegible]
11		[illegible]	[illegible]	[illegible]	[illegible]
12		[illegible]	[illegible]	[illegible]	[illegible]
报告人员			复核人		

[illegible]

[illegible]

[illegible]　　单位：[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	一期区	[illegible]	[illegible]	[illegible]	[illegible]
2		[illegible]	[illegible]	[illegible]	[illegible]
3		[illegible]	[illegible]	[illegible]	[illegible]
4		[illegible]	[illegible]	[illegible]	[illegible]
5	其他区域	[illegible]	[illegible]	[illegible]	[illegible]
6		[illegible]	[illegible]	[illegible]	[illegible]
7		[illegible]	[illegible]	[illegible]	[illegible]
8		[illegible]	[illegible]	[illegible]	[illegible]
9	廊坊市	[illegible]	[illegible]	[illegible]	[illegible]
10		[illegible]	[illegible]	[illegible]	[illegible]
11		[illegible]	[illegible]	[illegible]	[illegible]
12		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]		

[illegible]

[illegible]

[illegible]工[illegible]污[illegible]气的测定报告　　单位：(mg/m³)

[illegible]污[illegible]气	测点位置：[illegible]	检测日期：2017.07.22~07.23，07.24
排气筒高：[illegible]m；排气筒内[illegible]		烟尘采样人员：[illegible]；分析人员：[illegible]

序号	检测项目	采样日期 / 采样时间	07.22	07.23	07.24
1	一段小区	02:00~03:00	<0.007	<0.007	0.008
2		05:00~06:00	0.007	0.007	0.009
3		[illegible]	<0.007	0.008	0.007
4		[illegible]	<0.007	<0.007	<0.007
5	机动车	02:00~03:00	0.036	0.036	0.038
6		05:00~06:00	0.038	0.038	0.037
7		[illegible]	[illegible]	0.040	0.037
8		[illegible]	[illegible]	0.041	0.041
9	船舶区	02:00~03:00	0.036	0.036	0.040
10		05:00~06:00	0.112	0.112	0.112
11		[illegible]	[illegible]	0.134	0.134
12		[illegible]	[illegible]	0.132	0.132
检测人员			不测得		

[illegible]

[illegible]

附表 [illegible]：[illegible]无组织废气检测结果　　单位：mg/m³

检测单位：[illegible]	检测日期：[illegible]	检测日期：2017.07.13、07.14		
采样地点：N01#		设备型号及编号：[illegible]		
序号	检测项目	采样时间 \ 采样日期	07.13	07.14
1	[illegible]	[illegible]	[illegible]	[illegible]
2	PM_2	[illegible]	[illegible]	[illegible]
3	二氧化硫	[illegible]	[illegible]	[illegible]
4	二氧化氮	[illegible]	[illegible]	[illegible]
检测人员			马[illegible]	

附表 [illegible]：[illegible]无组织废气检测结果　　单位：mg/m³

检测单位：[illegible]	检测日期：2017.07.13、07.14			
采样地点：N04#		设备型号及编号：[illegible]		
序号	检测项目	采样时间 \ 采样日期	07.13	07.14
1	TSP	[illegible]	[illegible]	[illegible]
2	PM_2	[illegible]	[illegible]	[illegible]
3	一氧化碳	[illegible]	[illegible]	[illegible]
4	一氧化氮	[illegible]	[illegible]	[illegible]
检测人员			马[illegible]	

[illegible]

表3-二 [illegible]检测结果 单位（mg/m³）

样品名称：[illegible]	检测项目：[illegible]	分析日期：[illegible]		
采样地点：[illegible]		现场采样人员：[illegible]		
序号	检测项目	采样时间 / 采样时间	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
检测人员			审核人		

表3-三 [illegible]检测结果 单位（mg/m³）

产品名称：[illegible]	检测项目：[illegible]	分析日期：[illegible]		
采样地点：[illegible]		现场采样人员：[illegible]		
序号	检测项目	采样时间 / 采样时间	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
检测人员			审核人		

[illegible]

4、[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

附件1

[illegible]

评估内容	主要评	监测指标	频次			备注
			现场检查（次）	采样检测（次）	评估报告（份）	
污染源	[illegible] [illegible]	[illegible] [illegible]	1	1	1	
环境空气	[illegible]	颗粒物、SO2、NO2	4	2	4	无组织监测
	[illegible]	[illegible]	4	2	4	[illegible]
噪声	[illegible]	Leq	2	2	4	昼夜各1次，每次2天，每天监测1次。
	[illegible]	Leq	1	1	4	昼夜各1次，每次2天，每天监测1次。

附件2 检测点位示意

附件2-1 [illegible]

编号	坐标	与[illegible]距离（米）
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

附件2-2 [illegible]

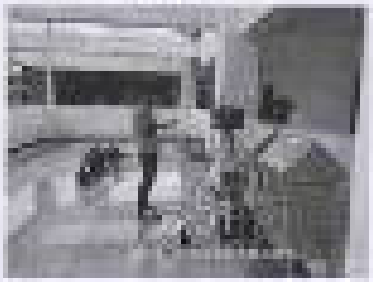
编号	坐标	与[illegible]距离（米）
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

附件2-3 [illegible]

编号	坐标	与[illegible]距离（米）
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]


12:53


13:55




8:20


13:30


14:10


13:58


14:24


14:31


15:59


15:55

附件1 监测结果评价（农村饮用水水质不达标区域）

附表4-1 浙江省省控断面水质达标情况评价标准

时间/评价 断面	根据《地表水环境质量标准》（GB3838-2002）以水质年度综合评价标准进行水质达标情况评价		
	2017.07.12	2017.07.13	2017.07.14
流村交界	符合标准	符合标准	符合标准
青阳一村	符合标准	符合标准	符合标准
松阳中学饮水处	符合标准	符合标准	符合标准
东坞公园	符合标准	符合标准	符合标准

附表4-2 环境空气质量人体感受评价标准

时间/评价 地点	执行《环境空气质量标准》（GB3095-2012）环境空气质量标准二级		
	2017.07.12	2017.07.13	2017.07.14
莲民村	综合二类	综合二类	综合二类
西市街	综合二类	综合二类	综合二类
酒坑村	综合二类	综合二类	综合二类
松阳中学	综合二类	综合二类	综合二类

附表4-3 浙江省省控断面水质评价标准

时间/评价 点位	执行《地表水环境质量标准》（GB3838-2002）III类水质标准评价标准			
	2017.07.12		2017.07.13	
	总氮	氨氮	总氮	氨氮
西苑南侧小桥	符合标准	符合标准	符合标准	符合标准
西苑东南角	符合标准	符合标准	符合标准	符合标准
松阳新城区	符合标准	符合标准	符合标准	符合标准
工业区-西桥	符合标准	符合标准	符合标准	符合标准

附表4-4 [illegible]

时间/评价 指标	[illegible]二类标准			
	2017.07.12		2017.07.13	
	昼间	夜间	昼间	夜间
[illegible]	符合二类	符合二类	符合一类	符合一类
[illegible]	符合一类	符合一类	符合二类	符合二类
[illegible]	符合二类	符合二类	符合二类	符合二类
[illegible]	符合二类	符合二类	符合二类	符合二类
[illegible]	符合一类	符合一类	符合一类	符合一类

附表4-5 [illegible]

时间/评价 污染	[illegible]		
	2017.07.12	2017.07.13	2017.07.14
[illegible] [illegible]	符合[illegible]类	符合[illegible]类	符合[illegible]类
[illegible] [illegible]	符合[illegible]类	符合[illegible]类	符合[illegible]类
[illegible]：[illegible]			
[illegible]：[illegible]			

附件III

楚雄市龙川江河道治理环境影响监测报告

（2017 年上半年）

CMA

1020120340240

正本

检 测 报 告

WGK-[2017]-0436 号

委托单位：[illegible]

项目名称：[illegible]

[illegible]

检测类型：竣工验收

检测日期：2017 年 7 月 27 日

[illegible]

检测报告说明及声明

一、报告文“检测结果及结论（CMA）”栏“[illegible]”为“[illegible]”和“[illegible]”合计数。

二、报告内容仅对送检样品、送检单、委托、委托代理人负责。

三、委托人送检样品，本检测机构不承担样品来源、样品真实性及合法性的责任。

四、未经本公司书面批准，不得复制检测报告。

五、检测结果仅适用于检测时的状况。

六、对检测报告有异议，应于收到报告之日起一十五日内向本公司提出。

七、本报告未经盖骑缝章，需加盖公司印章。

本公司谨此签证

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

1、概况

[illegible]

表1 委托检测方法

委托单位：[illegible]公司	
样品名称：[illegible]	
检测人：[illegible]	检测日期：[illegible]

2、检测仪器设备

表2 检测所采用的设备

检测项目	检测方法	检出限	检测仪器	仪器编号
噪声	[illegible]	/	[illegible]	[illegible]
[illegible]	[illegible]			
风速	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
污水排放量	[illegible]	[illegible]	[illegible]	[illegible]
废气	[illegible]	[illegible]	[illegible]	[illegible]
固体废物浸出毒性	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	/	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

续表2

监测项目	分析方法及标准号	检出限	仪器设备	仪器编号
粪大肠菌群	水质 粪大肠菌群的测定 多管发酵法 HJ 347.2-2018	[illegible]	生化培养箱	[illegible]
汞	水质 汞、砷、硒、铋和锑的测定 原子荧光法 HJ 694-2014	0.04μg/L	AFS-230E 双道原子荧光光度计	[illegible]
阴离子表面活性剂	水质 阴离子表面活性剂的测定 亚甲蓝分光光度法 GB/T 7494-1987	0.05mg/L	[illegible]	[illegible]
溶解氧	水质 溶解氧的测定 电化学探头法 HJ 506-2009	/	[illegible]	[illegible]
总氮	水质 总氮的测定 碱性过硫酸钾消解紫外分光光度法 HJ 636-2012	0.05mg/L	紫外可见分光光度计	[illegible]
[illegible]	铜、锌、铅、镉的测定 原子吸收分光光度法 GB 7475-1987	[illegible]	原子吸收分光光度计	[illegible]
环境空气采样方法	[illegible]			
氮氧化物	环境空气 氮氧化物（一氧化氮和二氧化氮）的测定 盐酸萘乙二胺分光光度法	[illegible]mg/m³	崂应2050型空气/智能TSP综合采样器 紫外可见分光光度计	[illegible]
[illegible]	[illegible]	[illegible]	崂应2050型空气/智能TSP综合采样器 [illegible]	[illegible]
[illegible]	环境空气 总悬浮颗粒物的测定 重量法 GB/T 15432-1995	[illegible]mg/m³	崂应2050型空气/智能TSP综合采样器 [illegible]	[illegible]
二氧化硫	环境空气 二氧化硫的测定 甲醛吸收-副玫瑰苯胺分光光度法 HJ 482-2009	小时值 [illegible]mg/m³	崂应2050型空气/智能TSP综合采样器 紫外可见分光光度计	[illegible]
		日均值 [illegible]mg/m³		

[illegible]

附表3

检测项目	检测方法及标准编号	检出限	仪器名称	仪器编号
NO_2	环境空气 氮氧化物的测定 盐酸萘乙二胺分光光度法 HJ479-2009	0.015mg/m³	便携式紫外可见分光光度计 [illegible]	[illegible]
二氧化硫	环境空气 氮氧化物的测定 盐酸萘乙二胺分光光度法 HJ479-2009	0.005mg/m³	便携式紫外可见分光光度计 [illegible]	[illegible]

[illegible]

3. 内部结算

单位：元（人民币种别除外）　　年[illegible]月[illegible]日

折算单位：[illegible]			折算汇率：[illegible]										
序号	结算品种	交易日期	应付款					应收款					
			[illegible]	到期日[illegible]	利息	应收款[illegible]	到期日[illegible]	应付	到期日[illegible]	利息	应付款[illegible]	到期日[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
应收款总合计			应付款总合计										

（中华人民共和国[illegible]）

第[illegible]条 [illegible]

[illegible]：[illegible]

[illegible]：[illegible]

序号	指标名称	资料年份	城市概况					经济概况					
			面积	常住人口	户数	行政区域土地面积	城区人口	生产总值	财政收入	税收	社会消费品零售总额	城乡居民储蓄存款余额	人均
1	工业上规模企业	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	为[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	总[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	行政区域[illegible]总	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]：[illegible]

[illegible]：[illegible]

[illegible]

序号	测量点	检测日期	风速 (m/s)	[illegible]	[illegible]	[illegible]	[illegible]	L_{max}	L_{min}	SD
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
现场监测人员				[illegible]						

全体、国内外の地域別／各国別の年次データ（2019年）

地域		人口		出生		死亡		自然増		合計特殊出生率		乳児死亡		平均寿命		人口増加率		人口密度	
全体		7,713		131		92		39		2.5		29		72.6		1.1		59	
国内外		7,713		131		92		39		2.5		29		72.6		1.1		59	
国内外	国内外	7,713		131		92		39		2.5		29		72.6		1.1		59	
国内外	国内外	7,713		131		92		39		2.5		29		72.6		1.1		59	
国内外	国内外	7,713		131		92		39		2.5		29		72.6		1.1		59	
国内外	国内外	7,713		131		92		39		2.5		29		72.6		1.1		59	

第六十六期小松定期

特別分譲　地代本	申込期間　令和	第一次抽選　令和[illegible]～令和[illegible]	抽選実施日　令和[illegible]月[illegible]日

特別分譲地は、コミュニティ広場に隣接する、[illegible]号地を除く[illegible]区画を対象とする。[illegible]号地は、[illegible]の[illegible]に伴う[illegible]の[illegible]を[illegible]。[illegible]は、[illegible]。

順位	申込番号	応募者氏名	第一希望	第二希望	第三希望	第四希望	第五希望	第六希望	第七希望	第八希望	第九希望
1	[illegible]	[illegible]様	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]様	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]様	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]様	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]様	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]様	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		分譲区画	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		応募人数	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

備考：申込者氏名は、[illegible]の[illegible]文字[illegible]字の[illegible]表記とする。

[illegible]

[illegible]股份有限公司[illegible]方案　　编号：[illegible]

产品名称：[illegible]	销售渠道：[illegible]	销售目标：[illegible]
责任单位：[illegible]	策划部门：[illegible]	

序号	活动项目	活动时间 / 工作时间	[illegible]	[illegible]	[illegible]
1	上午时段	[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
2		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
3		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
4		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
5	晚间时段	[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
6		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
7		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
8		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
9	深夜时段	[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
10		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
11		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
12		[illegible]:00—[illegible]:30	[illegible]	[illegible]	[illegible]
总计			[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2		[illegible]	[illegible]	[illegible]	[illegible]
3		[illegible]	[illegible]	[illegible]	[illegible]
4		[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6		[illegible]	[illegible]	[illegible]	[illegible]
7		[illegible]	[illegible]	[illegible]	[illegible]
8		[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10		[illegible]	[illegible]	[illegible]	[illegible]
11		[illegible]	[illegible]	[illegible]	[illegible]
12		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]		

[illegible]

[illegible]：[illegible]　　单位：(mg/L)

产品种类：[illegible] [illegible]	取样人员：[illegible]　分析人员：[illegible]			
天气情况：[illegible]　　[illegible]				
序号	检测项目	采样时间 \ 采样日期	[illegible].12	[illegible].13	[illegible].14
1	二氧化硫	[illegible]:00~[illegible]:00	<0.007	<0.007	<0.007
2		[illegible]:00~[illegible]:00	<0.007	<0.007	<0.007
3		[illegible]:00~[illegible]:00	<0.007	<0.007	<0.007
4		[illegible]:00~[illegible]:00	<0.007	<0.007	<0.007
5	氮氧化物	[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
6		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
7		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
8		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
9	颗粒物	[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
10		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
11		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
12		[illegible]:00~[illegible]:00	[illegible]	[illegible]	[illegible]
检测人员			审核人		

[illegible]

[illegible]

[illegible]：[illegible]

[illegible]：[illegible]	检测项目：[illegible]；[illegible]；[illegible]；[illegible]；[illegible]
[illegible]：[illegible]	[illegible]：[illegible]；[illegible]；[illegible]

序号	采样地点	采样时间	[illegible]	[illegible]	[illegible]
1	二氧化硫	[illegible]	[illegible]	[illegible]	[illegible]
2		[illegible]	[illegible]	[illegible]	[illegible]
3		[illegible]	[illegible]	[illegible]	[illegible]
4		[illegible]	[illegible]	[illegible]	[illegible]
5	氮氧化物	[illegible]	[illegible]	[illegible]	[illegible]
6		[illegible]	[illegible]	[illegible]	[illegible]
7		[illegible]	[illegible]	[illegible]	[illegible]
8		[illegible]	[illegible]	[illegible]	[illegible]
9	颗粒物	[illegible]	[illegible]	[illegible]	[illegible]
10		[illegible]	[illegible]	[illegible]	[illegible]
11		[illegible]	[illegible]	[illegible]	[illegible]
12		[illegible]	[illegible]	[illegible]	[illegible]
检测人员			审核人		

[illegible]

[illegible]

[illegible]：[illegible]　　单位：[illegible]

样品种类：[illegible]	检测人员：[illegible]	检测日期：[illegible]		
采样地点：[illegible]		环境条件：[illegible]		
序号	检测项目	采样时间 \ 采样口序	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
检测人员			审核人员		

[illegible]

4、气象

[illegible]气象情况

监测时间	天气状况	风速（m/s）	风向
2017.07.12	晴	1.6	南
2017.07.13	阴	1.8	西南
2017.07.14	多云	1.5	东南

[illegible]气象情况

监测时间	天气状况	风速（m/s）	风向
2017.07.12	晴	1.4	西北
2017.07.13	晴	1.5	西北
2017.07.14	多云	1.3	西北

[illegible]气象情况

监测时间	天气状况	风速（m/s）	风向
2017.07.12	晴	1.6	东北
2017.07.13	晴	1.7	东风
2017.07.14	多云	1.4	东北

[illegible]气象情况

监测时间	天气状况	风速（m/s）	风向
2017.07.12	晴	1.2	东风
2017.07.13	晴	1.2	东北
2017.07.14	多云	1.4	东北

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

附件1

[illegible]

专业	检查点	检查内容	每人次数（次）	抽查人数（人）	抽查时间（天）	备注
临床	[illegible]	[illegible]	1	3	3	可参照一起
	[illegible]					
医技	[illegible]	[illegible]	1	1	1	每1个、两人次抽查时间合计不超过半个月
	[illegible]					
	[illegible]					
	[illegible]					
公共	[illegible]	[illegible]	[illegible]	3	1	可参照一起
物资	[illegible]	[illegible]	2	2	1	每两人、两个月抽查一次，每个月、两个人抽查时间合计不超过半个月
	[illegible]					
	[illegible]					
	[illegible]					
	[illegible]	[illegible]	2	2	1	每两个人、两个月抽查一次，每个月、两个人抽查时间合计不超过半个月

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

第4-3-3地区資料


13:49


13:23


11:47


10:04


11:03


14:36

附F 4 [illegible]

附表4-1 [illegible]

检测项目 / 检测日期	[illegible]		
	2017.07.12	2017.07.13	2017.07.14
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

附表4-2 [illegible]

检测项目 / 检测日期	[illegible]		
	2017.07.12	2017.07.13	2017.07.14
[illegible]	[illegible]	[illegible]	[illegible]

附表4-3 [illegible]

检测项目 / 检测点	[illegible]			
	2017.07.13		2017.07.14	
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

附表4-4 [illegible]

检测项目 / 检测点	[illegible]			
	2017.07.12		2017.07.14	
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

附件Ⅳ

楚雄市龙川江河道治理地表水环境内部监测报告

（第一期）

No.YCH2017457

CMA
172512120004

检 测 报 告

受检单位：中国水利水电第六工程局有限公司

项目名称：贵阳市乌当区绿化亮化工程EMP施工组织设计（2017年3月-2017年5月）

监测依据：委托监测

采样日期：2017年06月07日

云南省核工业二〇一地质勘查大队

（盖章）

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委托单位地址：云南省昆明市官渡区上海路总部路1号

办公地址：云南省昆明市官渡区2002号　　邮政编码：650106

电　话：(087)63625619/6782064-5　　传　真：(087)63625619

网　址：www.yzlab.net　　电子邮箱：yz203@163.com

一、 送样情况

委托单位（委托人）：[illegible]；

样品名称：[illegible]；

样品数量及状态：[illegible]；

送检日期：[illegible]；

样品来源：[illegible]；

检测项目：[illegible]；

采样人员：[illegible]；

采样时间：2017年[illegible]；

检测时间：2017年[illegible]；

气象条件：

检测点	时间	天气	气压（kPa）	气温（℃）	湿度（%）	风速（m/s）	风向
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

二、监测分析方法及仪器

表2-1 水质检测分析方法及仪器

项目	执行分析评价标准	检测人员	主要检测仪器	检出限
pH	[illegible]	[illegible]	[illegible]	[illegible]
DO	[illegible]	[illegible]	[illegible]	[illegible]
COD	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SS	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

项目	监测分析方法	检测仪器	仪器名称及型号	检出限
石油类	水质 石油类和动植物油类的测定 红外分光光度法 HJ637-2012	红外测油	红外分光测油仪 OIL460	0.04mg/L
阴离子表面活性剂	水质 阴离子表面活性剂的测定 亚甲蓝分光光度法 GB7494-87	分光光度	分光光度计 [illegible]	0.05mg/L
粪大肠菌群	水质 粪大肠菌群的测定 多管发酵法和滤膜法（试行）HJ/T 347-2007	培养	培养箱	[illegible]
[illegible]	[illegible] 水和废水监测分析方法（第四版）增补版 [illegible]	[illegible]	[illegible]	As:[illegible]mg/L Cd:[illegible]mg/L

三、检测结果

表 4.1 地表水检测结果 单位：mg/L

检测点位 / 项目	OCS01 [illegible]上游			OCS01 [illegible]下游			标准限值	判定结果
	2017/06/[illegible]	2017/06/[illegible]	2017/06/[illegible]	2017/06/[illegible]	2017/06/[illegible]	2017/06/[illegible]	GB3838-2002（地表水环境质量标准）Ⅳ类	
pH（无量纲）	7.60	7.84	7.52	[illegible]	[illegible]	7.68	6~9	达标
DO	5.60	6.51	6.12	6.08	6.00	6.61	≥3	达标
COD	19	20	26	28	[illegible]	21	≤30	达标
BOD₅	2.2	1.4	1.5	1.5	1.6	1.8	≤6	达标
SS	7	8	9	13	15	20	—	达标
氨氮	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	≤1.5	达标
高锰酸盐指数	2.1	2.6	2.3	1.5	1.8	[illegible]	≤10	达标
总磷	0.05	0.04	0.06	0.07	[illegible]	0.03	≤0.3	达标
总氮	1.43	0.80	0.95	1.40	1.21	1.40	≤1.5	达标
石油类	0.04L	0.04L	0.04L	0.04L	[illegible]	[illegible]	≤0.5	达标
阴离子表面活性剂	0.05L	0.05L	0.05L	0.05L	[illegible]	[illegible]	≤0.3	达标
粪大肠菌群（个/L）	[illegible]	260	230	[illegible]	[illegible]	[illegible]	≤20000	达标
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	≤0.1	达标
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	≤0.001	达标

（以下无检测数据）

四、检测能力情况


检验检测机构
资质认定证书

编号：[illegible]　　日期：2017 年 06 月 07 日

校核：[illegible]　　日期：2017 年 6 月 7 日

审核：[illegible]　　日期：2017 年 6 月 7 日

批准：[illegible]　　日期：2017 年 6 月 7 日

报告结束

尊敬：

敦煌市疏勒河流域综合治理工程EMP第二期污染物监测（2017年5月-2017年6月）方案

监测点：

采样点位：CCXR1位于第二污水处理厂，CCXR2位于工业园区污水100米，共计两个点。

监测项目：pH、DO、SS、COD$_{Cr}$、氨氮、总磷、总氮、石油类、BOD$_5$、COD$_{Mn}$、SeO$_3$、TN、TP、粪大肠菌群、砷化氢、汞、镉六个项目。

监测频率：2017年5月至2018年1月，每两个月监测一次，分别为5月、7月、9月、11月、1月，共计5次。二次监测之间，每次采样监测二天，每天监测一次。

附表：监测点位信息表

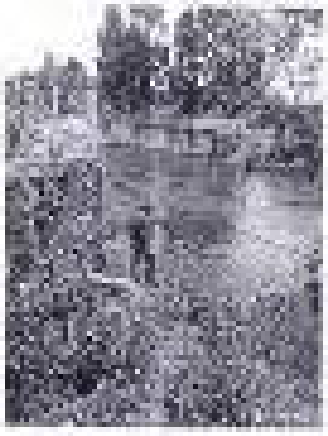
序号	监测点位	经度	纬度	海拔	海拔误差(m)
1	CCXR1位于第二污水处理厂	[illegible]	[illegible]	[illegible]	[illegible]
2	CCXR2位于工业园区污水100米	[illegible]	[illegible]	[illegible]	[illegible]

附图1 监测点位示意图

★敦煌市区

資料3 現地写真撮影

[illegible]



[illegible]

附件V

禄丰县城市道路与河道治理环境环境影响监测报告

（2017 年第一季度）

监 测 报 告

昆环监字[2017]第12号

项目名称：亚洲开发银行贷款乐昌城市基础设施建设项目——乐昌城市污水处理厂及配套工程环境管理计划施工期环境影响监测2017年上半年例行监测（EIP-EM01）

委托单位：乐昌县城市建设开发投资有限公司

监测类别：委托监测

编制日期：2017年8月17日

昆明市环境监测站

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本机构通讯资料

贵阳省环境监测站

地　　址：云岩区贵阳市观山路经济开发区1号

邮政编码：550003

电　　话：0851-3122353

传　　真：0851-3122353

电子邮箱：zxlab_0934163.com

1、样品情况

表1 样品情况

委托（或受检）单位	[illegible]有限公司	采样单位	[illegible]
样品类型	地表水、环境空气	采样方式	[illegible]
样品数量	环境空气：二氧化硫日均浓度样品15个、小时浓度样品60个；二氧化氮日均浓度样品15个、小时浓度样品60个；一氧化碳小时浓度样品60个；PM10日均浓度样品15个；PM2.5日均浓度样品15个。 地表水样品：18个。	保存方式	常温保存
采样时间	2017年3月7-9日	采样人	环境空气[illegible]：[illegible]； [illegible]：[illegible]
送样时间	环境空气：2017年3月7-9日 [illegible]：2017年3月7-9日 地表水：2017年3月7-9日	送样人	环境空气[illegible]：[illegible]； [illegible]：[illegible]
收样时间	环境空气：2017年3月7-9日 [illegible]：2017年3月7-9日 地表水：2017年3月7-9日	收样人	[illegible]
分析时间	2017年3月7-14日	分析人员	[illegible]
样品状态描述	[illegible]		

2. 检测项目、方法、设备

表3　监测分析方法及主要仪器一览表

检测项目	监测方法	监测分析仪器	仪器编号	方法检出限
pH	便携式pH计法《水和废水监测分析方法》（第四版）国家环境保护总局（2002年）	便携式多参数测定仪 HI2224型	JL-143	——
溶解氧	水质 溶解氧的测定 碘量法 GB7489-87	便携式多参数测定仪 HI2224型	JL-143	0.2（mg/L）
悬浮物	水质 悬浮物的测定 重量法 GB11901-89	分析天平 JL-1C	JL-1C	100ml、4mg/L 100ml、0.3mg/L
环境噪声	声学 噪声测量 GB3096-93	噪声测定仪	——	35（dB）
五日生化需氧量（BOD5）	水质 五日生化需氧量（BOD5）的测定 稀释与接种法 GB7488-87	LH-20型生化培养箱 便携式多参数测定仪 HI2224型	JL-35 JL-143	0.5（mg/L）
氨氮	水质 氨氮的测定 纳氏试剂分光光度法 GB7479-87	UV-1206型紫外可见分光光度计	JL-12	0.025（mg/L）
石油类	水质 石油类的测定 紫外分光光度法（试行）HJ/T 37-1999	UV1206型紫外分光光度计	JL-156	0.01（mg/L）
化学需氧量	水质 化学需氧量（COD）的测定 重铬酸盐法 GB11914-89	HCJ-101 COD消解器 酸式滴定管	JL-07-09	30（mg/L）
总磷	水质 总磷的测定 钼酸铵分光光度法 GB11893-89	UV-1206型紫外可见分光光度计	JL-12	0.02（mg/L）

总磷	水质 总磷的测定 钼酸铵分光光度法（GB11893-89）	T6 紫外可见分光光度计	JL-[illegible]	0.01（mg/L）
阴离子表面活性剂	水质 阴离子表面活性剂的测定 亚甲蓝分光光度法 GB7494-87	T6 紫外可见分光光度计	JL-29	0.05（mg/L）
粪大肠菌群	水质 粪大肠菌群的测定 多管发酵法和滤膜法（HJ/T 347-2007）（试行）多管发酵法	[illegible] 手提式压力蒸汽灭菌器，LRH-150B 生化培养箱，DHP-360 型电热恒温培养箱	FZ-25 FZ-26	20（MPN/L）
砷	水质 汞、砷、硒、铋和锑的测定 原子荧光法 HJ694-2014	AFS-230E 原子荧光光度计、[illegible]	JL-14 JL-46	0.0003（mg/L）
镉	石墨炉原子吸收分光光度法，测镉、铜和铅《水和废水监测分析方法》（第四版增补版）国家环境保护总局（2006 年）	[illegible] 石墨炉	JL-36a	0.0001（mg/L）
二氧化硫（SO₂）小时浓度	环境空气 二氧化硫的测定 甲醛吸收-副玫瑰苯胺分光光度法（HJ 482-2009）	[illegible] TH-150F，722s 分光光度计	JL-55 JL-56 JL-57 JL-58	0.007（mg/m³）
二氧化氮（NO₂）小时浓度	环境空气 氮氧化物（一氧化氮和二氧化氮）的测定 盐酸萘乙二胺分光光度法（HJ 479-2009）			0.005（mg/m³）
一氧化氮（NO）小时浓度				

5. 监测结果

表3 地表水监测结果一览表

监测日期	监测点位	监测项目（含单位）及结果													
		pH	阴离子表面活性剂	石油类	悬浮物	高锰酸盐指数	氨氮	总磷	总氮	粪大肠菌群	砷	汞	溶解氧	五日生化需氧量	化学需氧量
		无量纲	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	个/L	mg/L	mg/L	mg/L	mg/L	mg/L
[illegible]	[illegible]	8.05	[illegible]	0.02	8	1.7	[illegible]	0.106	0.11	700	0.0006	<0.0001	11.4	1.1	10
	[illegible]	7.84	0.02	0.01	8	1.7	0.53	[illegible]	0.19	3500	0.0005	0.0001L	10.1	1.2	10
	[illegible]	8.27	0.06	0.01	4	1.8	0.53	0.106	0.65	250000	0.0005	0.0001L	11.4	1.7	11.5
	[illegible]	8.30	0.11	0.01	6	2.8	1.96	1.6	3.26	250000	0.0007	0.0001L	8.5	2.9	[illegible]
	[illegible]	8.11	0.15	0.02	20	2.5	1.47	[illegible]	3.33	795000	0.0005	0.0001L	8.4	2.5	20.4
	[illegible]	7.75	0.07	0.02	10	2.8	0.02	[illegible]	0.17	250000	0.0007	0.0001L	7.2	2.5	16.7
[illegible]	[illegible]	8.00	0.07	0.03	5	2.0	0.40	0.116	0.98	330	0.0008	0.0001L	10.4	[illegible]	10
	[illegible]	7.74	0.06	0.02	4	1.9	0.22	0.102	0.18	9400	0.0005	0.0001L	9.7	1.8	10
	[illegible]	8.19	0.05L	0.02	4	2.0	3.62	0.100	0.11	250000	0.0004	0.0001L	10.5	2.8	13.6
	[illegible]	8.30	0.12	0.02	20	2.7	2.08	1.25	0.23	250000	0.0007	0.0001L	6.6	4.3	15.3
	[illegible]	7.58	0.09	0.02	24	2.8	1.46	0.085	0.13	250000	0.0007	0.0001L	5.6	3.7	11.9
	[illegible]	7.79	0.11	0.02	[illegible]	2.8	1.29	0.021	0.16	250000	0.0005	0.0001L	6.6	5.0	11.2

续表

2017年[illegible]月6日	[illegible]	3.27	[illegible]	0.03	5	1.8	[illegible]	0.128	3.32	[illegible]	0.0003	0.0001L	8.6	1.7	[illegible]
	[illegible]	3.21	[illegible]	0.03	5	1.7	0.23	0.128	3.14	2000	0.0003	0.0001L	[illegible]	1.7	[illegible]
	[illegible]	7.88	0.11	0.02	6	1.9	0.56	0.221	1.3	240000	0.0004	0.0001L	8.6	3.3	10.8
	[illegible]	8.12	0.02	0.02	[illegible]	3.0	2.78	1.09	0.25	240000	0.0007	0.0001L	7.8	4.4	10.1
	[illegible]	8.08	0.02	0.02	26	3.3	1.36	0.315	0.23	240000	0.0006	0.0001L	7.8	3.6	10.7
	[illegible]	5.64	3.05	0.72	11	3.0	1.22	0.198	0.29	240000	0.0007	[illegible]	6.2	3.5	12.1

备注：低于项目方法检出限的结果，结果上报方式为"检出限L"。

表1　施工场地噪声监测结果一览表

监测点位	监测内容	监测日期	监测时间	监测结果	SO2 (mg/m³)	NO2 (mg/m³)	颗粒物 (mg/m³)
第二十八届[illegible]大学生[illegible]赛场馆	昆明理工	2017年5月7日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月8日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月9日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	学校[illegible]	2017年5月7日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月8日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月9日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	工[illegible]学校	2017年5月7日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月8日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月9日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	第十一中	2017年5月7日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月8日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		2017年5月9日	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

表5　环境空气硫酸雾监测结果一览表

监测类别	监测地点	监测时间	检测结果	TSP (mg/m³)	PM_{10} (mg/m³)	SO_4 (mg/m³)	NO_3 (mg/m³)
环境空气	杨人干部	2017年3月7日	[illegible]	[illegible]	[illegible]	9	19
		2017年3月8日	[illegible]	[illegible]	174	7	[illegible]
		2017年3月9日	[illegible]	32	32	8	12
	杨小职中	2017年3月7日	[illegible]	146	108	[illegible]	34
		2017年3月8日	[illegible]	136	108	8	28
		2017年3月9日	[illegible]	[illegible]	148	7	32
	广源村	2017年3月7日	[illegible]	258	200	16	25
		2017年3月8日	[illegible]	252	209	[illegible]	26
		2017年3月9日	[illegible]	252	194	8	19
	四平村	2017年3月7日	[illegible]	216	95	21	30
		2017年3月8日	[illegible]	188	132	9	25
		2017年3月9日	[illegible]	96	96	8	12
	永安堡	2017年3月7日	[illegible]	126	108	12	21
		2017年3月8日	[illegible]	116	72	7	18
		2017年3月9日	[illegible]	85	72	8	15

表6　施工噪声昼夜声监测结果一览表

监测点位	监测结果　　单位：dB（A）					
	2017年3月7日			2017年3月8日		
	昼间	夜间	夜间（max）	昼间	夜间	夜间（max）
杨小职中	51	49	73	52	46	73
官滩社区	51	47	67	47	43	62
上官三村	57	49	69	53	45	64
杨小一中	50	44	60	50	40	66

表7 声环境敏感点噪声监测结果一览表

监测点位	监测结果 单位：dB（A）			
	2017年3月7日		2017年3月8日	
	昼间	夜间	昼间	夜间
水图中学	53	44	52	47
诗卜职中	48	46	49	45
广源村	47	47	51	48
五华村	53	45	49	46
李家营	48	42	48	45

4、监测结果评价

（1）地表水：参照《地表水环境质量标准》（GB3838-2002）及《地表水环境质量评价办法（试行）》（2011），本次检测2个地表水断面水质评价结果汇总如。

表8 [illegible]水断面水质监测评价结果一览表

监测点位（断面）名称	评价结果	主要污染物
[illegible]上游[illegible]米	符合[illegible]类标准	—
[illegible]上游[illegible]米	符合[illegible]类标准	—
[illegible]河汇入[illegible]河交叉口[illegible]上游50米	劣于[illegible]类标准	氨氮、总磷
[illegible]河汇入[illegible]河交叉口[illegible]上游50米	劣于[illegible]类标准	氨氮、总磷、总氮
[illegible]河汇入[illegible]河交叉口下游[illegible]米	劣于[illegible]类标准	氨氮、总磷、总氮
[illegible]施工[illegible]下游[illegible]米	劣于[illegible]类标准	氨氮、总磷

（3）施工扬尘监测结果评价及污染防治：参照《大气污染物综合排放标准》（GB16297-1996）的表2中无组织排放监控浓度限值进行评价，评价结果见表9。

表 9　施工噪声监测结果一览表

测点	3月7日	3月8日	3月9日
根本职中	符合标准	符合标准	符合标准
富城社区	符合标准	符合标准	符合标准
上营工业	符合标准	符合标准	符合标准
根本一中	符合标准	符合标准	符合标准

（3）环境空气质量，参照《环境空气质量标准》（GB3095-2012）附录1中二级标准进行评价，评价结果见表10。

表 10　环境空气质量评价结果一览表

测点	3月7日	3月8日	3月9日
公园中学	劣于二级标准	劣于二级标准	符合二级标准
根本职中	劣于二级标准	符合二级标准	符合二级标准
厂房村	劣于二级标准	劣于二级标准	符合二级标准
田家村	符合二级标准	劣于二级标准	符合二级标准
赵家营	符合二级标准	符合二级标准	符合二级标准

（4）施工噪声，参照《建筑施工场界环境噪声排放标准》（GB12523-2011）附录1中规定的排放限值对施工噪声监测点进行评价，评价结果见表11。

表11 施工期噪声监测结果统计及评价

测点	2017年3月7日			2017年3月8日		
	昼间	夜间	夜间（[illegible]）	昼间	夜间	夜间（[illegible]）
拆迁居中	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
官塘小区	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
上塘三村	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
双丰一村	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

（5）声环境：参照《声环境质量标准》（GB3096-2008）的表1中2类声环境功能区标准进行评价，评价结果见表12。

表12 声环境质量评价结果统计表

测点	2017年3月7日		2017年3月8日	
	昼间	夜间	昼间	夜间
水岸十分	[illegible]	[illegible]	[illegible]	[illegible]
双丰四村	[illegible]	[illegible]	[illegible]	[illegible]
广济村	[illegible]	[illegible]	[illegible]	[illegible]
日华村	[illegible]	[illegible]	[illegible]	[illegible]
李长春	[illegible]	[illegible]	[illegible]	[illegible]

6、附件

附监测报告单。

编制：[illegible]　日期：2017年3月17日

校核：[illegible]　日期：2017年3月17日

审核：[illegible]　日期：2017年3月24日

批准：[illegible]　日期：2017年3月20日

监 测 委 托 单

委托编号：[illegible]

委托单位	[illegible]		
委托内容	[illegible]		
污染源位：	[illegible]	委托编号：	[illegible]
委托人：	[illegible] 联系人： [illegible] 电话：	Email：	
委托单位盖章	□(公)章 □法人 □法定代表人 □Email	委托日期	年 月 日
报告语言	√简体汉语 □中英 □英语		
交付方式	□客户自取 √邮寄		
监测依据	√国标方法 □环标方法 □非标方法项目： 无 □认证项目： 无 □不利因素： 无	质控要求： 无质控 网点要求： 不设网点 检测要求： 不设元	
样品来源	□现场 □委托 [illegible]		
采样依据	□客户提供 √按监测单位规定		
现场采样条件	温度 □湿度 □[illegible]（ ）		
样品检查	[illegible]	特殊要求	
检测费用合计	一元 整	付费时间	[illegible]
备注	1.[illegible] 2.[illegible] 3.本委托单[illegible]。		

序号	样品名称	检测项目
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
备注		

委托单位盖章	[illegible]	检测单位盖章	[illegible]

注：[illegible]

[illegible]

[illegible]工程环境[illegible]监测计划表

（[illegible]年上半年，[illegible]CLFK1工程段）

类别	监测点	监测指标	频次			备注
			每天次数（次）	连续天数（天）	采样频次（期/年）	
地表水	CLFK1施工区[illegible]上游50米	[illegible]	[illegible]	[illegible]	2	每半年一期
	CLFK1施工区[illegible]上游50米					
	CLFK1施工区[illegible]下游50米					
	CLFK1施工区[illegible]下游500米					
	CLFK1施工区[illegible]下游100米					
	CLFK1施工区[illegible]下游100米					
大气	整个项目区域[illegible]	颗粒物, SO₂, NO₂	4	3	2	每半年一期，[illegible]
	整个项目区域[illegible]					
	整个项目区域[illegible]					
	整个项目区域[illegible]					

	周围环境大气敏感点3个：长河小学、保本村、厂界E、E学校、灰水沿	TSP≤0.90、NO_2≤0.24mg	连续24个小时以内	2	2	每年年一次，取样分析以内
噪声	噪声敏感点3个：长河小学、保本村、厂界E、E学校、灰水沿	Leq	2	2	2	每年年一次，监测3次，昼夜各测一次
	噪声敏感点3个：长河小学、保本村、厂界E、E学校、灰水沿	Leq	2	2	2	每年年一次，监测3次，昼夜各测一次

附件VI

禄丰县城市道路建设环境影响监测报告

（2017 年二季度）

正本

检 测 报 告

YNFY 201706-308 号

以科技的力量

助力于环境保护和建设

委托单位：　　禄丰县城市建设开发投资有限公司

项目名称：　　禄丰县城市污水处理厂及污水管网工程 EMP 施工期监测

（2017 年 2 季度，CLF1 等效污水处理厂及管网）

报告日期：　　2017 年 6 月 20 日

云南点源科技有限公司

（盖章）

云南点源科技有限公司　地址：昆明市经开区科技路[illegible]号创业大厦　电话：0871-[illegible]
邮箱：[illegible]　Email：[illegible]　网址：www.yndianyuan.com　邮编：650[illegible]

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检测业务联系电话：0871-6539525

检测报告批量及年解释咨询电话：0871-6539525

传　真：0871-6539525

E-mail：13318250@qq.com

质量投诉电话及传真：0871-6539525

邮政编码：650501

地　　址：云南省昆明市官渡区茭白村3号科技创新园2AB-23室

检测地址：云南省昆明市官渡区茭白村3号

一、样品概况

表 1-1 样品登记表

委托单位	浙江沃[illegible]建设工程有限公司				
受检单位	杭州[illegible]有限公司				
检测区域及内容说明	1、大气环境 （1）无组织排放监控点 监测位置：厂界东侧、厂界西侧、厂界南侧、厂界北侧，共 4 个监测点。 监测项目：颗粒物、二氧化硫、氮氧化物，共 3 个监测项目。 检测频次：连续监测 3 天，每天监测 4 次。 （2）敏感点 监测点位：[illegible]，共 2 个监测点。 监测项目：颗粒物（PM10）、二氧化硫、氮氧化物，共 4 个监测项目。 监测频次：连续监测 3 天，每日 1 次。 2、噪声 监测点位：厂界东侧、厂界南侧、厂界西侧、厂界北侧，共 4 个监测点。 环境敏感点：[illegible]，共 2 个监测点。 监测项目：Leq（A）。 监测频次：连续监测 2 天，每天白天测 1 次，夜、[illegible] 1 次。				
采样方式	现场采样（ ） 检测点采样（ ）	采样人	采样记录[illegible]	采样时间	2017.06.14~2017.06.15
送样人：[illegible] 送样时间：[illegible]	接样人：[illegible]			实验时间	2017.06.14~2017.06.17
检测时间	2017.06.14~2017.06.15				
样品状态描述：[illegible]					

[illegible]-4-2 大气污染物（[illegible]）检测结果表

单位：mg/m³

检测点位	检测时间	检测结果					
		2017.06.14	2017.06.15	2017.06.16	2017.06.14	2017.06.15	2017.06.16
厂界	颗粒物	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.128	0.108	0.094	0.147	0.107	0.094
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.133	0.120	0.088	0.123	0.097	0.108
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.134	0.087	0.112	0.130	0.112	0.088
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.137	0.100	0.095	0.098	0.088	0.112
点位编号	检测时间	检测结果					
		2017.06.14	2017.06.15	2017.06.16	2017.06.14	2017.06.15	2017.06.16
点位	颗粒物	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.362	0.404	0.393	0.407	0.488	0.490
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.367	0.389	0.391	0.416	0.512	0.478
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.386	0.368	0.393	0.416	0.502	0.500
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		0.364	0.352	0.330	0.424	0.452	0.458

（续）表4-2 大门环境（个别量）检测结果

单位：mg/m³

检测地点 / 检测时间 / 检测项目	城中区			雨湖区		
	2017.06.14	2017.06.15	2017.06.16	2017.06.14	2017.06.15	2017.06.16
二氧化硫	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.023	0.024	0.021	0.024	0.023	0.025
	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.017	0.015	0.016	0.016	0.018	0.016
	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.013	0.012	0.014	0.012	0.015	0.013
	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.018	0.017	0.017	0.018	0.019	0.027

检测地点 / 检测时间 / 检测项目	上海三路			湘潭一中		
	2017.06.14	2017.06.15	2017.06.16	2017.06.14	2017.06.15	2017.06.16
二氧化硫	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.022	0.023	0.018	0.018	0.019	0.017
	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.016	0.017	0.019	0.016	0.016	0.015
	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.015	0.016	0.017	0.013	0.015	0.012
	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00
	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015	201706130[illegible]<0.015
	0.023	0.024	0.024	0.014	0.017	0.019

[illegible]

单位：mg/m³

测点位置 / 测次 / 时间	测点[illegible]			[illegible]		
	2017.06.14	2017.06.15	2017.06.16	2017.06.14	2017.06.15	2017.06.16
变压器	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00
	2017.06.14 5-56	2017.06.15 5-54	2017.06.16 5-55	2017.06.14 5-52	2017.06.15 5-54	2017.06.16 5-51
	0.010	0.012	0.011	0.009	0.012	0.013
	05:00-06:00	05:00-06:00	05:00-06:00	05:00-06:00	05:00-06:00	05:00-06:00
	2017.06.14 5-55	2017.06.15 5-53	2017.06.16 5-54	2017.06.14 5-52	2017.06.15 5-54	2017.06.16 5-51
	0.009	0.008	0.007	0.007	0.009	0.007
	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00
	2017.06.14 5-57	2017.06.15 5-51	2017.06.16 5-50	2017.06.14 5-53	2017.06.15 5-54	2017.06.16 5-51
	0.008	0.008	0.006	0.005	0.007	0.006
	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00
	2017.06.14 5-58	2017.06.15 5-52	2017.06.16 5-50	2017.06.14 5-53	2017.06.15 5-53	2017.06.16 5-52
	0.007	0.007	0.007	0.006	0.007	0.007
测点位置 / 测次 / 时间	二楼二区			二楼一区		
	2017.06.14	2017.06.15	2017.06.16	2017.06.14	2017.06.15	2017.06.16
变压器	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00	02:00-03:00
	2017.06.14 5-52	2017.06.15 5-103	2017.06.16 5-105	2017.06.14 5-102	2017.06.15 5-102	2017.06.16 5-101
	0.042	0.041	0.041	0.010	0.010	0.009
	05:00-06:00	05:00-06:00	05:00-06:00	05:00-06:00	05:00-06:00	05:00-06:00
	2017.06.14 5-54	2017.06.15 5-112	2017.06.16 5-106	2017.06.14 5-104	2017.06.15 5-103	2017.06.16 5-101
	0.040	0.043	0.050	0.008	0.009	0.008
	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00
	2017.06.14 5-59	2017.06.15 5-103	2017.06.16 5-105	2017.06.14 5-102	2017.06.15 5-105	2017.06.16 5-101
	0.032	0.037	0.032	0.008	0.008	0.006
	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00	20:00-21:00
	2017.06.14 5-105	2017.06.15 5-104	2017.06.16 5-106	2017.06.14 5-102	2017.06.15 5-103	2017.06.16 5-104
	0.034	0.034	0.035	0.007	0.008	0.007

表4-3 地下环境噪声监测结果

单位：dB(A)

时间/编号 点位	2017.06.15 昼间	2017.06.15 夜间	2017.06.16 昼间	2017.06.16 夜间	主要声源
设计一中学	201706130631 50.9	201706130632 47.3	201706130633 55.4	201706130634 46.8	环境噪声
恒本园[illegible]	201706130635 57.7	201706130636 47.5	201706130637 57.0	201706130638 46.0	交通噪声（昼间） 环境噪声（夜间）
官渡社区[illegible]	201706130639 56.2	201706130640 45.7	201706130641 55.0	201706130642 45.0	环境噪声
十字二[illegible]	201706130643 59.6	201706130644 45.7	201706130645 59.2	201706130646 46.5	交通噪声

表4-4 声环境敏感点噪声监测结果

单位：dB(A)

时间/编号 点位	2017.06.15 昼间	2017.06.15 夜间	2017.06.16 昼间	2017.06.16 夜间	主要声源
白塔小区[illegible]	201706130647 55.7	201706130648 45.4	201706130649 55.6	201706130650 46.0	环境噪声
桂本[illegible]	201706130651 56.8	201706130652 46.7	201706130653 56.6	201706130654 46.0	环境噪声

以下无数据

编制：[illegible] 审核：[illegible] 审定：[illegible] 日期：[illegible]

[illegible]：[illegible] 职务：[illegible] [illegible]：[illegible] 日期：[illegible]

[illegible]：[illegible] 职务：[illegible] [illegible]：[illegible] 日期：[illegible]

[illegible]：[illegible] 职务：[illegible] [illegible]：[illegible] 日期：[illegible]

附件

[illegible]

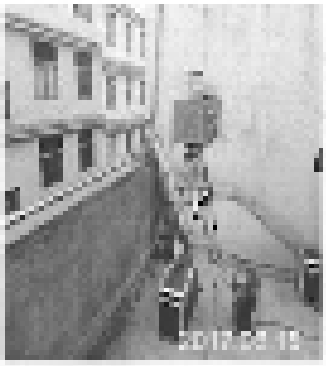
类别	污染物	检测标准	频次			备注
			最大浓度（次）	次高浓度（次）	最低浓度（次）	
大气	[illegible]	颗粒物、SO_2、NO_x	4	3	4	污染物排放监测
	排放口废气烟囱三个：[illegible]、[illegible]、[illegible]	TSP、SO_2、NO_x、PM_{10}	所有污染物均测	3	4	烟囱出口监测
噪声	[illegible]	LAeq	1	2	4	昼间1次，夜间2次，最高值1次
	[illegible]	LAeq	1	2	4	昼间1次，夜间2次，最高值1次

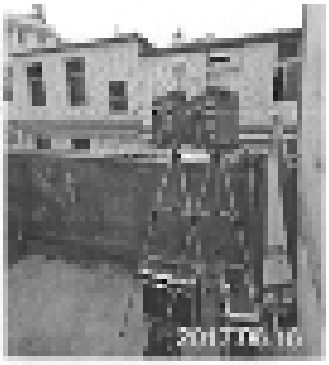
附录2：监测点位置

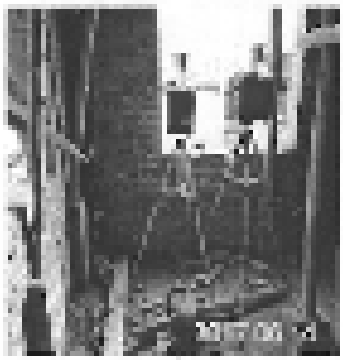
附表2 測定地点の位置、年月

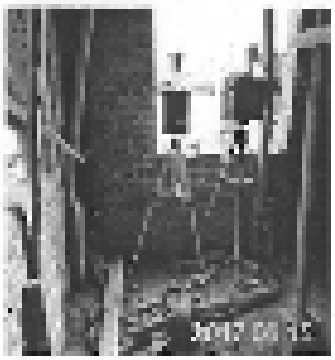
測定地点	位置
福田橋付	N35° [illegible] 36" E [illegible]
宮津駅北	N35° [illegible] 38" E [illegible]
上夫三区	N35° [illegible] 12" E [illegible]
新町一区	N35° [illegible] 42" E [illegible]
竹辺小北	N35° [illegible] 35" E [illegible]
竹野川	N35° [illegible] 12" E [illegible]

附表4. 現況写真
河川空間





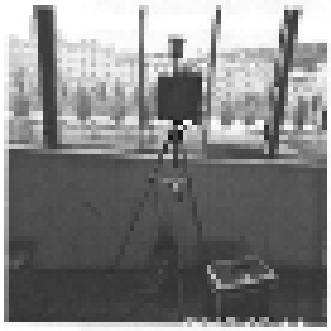
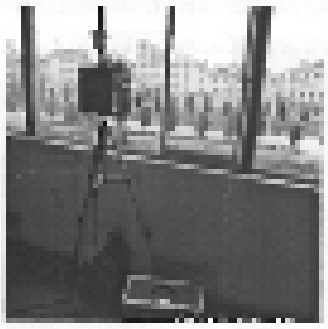
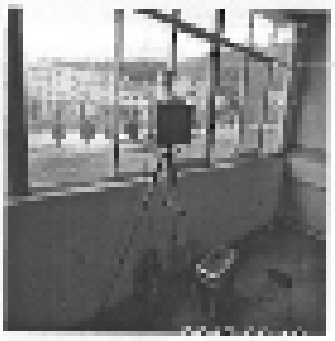
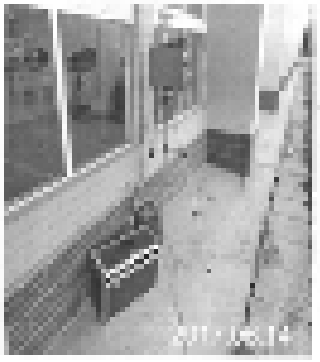




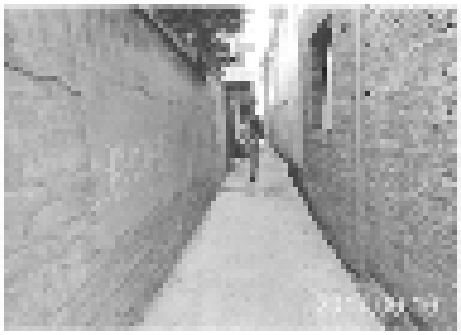


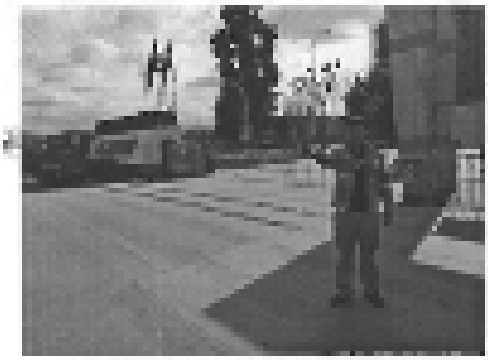


2017.06.14

写真





附表6 监测结果汇总（本项目评价小时平均浓度）

附表6-1 施工期监测大气监测点位监测结果汇总

监测点位 / 评价标准	（GB3095-2012）《环境空气质量标准》二级		
	2017.06.14	2017.06.15	2017.06.16
中国[illegible]	符合标准	符合标准	符合标准
官河社区	符合标准	符合标准	符合标准
上河二村	符合标准	符合标准	符合标准
小[illegible]中	符合标准	符合标准	符合标准

附表6-2 环境空气监测点位监测评价结果

监测点位 / 评价标准	（GB3095-2012）《环境空气质量标准》二级		
	2017.06.14	2017.06.15	2017.06.16
黄江小区	符合二级	符合二级	符合二级
三和村	符合二级	符合二级	符合二级

附表 6-3 [illegible]

时间/评价 区县	[illegible]			
	2017.06.15		2017.[illegible].16	
	第四	第四	第四	第四
城中区中	符合标准	符合标准	符合标准	符合标准
宝山社区	符合标准	符合标准	符合标准	符合标准
上智二组	符合标准	符合标准	符合标准	符合标准
城中一中	符合标准	符合标准	符合标准	符合标准

附表 6-4 [illegible]

时间/评价 区县	[illegible]			
	2017.06.15		2017.[illegible].16	
	第四	第四	第四	第四
海棠小区	符合二级	符合二级	符合二级	符合二级
六角亭	符合二级	符合二级	符合二级	符合二级

以科技的力量

致力于环境保护和建设

[illegible]

检 测 报 告

[illegible]

以科技助力生

[illegible]

委托单位：[illegible]

测试对象：[illegible]

[illegible]

检测类型：[illegible]

报告日期：[illegible]

[illegible]

沿革及資本金等の状況

一、[illegible]

二、[illegible]

三、[illegible]

四、[illegible]

五、[illegible]

六、[illegible]

七、[illegible]

八、[illegible]

主な事業所

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

附件VII

禄丰县东西河治理地表水环境质量内部监测报告

（第二期）

[illegible]

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

一、[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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	2017.01.17	[illegible]	2017.01.17
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[illegible]	[illegible]	[illegible]	[illegible]
pH [illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

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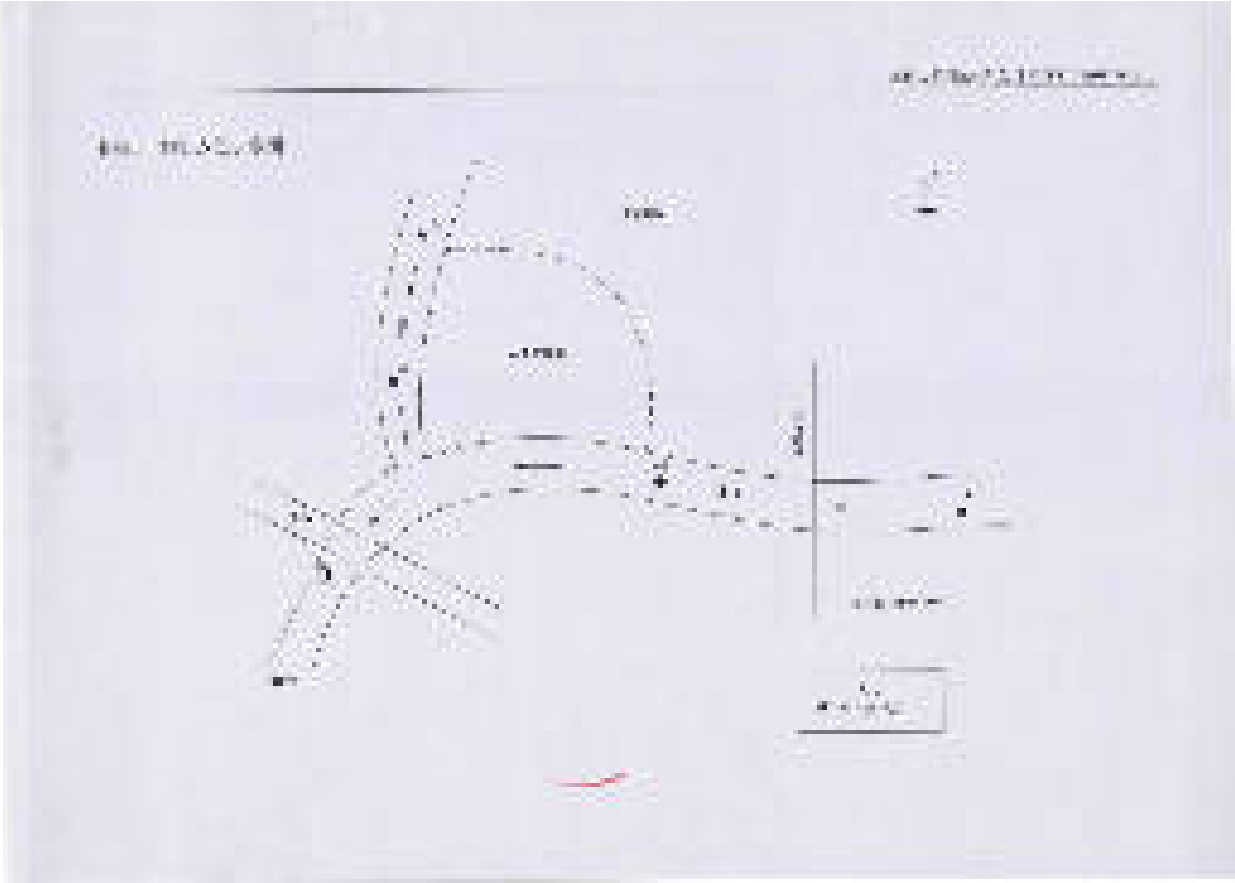
以科技的力量

致力于耳疾保护和进步



附件VIII

禄丰县东西河治理地表水环境质量内部监测

（第三期报告）

检 测 报 告

YNFY 2016121907 号

委托单位：

项目名称：珠江东岸城市道路与河道综合治理工程EMP施工期

污染物排放检测

报告日期：2017年4月20日

云南方源环境有限公司

（盖章）

检测报告说明及声明

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二、委托内容或以复印、涂改、伪造、冒充或其他方式使用本报告[illegible]

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四、未经委托单位书面同意，检测结果不予发送给其他单位。对委托单位提供的样品，其检验检测结果，仅代表送样时样品的符合性状况。

五、未经本公司书面同意，不得发布、公开及利用该报告（全文或部分除外）。涉及报告内容的宣传、广告及其他公开场合使用本报告，须经本公司书面同意。

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七、本报告正本一份，副本一份。

云南方圆科技有限公司联系资料

检测业务联系电话：0871-[illegible]

检测报告真伪查询联系电话：0871-[illegible]

传　真：0871-[illegible]

E-mail：[illegible]

质量投诉电话及传真：0871-[illegible]

邮政编码：[illegible]

地　址：贵州省贵阳经开区[illegible]

检测地点：云南省昆明市[illegible]

一、样品概况

表 1-1　样品概况表

委托单位	广东[illegible]有限公司				
项目名称	[illegible] EMP [illegible]				
检测项目 及频次	水质： 监测点位：施工[illegible]上游 50 米、[illegible]下游 100 米、[illegible]上游 50 米、[illegible]下游 50 米、[illegible]下游 100 米、[illegible]下游 100 米，共 6 个监测断面； 监测项目：pH、溶解氧、悬浮物、化学需氧量、石油类、阴离子表面活性剂、氨氮、五日生化需氧量、总磷、总氮、粪大肠菌群、铜、锌，共 14 个监测因子； 监测频次：连续监测 3 天，每天监测 1 次。				
采样方式	委托方采样（ ） 检测方采样（√）	采样人	[illegible]	采样时间	2017.04.05-2017.04.07
送样人：[illegible]	接样人：[illegible]			接样时间	2017.04.05-2017.04.07
检测时间	2017.04.05-2017.04.10				
样品状态描述：标签完整，[illegible]。					

二、检测项目、方法、检测设备和检测人员

表2-1 检测项目、方法、检测设备和检测人员[illegible]

检测项目	分析方法	检测设备	设备编号	检出限	检测人员
化学需氧量	水质 化学需氧量的测定 重铬酸盐法 GB 11914-89	滴定管[illegible]	/	10mg/L	[illegible]
氨氮	水质 氨氮的测定 纳氏试剂分光光度法 GB 7479-87	紫外可见分光光度计 [illegible]	YN-Y-[illegible]	0.025mg/L	[illegible]
硫化物	水质 硫化物的测定 亚甲基蓝分光光度法 HJ 835-2017	721型 [illegible]	YNFY-YQSD-102	0.005mg/L	[illegible]
总磷	水质 总磷的测定 钼酸铵分光光度法 GB 11893-89	721型 [illegible]	YNFY-YQSD-[illegible]	0.01mg/L	[illegible]
总氮	水质 总氮的测定 碱性过硫酸钾消解紫外分光光度法 GB 11894-89	721型 [illegible]	YNFY-YQSD-[illegible]	0.05mg/L	[illegible]
pH	水质 pH值的测定 玻璃电极法 GB 6920-86	PHS-3C 酸度计	YNFY-YQSD-[illegible]	/	[illegible]
动植物油	水质 动植物油的测定 红外分光光度法 HJ 637-2012	TU-[illegible] 红外测油仪	YNFY-YQSD-[illegible]	0.06mg/L	[illegible]
高锰酸盐指数	水质 高锰酸盐指数的测定 酸性高锰酸钾法 GB 11892-89	滴定管[illegible]	/	0.5mg/L	[illegible]
悬浮物	水质 悬浮物的测定 重量法 GB 11901-1987	烘干箱[illegible]	/	5.0mg/L	[illegible]
石油类和动植物油	水质 石油类和动植物油的测定 紫外分光光度法（试行） HJ 970-2018	SPX-[illegible] 生化培养箱 [illegible]	YN-Y-[illegible]	0.05mg/L	[illegible]
粪大肠菌群	水质 粪大肠菌群的测定 多管发酵法和滤膜法（试行） HJ/T 347-2007	303型 [illegible] 恒温培养箱	YNFY-YQSD-[illegible] YNFY-YQSD-[illegible]	/	[illegible]
阴离子表面活性剂	水质 阴离子表面活性剂的测定 亚甲蓝分光光度法 GB/T 7494-87	721型 [illegible]	YNFY-YQSD-[illegible]	0.05mg/L	[illegible]

（续）表2-1 [illegible]

检测项目	检测标准	检测仪器	仪器编号	检出限	检出人员
氨氮	[illegible] HJ 535-2009	PE2400型[illegible]	YNPY-YQSB-003	0.05 mg/L	[illegible]
汞	水质 汞、砷、硒、铋、锑的测定 原子荧光法 HJ 694-2014	AFS-230E型[illegible]	YNPY-YQSB-013	0.04μg/L	[illegible]

Note: 表中"*"为[illegible]。

三、检测结果

表2-2 水质检测结果

检测项目	水质检测点位	1#[illegible]排污口		
	采样时间	2017.04.05	2017.04.06	2017.04.07
	检测编号	201812190071-01	201812190071-02	201812190071-03
pH（无量纲）		7.93	7.84	7.80
石油类（mg/L）		0.08	0.09	0.10
总磷（mg/L）		0.06	0.05	0.07
阴离子表面活性剂（mg/L）		0.14	0.13	0.15
氨氮（mg/L）		0.172	0.190	0.160
总氮（mg/L）		0.579	0.649	0.670
化学需氧量（mg/L）		23	24	25
挥发酚（mg/L）		<10	<10	<10
五日生化需氧量（mg/L）		1.8	<5	1.7
悬浮物（mg/L）		7.8	7.5	7.0
粪大肠菌群（MPN/L）		<4	<4	<4
总大肠菌群（MPN/L）		170	210	220
汞（mg/L）		<0.06	<0.05	<0.06
砷（μg/L）		<0.3	<0.3	<0.3

[illegible]

检测项目	[illegible]		
	2017.04.05	2017.04.06	2017.04.07
	[illegible]	[illegible]	[illegible]
pH（无量纲）	8.01	8.52	8.07
总氮 (mg/L)	0.70	0.09	0.10
氨氮 (mg/L)	0.18	0.13	0.14
阴离子表面活性剂 (mg/L)	0.27	0.31	0.24
浊度 (NTU)	1.27	1.39	1.30
悬浮物 (mg/L)	1.65	1.69	1.59
总磷（以P计） (mg/L)	2.4	2.3	2.6
化学需氧量 (mg/L)	10	11	<10
五日生化需氧量 (mg/L)	3.1	3.2	2.7
溶解氧 (mg/L)	5.0	5.6	5.7
总汞 (μg/L)	<4	<4	<4
粪大肠菌群 (MPN/L)	2.2×10^{3}	1.5×10^{3}	2.4×10^{3}
铅 (mg/L)	<0.05	<0.06	<0.05
砷 (μg/L)	<0.3	<0.3	<0.3

检测项目	[illegible]		
	2017.04.05	2017.04.06	2017.04.07
	[illegible]	[illegible]	[illegible]
pH（无量纲）	8.76	8.60	8.42
汞 (μg/L)	0.04	0.08	0.11
铬 (μg/L)	0.11	0.10	0.10
镉（[illegible]） (μg/L)	0.12	0.16	0.26
铜 (μg/L)	0.590	0.578	0.598
锌 (μg/L)	0.630	0.607	0.549
挥发酚 (mg/L)	2.1	2.0	2.2
石油类 (mg/L)	<10	10	<10
五日生化需氧量 (mg/L)	2.2	2.0	2.5
硫酸盐 (mg/L)	8.4	8.5	8.0
总汞 (μg/L)	<4	<4	<4
水质氯离子 (mg/L)	3.5×10^{3}	3.5×10^{3}	3.8×10^{3}
铅 (mg/L)	<0.05	<0.05	<0.05
砷 (μg/L)	<0.3	<0.3	<0.3

（続）表2-1　水質分析結果

採取年月日	[illegible]		
採取地点	[illegible]		
検査項目	2017.04.05	2017.04.06	2017.04.07
	2016121907[illegible]-10	2016121907[illegible]-11	2016121907[illegible]-12
pH（[illegible]）	8.18	8.30	8.29
亜鉛 (mg/L)	0.12	0.11	0.09
銅 (mg/L)	0.15	0.14	0.16
陰イオン界面活性剤 (mg/L)	0.18	0.14	0.10
鉛 (mg/L)	0.016	0.000	0.033
砒素 (mg/L)	0.006	0.005	0.006
沃素消費量 (mg/L)	2.1	2.3	2.1
化学的酸素 (mg/L)	11	<10	10
生物化学的酸素 (mg/L)	2.5	1.9	2.2
溶解性 (mg/L)	7.1	7.8	7.0
浮遊物 (mg/L)	15	14	18
大腸菌群数 (MPN/L)	1.7×10^{4}	1.4×10^{4}	2.1×10^{4}
六価クロム (mg/L)	<0.02	<0.06	<0.06
砒素 (mg/L)	<0.5	<0.5	<0.5

採取年月日	[illegible]		
採取地点	[illegible]		
検査項目	2017.04.05	2017.04.06	2017.04.07
	2016121907[illegible]-13	2016121907[illegible]-14	2016121907[illegible]-15
pH（[illegible]）	8.40	8.46	8.40
亜鉛 (mg/L)	0.11	0.06	0.17
銅 (mg/L)	0.13	0.18	0.14
陰イオン界面活性剤 (mg/L)	0.21	0.25	0.18
鉛 (mg/L)	0.030	0.770	0.792
砒素 (mg/L)	0.004	0.009	0.005
沃素消費量 (mg/L)	2.4	3.5	2.8
化学的酸素 (mg/L)	<10	<10	10
生物化学的酸素 (mg/L)	2.5	1.8	2.4
溶解性 (mg/L)	8.6	8.2	8.4
浮遊物 (mg/L)	8	5	6
大腸菌群数 (MPN/L)	3.3×10^{4}	3.4×10^{4}	3.4×10^{4}
六価クロム (mg/L)	<0.02	<0.06	<0.06
砒素 (mg/L)	<0.5	<0.5	<0.5

[illegible] 表2-1 [illegible]

检测项目	检测时间	[illegible]		
		2017.06.05	2017.04.06	2017.04.07
		201[illegible]071-15	2[illegible]071-17	201[illegible]071-15
pH（无量纲）		8.74	8.53	8.12
石油类（mg/L）		0.12	0.10	0.09
总磷（mg/L）		0.14	0.13	0.12
阴离子表面活性剂（mg/L）		0.15	0.20	0.15
氨氮（mg/L）		0.736	0.745	0.754
总氮（mg/L）		0.957	0.915	0.988
溶解氧（mg/L）		2.7	2.9	2.7
化学需氧量（mg/L）		13	10	12
五日生化需氧量（mg/L）		3.2	3.0	3.5
悬浮物（mg/L）		7.5	7.0	7.3
总磷（mg/L）		7	6	9
粪大肠菌群（MPN/L）		2.7×10^{4}	2.3×10^{4}	2.6×10^{4}
铅（mg/L）		<0.05	<0.05	<0.05
铬（mg/L）		<0.2	<0.3	<0.3

[illegible]

项目	未达标内容	是否达到标准	解决方案
[illegible]	地表水环境质量标准[illegible]	否	—
[illegible]	地下水环境质量标准[illegible]	否	达标
[illegible]	地表水环境质量标准[illegible]	是	—
[illegible]	地表水环境质量标准[illegible]	是	—
[illegible]	环境空气质量标准[illegible]	是	—
[illegible]	环境空气质量标准[illegible]	是	—
备注：下表、[illegible]。			

[illegible]

[illegible]

[illegible]

以科技的力量

致力于环境保护和建设

附件IX

禄丰县东西河治理地表水环境质量内部监测

（第四期报告）

正本

检 测 报 告

YNFY 2016121008 号

委托单位：广东天海水利建设有限公司

项目名称：珠海市城市道路与河道综合治理工程 EMP 总口段

河道内部设测

报告日期：2017 年 6 月 16 日

云南分析测试有限公司

（盖章）

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检测业务联络电话：0871-65556565

检测报告查询及质量投诉电话：0871-6548825

传　真：0871-65556565

E-mail：310041200@qq.com

质量投诉电话传真：0871-65556565

邮政编码：650202

地　　址：云南省昆明市呈贡区平安大道7号科技大厦第14层23室

检测实验室：云南省昆明市呈贡区马金铺2号

一、样品概况

表 1-1 样品概况表

委托单位	广东[illegible]有限公司				
项目名称	[illegible] EMP [illegible]监测				
检测点位及采样频次	水质： 检测点位：[illegible]，共5个检测点； 监测因子：pH、溶解氧、悬浮物、化学需氧量、石油类、[illegible]共14个监测因子； 监测频次：监测2天，每天采样1次。				
采样方式	委托方送样（√） 检测方采样（ ）	采样人	[illegible]	采样日期	2017.05.29-2017.05.30
送样人：[illegible]		接样人：[illegible]		收样日期	2017.05.29-2017.05.30
检测日期	2017.05.29-2017.06.24				
样品保存情况：标签完整，样品采集符合采样规范。					

二、检测项目、方法、检测设备和检测人员

表 2-1 检测项目、方法、检测设备和检测人员信息表

检测项目	方法名称	仪器名称	仪器编号	检出限	检测人员
[illegible]	[illegible]	[illegible]	/	[illegible]	[illegible]
溶解氧	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
氨氮	水质 氨氮的测定 纳氏试剂分光光度法 [illegible]	[illegible] 可见分光光度计	[illegible]	[illegible] mg/L	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] 附表2-1 [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

三、检测结果

表7-1　水质检测结果

检测项目 \ 检测时间	[illegible]（W6）上游50m		
	2017.05.28	2017.06.29	2017.06.30
	2016[illegible]-01	2[illegible]-07	2[illegible]-13
pH（无量纲）	8.33	8.20	8.00
铜（mg/L）	0.01	<0.01	<0.01
锌（mg/L）	0.07	0.06	0.05
阴离子表面活性剂（mg/L）	0.14	0.15	0.15
氨氮（mg/L）	0.342	0.363	0.350
总磷（mg/L）	1.33	1.45	1.36
高锰酸盐指数（mg/L）	2.8	2.5	2.7
化学需氧量（mg/L）	12	12	12
五日生化需氧量（mg/L）	2.0	2.1	1.9
溶解氧（mg/L）	5.5	5.7	5.6
悬浮物（mg/L）	4	6	4
粪大肠菌群（个/L）	60	20	53
镉（mg/L）	<0.05	<0.05	<0.05
砷（mg/L）	4.8	4.9	4.6
检测项目 \ 检测时间	[illegible]（W6）下游50m		
	2017.05.28	2017.06.29	2017.06.30
	2016[illegible]-02	2[illegible]-08	2016[illegible]-14
pH（无量纲）	8.12	8.11	8.03
铜（mg/L）	0.02	<0.01	0.01
锌（mg/L）	0.02	0.07	0.08
阴离子表面活性剂（mg/L）	0.15	0.20	0.19
氨氮（mg/L）	0.306	0.353	0.331
总磷（mg/L）	1.73	1.77	1.80
高锰酸盐指数（mg/L）	2.7	2.6	2.7
化学需氧量（mg/L）	12	11	12
五日生化需氧量（mg/L）	2.1	2.0	2.3
溶解氧（mg/L）	5.6	5.4	5.8
悬浮物（mg/L）	5	4	6
粪大肠菌群（个/L）	110	130	93
镉（mg/L）	<0.05	<0.05	<0.05
砷（mg/L）	4.7	4.7	4.7

[illegible] 表7-1 [illegible]

检测项目 / 检测时间	[illegible]		
	2017.05.28	2017.05.29	2017.05.30
	2015127[illegible]01-03	2015127[illegible]01-09	2015127[illegible]01-15
pH（无量纲）	8.36	8.38	8.34
石油类（mg/L）	0.03	0.01	0.01
氨氮（mg/L）	0.11	0.10	0.06
阴离子表面活性剂（mg/L）	0.12	0.15	0.13
铁（mg/L）	0.402	0.542	0.306
锰（mg/L）	1.02	1.01	1.12
高锰酸盐指数（mg/L）	2.6	2.8	3.0
化学需氧量（mg/L）	12	14	14
五日生化需氧量（mg/L）	2.4	2.5	2.7
悬浮物（mg/L）	7.3	7.1	7.4
溶解氧（mg/L）	5	6	5
粪大肠菌群（MPN/L）	170	160	240
镉（mg/L）	<0.05	<0.05	<0.05
铅（μg/L）	4.4	4.4	4.5

检测项目 / 检测时间	[illegible]		
	2017.05.28	2017.05.29	2017.05.30
	2015127[illegible]01-04	2015127[illegible]01-10	2015127[illegible]01-16
pH（无量纲）	8.39	8.41	8.38
石油类（mg/L）	0.02	0.02	0.01
氨氮（mg/L）	0.09	0.09	0.10
阴离子表面活性剂（mg/L）	0.14	0.17	0.11
铁（mg/L）	0.392	0.315	0.354
锰（mg/L）	0.94	0.96	1.02
高锰酸盐指数（mg/L）	2.6	2.9	2.8
化学需氧量（mg/L）	14	14	14
五日生化需氧量（mg/L）	2.7	3.0	2.5
悬浮物（mg/L）	6.4	6.6	6.3
溶解氧（mg/L）	12	12	10
粪大肠菌群（MPN/L）	2.4×10^{4}	2.5×10^{4}	2.4×10^{4}
镉（mg/L）	<0.05	<0.05	<0.05
铅（μg/L）	4.5	4.6	4.5

（続）別表-1　[illegible]

検査項目	[illegible]		
	2017.05.25	2017.05.26	2017.05.27
	[illegible]	[illegible]	[illegible]
pH（定量値）	8.55	8.41	8.37
石油類（mg/L）	0.09	0.08	0.02
油脂（mg/L）	0.10	0.11	0.12
陰イオン界面活性剤（mg/L）	0.14	0.16	0.19
窒素（mg/L）	0.820	0.884	0.848
燐酸（mg/L）	1.07	1.08	1.08
浮遊物質量（mg/L）	3.9	3.3	2.5
化学的酸素（mg/L）	15	17	18
n-ヘキサン抽出物（mg/L）	1.0	1.0	1.0
溶解性（mg/L）	0.4	0.5	0.4
浮遊物（mg/L）	11	10	11
大腸菌群（MPN/L）	2.8×10^{5}	1.3×10^{5}	1.8×10^{5}
銅（mg/L）	<0.05	<0.05	<0.05
鉄（mg/L）	4.6	4.5	4.5

検査項目	[illegible]		
	2017.05.25	2017.05.26	2017.05.27
	[illegible]	[illegible]	[illegible]
pH（定量値）	8.36	8.31	8.34
石油類（mg/L）	0.08	0.04	0.03
油脂（mg/L）	0.10	0.12	0.13
陰イオン界面活性剤（mg/L）	0.12	0.14	0.10
窒素（mg/L）	0.820	0.888	0.842
燐酸（mg/L）	1.04	1.03	1.09
浮遊物質量（mg/L）	3.9	3.5	3.5
化学的酸素（mg/L）	14	15	16
n-ヘキサン抽出物（mg/L）	2.5	2.1	2.5
溶解性（mg/L）	0.2	0.1	0.3
浮遊物（mg/L）	8	9	8
大腸菌群（MPN/L）	200	190	280
銅（mg/L）	<0.05	<0.05	<0.05
鉄（mg/L）	4.4	4.0	4.1

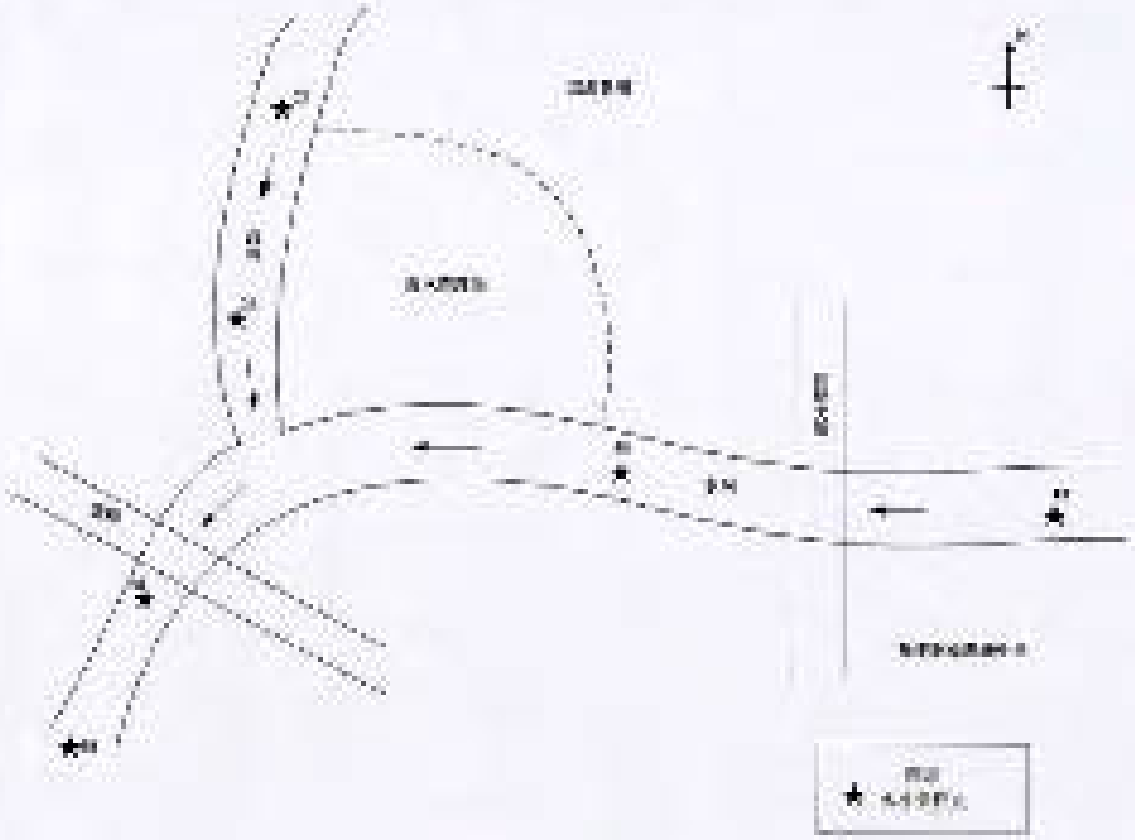
[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible] [illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			

[illegible]



以科技的力量

致力于环境保护和建设

附件Ⅹ

武定县城市道路建设和河道治理环境影响监测报告

（2017 年第一季度）

正本

监 测 报 告

[illegible]字[2017]第026号

项目名称：[illegible]二期污染物排放总量控制及清洁生产审核验收监测（GW01、GW02、GW03、GW04-1、GW04-2二级点）

委托单位：武汉东湖高新建设开发有限公司

监测类别：委托检测

编制日期：2017年3月13日

是唯得[illegible]自主[illegible]环境监测站

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陕西省建设工程公共场所卫生监测中心

地　　址：宝鸡市渭滨区清姜路经济技术开发区

邮政编码：721006

电　　话：0375-5122222

传　　真：0375-5122227

邮　　箱：cxsk_300@163.com

1、样品情况

表1 样品情况

委托（或受检）单位	[illegible]	[illegible]	[illegible]
样品类型	[illegible]	采样方式	[illegible]
样品数量	环境空气：二氧化硫、一氧化碳、二氧化氮、[illegible]、PM10、PM2.5 [illegible] 共[illegible]个。 噪声：[illegible]个。	保存方式	常温保存
采样时间	2017年2月13日—16日	采样人	[illegible]
送样时间	环境空气：2017年2月14日—16日 噪声：2017年2月13日—16日	接样人	噪声：[illegible] 环境空气：[illegible]
检测时间	环境空气：2017年2月14日—16日 噪声：2017年2月13日—16日	[illegible]	[illegible]
分析时间	2017年2月13日—2月[illegible]日	分析人员	[illegible]
样品状态描述	样品状态符合检测规定，完好无损。		

3、监测项目、方法、要求

表3 监测分析方法及主要仪器一览表

监测项目	监测方法	主要检测仪器	检测范围	检出限
pH	玻璃电极法（GB/T 6920-1986）水质 pH 值的测定 玻璃电极法（HJ 1147-2020）	便携式多参数测定仪 [illegible] [illegible]	[illegible]	——
溶解氧	水质 溶解氧的测定 碘量法（HJ 506-2009）	便携式多参数测定仪 [illegible]	[illegible]	[illegible]
悬浮物	[illegible]	[illegible]	[illegible]	[illegible]
阴离子表面活性剂	水质 阴离子表面活性剂的测定 亚甲蓝分光光度法（GB/T 7494-1987）	[illegible]	[illegible]	[illegible]
氨氮	水质 氨氮的测定 纳氏试剂分光光度法（HJ 535-2009）	[illegible]	[illegible]	[illegible]
石油类	水质 石油类的测定 紫外分光光度法（HJ 970-2018）	[illegible]	[illegible]	[illegible]
粪大肠菌群	[illegible]	[illegible]	[illegible]	[illegible]

甲醛	[illegible]分光光度法（GB/T 15516-[illegible]）	LF-1750型分析天平[illegible]光度计	JL-12	0.05 mg/L
氨氮	[illegible]纳氏试剂分光光度法（GB/T 7479-[illegible]）	[illegible]分光光度计	JL-55	0.01 mg/L
阴离子表面活性剂	[illegible]亚甲蓝分光光度法（GB/T 7494-[illegible]）	[illegible]分光光度计	JL-52	0.05 mg/L
悬浮物	[illegible]重量法（GB/T 11901-[illegible]）	[illegible]型电子天平	JL-56 JL-[illegible] JL-[illegible]	[illegible] mg/L
二氧化硫（SO_2）小时浓度	环境空气 二氧化硫的测定 甲醛吸收-副玫瑰苯胺分光光度法（GB/T 15262-2009）	智能大流量空气采样器[illegible]型，[illegible]分光光度计	JL-115 JL-116 JL-119 JL-120 JL-122	吸收液为甲醛吸收液时，方法检出限为0.007mg/m³
二氧化氮（NO_2）小时浓度 氮氧化物（NO_x）小时浓度	环境空气 氮氧化物的测定 Saltzman（一氧化氮和二氧化氮）[illegible]法（GB/T 15435-2008）			吸收液为硫酸时，方法检出限为0.005mg/m³
二氧化硫（SO_2）日均浓度	环境空气 二氧化硫的测定 四氯汞盐-副玫瑰苯胺分光光度法（GB/T 15262-2009）	大气采样器[illegible] 722s型分光光度计	JL-[illegible] JL-[illegible] JL-[illegible] JL-[illegible]	吸收液体积为50mL时，方法检出限为0.015μg/m³

二氧化硫（SO2）日均浓度	环境空气 氮氧化物（一氧化氮/二氧化氮）的测定 盐酸萘乙二胺分光光度法（GB/T 15435-1995）		JL-153 JL-102	烟尘浓度单位 [illegible] 大气污染物综合排放标准 5 μg/m³
总悬浮颗粒物（TSP）	环境空气 总悬浮颗粒物的测定 重量法（GB/T 15432-1995）	中华人民共和国国家标准 GB TH-2500H 空调通风系统清洗规范 附录A 附录B 附录C 附录D 附录E 附录F 附录G 附录H 附录I 附录J 附录K 附录L 附录M 附录N 附录O 附录P 附录Q 附录R 附录S 附录T 附录U 附录V 附录W 附录X 附录Y 附录Z	JL-142 JL-118 JL-116 JL-108 JL-144 JL-146 JL-106	0.300（mg/m³）
颗粒物				
可吸入颗粒物（PM10）	环境空气 可吸入颗粒物的测定 重量法（GB/T 15432-2011）		JL-147 JL-148 JL-149 JL-150 JL-151 JL-152 JL-153 JL-154	0.150（mg/m³）
噪声噪声	工业企业厂界环境噪声排放标准（GB 12348-2008）	VM6208 多功能声级计 VM6228 八声级噪音	JL-134 JL-135 JL-137	——
建筑施工场界环境噪声	建筑施工场界环境噪声排放标准（GB 12523-2011）	VM6208 多功能声级计 VM6228 八声级噪音	JL-135 JL-133 JL-137	——

3. 监测结果

表3 地表水质监测结果一览表

监测时间	监测点位	监测项目（单位：mg/L，pH无量纲）											
		pH	悬浮物	化学需氧量	五日生化需氧量	氨氮	总磷	总氮	石油类	阴离子表面活性剂	粪大肠菌群	氟化物	硫化物
	无量纲	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2021年[illegible]月13日	[illegible]	8.43	[illegible]	[illegible]	19	1.2	[illegible]	[illegible]	[illegible]	[illegible]	0.5	2.0	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	18	1.0	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]
	[illegible]	8.55	[illegible]	[illegible]	17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.3	2.1	[illegible]
	[illegible]	8.43	[illegible]	[illegible]	19	1.5	[illegible]	[illegible]	[illegible]	[illegible]	0.5	[illegible]	[illegible]
	[illegible]	8.45	[illegible]	[illegible]	21	1.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.43	[illegible]	[illegible]	19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	21	1.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.12	[illegible]	[illegible]	22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.13	[illegible]	[illegible]	19	2.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]											
		pH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	[illegible]	[illegible]	mg/L	mg/L
[illegible]	[illegible]	7.28	[illegible]	[illegible]	19	1.2	[illegible]	[illegible]	0.18	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.20	[illegible]	[illegible]	21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.17	[illegible]	[illegible]	21	[illegible]	[illegible]	[illegible]	0.18	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.13	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.13	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.12	[illegible]	[illegible]	[illegible]	1.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.18	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.11	[illegible]	[illegible]	[illegible]	[illegible]	4.22	[illegible]	0.17	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.08	[illegible]	[illegible]	[illegible]	[illegible]	4.24	[illegible]	0.17	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	8.04	[illegible]	[illegible]	[illegible]	[illegible]	4.27	[illegible]	0.25	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	[illegible]	mg/L	mg/L	mg/L
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

附录 [illegible] 建工标准经济计算技术定额[illegible]分项工程[illegible]一览表

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

表5 环境空气敏感点监测结果一览表

样品来源	采样地点	检测日期	TSP (μg/m³)	$PM_{2.5}$ (μg/m³)	SO_2 (μg/m³)	NO_2 (μg/m³)
环境空气	郭家沟	2017年02月13日	138	70	14	6
		2017年02月14日	151	90	12	15
		2017年02月15日	132	91	12	19
	北新村	2017年02月13日	188	102	15	34
		2017年02月14日	188	133	11	36
		2017年02月15日	185	121	10	21
	李家沟	2017年02月13日	180	125	10	20
		2017年02月14日	181	129	12	19
		2017年02月15日	182	96	10	27
	思源水泥厂	2017年02月13日	157	107	10	20
		2017年02月14日	154	119	11	17
		2017年02月15日	153	108	6	22
	村委会	2017年02月13日	35	82	12	18
		2017年02月14日	164	92	10	18
		2017年02月15日	164	148	6	20

表6 [illegible]

调查内容	调查结果 单位：例（%）					
	2017年2月16日			2017年2月16日		
	男	女	合计（n%）	男	女	合计（n%）
巴城社区	56	49	85	51	46	82
松谷社区	51	43	77	50	48	98
且城社区	60	66	94	55	56	85
成华桥社区	59	52	76	52	50	80

表7 [illegible]

调查内容	调查结果 单位：例（%）			
	2017年2月14日		2017年2月16日	
	男	女	男	女
高中院校	54	48	57	48
匠和村	52	43	46	45
巴蜀村	57	53	58	45
巴城社区	55	50	54	52
民族医院[illegible]	51	49	49	45

4、监测结果评价（本检测评价不属于认证范围）

（1）地表水：参照《地表水环境质量标准》（GB3838-2002）Ⅲ类标准进行评价，所监测的十二个断面水质超标，具体情况如下表。

表5 地表水断面水质监测评价结果一览表

监测点位（断面）名称	评价结果	主要污染物
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]
[illegible]	劣于Ⅲ类标准	[illegible]

（2）环境空气：施工场界颗粒物无组织排放参照《大气污染物综合排放标准》（GB16297-1996）进行评价。环境空气敏感点参照《环境空气质量标准》（GB3095-2012）进行评价，执行二级标准限值，具体情况见下表。

表9 施工场界噪声无组织排放污染物浓度监测点评价结果一览表

监测时间 监测点位	2017年2月14日	2017年2月15日	2017年2月16日
北侧社区	符合标准	符合标准	符合标准
东侧社区	符合标准	符合标准	符合标准
武汉县教育	符合标准	符合标准	符合标准
西侧校园公	符合标准	符合标准	符合标准

表10 环境空气敏感点评价结果一览表

监测时间 监测点位	2017年2月14日	2017年2月15日	2017年2月16日
西侧村	符合二类	符合二类	符合二类
下姚村	符合二类	符合二类	符合二类
新中社区	符合二类	符合二类	符合二类
武汉实验学校	符合二类	符合二类	符合二类
白[illegible]	符合二类	符合二类	符合二类

(3) 环境噪声：参照《建筑施工场界环境噪声排放标准》(GB12523-2011)对施工场界噪声监测点进行评价，参照《声环境质量标准》(GB3096-2008)对声环境敏感点进行评价，执行二类功能区标准。具体监测结果如下表：

表11 施工场界噪声监测评价结果一览表

监测时间 监测点位	2017年2月14日			2017年2月15日		
	昼间	夜间	夜间(max)	昼间	夜间	夜间(max)
巨浪社区	符合标准	符合标准	符合标准	符合标准	符合标准	符合标准
龙湖社区	符合标准	符合标准	符合标准	符合标准	符合标准	符合标准
孟海村	符合标准	符合标准	符合标准	符合标准	符合标准	符合标准
西和长堤	符合标准	符合标准	符合标准	符合标准	符合标准	符合标准

表12 声环境敏感点评价结果一览表

监测时间 点位评价	2017年2月14日		2017年2月15日	
	昼间	夜间	昼间	夜间
县中医院	符合二类	符合二类	符合二类	符合二类
西和村	符合二类	符合二类	符合二类	符合二类
白兔村	符合二类	符合二类	符合二类	符合二类
日浦社区	符合二类	符合二类	符合二类	符合二类
思源实验学校	符合二类	符合二类	符合二类	符合二类

1、附件：监理员记录

编制：[illegible] 日期：2017 年 3 月 13 日

校核：[illegible] 日期：2017 年 3 月 16 日

审核：[illegible] 日期：2017 年 3 月 16 日

批准：[illegible] 日期：2017 年 3 月 17 日

様式 [illegible]

設 測 要 求 書

[illegible]

設計者	[illegible]
測量者	[illegible]
測量区域	[illegible]
交換条件	[illegible]
設計条件	[illegible]
所属部門	[illegible]
会計方法	[illegible]
次の事件の件	[illegible]
小面積区	[illegible]
使用区分の種	[illegible]
備 考	[illegible]
番 号	要求設定 / 要求内容
1	[illegible]
2	[illegible]
3	[illegible]
決定	
設計者記入	[illegible] / 設計者記入

[illegible]

附件XI

武定县城市道路建设和河道治理环境影响监测报告

（2017 年第二季度）

检 测 报 告

YNFY 2017051411 号

以科技的力量

致力于环境保护和建设

委托单位：　　武定县城市建设开发投资有限公司

项目名称：　　武定县城市道路与河道综合治理工程 EMP 施工防道路部分环境影响监测

（2017 年 3 季度 DW01、DW02、DW03、DW04、DW24 工况）

报告日期：　　2017 年 6 月 30 日

云南方源科技有限公司

（检测专用章）

云南方源科技有限公司　地址：昆明市五华区经开区经开东路理想城商务大厦　邮编：650091
联系电话：0871-65367005　E-mail：fy0871@qq.com　网址：www.yunfangyuan.com　传真：0871-
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检测报告内容咨询及质量投诉传真：0871-68403825

传　真：0871-63599553

E-mail：1101412983@qq.com

质量投诉电话及传真：0871-63599553

邮政编码：650031

地　　址：云南省昆明经开区经开西路3号世纪创新港A幢33室

检测地点：云南省昆明市五华区长福路2号

一、现场概况

表 1-1　现场概况

受检单位	[illegible]有限公司
项目名称	[illegible]工程EMC[illegible]测
检测内容及频次	1. 噪声 监测点位：CN01（东厂界）：沿路乌龙河1号桥上游50米；CN02（西厂界）：沿路乌龙河1号桥下游100米；CN04-2（北厂界）：沿路乌龙河2号桥上游50米；CN04-2（北厂界）：沿路乌龙河2号桥下游100米；CN03（南厂界）：沿路乌龙河3号桥上游50米；CN03（南厂界）：沿路乌龙河3号桥下游100米；CN01（北厂界）：沿路乌龙河4号桥上游50米；CN01（北厂界）：沿路乌龙河4号桥下游100米；CN04-2（北厂界）：沿路乌龙河5号桥上游50米；CN04-2（北厂界）：沿路乌龙河5号桥下游100米；CN04-2（北厂界）：沿路乌龙河6号桥上游50米；CN04-2（北厂界）：沿路乌龙河6号桥下游100米，共12个监测点。 监测项目：pH、总硬度、溶解氧、化学需氧量、生物化学需氧量、氨氮、悬浮物、总氮、总磷、石油类、阴离子表面活性剂、硫化物、粪大肠菌群，共12个监测项目。 监测频次：连续监测3天，每天监测1次。 2. 环境空气 （1）[illegible] 监测点位：[illegible]，共4个监测点。 监测因子：颗粒物、二氧化硫、氮氧化物，共3个监测因子。 监测频次：连续监测3天，每天监测4次。 （2）噪声 监测点位：[illegible]，共8个监测点。 监测因子：总悬浮颗粒物、可吸入颗粒物（PM_{10}）、二氧化硫、二氧化氮，共4个监测因子。 监测频次：连续监测2天，每天日间1次。

	五、噪声 监测人员：[illegible] 仪器编号：Leq（A）； [illegible]				
采样方式	采样点位置：[illegible] 检测点位置：[illegible]	采样人	徐清 海棠 [illegible]	采样日期	2017.06.19-2017.06.20
分析人：杨清 徐兴龙		审核人：白淳安		报告日期	2017.06.19-2017.06.20（水）2017.06.21（气）
检测日期	2017.06.19-2017.06.20				
样品状态描述：[illegible]					

二、检测项目、方法、检测设备和检测人员

表2-1 检测项目、方法、检测设备和检测人员情况表

分析项目	分析方法	分析仪器	仪器编号	检出限	分析人员
[illegible]	[illegible]	[illegible]	[illegible]	/	[illegible]
[illegible]	[illegible]	[illegible]	/	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

附表1（续） 检测项目、方法、检测设备和检测人员情况表

检测项目	检测依据	检测仪器	仪器编号	检出限	检测人员
高锰酸盐指数	水质 高锰酸盐指数的测定 GB/T 11892-1989	酸式滴定管	/	0.5mg/L	陈 [illegible]
氨氮	水质 氨氮的测定 纳氏试剂分光光度法 HJ 535-2009	722型分光光度计 UV1-[illegible] 数显电热恒温水浴锅	[illegible] [illegible]	/	陈[illegible]
挥发性有机物（苯系物）	水质 挥发性有机物的测定 吹扫捕集/气相色谱-质谱法 HJ 639-2012	7890B-5977A型气相色谱质谱联用仪	[illegible]	见附表2	陈 [illegible]
噪声	声学 环境噪声测定 噪声测量值的评定 GB/T 3222.1-2006	多功能声级计	/	35.0dB(A)	陈[illegible]
昼夜噪声	声学 噪声测量仪器 第1部分：规范 GB/T 3785.1-2010	多功能声级计 HS6288B 数字电流钳形表	[illegible] [illegible]	/	陈[illegible]
烟尘/二氧化硫/氮氧化物	固定污染源废气 低浓度颗粒物的测定 重量法 HJ 836-2017 固定污染源废气 二氧化硫的测定 定电位电解法 HJ 57-2017 固定污染源废气 氮氧化物的测定 定电位电解法 HJ 693-2014	崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	烟尘 0.3mg/m³ 二氧化硫 3mg/m³ 氮氧化物 3mg/m³	林 [illegible] 陈[illegible] 陈 [illegible]
二氧化硫	环境空气 二氧化硫的测定 甲醛吸收-副玫瑰苯胺分光光度法 HJ 482-2009	崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪 崂应3012H型智能烟尘烟气综合测试仪	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	小时值 0.007mg/m³ 日均值 0.005mg/m³	潘 [illegible] [illegible] 陈 [illegible]

表2-1（续） 检测项目、方法、检测设备和检测人员情况表

检测项目	方法依据	评判标准	检测编号	检出限	检测人员
非甲烷总烃（NMHC）	环境空气 非甲烷总烃的测定 直接进样-气相色谱法 HJ 604-2017	顺式-1,2-二氯乙烯 [illegible] 反式-1,2-二氯乙烯 [illegible] 1,1-二氯乙烷 [illegible] 氯仿 [illegible] 1,1,1-三氯乙烷 [illegible] 四氯化碳 [illegible] 苯 [illegible] 三氯乙烯 [illegible] 甲苯 [illegible] 四氯乙烯 [illegible] 氯苯 [illegible] 乙苯 [illegible] 间、对二甲苯 [illegible] 邻二甲苯 [illegible]	[illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible]	[illegible]μg/m³	[illegible]
总悬浮颗粒物（TSP）	环境空气 总悬浮颗粒物的测定 重量法 GB/T 15432-1995	硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 硫化氢 [illegible] 颗粒物 [illegible] 级 [illegible]	[illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible] [illegible]-1-[illegible]	[illegible]mg/m³	[illegible]
噪声	工业企业厂界环境噪声排放标准 GB 12348-2008	[illegible] 类声环境功能区 [illegible] 类 [illegible]	[illegible]-1-[illegible] [illegible]-1-[illegible]	/	[illegible]
温度	工业场所职业病危害因素检测第1部分：物理因素 GBZ/T 189.1-2011	温度计	/	/	[illegible]
气压	工业场所职业病危害因素检测第1部分：物理因素 GBZ/T 189.1-2011	数字气压计 [illegible]	[illegible]-1-[illegible]	/	[illegible]
风速	固定污染源排气中颗粒物测定与气态污染物采样方法 GB/T 16157-1996 [illegible]	风速仪 [illegible]	/	/	[illegible]

三、气象条件

表3-1 检测期间气象情况表

检测日期	天气状况	主导风向	气压(kPa)	温度(℃)	平均风速(m/s)
2017.06.18	晴	西南	81.6	30.7	2.0
2017.06.19	晴	南	81.0	24.0	1.1
2017.06.20	晴	西南	82.1	23.2	0.8

四、检测结果

表4-1 无组织排放检测结果表

检测项目 \ 检测日期	CW03（主导风向）排放气流向上风向1号监测点的50米		
	2017.06.18	2017.06.19	2017.06.20
	第一次	第一次	第一次
pH（无量纲）	7.87	7.99	8.01
海藻酸盐污染（mg/L）	0.9	1.1	1.0
溶解氧（mg/L）	6.0	6.1	6.0
化学需氧量（mg/L）	9	9	9
五日生化需氧量（mg/L）	3.7	3.9	4.0
悬浮物（mg/L）	<4	4	<4
氨氮（mg/L）	0.722	0.746	0.755
总氮（mg/L）	2.16	2.26	2.43
总磷（mg/L）	0.08	0.08	0.09
石油类（mg/L）	0.01	<0.01	<0.01
挥发性酚类（mg/L）	0.11	0.10	0.12
粪大肠菌群（个/L）	>24000	>24000	>24000

[illegible] 表4-1 [illegible]检测结果

检测项目 \ 采样时间 / 编号	CW03（[illegible]）海域水质1号中学（[illegible]）		
	2017.06.18	2017.06.19	2017.06.20
	[illegible]	[illegible]	[illegible]
pH（无量纲）	7.88	7.97	7.99
溶解氧(DO) (mg/L)	2.3	2.4	2.3
悬浮物 (mg/L)	5.6	5.5	6.0
化学需氧量 (mg/L)	5	5	6
五日生化需氧量 (mg/L)	3.5	4.2	3.6
总磷 (mg/L)	<4	4	<4
铜 (mg/L)	0.772	0.812	0.734
铅 (mg/L)	2.42	2.51	2.55
总汞 (mg/L)	0.07	0.09	0.08
镉 (mg/L)	0.01	0.01	0.01
石油类 (mg/L)	0.08	0.08	0.08
粪大肠菌群 (个/L)	>24000	>24000	>24000
检测项目 \ 采样时间 / 编号	CW04-2（[illegible]）[illegible]水质2号中海[illegible]		
	2017.06.18	2017.06.19	2017.06.20
	[illegible]	[illegible]	[illegible]
pH（无量纲）	8.04	8.13	8.09
悬浮物含量 (mg/L)	1.0	1.2	1.0
溶解氧 (mg/L)	6.1	6.3	5.2
化学需氧量 (mg/L)	14	7	13
五日生化需氧量 (mg/L)	4.6	3.7	4.2
总磷 (mg/L)	<4	4	5
铜 (mg/L)	0.005	0.006	0.004
总铁 (mg/L)	2.10	2.04	2.07
总汞 (mg/L)	0.03	0.03	0.06
总镉 (mg/L)	<0.01	<0.01	0.01
石油类 (mg/L)	0.18	0.19	0.17
粪大肠菌群 (个/L)	>24000	>24000	>24000

（续）表 3-1 出水水质检测结果

检测项目	采样时间 / 指号	DWD4-2（自来水）[illegible]东路2号中段）南100米		
		2017.06.19	2017.06.20	2017.06.21
		2017061911-14	2017061911-14	2017062111-14
pH（无量纲）		7.92	8.15	7.94
高锰酸盐指数（mg/L）		1.4	1.8	1.9
浊度（NTU）		5.3	5.5	5.1
总硬度（mg/L）		6	6	8
总溶性固体（mg/L）		3.9	4.0	5.4
氯化物（mg/L）		<4	5	4
氟化（mg/L）		1.20	1.16	1.28
硫酸（mg/L）		2.31	2.49	2.65
硝酸（mg/L）		0.12	0.13	0.14
亚硝酸（mg/L）		0.02	0.01	0.01
阴离子表面活性剂（mg/L）		0.11	0.11	0.10
菌落总数（个/L）		>24000	>24000	>24000
检测项目	采样时间 / 指号	DWD2（[illegible]路）[illegible]东路5号中段上游50米		
		2017.06.19	2017.06.20	2017.06.21
		2017061911-14	2017061911-14	2017062111-14
pH（无量纲）		7.94	8.16	7.92
高锰酸盐指数（mg/L）		1.5	1.7	1.9
浊度（NTU）		5.0	4.0	5.9
总硬度（mg/L）		8	10	13
总溶性固体（mg/L）		3.4	3.1	5.4
氯化物（mg/L）		<4	4	4
氟化（mg/L）		1.20	1.19	1.24
硫酸（mg/L）		2.66	2.39	2.57
硝酸（mg/L）		0.12	0.13	0.12
亚硝酸（mg/L）		0.01	<0.01	<0.01
阴离子表面活性剂（mg/L）		0.09	0.12	0.11
菌落总数（个/L）		>24000	>24000	>24000

（续）表4-1 噪声监测结果

监测时间 / 监测点位	CW02（[illegible]）[illegible]		
	2017.06.18	2017.06.19	2017.06.20
	2017061411E-08	2017061411E-18	2017061411E-28
pH（无量纲）	7.93	8.20	7.97
悬浮物（mg/L）	2.1	2.4	2.6
溶解氧（mg/L）	5.3	5.7	5.5
化学需氧量（mg/L）	10	10	14
生化需氧量（mg/L）	4.8	4.8	5.2
阴离子表面活性剂（mg/L）	<4	4	<4
氨氮（mg/L）	1.37	1.34	1.45
总氮（mg/L）	2.78	2.88	2.83
总磷（mg/L）	0.12	0.14	0.14
石油类（mg/L）	0.02	<0.01	0.01
挥发酚（mg/L）	0.11	0.11	0.13
粪大肠菌群（个/L）	>24000	>24000	>24000
监测时间 / 监测点位	CW03（[illegible]）[illegible]		
	2017.06.18	2017.06.19	2017.06.20
	2017061411E-07	2017061411E-17	2017061411E-27
pH（无量纲）	8.10	8.17	8.16
悬浮物（mg/L）	1.3	1.6	1.5
溶解氧（mg/L）	5.3	5.6	5.4
化学需氧量（mg/L）	8	9	7
生化需氧量（mg/L）	4.0	4.4	4.2
阴离子表面活性剂（mg/L）	<4	4	<4
氨氮（mg/L）	1.34	1.31	1.32
总氮（mg/L）	2.81	2.92	2.90
总磷（mg/L）	0.13	0.13	0.12
石油类（mg/L）	0.03	0.01	0.02
挥发酚（mg/L）	0.10	0.12	0.14
粪大肠菌群（个/L）	>24000	>24000	>24000

（五）表4-1 [illegible]

检测项目 \ 采样时间 / 编号	CWD1（主楼入流）[illegible]		
	2017.06.18	2017.06.19	2017.06.20
	[illegible]	[illegible]	[illegible]
pH（无量纲）	8.15	8.16	8.14
动植物油类（mg/L）	1.3	1.7	1.6
氨氮（mg/L）	6.1	5.8	6.2
化学需氧量（mg/L）	10	10	11
五日生化需氧量（mg/L）	4.6	4.9	4.9
总磷（mg/L）	<4	5	4
氰化（mg/L）	1.25	1.30	1.29
总氮（mg/L）	3.00	2.85	2.73
总铜（mg/L）	0.14	0.13	0.16
总铅（mg/L）	0.05	0.01	0.04
阴离子表面活性剂（mg/L）	0.06	0.08	0.12
总大肠菌群（个/L）	>24000	>24000	>24000
检测项目 \ 采样时间 / 编号	CWD4-2（东侧）[illegible]		
	2017.06.18	2017.06.19	2017.06.20
	[illegible]	[illegible]	[illegible]
pH（无量纲）	8.12	8.16	8.19
动植物油类（mg/L）	1.4	1.7	1.9
悬浮物（mg/L）	5.2	5.5	5.7
化学需氧量（mg/L）	10	12	9
五日生化需氧量（mg/L）	4.6	4.5	4.8
总磷（mg/L）	<4	4	4
氨氮（mg/L）	1.24	1.23	1.26
总氮（mg/L）	2.64	2.42	2.28
总铜（mg/L）	0.11	0.14	0.17
总铅（mg/L）	<0.01	<0.01	0.01
阴离子表面活性剂（mg/L）	0.15	0.19	0.16
总大肠菌群（个/L）	>24000	>24000	>24000

（续）表4-1 噪声检测结果

检测项目 \ 检测时间 / 编号	DW04-2（[illegible]）[illegible]分钟平均值		
	2017.06.18	2017.06.19	2017.06.20
	20170614111-30	20170614111-32	20170614111-34
pH（无量纲）	7.94	8.15	8.07
悬浮物（mg/L）	19	20	23
氨氮（mg/L）	5.1	5.2	5.1
化学需氧量（mg/L）	15	13	8
生化[illegible]（mg/L）	2.9	3.1	2.5
磷酸盐（mg/L）	<4	4	<4
氯化（mg/L）	2.33	2.09	2.12
总氮（mg/L）	3.75	4.13	4.02
总磷（mg/L）	0.22	0.26	0.23
石油类（mg/L）	0.03	0.01	0.03
阴离子表面活性剂（mg/L）	0.11	0.12	0.09
粪大肠菌群（个/L）	>24000	>24000	>24000
检测项目 \ 检测时间 / 编号	DW04-2（[illegible]）[illegible]分钟平均值		
	2017.06.18	2017.06.19	2017.06.20
	20170614111-31	20170614111-33	20170614111-35
pH（无量纲）	7.96	8.21	8.01
高锰酸盐指数（mg/L）	2.4	2.6	2.3
总磷（mg/L）	0.4	0.7	0.9
化学需氧量（mg/L）	18	11	16
五日生化需氧量（mg/L）	5.2	5.0	6.0
粪[illegible]（mg/L）	<4	5	4
氨氮（mg/L）	3.27	3.28	3.19
总氮（mg/L）	4.55	4.88	4.31
总磷（mg/L）	0.27	0.32	0.29
石油类（mg/L）	<0.01	<0.01	<0.01
阴离子表面活性剂（mg/L）	0.08	0.09	0.08
粪大肠菌群（个/L）	>24000	>24000	>24000

（续）表1 [illegible]

检测项目 \ 检测时间/编号	[illegible]-2（左岸）污水排放口下游[illegible]		
	2017.06.18	2017.06.19	2017.06.20
	[illegible]	[illegible]	[illegible]
pH（无量纲）	7.94	8.07	8.00
悬浮物浓度（mg/L）	2.6	2.7	2.5
溶解氧（mg/L）	5.0	5.3	5.1
化学需氧量（mg/L）	11	10	10
五日生化需氧量（mg/L）	4.0	5.0	4.0
氨氮（mg/L）	<4	4	<4
氮氮（mg/L）	3.20	3.44	3.23
总氮（mg/L）	5.01	5.05	4.80
总磷（mg/L）	0.28	0.26	0.24
石油类（mg/L）	0.00	0.03	0.02
阴离子表面活性剂（mg/L）	0.06	0.08	0.07
粪大肠菌群（个/L）	≥24000	≥24000	≥24000

表4-2 环境空气（TSP）检测结果

单位：mg/m³

时间	2017.06.13	2017.06.14	2017.06.15	2017.06.13	2017.06.14	2017.06.15
	00:00-24:00					
采样地点 / 项目	拟建项目			产污区		
总悬浮颗粒物（TSP）	2017.06.14 12:49	2017.06.14 12:50	2017.06.14 12:51	2017.06.14 12:52	2017.06.14 12:53	2017.06.14 12:54
	0.087	0.097	0.094	0.092	0.098	0.097
采样地点 / 项目	拟建项目下风向			二氧化硅		
总悬浮颗粒物（TSP）	2017.06.14 12:55	2017.06.14 12:56	2017.06.14 12:57	2017.06.14 12:58	2017.06.14 12:59	2017.06.14 13:00
	0.094	0.097	0.095	0.097	0.093	0.097
采样地点 / 项目	拟建项目			最近敏感点		
总悬浮颗粒物（TSP）	2017.06.14 12:61	2017.06.14 12:62	2017.06.14 12:63	2017.06.14 12:64	2017.06.14 12:65	2017.06.14 12:66
	0.097	0.099	0.102	0.100	0.103	0.107

表4-3（续） 环境空气（PM10）检测结果

单位：mg/m³

时间	2017.06.13	2017.06.14	2017.06.15	2017.06.13	2017.06.14	2017.06.15
	00:00-24:00					
采样地点 / 项目	拟建项目			产污区		
可吸入颗粒物（PM10）	2017.06.14 12:69	2017.06.14 12:70	2017.06.14 12:71	2017.06.14 12:72	2017.06.14 12:73	2017.06.14 12:74
	0.038	0.045	0.037	0.042	0.039	0.024
采样地点 / 项目	拟建项目下风向			二氧化硅		
可吸入颗粒物（PM10）	2017.06.14 12:75	2017.06.14 12:76	2017.06.14 12:77	2017.06.14 12:78	2017.06.14 12:79	2017.06.14 12:80
	0.025	0.041	0.028	0.055	0.042	0.028
采样地点 / 项目	拟建项目			最近敏感点		
可吸入颗粒物（PM10）	2017.06.14 12:79	2017.06.14 12:80	2017.06.14 12:81	2017.06.14 12:82	2017.06.14 12:83	2017.06.14 12:84
	0.060	0.061	0.057	0.058	0.055	0.038

附表2（续）环境空气（上海站）检测结果表

单位：mg/m³

时间	2017.06.10	2017.06.11	2017.06.12	2017.06.18	2017.06.19	2017.06.20
	08:00-24:00					
点位编号 / 项目	新村社区			三林村		
二氧化硫（SO_2）	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00
	0.013	0.018	0.009	0.008	0.030	0.005
点位编号 / 项目	梁郊镇小学			杜行村		
二氧化硫（SO_2）	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00
	0.007	0.004	0.006	0.008	0.010	0.006
点位编号 / 项目	田园社区			交交警大队		
二氧化硫（SO_2）	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00
	0.005	0.008	0.004	0.010	0.013	0.011

附表2（续）环境空气（上海站）检测结果表

单位：mg/m³

时间	2017.06.10	2017.06.11	2017.06.12	2017.06.18	2017.06.19	2017.06.20
	08:00-24:00					
点位编号 / 项目	新村社区			三林村		
二氧化氮（NO_2）	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00
	0.026	0.023	0.025	0.024	0.022	0.017
点位编号 / 项目	梁郊镇小学			杜行村		
二氧化氮（NO_2）	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00
	0.019	0.014	0.015	0.023	0.016	0.019
点位编号 / 项目	田园社区			交交警大队		
二氧化氮（NO_2）	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00	2017.06.11 12:00
	0.017	0.023	0.018	0.021	0.017	0.020

附表 5 环境空气（小时值）检测结果

单位：mg/m³

检测项目 / 检测点位	[illegible]			[illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
硫酸雾	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:41	2017-06-14 12:46	2017-06-14 12:51	2017-06-14 12:13	2017-06-14 12:17	2017-06-14 12:21
	0.090	0.089	0.088	0.090	0.111	0.110
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:02	2017-06-14 12:06	2017-06-14 12:10	2017-06-14 12:14	2017-06-14 12:18	2017-06-14 12:22
	0.113	0.150	0.134	0.113	0.090	0.088
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:03	2017-06-14 12:07	2017-06-14 12:11	2017-06-14 12:15	2017-06-14 12:19	2017-06-14 12:23
	0.092	0.127	0.158	0.091	0.091	0.112
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:04	2017-06-14 12:08	2017-06-14 12:12	2017-06-14 12:16	2017-06-14 12:20	2017-06-14 12:24
	0.135	0.113	0.113	0.133	0.066	0.066
硫化氢	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:24	2017-06-14 12:28	2017-06-14 12:32	2017-06-14 12:37	2017-06-14 12:41	2017-06-14 12:45
	0.092	0.111	0.089	0.045	0.066	0.221
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:25	2017-06-14 12:29	2017-06-14 12:33	2017-06-14 12:38	2017-06-14 12:42	2017-06-14 12:46
	0.066	0.135	0.112	0.066	0.087	0.178
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:27	2017-06-14 12:31	2017-06-14 12:35	2017-06-14 12:39	2017-06-14 12:43	2017-06-14 12:47
	0.092	0.113	0.091	0.089	0.091	0.113
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017-06-14 12:30	2017-06-14 12:34	2017-06-14 12:38	2017-06-14 12:40	2017-06-14 12:44	2017-06-14 12:48
	0.135	0.157	0.134	0.045	0.045	0.087

附表 [illegible]：环境空气（分析值）检测结果表

单位：mg/m³

检测日期/检测项目	[illegible]			[illegible]		
	2017.06.13	2017.06.14	2017.06.15	2017.06.16	2017.06.17	2017.06.18
二氧化硫	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.013	0.015	0.015	0.010	0.012	0.014
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.017	0.015	0.014	0.012	0.015	0.011
	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.008	0.008	0.008	0.007	0.009	0.008
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.012	0.010	0.011	0.009	0.012	0.012
氮氧化物	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.011	0.010	0.012	0.011	0.010	0.015
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.017	0.015	0.012	0.016	0.013	0.011
	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00	14:00-15:00
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.009	0.007	0.009	0.008	0.008	0.007
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2017.06.13 12:00	2017.06.14 12:00	2017.06.15 12:00	2017.06.16 12:00	2017.06.17 12:00	2017.06.18 12:00
	0.014	0.012	0.013	0.014	0.011	0.013

[illegible]

[illegible]

[illegible]	[illegible]			[illegible]		
[illegible]	2017.06.18	2017.06.19	2017.06.20	2017.06.18	2017.06.19	2017.06.20
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.030	0.027	0.025	0.018	0.023	0.015
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.033	0.031	0.030	0.029	0.030	0.023
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.035	0.032	0.029	0.015	0.015	0.019
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.028	0.029	0.027	0.023	0.017	0.020
	[illegible]			[illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.021	0.029	0.021	0.024	0.019	0.021
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.020	0.023	0.022	0.018	0.022	0.017
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.017	0.015	0.018	0.019	0.015	0.014
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	0.023	0.018	0.022	0.022	0.018	0.019

附件1 各区县级学业水平检测达标率

单位：单位

检测时间 区县	2017.06.30 初测	2017.06.16 复测	2017.06.23 复测	2017.06.23 复测	主要问题
县城区小学四年级	2017061411 3-10	2017061411 3-31	2017061411 3-21	2017061411 3-31	空间观念
	57.7	42.7	57.5	45.5	
张村社区初中	2017061411 3-02	2017061411 3-32	2017061411 3-22	2017061411 3-32	空间观念
	61.8	44.0	52.5	44.5	
户外社区综合医院	2017061411 3-10	2017061411 3-32	2017061411 3-22	2017061411 3-32	空间观念
	52.3	42.4	53.1	44.7	
旧城社区初中	2017061411 3-10	2017061411 3-31	2017061411 3-21	2017061411 3-31	空间观念
	52.7	42.1	53.3	43.7	

[illegible]

单位：[illegible]

时间 / 指标 / 部门	[illegible] 当期	[illegible] 上期	[illegible] 去年	[illegible] 前年	工资产值
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	55.7	45.6	55.2	46.3	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	51.5	42.8	52.0	44.5	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	53.3	42.8	54.8	42.2	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	50.6	40.0	51.5	42.6	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	53.2	40.5	53.7	44.4	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	58.2	43.3	57.5	46.8	

[illegible]

[illegible]：[illegible] [illegible]：[illegible] [illegible] [illegible]：[illegible]

[illegible]：[illegible] [illegible]：[illegible] [illegible] [illegible]：[illegible]

[illegible]：[illegible] [illegible]：[illegible] [illegible] [illegible]：[illegible]

[illegible]：[illegible] [illegible]：[illegible] [illegible] [illegible]：[illegible]

[illegible]

[illegible]EMP[illegible]
2017[illegible]CND[illegible]CND2[illegible]CND4[illegible]CND4[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	CND3[illegible]	[illegible]	1	3	4	
	CND3[illegible]					
	CND4[illegible]					
	CND4[illegible]					
	CND3[illegible]					
	CND3[illegible]					
	CND[illegible]					
	CND[illegible]					
	CND4[illegible]					
	CND4[illegible]					
	CND4[illegible]					
	CND4[illegible]					
[illegible]	[illegible]	[illegible]	4	3	4	[illegible]
	[illegible]					
	[illegible]					
	[illegible]					

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

付表2 [illegible]

附表3 [illegible]

坐标 名称	经纬度	坐标 名称	经纬度
白塔村	N35°32′43″ E102°23′00″	DH1-2（牡丹桥）跨越乌龙河2号中桥下游32米	N35°32′44″ E102°24′18″
沿海村委会	N35°32′02″ E102°24′32″	DH1-2（牡丹桥）跨越乌龙河2号中桥下游10米	N35°32′31″ E102°24′20″
龙门客栈	N35°32′07″ E102°24′38″	DH2（民强桥）跨越乌龙河3号中桥上游32米	N35°32′36″ E102°24′21″
上白塔	N35°32′37″ E102°24′48″	DH2（民强桥）跨越乌龙河3号中桥下游10米	N35°32′36″ E102°24′20″
白塔山庄	N35°32′58″ E102°24′5″	DH3（白塔大道）跨越乌龙河4号主桥上游30米	N35°32′56″ E102°24′21″
青松村	N35°32′32″ E102°24′18″	DH3（白塔大道）跨越乌龙河4号中桥下游100米	N35°32′32″ E102°24′22″
白塔山庄	N35°32′11″ E102°24′17″	DH3-2（滨河路）跨越乌龙河5号中桥上游30米	N35°32′16″ E102°24′44″
西河县部分	N35°32′03″ E102°24′28″	DH3-2（滨河路）跨越乌龙河5号中桥下游100米	N35°32′19″ E102°24′44″
DH3（北环路）跨越乌龙河1号中桥上游30米	N35°32′06″ E102°24′28″	DH3-2（北环路）跨越乌龙河[illegible]桥上游30米	N35°32′38″ E102°24′06″
DH3（北环路）跨越乌龙河1号中桥下游100米	N35°32′51″ E102°24′18″	DH3-2（北环路）跨越乌龙河[illegible]桥下游100米	N35°32′45″ E102°24′05″

附录4 [illegible]

附表4-1 轨道交通[illegible]

[illegible]	[illegible]（轨道交通[illegible]）	主要污染物
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、溶解氧
[illegible]	超标	总氮、氨氮、溶解氧
[illegible]	超标	总氮、氨氮、溶解氧
[illegible]	超标	总氮、氨氮、溶解氧

附表4-2 [illegible]

[illegible]	[illegible]（[illegible]）		
	[illegible]	[illegible]	[illegible]
[illegible]	符合标准	符合标准	符合标准
[illegible]	符合标准	符合标准	符合标准
[illegible]	符合标准	符合标准	符合标准
[illegible]	符合标准	符合标准	符合标准

附表 4-3 环境空气敏感点检测评价结果

时间/评价 地点	[illegible]（环境空气质量标准）二类		
	2017.06.18	2017.06.19	2017.06.20
林小医院	符合二类	符合二类	符合二类
西郊村	符合二类	符合二类	符合二类
建设实验学校	符合二类	符合二类	符合二类
三村村	符合二类	符合二类	符合二类
旧城社区	符合二类	符合二类	符合二类
交警大队	符合二类	符合二类	符合二类

附表 4-4 各二级敏感居民户检测评价结果

时间/评价 点位	[illegible]（建筑施工场界环境噪声排放标准）			
	2017.06.19		2017.06.20	
	昼间	夜间	昼间	夜间
昭成防治院	符合标准	符合标准	符合标准	符合标准
北新社区	符合标准	符合标准	符合标准	符合标准
西郊社区会	符合标准	符合标准	符合标准	符合标准
旧城社区	符合标准	符合标准	符合标准	符合标准

附表 4-5 声环境敏感点检测评价结果

时间/评价 点位	[illegible]（声环境质量标准）二类区标准			
	2017.06.19		2017.06.20	
	昼间	夜间	昼间	夜间
林小医院	符合二类	符合二类	符合二类	符合二类
西郊村	符合二类	符合二类	符合二类	符合二类
建设实验学校	符合二类	符合二类	符合二类	符合二类
白塔村	符合二类	符合二类	符合二类	符合二类
旧城社区	符合二类	符合二类	符合二类	符合二类
交警大队	符合二类	符合二类	符合二类	符合二类

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[illegible]