

E2217  
v5

Environment Management Plan of

Changchun Agricultural Produce Quality and Safety Inspection and Testing  
Center Construction Project

Jilin Research Academy of Environmental Science  
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## **1 The background and purpose of establishing Environment Management Plan (EMP)**

### **1.1 Project background**

Jilin Province Agricultural Produce Quality and Safety Project of the World Bank loan (hereafter referred to as “Jilin Province World Bank project”), plans to use “Good Agricultural Practices” (GAP), “Good Manufacturing Practices” (GMP) and “Hazard Analysis Critical Control Point” (HACCP) and so on advanced safety control technology to produce and process agricultural produce, increase the coverage area of standardized demo zone (base) in order to make the agricultural produce production in our province gradually enter standardized track.

Around agricultural produce quality and safety control system, this project conducts study design on whole-process demo promotion, whole-process quality supervision and administration, quality tracing, publicity and training and agricultural produce quality and safety etc. related problems, including five sub projects, that is, promotion of agricultural produce quality and safety good agricultural practices, public monitoring of agricultural produce quality and safety, practical study, training and publicity on agricultural produce quality and safety, safe agricultural produce production chain demo mode (transferred loan project) and project management. This project is Changchun agricultural produce quality and safety testing and inspecting center construction project of the second sub project public monitoring of agricultural produce quality and safety project.

The major function of this testing center is monitoring of agricultural industrial primary produce testing and habitat environment monitoring, sampling testing and assessment to the quality of pesticide, fertilizer, and seed etc. planting industry invested produce, guide agriculture standardized production, and is responsible for the supervision and administration world of market entry of vegetable in Jilin Province. At

the same time, it is responsible for guiding habitat certification, material primary examination and marking management of green food, non public hazard agricultural produce and organic food in Changchun area.

This project will be built in Dongrong Road 569

This project site is located in Dongrong Road 569, Erdao District, Changchun City, Jilin Province, and the east side of Changchun Agricultural Machinery Development Center (empty land). It is planned to build a testing center building, with floor area of 3548.71 square meters, and the main body is four-floor framework structure. It includes civil engineering and decoration, ventilation air conditioning system, electricity and light supply system, water supply and drainage system, fire fighting safety system, waste gas and waste water processing system, heal supply system, network monitoring system, standardized lab, and purchasing of part advanced instrument facilities.

This project is mainly responsible for monitoring of pesticide residual, heavy metal and agriculture environment (field soil, irrigation water, air) of vegetable, fruit, crop, animal food (meat, egg, milk) and feed in the agricultural produce production base and wholesale market and agriculture fair in Nanguan District, Kuancheng District, Erdao District, Lvyuan District and Shuangyang District in Changchun.

The project needs capital of 30,856,700 Yuan, among which, expense of testing building construction is 10,977,600 Yuan, unexpected expense is 3,085,700 Yuan.70% of the total investment, that is 21,599,700 Yuan, comes from World Bank loan, and the remaining 30%, that is 9,257,000 Yuan, comes from provincial and municipal counterpart fund.

## **1.2 The purpose of environment management plan (EMP)**

The environment impact assessment of this project shows that the environment impact of this project is mainly produced in the implementation and run stage. This environment management plan will specifically state the environment relieving measures, environment management, environment supervising, and environment monitoring etc, and it will be a guiding document for implementing these activities. Its

role is as follows:

(1) Provide guiding document on environment. After examination of the World Bank, this environment management plan will be provided to the implementation supervising unit, environment monitoring unit and other related units in the implementation stage and run stage of the project as an environmental protection document.

(2) Clarify the responsibilities and roles of related units. Clarify the responsibilities and roles of related functional departments and management departments, and put forward the communication channel and manner between each department.

(3) Put forward environment monitoring plan in implementation stage and run stage.

### **1.3 Compilation foundation and implementation standard**

#### **1.3.1 Compilation foundation**

##### **1.3.1.1 Related laws and regulations of China on environmental protection**

(1) ~~“Environment Protection Law of the People’s Republic of China”~~, 1989.12.26;

(2) ~~“Law of the People’s Republic of China on Air Pollution Prevention and Control”~~, 2000.4.29;

(3) ~~“Law of the People’s Republic of China on Water Pollution Prevention and Control”~~, 2008.2.28;

(4) ~~“Implementing Rules of Water Pollution Prevention and Control of the People’s Republic of China”~~, Decree of the State Council No.284;

(5) ~~“Law of the People’s Republic of China on Prevention and Control of Pollution of the Environment by Solid Wastes”~~, 2005.4;

(6) ~~“Environment Noise Prevention and Control Law of the People’s Republic of China”~~, 1997.3.1;

(7) ~~“Law on Promoting Cleaner Production of the People’s Republic of China”~~,

2003.1.1;

- (8) ~~Law of the People's Republic of China on Environmental Impact Assessment(EIA)~~", 2002.10.28;
- (9) ~~Energy Conservation Law of the People's Republic of China~~", 1998.1.1;
- (10) ~~Law on Promoting Cleaner Production of the People's Republic of China~~" (2002) ;
- (11) ~~Regulations on Environmental Protection Management for Construction Projects~~", Decree of the State Council [1998] No.253; 1998.11.29;
- (12) ~~List of Construction Projects Subject to Environmental Protection Supervision~~", State Environmental Protection Administration, issued on 2003.1.1;
- (13) ~~Several Opinions on Environment management Issues of Construction Projects~~", the State Environmental Protection Administration, 1988.3.21;
- (14) ~~Notice of the State Council on Strengthening City Water Supply and Conservation and Water Pollution Prevention Work~~", 2000, number 36 document;
- (15) ~~Notice on Strengthening Environmental Impact Assessment Management Work of International Financial Organization Loan Construction Project~~" (HJ[1993] number 324 document) ;
- (16) State Environmental Protection Administration ~~Interim Measures on Public Participation in Environmental Impact Assessment~~" (year 2006) ;
- (17) GJMZY [2000]number 1015 ~~Opinions on Strengthening Industrial Water Conservation Work~~" (year 2000) .

### 1.3.2 Requirements of the World Bank

Requirements of the World Bank mainly include ten safety insurance policies, that is, business policy, World Bank procedure, business principles, etc., the details are as follows:

- (1) Environmental assessment (OP/BP/GP4.01)
- (2) Forestry (OP /GP4.36)

- (3) Natural habitat (OP/BP4.04)
- (4) Dam safety (OP/BP4.37)
- (5) Pesticide management (OP4.09)
- (6) Involuntary resettlement (OP4.30)
- (7) Minorities (OP4.20)
- (8) Cultural relic (OP4.11)
- (9) Project in controversial area (OP/BP/GP7.60)
- (10) International waterway project (OP/BP/GP7.50)

### 1.3.3 Technical regulations and guide rules

- (1) ~~“Environmental Impact Assessment Technical Guide Rules·General Principle” (HJ/T2.1-93) ;~~
- (2) ~~“Environmental Impact Assessment Technical Guide Rules·Air Environment” (HJ/T2.2-93) ;~~
- (3) ~~“Environmental Impact Assessment Technical Guide Rules·Surface Water Environment” (HJ/T2.3-93) ;~~
- (4) ~~“Environmental Impact Assessment Technical Guide Rules·Noise Environment” (HJ/T2.4-1995) ;~~
- (5) ~~“Environmental Impact Assessment Technical Guide Rules·Non-pollution ecological impact” (HJ/T19-1997) ;~~
- (6) ~~“Environment Risk Assessment Technical Guide Rule of Construction Projects” (HJ/T169-2004) ;~~
- (7) ~~“Standard of Surface Water Functional Area of Jilin Province” DB22/388—2004;~~
- (8) ~~“Technical Method for Formulating Local Air Pollutant Discharge Standard —(GB/T13201-91) 。”~~

### 1.3.4 Implementing standard

According to environment function area division of Changchun City, this project implements the following standards.

### 1.3.4.1 Environment quality standard

#### (1) Ambient air

The ambient air in the assessment area implements grade two standard in “Ambient Air Quality Standard” (GB3095-1996), and the details are shown in table 1.3-1.

**Table 1.3-1 Ambient Air Quality Standard**  
unit: mg/m<sup>3</sup>

Serial number	Pollutant	Implemented standard	Daily average	Hourly average	Assessment object
1	SO <sub>2</sub>	“Ambient Air Quality Standard” GB3095-1996 grade two	0.15	0.5	Ambient air in the project area
2	TSP		0.3		
3	PM <sub>10</sub>		0.15		
4	NO <sub>2</sub>		0.12	0.24	

#### (2) Surface water

The discharged waste water in this project enters waste water processing factory in the north suburb of Changchun city, and is finally discharged into Yitong River. According to “Jilin Province Surface Water Functional Area” (DB22/388-2004), Changchun upstream of Yitong River city- around highway bridge to Sihua section water quality assessment implements type III standard in GB3838-2002 “Standard of Surface Water Environment Quality”; Sihua Bridge to Wanjin Tower highway section implements V type standard. The details are in table 1.3-2.

**Table 1.3-2 Surface Water Environment Quality Standard**

Evaluate factors	Unit	Type III	Type V	Source of standard
pH	-	6-9	6-9	GB3838-2002 type III, * Refer to type III and V in “Songhua River Water System Environment Quality Standard”
COD <sub>Cr</sub>	mg/L	≤20	40	
BOD <sub>5</sub>	mg/L	≤4	10	
NH <sub>3</sub>	mg/L	≤1.0	2.0	
SS*	mg/L	<25*	50	
Petroleum	mg/L	≤0.05	1.0	



(3) Noise environment

The noise environment quality in the project area implements GB3096-2008 “Noise Environment Quality Standard” type III standard. The specific information is in table 1.3-3.

**Table 1.3-3 Noise Environment Quality Standard**

Evaluate factors	Unit	Period of time	Standard limit	Standard source
Equivalent noise level	dB (A)	Day time	60	Factory area that will be constructed GB3096-2008-type III”
		Night time	50	

**1.3.4.2 Pollutant discharge control standard**

(1) Air pollutant

The waste air pollutant discharge standard of lab implements the grade standard in “Integrated Discharge Standard of Air Pollutant” (GB16297-1996) ; boiler flue gas implements the II time period standard of “Discharge Standard of Boiler Air Pollutant” (GB13271-2001) . The specific information is shown in table 1.3-4 to table 1.3-6.

**Table 1.3-4 Air Pollutant Integrated Discharge Standard (GB16297-1996)**

Pollutant	Highest allowed discharge density mg/m <sup>3</sup>	Highest allowed discharge rate kg/h		Limit of unorganized discharge monitoring density	
		Height of exhaust funnel m	Grade two	Monitoring point	Density mg/m <sup>3</sup>
Grain	120	15	3.5	Highest density point in the surroundings	Not visible to the naked eyes
		20	5.9		
Sulfuric acid mist	45	15	1.5	Highest density point in the surroundings	1.2
		20	2.6		
Mercury and its compound	0.7	15	0.0015	Highest density point in the surroundings	0.0012
		20	0.0026		
Phenols	100	15	0.10	Highest density point in the surroundings	0.080
		20	0.17		

**Table 1.3-5 Boiler Gas Air Pollutant Discharge Standard (GB13271-2001)**

Type of boiler		Applicable area	Fume discharge density (mg/Nm <sup>3</sup> )	SO <sub>2</sub> discharge density (mg/Nm <sup>3</sup> )	Fume blackness (Ringelmann blackness, grade)
			II time period	II time period	
Coal-burning boiler	Natural draft furnace	Type two and three area	120	900	1
	Others	Type two area	200		

**Table 1.3-6 GB13271-2001 “Boiler Fume Air Pollutant Discharge Standard” (lowest allowed height of coal-burning boiler room chimney)**

Total installed capacity of boiler room	MW	<0.7	0.7-<1.4	1.4-<2.8	2.8-<7	7-<14	14-<28
	t/h	<1	1-<2	2-<4	4-<10	10-<20	20-<40
Lowest allowed height of chimney	m	20	25	30	35	40	45

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## (2) Water pollutant discharge standard

The waste water in this project will be discharged into city network of drains, and after being processed by Changchun First Waste Water Processing Factory, it will finally run into Yitong River. The common pollutant discharge density of life sewage and waste water discharged from lab implement the grade three standard of GB8978-1996 "Integrated Discharge Standard of Waste Water"; heavy metal discharge density implements the highest allowed discharge standard type I pollutant in GB8978-1996 "Integrated Discharge Standard of Waste Water". The details are shown in table 1.3-7.

**Table 1.3-7 Discharge Standard of Water Pollutant**

Type of pollution source	Pollution factor	Unit	Control standard	Source of standard
			Grade three	
Waste water	pH	-	6~9	GB8978-1996 “ <del>Integrated</del> Discharge Standard of Waste Water”
	COD	mg/L	500	
	BOD <sub>5</sub>	mg/L	300	
	SS	mg/L	400	
	Ammonia nitrogen	mg/L	-	
	Phenylamine	mg/L	5.0	
	Animal and vegetable butter	mg/L	100	
	Nitrobenzene	mg/L	5.0	
	Anionic surfaceactive agent (LAS)	mg/L	20	
	Organophosphorus pesticide (calculated according to P)	mg/L	0.5	
	Total mercury	mg/L	0.05	Highest allowed discharge standard type I pollutant in “ <del>Integrated</del> Discharge Standard of Waste Water”
	Total arsenic	mg/L	0.5	
	Total lead	mg/L	1.0	
Total chromium	mg/L	1.5		

(3) Noise discharge standard in factory environment

In the run period, the factory noise implements type III standard in GB12348-2008 “~~Noise~~ Discharge Standard in Factory Environment of Industrial Companies”, and the construction factory noise implements (DB22/272-2001) “~~Noise~~ Limit of

Construction Site”

**Table 1.3-8 Noise Discharge Standard**

Pollution source Type	Pollution factor	Day and night limit dB (A)	Night limit dB (A)	Related regulations	Source of standard
Building construction (factory)	Equivalent noise level	75	55	Earthwork stage	DB22/272-2001 "Construction factory noise standard"
		70	55	Structural stage	
		65	55	Fitment stage	
Run stage (factory)	Equivalent noise level	65	55		Type III standard in GB12348-2008 "Noise Discharge Standard in Factory Environment of Industrial Companies"

### 1.3.5 Classification foundation of labs

According to "Microorganism and Biological and Medical Lab Biological Safety Universal Principle of Hygiene Industrial Standard (WS 233-2002) of the People's Republic of China", the classification of labs is as follows in table 1.4-1.

**Table 1.4-1 The classification foundation of labs**

Classification	Code	Foundation
Grade one biological safety protection lab	BSL—1	Lab structure and facilities, safety operation regulations, safety facilities applicable to microorganism without pathogenic effect to healthy adults, for example, ordinary microorganism lab used for teaching, etc.

Grade two biological safety protection lab	BSL—2	Lab structure and facilities, safety operation regulations, safety facilities applicable to microorganism with moderate potential harm to people and the environment.
Grade three biological safety protection lab	BSL—3	Lab structure and facilities, safety operation regulations, safety facilities applicable to pathogenic microorganism and its toxin that make people infect serious even pathogenic disease through respiratory pathways, generally with vaccine that can prevent infection. Study on AIDS virus (except serology experiment) should be conducted in grade three biological safety protection lab.
Grade four biological safety protection lab	BSL—4	Lab structure and facilities, safety operation regulations, safety facilities applicable to pathogenic microorganism and its toxin that has high danger to people, communicated through aerosol, or don't have clear communication path. At present, there is still not effective vaccine or treatment method against it. The unclear microorganism similar with the above condition should also be conducted in grade four biological safety protection lab. When there is enough evidence, decide this kind of microorganism should be treated in grade four or lower level grade lab.

According to project analysis, this project lab only carry on testing of pesticide, fertilizer residual, habitat environment monitoring, and irrigation water testing etc. of agricultural produce (grain, vegetable, fruit etc.) . The experiment conducted in microorganism lab is also ordinary microorganism experiment, and thus in ordinary conditions; they are microorganism without pathogenic effect to healthy adults. Therefore, the physics and chemistry lab in this project belongs to ordinary lab, and ordinary microorganism lab belongs to BSL1 grade one biological safety protection lab.

## **2 Major environmental impact and relieving measures**

### **2.1 Analysis of environmental impact assessment**

#### **2.1.1 Analysis of environmental impact in the construction period**

##### (1) Analysis of environment air impact

##### 1) Dust during construction

Dust during construction mainly comes from the following aspects: ①demolishing house, land excavation, land leveling etc. construction process, when in windy weather, it will cause powder and dust etc. air pollution; ②transport, loading and unloading of cement, stone, and concrete etc. , improper warehouse storage method, which can cause leakage and produce dust pollution; ③lime soil mixture and concrete mixing and processing will produce dust and powder; ④material transporting vehicle will produce large amount of dust in run process.

The occurrence of dust in construction is closely linked with powder moisture content, dust grain, wind direction, wind speed, air humidity and garbage piling time. According to actual measurement result of analogous files, under the condition of strong wind unfavorable weather, the dust of new project construction will exceed grade two national standard within the 100 m range, which caused unfavorable impact on air quality of the nearby surrounding area. Therefore, we request to equip related spraying facilities in project construction process, spray water at regular time, reduce the amount of dust; at the same time, cover the raw material piling site in order to avoid dust.

Besides, in the transporting process of stone, cement etc. powder materials and construction garbage, dust pollution will also occur, and the transporting dust shows lineal pollution belt distribution, and the impact range is relatively broad. Thus the construction unit should use shed covering in the transporting process of powder materials, reduce speed of transporting vehicles, and maximally reduce the pollution to the surrounding air quality in transporting process.

##### 2) End gas of construction machinery

The construction machinery in construction stage includes bulldozer, loading machine, blender, and automobiles etc. The end gas of construction machinery will also

cause certain pollution, and the harmful substances in the discharged waste gas are CO<sub>2</sub>, CO, NO<sub>x</sub>, and HC etc. The end gas discharge height of construction machinery is relatively low, and the diffusion range of end gas is relatively small, which causes certain impact on the nearby air environment. But with the ending of construction period, these impacts will disappear accordingly.

## (2) Analysis of surface water environment impact

The discharged waste water in construction period is mainly construction waste water and daily life waste water of construction personnel. The construction waste water mainly comes from cleaning tools and mixing materials and water, and discharge amount is little. The pollutant in construction waste water is mainly mud, and stone etc. suspended matter. They should be precipitated in the sedimentation tank of the construction site, and the clarified water should be used for spraying and dust decreasing in the construction site, and the remaining part will be discharged in the city network of drains.

The project chooses local construction team, and no construction camp is set; toilet is from Changchun City Agricultural Machinery Development Center, and life sewage will be discharged into city network of drains.

Due to the waste water amount in construction period is not big, and its impact on surface water body belongs to short-term impact, and after ending of construction, it will terminate, and will not cause big impact on surface water body.

## (3) Construction noise

During construction of the project, the transporting vehicle, bulldozer, digger, concrete mixer, vibrator, electric saw will cause relatively strong noise. Although these noises belongs to non-continuous intermittent discharge, due to relatively concentrated noise source, and most of which is exposed noise source, the noise radiation range and impact range are all very big, and construction period will produce certain impact on the



surrounding sound environment. According to forecast, in the range within 30m to the construction site in the day time, and 55m range in the night time, it exceeds “Noise Limit of Construction Site” (DB22/272-2001). According to on-the-spot investigation, in the eastern side of the factory, beyond 5m, there are 6-7 residential bungalows, and at the south side it is Dongrong Road, and at the south side of the road there are some bungalows.

The western side is Changchun Agricultural Machinery Development Center, and the north side is timer warehouse. The project construction period will produce certain impact on the residents in the eastern side bungalows and employees of Changchun Agricultural Machinery Development Center. But these impacts will end with the completion of construction.

#### (4) Solid wastes

Project construction will produce certain construction garbage and the life of construction personnel will also produce certain life garbage. In the transporting and treatment, they will produce certain impact on the environment. If life garbage is not treated in time, it will breed mosquito and fly, and produce stink, bringing bad impact on the surrounding environment.

This project site is flat void land, and there is no need to demolish house, flatten the site, give up soil and the amount of construction garbage is relatively little. In order to avoid impact of solid wastes on the environment, the construction garbage produced in construction period should be cleaned timely; the construction site should set specialized life garbage, collect life garbage in a unified manner, and transport it to city waste landfill regularly in order to avoid random throwing.

Through proper treatment, the unfavorable impact of solid wastes on external environment will be eliminated.

#### (5) Social environment

The social environment impact of project construction period is mainly impact on city transport and the dust, noise interruption and transport inconvenience to the life of surrounding residents.

## 2.1.2 Environmental impact analysis in run period

### (1) Waste gas

#### 1) Waste gas in lab

The major waste gas discharged in this project is little amount of acid smog,  $\text{NO}_2$  and waste gas discharged in the organic solvent, and they should be discharged after reaching standard.

In project construction process, part of the labs that produces waste gas are equipped with fume hood, and the waste gas produced in experiment will be collected by negative pressure, and will be discharged after treatment of carbon filter.

#### 2) Boiler fume

In the project area, there is not heat supply, and a boiler room should be built. The outdoor heat pipe is covered and linked to each heat-consuming building from the boiler room. In order to meet the requirement of energy conservation and environmental protection, the winter heat supply of this project adopts a set of 0.5t/h type coal-burning boiler, and the heat supply area is  $3548.71\text{m}^2$ , coal-burning amount is 220t/a, fume amount is  $6120\text{Nm}^3/\text{h}$ , production density of fume and dust is  $90\text{mg}/\text{m}^3$ , production amount is 0.77t/a, production density of  $\text{SO}_2$  is 为  $270\text{mg}/\text{m}^3$ , and production amount is 1.76t/a. The boiler plans to adopt steel chimney, with height of 25m and diameter of 0.4m.

According to analogous investigation, the fume discharge density of coal-burning boiler can each the type II standard in II period of “Emission standard of air pollutants for coal-burning boiler” (GB13271-2001) .

### (2) Waste water

After project construction, the total discharge amount of waste water is  $5.7\text{m}^3/\text{d}$ , among it, discharge amount of lab and testing waste water is  $4.6\text{m}^3/\text{d}$ , and life sewage discharge amount is  $1.1\text{m}^3/\text{d}$ . The discharge density of all kinds of pollutants in life

sewage is COD250mg/L, BOD200mg/L, SS200mg/L, and water quality can meet the grade three standard in GB8978-1996 "Integrated Discharge Standard of Waste Water", which can be directly discharged into city network of drains. The major pollutants in experiment waste water discharged in assay and inspection process are acid base, heavy metal and all kinds of chemical agent, and all kinds of additive etc. Although the discharge amount of waste water in labs is little, the composition of complicated, and through analogous investigation, the discharge density of pollutants in experiment waste water is about COD600mg/L, BOD<sub>5</sub>400mg/L, SS210mg/L, containing different degrees' heavy metal. If discharging it to surface water body without treatment, it will produce negative impact, and it should be discharged into city network of drains after reaching grade three standard in GB8978-1996 "Integrated Discharge Standard of Waste Water".

In this renovation process, we will shunt the production waste water and life sewage, and discharge it to city network of drains after reaching standard through adopting lab waste water treatment facilities, and treat it in Changchun First Waste Water Processing Factory, which can produce small impact on water environment.

### (3) Noise

The noise produced in this project mainly comes from the multi-functional oscillator, air-conditioner in the lab, ventilation facility noise of fan etc., and noise source intensity is about 75-90dB, and thus we should try to establish sound insulation room in the lab, install double-layer glass window, increase and decrease damping blanket when installing facilities etc. measures in order to make the factory noise meet type III standard requirement in GB12348-2008 "Noise Discharge Standard in Industrial Company Environment".

### (4) Solid wastes

After project completion, the major solid wastes are life garbage and lab solid wastes, etc.

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① Waste agricultural produce (vegetable, fruit, grain etc.) samples

When doing experiment, this project generally selects experiment sample about 0.5-1kg according to different experiment requirements, and when doing experiment, randomly select one of the samples to do inspection, and one sample is stored in the sample room. The samples in agricultural produce sample room will be stored for about 3-6 months until being destroyed at expiry time. According to analogous estimate, the waste sample amount is about 2.59t/a. Waste agricultural produce sample belongs to ordinary solid waste, will be dispatched to city garbage factory to be treated together with life garbage.

② Experiment facility and device (one-time), waste liquor and waste culture medium produced in experiment

After project construction, the one-time experiment facility and device, consumables (test paper etc.) and damaged appliance (glass vessel) production amount is about 16.8kg/a. The production amount of waste liquor and waste culture medium in experiment is about 8.1kg/a. The experiment facility and device (one-time), waste liquor produced in experiment belong to dangerous wastes, and should be sent to Changchun Lantian Dangerous Wastes Processing Center Co., Ltd. for uniform treatment.

③ Waste filter material or active carbon replaced in filter

In order to ensure the filtering effect of high efficient air filter, generally the waste filter material or waste active carbon board of filter should be replaced for every six months, and the production amount of them is about 400 kg/a. The replaced waste filter material or waste active carbon board will be sent to the original production unit or to Changchun Lantian Dangerous Wastes Processing Center Co., Ltd. for burning treatment.

#### ④Dirt produced in waste water treatment

The dirt production amount of the waste water treatment station is about 0.115t/a, and the produced dirt contains heavy metal dangerous wastes, and should be properly stored, and sent to Changchun Lantian Dangerous Wastes Processing Center Co., Ltd. for treatment.

#### ⑤Life garbage

Calculated according to 0.5kg per capita every day, the daily production amount is 14kg/d, annual production amount is 3.5t/a, and the environment and health department will send them to city garbage landfill for sanitary landfills in a uniform manner.

To summarize, the solid wastes produced in this project contains general solid waste and dangerous waste, and if treated improperly, they will produce harmful impact on the surrounding environment, and we should adopt different treatment method according to different natures, and general solid waste and dangerous waste should not be treated together. By treating them properly, we can effectively avoid secondary pollution caused by improper treatment of dangerous wastes.

## **2.2 Environmental protection measures**

This project construction will implement “Management Measures on Environmental Protection of Construction Projects” of the State Council number 253 decree (1998) of the People’s Republic of China in order to ensure the simultaneous design, simultaneous implementation and simultaneous run of the environmental protection measures and main body project of this project.

### **2.2.1 Environment impact relieving measures in planning and design stage**

In project selection and design stage, we will comprehensively analyze all kinds of impact factors, and consider maximally reducing the environment impact in project

design. The environment impact relieving measures and specific implementation unit adopted in project design stage is shown in table 2.2-1.

**Table 2.2-1 Environment impact relieving measures in planning/design stage**

Impact	Management/relieving measures	Expense (10,000 Yuan)
1.Waste water	1.1 The plan and design practices diffluence of clear and filthy water in the drainage system, and sets independent pipeline to discharge life sewage and production waste water respectively. 1.2 Design a lab waste water processing station, and after being processed, the lab waste water quality meets the grade three standard in GB8978-1996 “Integrated Discharge Standard of Waste Water”.	265,000 Yuan
2.Waste gas	2.1 Lab waste gas: Design ventilation and air discharging system according to related requirement in “Technical Regulations on Biologically Safe Lab Construction” GB50346-2004. The lab waste gas should be treated by high efficient air filter, active carbon filter etc. and discharged waste gas should meet the regulations in GB 16297-1996 “Integrated emission standard of air pollutants”. 2.2 Sets mechanic fume discharge ventilation system in corridor, stair well and toilet etc. places, can discharge polluted air at any time. In certain labs and inspection laboratories, also set mechanic ventilation system in order to solve the ventilation problem under the condition without experiment and inspection work. 2.3 The design should consider building 0.5t/h type coal-burning boiler, and height of exhaust funnel should not be lower than 20m.	500,000 Yuan
3.Noise	3.1 In design, select low noise facilities, practice vibration reducing treatment to basic facilities, the air blower and pump that produces high noise should be installed in independent facility room and be sealed.	3

Note: environmental protection investment should be included in the project investment.

### 2.2.2 Environmental impact relieving measures in construction stage

By using bidding method, select construction unit with certain strength. When the project unit signs construction contract with contractor, the environmental impact relieving measures in construction period will be listed into the construction contract, and the contractor promises to implement it. And the contractor and construction supervisor must accept training relating to environment protection and environment management before construction. The province and city project office must designate or invite environment experts to go to the construction site regularly to check the

implementation condition of construction environmental protection regulations”, and correct problems timely.

The environmental impact relieving measures in construction period is in table 2.2-2.



**Table 2.2-2 Environmental impact relieving measures in construction period**

Type	Environmental impact factor	Pollution prevention and control measures
Construction period	Environment air	<p>(1) Strengthen management, civilized construction, light loading and unloading of building material; try to remove the surface dirt on vehicles before leaving the construction site; the vehicles that transport lime, ballast truck, cement, and fly ash etc. dusts should be covered with tarpaulin.</p> <p>(2) Lime and sandy soil etc. should not be piled in open air, and if they have to be piled openly, we should spray them, enhance the surface moisture content, which can also play the role of preventing dust.</p> <p>(3) Select construction unit with certain strength in the manner of bidding, and adopt commercialized mixed cement and enclosed transporting vehicle.</p> <p>(4) The dust in construction site and construction road can be prevented by using the measures of spraying and cleaning. It is suggested to spray water to prevent dust for 4-5 times each day at the construction site.</p> <p>(5) The construction garbage should be timely cleaned and transported to low-lying site designated by city management department for filling treatment, or be transported to garbage landfill. When loading, strictly prohibit overloading, and the earth loading vehicle cannot spill on the way. When going through the city center, the vehicle should drive according to the route and time period regulated by the municipal government.</p> <p>(6) The construction site area does not allow random burning wastes and garbage.</p> <p>(7) Do well labor protection of construction personnel, and match dust prevention respirator etc.</p> <p>(8) Try to select lead-free fuel and clean fuel.</p>
	Water environment	<p>(1) The pollutants in construction waste water are mainly suspended matter, and we should use the clarified water for spraying and reducing dust after being precipitated in the sedimentation tank of the construction site, and the remaining part will be discharged to city network of drains.</p> <p>(2) During construction period, there is no construction</p>

		camp, and toilet is from the indoor toilet of Changchun Agriculture Machinery Development Center, and no dry pail latrine is built.
	Sound environment	<p>(1) Reasonably arrange construction time.</p> <p>In order to reduce the impact of construction noise on the sound environment of the surrounding residential area, we should formulate scientific construction plan, and try to avoid simultaneous use of large amount of high noise facilities. The construction time of facilities with big noise, strong impact and strong vibration (such as churn drill etc.) should be at day time, and night construction (22:00 – 6:00 of the next day) should not be allowed.</p> <p>(2) Put forward requirement on the bidding unit, and the construction machinery and facilities should choose those with small noise.</p> <p>(3) Strengthen publicity training to construction workers and reduce man-made noise.</p>
	Solid waste	<p>(1) Construction garbage should be treated according to category, and the construction garbage with recycling value should be recycled by specific personnel in time, and the construction garbage and waste earth that cannot be recycled should be timely transported to designated site for piling or be used as road building material according to the requirement of the city government and planning department.</p> <p>(2) The life garbage produced in construction should be collected in life garbage recycling box, and the environment and health department will send them to Changchun City garbage treatment field for sanitary landfill in order to avoid random throwing.</p>

### 2.2.3 Environmental impact analysis in run period

#### 2.2.3.1 Relieving measures of environment air impact

The working nature in lab and inspection room not only has relatively high requirement on indoor temperature and humidity, but also has different requirement and standard on the cleanliness of air. In order to ensure the requirement of experiment and

inspection work on indoor temperature and humidity as well as cleanliness of air, according to related requirement in —“Technological Regulations of Biologically Safe Lab Construction” GB50346-2004, set air discharging facilities and install high efficient filter.

### (1) The principle of lab ventilation and air discharging system

Large amount of acid and alkali waste gas and other harmful gas in will be produced lab and inspection laboratory, and should be discharged immediately.

Strong air discharging system: set strong fume hood in lab and inspection laboratory, collect the waste produced in experiment and inspection process under negative pressure, and discharge it to outdoor through high efficient air filter treatment. The filtering efficiency of high efficient air filter should not be lower than type B (efficiency not lower than 99.97%).

Ventilation system: set mechanic fume discharge ventilation system in corridor, stair well and toilet, and can discharge the filthy air at any time. In part labs, and inspection laboratory, set mechanic ventilation system in order to solve the indoor ventilation problem under the condition without experiment and inspection work.

The height of exhaust funnel of each air discharging system should be 3m higher than the building ceiling within 200m of the surrounding area.

### (3) Boiler fume

This project is located in the city suburb, and it is 4.5km away from the nearest centralized heat boiler room. It will cost about 15 million Yuan to establish a heat supply network, investment is big, and the construction unit does not have capital to establish it. Therefore, heat will be temporarily supplied by the self-built boiler room, and when the centralized heat supply room of Luhui International city community in the western side is build in December, 2012, the self-built boiler room will be demolished, and be combined into the centralized heat supply network.

The boiler should be coal-burning, energy-saving and environmental-friendly. The

fume will be discharged through a 20m high chimney, with inside diameter of outlet being 0.5m. According to analogous investigation, the discharging density of fume can meet the standard requirement of II period in type II area of GB13271—2001 “Emission standard of air pollutants for coal-burning boiler”, and the impact on air environment is relatively small.

#### (4) Risk precaution measures

If the air purification system has accidents or the pollution area is under positive pressure, the alarm system will be started immediately. The experimenting work should be stopped immediately, and at the same time, emergent accident plan should be started immediately.

The lab should establish strict safety accountability system.

### **2.2.3.2 Relieving measures of water environment impact**

The water drainage system has diffluence of clear and filth water, and life sewage and production waste water will set independent pipes. The discharge amount of life sewage is relatively small, and density of COD in water is about 250mg/L, and BOD<sub>5</sub> is about 150mg/L. The discharge density can meet the grade three discharge standard of “Integrated Waste Water Discharge Standard” (GB8978-1996). Thus life sewage can be directly discharged into drainage network without being treated.

Although the waste water amount produced in labs is small, the composition is complicated, and the waste water contains acid, alkali, organic matter as well as small amount of heavy metal, etc. The hazard is big, and should be discharged after reaching the grade three standard in GB8978-1996 “Integrated Waste Water Discharge Standard”.

#### (1) Designed water amount and water quality of the waste water treatment station

The production amount of lab waste water in this project is about 4.6m<sup>3</sup>/d, and design capacity of waste water design station is 5m<sup>3</sup>/d. Considering that the waste water

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treatment station can have malfunction accident, it is suggested build an accident storage tank, with the volume of 10m<sup>3</sup> to used for discharging waste water in storage accident.

(2) Experiment waste water treatment plan:

According to the requirement of discharged waste water quality, water amount and discharge requirement, combing the recommendation of the feasibility study plan, this environmental impact assessment carries on economic, technological and operation effect analysis and comparison to the following kinds of waste water treatment plans

Plan I: bio-chemical method (H/O)

Bio-chemical method is a widely adopted waste water bio-chemical treatment method, and it treats high density organic waste water. The covered area is small, running is stable, operation is convenient, and impact resistant ability is strong.

Its process flow is shown in table 2.2-1.

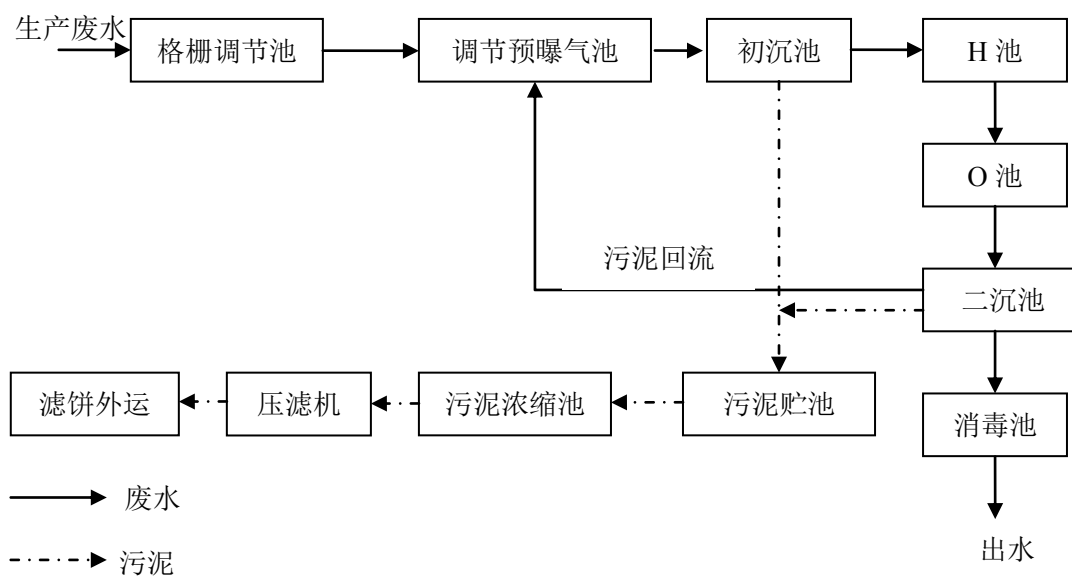


Fig 2.2-1 process flow of bio-chemical method waste water treatment

生化法污水处理流程图 process flow of bio-chemical method waste water

treatment

生产废水 waste water from production

格栅调节池 grating adjusting tank

调节预曝气池 preaeration adjusting tank

初沉池 initial sedimentation tank

H池 H tank

O池 O tank

二沉池 second sedimentation tank

污泥回流 dirt return flow

滤饼外运 filtering pile outbound logistics

压滤机 filter press

污泥浓缩池 dirt condensation tank

污泥贮池 dirt storage tank

消毒池 sterilization tank

出水 water out

废水 waste water

污泥 dirt

Plan II: whole-set small scale integration lab waste water treatment facilities

The discharge amount of this project is relatively small, and we can directly purchase whole-set facilities to do treatment. At present, many waste water treatment factories produce “lab series waste water treatment machine”. This series waste water machine mainly adopts neutralization, coagulation and sedimentation, active carbon catalysis-ozone oxidation, chemical active carbon attachment etc. technologies, with features of small covered area, high automation degree, good treatment effect, and small operation expense etc. and can basically require no worker to watch. It has obtained the scientific technology fruit appraisal certification (YKJZ [2005] number 287) of Guangdong Province Science and Technology Department, and through the inspection and certification of Guangzhou Geo-chemical Institute of the Chinese Academy of Sciences. The treatment can meet the requirement of related national discharge standard, and has gained good effect in the practical application of Guangzhou University, Guangzhou Medical College, Chongqing Environment Monitoring Center, Zhongshan Medicine Inspection Institute, Yuexiu Disease Control Center etc. units.

#### 1) Process flow and principle

Waste water first enters adjusting tank through collecting system, and through adjusting of water quality and water amount, and will be evenly and constantly sent to waste water processing machine reaction tank, and through pH control meter, accurately add certain amount of NaOH aqueous solution using metering pump, and adjust pH value between 8-9; at the same time, add coagulating agent PAC and coagulant aid PAM.

Under the alkali condition, the acid in waste water will be neutralized, and iron, cadmium, bronze, manganese, nickel, and lead etc. heavy metal ion happens chemical reaction with OH<sup>-</sup> and form precipitation of hydroxide. At the same time, under the

condensation and flocculation effect of PAC and PAM, the sediment in reaction mutually condenses, and the suspended grain and part of inorganic and organic matter in waste water is absorbed, and form massive floccus floc.

The waste water then flows to inclined sedimentation tank by itself, and depending on gravitation effect, these floccus floc sediments naturally, thus reaching the purpose of removing suspended matter, heavy metal ion and part of organic matter in waste water. The dirt in dirt hopper will be cleaned regularly, sent to related department for burning, burying or other treatment.

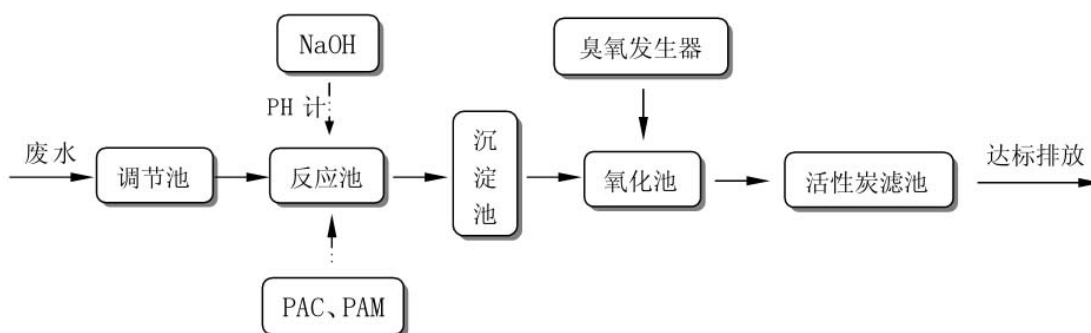
The water-out of sedimentation tank then is sent to active carbon ozone oxidation tank through the pump, and due to the resistance effect of filling, waste water is evenly distributed, and slowly leaks up down. At the same time, with air as the raw material, the ozone made by the ozone reaction machine penetrates the active carbon filling through the emitting air system from the bottom of oxidation tank bottom up, or through Venturi Ejector it will be absorbed into water in the form of negative pressure. In the process of full contact of air and liquid, for the organic matter, bacteria, chroma and stink etc., one part runs through structure with big hole and will be removed through the absorption, retention, impaction, and rewinding etc. physical and chemical effect of active carbon; the other part will be removed by ozone with strong oxidation property, good sterilization and stink removing, color purification and removal, and organic matter disintegration etc. under the catalysis effect of active carbon.

The waste water finally enter active carbon biological filtering tank, and for the fine and small suspended matter, little amount of metal and organic matter that is not removed, one part runs through structure with big hole and will be removed through the physical and chemical effect of active carbon; the other part will be decomposed and removed by the anaerobe, aerobe and amphimicrobe etc. that is absorbed on microorganism film of active carbon. Retention and absorption of active carbon will be conducted interludely, alternately and in circulation with the decomposition and absorption process of microorganism. Till here, the waste water reaches standard and can be discharged.

The whole waste water treatment process is automatically controlled by PLC



programming. The adjusting tank sets ball float type lever controller, and it will automatically stop at low liquid level, and automatically start at high liquid level; the dosing tank sets liquid indicator, and it will start alarm if there is lack of medicine, and will stop operation. The whole machine can basically require no people to watch.



Process flow chart of waste water treatment

废水 waste water

调节池 adjusting tank

Ph 计 pH meter

反应池 reaction tank

沉淀池 sedimentation tank

臭氧发生器 ozone reaction device

氧化池 oxidation tank

活性炭滤池 active carbon filtering tank

达标排放 discharge after reaching standard

## 2) Features of product

★ Adopt neutralization, coagulation and sedimentation, chemical oxidation, film separation, active carbon catalysis – ozone oxidation method, biological active carbon absorption etc. technology to treat all kinds of pollutants in waste water

★ Micro computer program just-in-time monitors, and controls waste water quality change and treatment procedure, realizes whole-day automatic operation, and requires

no worker to watch;

★Uses PH meter, ORP meter and imported measurement pump to accurately control dosage, set liquid level control, alarming system when lacking medicine, and automatic dirt discharge etc. devices;

★Adopt advanced Venturi jet oxygenator, and bring full contact of air and water and full reaction;

★Convenient operation, stable operation, long use life, low expense of operation and maintenance;

★Small covered area, can be placed indoor or outdoor according to different conditions;

★Carry on customized design and manufacture according to different requirement of users.

### 3) Applicable range

Be widely applicable to colleges and universities, scientific research organizations, and lab waste water integrated treatment of chemical labs.

### 4) Major technical parameters

Table 2.2-2

Table of major technical parameters

Item		Technical parameters
Processed flow amount (m <sup>3</sup> /d)		5
Removing rate (%)	Heavy metal (total lead, total manganese, total zinc, total mercury, and total arsenic etc.)	≥96
	Chemical oxygen demand	≥93
	Chloroform	≥93
	Toluene	≥93
	Phenol	≥93
	Organophosphorus pesticide	≥90
Efficiency of disinfection (%)		≥91
Fecal coliforms (mpn/L)		≤220
Total bacteria (cfu/L)		≤7500
Noise (dB)		≤65
Price (including drainage network laying)		200,000 Yuan

According to plan comparison, this assessment thinks that lab waste water discharge is interlude discharging, and due to different monitoring contents, the quality of discharged waste water is also different, which is not suitable to adopt bio-chemical (plan I) treatment. Under the same waste water amount and water quality, the treatment effect of plan II is stable, with good impact resistant ability, widely application, and is specialized lab waste water treatment whole-set facilities, therefore we recommend adopting plan II. The total investment into this waste water processing facilities is about 200,000 Yuan (processing ability of 5m<sup>3</sup>/d), and run expense is about 1 Yuan/ton water.

### 2.2.3.3 Relieving measures of sound environment impact

This project mainly adopts the following measures for noise prevention and control:

- (1) Adopt low noise facilities in design.
- (2) Independently set sound insulation room for the air blower and water pump

etc. facilities with relatively big noise, install sound insulation door etc.

(3) Adopt vibration reducing processing to basic facilities.

The above can reduce the noise source intensity by 20-25 dB(A), and after treatment, noise can reach grade three standard in GB12348-2008 “Noise Standard of Industrial Companies Factory”

### 2.2.3.4 Relieving measures of solid wastes environment impact

The solid wastes produced in this project are generally divided into solid waste and dangerous waste two kinds, and should be treated according to category.

(1) Treatment of general solid waste:

The waste agricultural produce sample and life garbage etc. general solid wastes in experiment will be centrally collected and then sent by environment and health department to city garbage treatment factory for sanitary landfill, and no after effect is left.

(2) Treatment of dangerous waste

Experiment facilities (one-time), culture solution, overdue experiment medicine or reagent, dirt containing heavy metal produced in waste water treatment station, waste active carbon etc. should be collected according to category, and sent to Changchun Lantian Dangerous Waste Treatment Center Co., Ltd. for treatment.

The transporting process should strictly conform to “dangerous wastes transfer, double draft management method”.

The treatment methods of different solid wastes are in table 2.2-3.

**Table 2.2-3 Production amount of solid wastes and treatment plan**

	Name of solid waste	Waste type	Industry source and waste code	Packaging and storage method	Treatment plan
1	Agricultural produce etc. testing sample	General solid waste		Original package	Be sent to original unit or environment and health department recycle it and sent it to city garbage landfill for sanitary land filling
2	One-time experiment facilities, consumables and damaged			Sealed container	According to “List of Dangerous Wastes of China” (year 2008), the wastes produced in lab belong to dangerous

	devices				waste, and after being sealed and packed, send it to Changhcun Lantian Dangerous Waste Treatment Center Co., Ltd. for burning treatment
3	Waste liquid, waste culture solution produced in experiment			Contained in 10kg glass bottle, be sent for every half year of one year	
4	Waste filter material and active carbon replaced in high efficient filter			Replace filtering board for every 3-6 months	
5	Dirt in waste water treatment station			After being filtered and sterilized, transport it through sealed tank car	
6	Life garbage	General solid waste		Stored at the designated dust bin	Environment and health department recycle it and sent it to city garbage landfill for sanitary land filling

Lantian Dangerous Waste Treatment Center Co., Ltd. is located in Weizigou Village, Yingjun Township, Erdao District, Changchun City, and is the first company in Jilin Province that specializes in dangerous waste treatment and integrated use, constructed according to related national standard and approved by Jilin Province Development and Reform Commission and Jilin Province Environmental Protection Bureau. It mainly engaged in collecting, transporting, storage, treatment and comprehensive utilization etc. of industrial solid wastes (including dangerous waste, chemical/industrial wastes/waste dangerous chemicals/ fake and inferior food and medicine fixed treatment and destroying company designated by the government), and annually it can process dangerous wastes of 6,000 tons. It has obtained dangerous waste operation qualification conferred by Jilin Province Environmental Protection Bureau.

The construction unit has already signed dangerous waste treatment agreement with Lantian Dangerous Waste Treatment Center Co., Ltd., and the company is commissioned to treatment the dangerous wastes discharged in this project. If recycled in time, no secondary pollution will occur.

### **3 Implementation organizations**

#### **3.1 Environment management organizations**

##### **3.1.1 Structure chart of environment management organizations**

The environment management organization structure chart in construction stage and run stage of this project is shown in diagram 3.1-1 and 3.1-2.

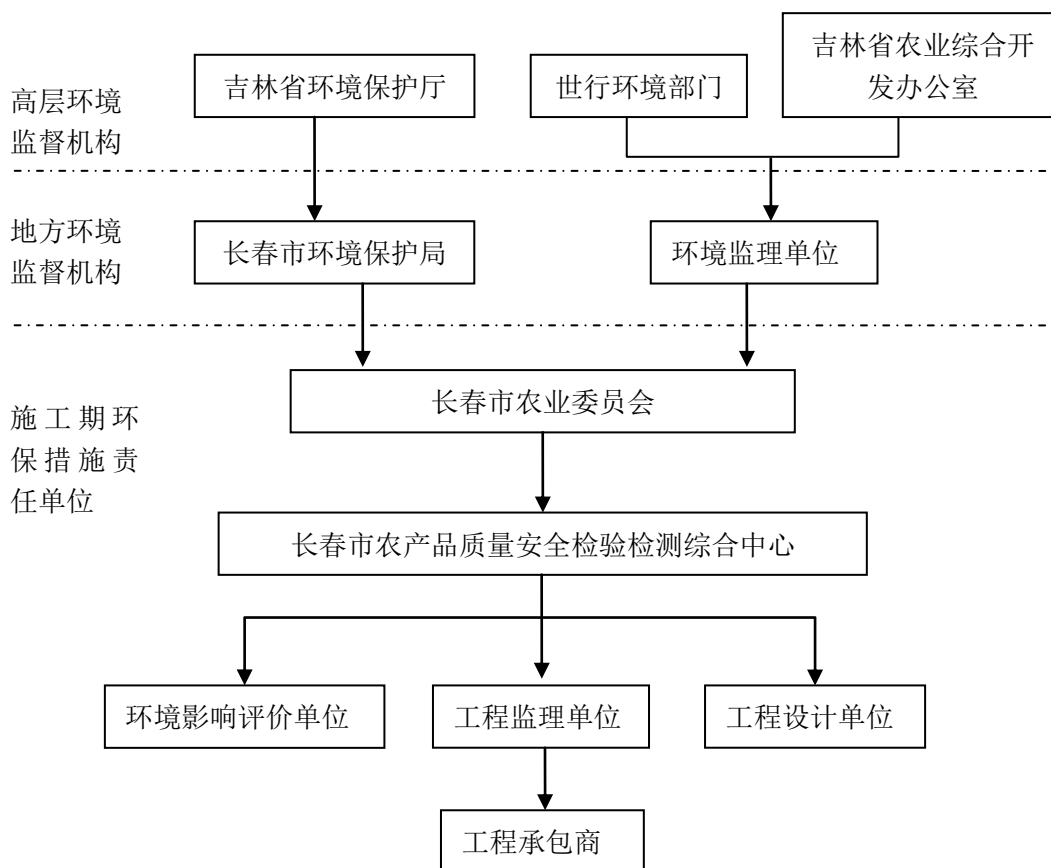


图 3.1-1 施工期环境管理机构图

图 3.1-1 施工期环境管理机构图 Diagram 3.1-1 Structure chart of environment management organization in construction stage

高层环境监督机构 Senior environment supervision organization

吉林省环境保护厅 Jilin Province Environmental Protection Department

世行环境部门 World Bank Environment Department

世行吉林省项目办 World Bank Jilin Province Project Office

地方环境监督机构 Local environment supervision organization

长春市环境保护局 Changchun environmental protection bureau

环境监理单位 Environment supervision unit

施工期环保措施责任单位 Accountability unit of environmental protection measures in construction stage

吉林省农委 Jilin Province agricultural Committee

吉林省农产品质量安全检验检测综合中心 Jilin Province agricultural produce quality and safety inspection and testing center

环境影响评价单位 Environmental impact assessment unit

工程监理单位 Engineering supervision unit  
 工程设计单位 Engineering design unit  
 工程承包商 Project contractor

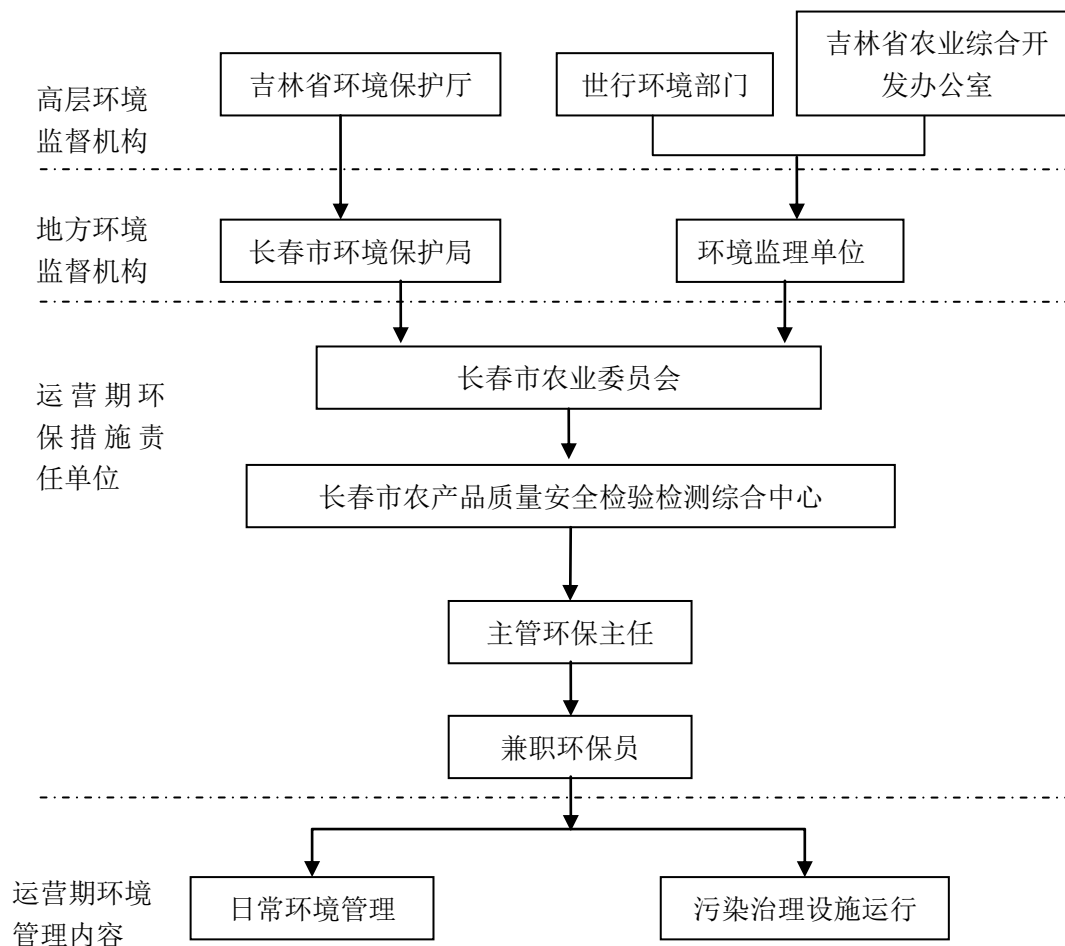


图 3.1-2 运营期环境管理机构图

图 3.1-2 运营期环境管理机构图 Diagram 3.1-2 Structure chart of environment management organization in run stage

高层环境监督机构 Senior environment supervision organization

吉林省环境保护厅 Jilin Province Environmental Protection Department

世行环境部门 World Bank Environment Department

世行吉林省项目办 World Bank Jilin Province Project Office

地方环境监督机构 Local environment supervision organization

长春市环境保护局 Changchun environmental protection bureau

环境监理单位 Environment supervision unit

运营期环保措施责任单位 Accountability unit of environmental protection measures



in run stage

吉林省农委 Jilin Province agricultural Committee

吉林省农产品质量安全检验检测综合中心 Jilin Province agricultural produce quality and safety inspection and testing center

主管环保主任 Environmental protection director in charge

兼职环保员 Part-time environmental protection worker

运营期环境管理内容 Environment management contents in run stage

日常环境管理 Daily environment management

污染治理设施运行 Operation of pollution control measures

### 3.1.2 Responsibilities of environment management organizations

According to the features of the project, the environmental protection implementation of the project is not only supervised and managed by Jilin Province Environmental Protection Department and Changchun Environmental Protection Bureau, but also the supervision and management of related departments of the World Bank. During the project construction period, we should appoint environment supervision personnel to assist the construction party in on-the-spot supervision and examination.

The responsibilities of each related environment management departments are as follows:

**World Bank Environment Department:** be responsible for the whole-process supervision and administration of the project according to the requirement of the World Bank on related environmental protection, and put forward requirement on environmental protection of the project.

**Jilin Province Environmental Protection Department:** according to the requirement of related laws and regulations of China, be responsible for the whole-process supervision and administration of the project, and put forward requirement on environmental protection of the project. At the same time, be responsible for the “three simultaneous” final acceptance of construction of the project; check the implementation of environment management plan, check the environment monitoring plan and environment monitoring report.

**Jilin Province World Bank Loan Project Leaders’ Group Office (provincial**

**project office):** assist the World Bank environment department in the environment supervision and management of the project.

**Changchun Environmental Protection Bureau:** according to the requirement of the World Bank Environment Department and provincial Environmental Protection Department, carry on whole-process supervision and administration of the project. Carry on supervision and examination to the pollution control condition of waste water, waste gas, noise, and dangerous wastes produced in the lab. If there is case of violation, order it to correct it within certain time. The examination case and treatment result should be recorded, and after being signed by the inspector, archive it and feed back to the inspected unit.

**Changchun City Agricultural Committee:** carry on uniform planning to the project, arrange and coordinate the pre-stage preparation, project construction and supervision and management of the project. Carry on environment supervision and management to the project in construction and run stage, and supervise the condition of environmental protection facilities “three simultaneous” project construction to ensure the smooth progress of the project.

**Changchun City Agricultural Produce Quality and Safety Testing and Inspection Center:** ensure the implementation of related environment management measures of the environment management department and World Bank, at the same time, assist the environment management department in the daily supervision and management.

**Environment supervisor:** assist the construction unit in supervising the implementation condition of environmental protection measures on the construction site, at the same time, assist environment management department in daily environment supervision.

The major responsibilities of environment supervising engineers are:

(1) Ensure all the project consent and requirement as well as environment

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management plan be implemented before the start of construction.

(2) Check that all the employees from the construction unit and operation unit implement environmental protection measures according to contract agreement.

(3) Carry on communication with construction staff, and the purpose is to help to explain the environment requirement on-the-spot; provide suggestion for remedy measures, provide remedy measures for solving the project that does not conform to the goal of the project; issue formal guideline to the construction unit and operation unit according to requirement.

(4) Carry on communication with the construction unit and operation unit as well as construction consultants, and the purpose is to increase exchange; obtain other opinions on some special issues, and the purpose is to quickly feed back the problems in construction process to construction management engineers to assist in the solving of problems.

(5) Implementation of environment monitoring plan in supervision and construction stage, supervise environmental protection facilities “three simultaneous” project construction condition, ensure to meet the time limit finally, and smoothly pass environmental protection acceptance.

**Environmental protection worker:** implement regulations and standards on environmental protection, master the environmental condition of the inspection center, summarize and analyze the pollutant discharge condition, organize to formulate the environmental protection plan and annual plan, and organize implementation; be responsible for the environment management, publicity and education of environmental protection knowledge as well as promotion of new technology; regularly inspect the function condition of environmental protection facilities, and timely solve the emerged problems; master the run condition of the environmental protection facilities, establish files of pollution source, files of environmental protection facilities function, and carry on statistics of environmental protection; establish and keep experiment files, and experiment files should accurately record the experiment activities and working conditions of facilities and devices, as well as the intoxic treatment, concentrated treatment and inspection condition of waste water, waste gas and dangerous waste

produced in experiment; formulate environmental protection monitoring plan according to the requirement of upper level environmental protection department, and organize and coordinate to finish monitoring task. Coordinate to process pollution accidents and pollution disputes, supervise and check the “three simultaneous” system implementation condition of new, renovated and expanded projects as well as the final acceptance of construction of environmental protection facilities, etc.

### **3.2 Environment monitoring organization and its responsibilities**

According to the nature of this project, the construction unit should not set environment monitoring organization, and the environment monitoring can be done by entrusting Changchun City Environment Monitoring Station.

Jilin Province agricultural produce quality and safety testing and inspection center and environment supervising engineers are responsible for the supervising work of construction site, the environment monitoring work in construction stage and run stag; the environment monitoring in construction stage and run stage is mainly monitored according to the monitoring plan in environment assessment.

The major responsibilities are: carefully implement the laws and regulations of China on environmental protection, establish and perfect each regulation system, and finish monitoring task; establish monitoring and analysis data to summarize file and fill in environment report; finish the environment monitoring work given by testing center; strengthen the maintenance and adjusting work of environment monitoring instruments to ensure normal operation of monitoring work.

Monitoring personnel should go on duty by providing certification, and be responsible for all kinds of environment monitoring files; monitoring personnel should be familiar with production technique, continuously enhance skill and quality, and accept assessment of the upper level authority.

### **3.3 Responsibilities of contractor**

Select contractor with strength, and environment impact relieving measures in construction stage should be included in the bidding documents of contractor, and finally it should be included in the construction contract. As the contract requirement on

project contractor, it can ensure the effective implementation of environment management plan. The responsibilities of contractor are as follows:

(1) Require the contractor and construction supervisor to accept training on environmental protection and environment management before construction; the contractor needs to equip one full-time environment worker for the project. These environment workers should receive training in training plan in order to be qualified for their work.

(2) In construction process, the contractor should carry on communication and negotiation with the mass in the project area, and establish announcement board in each construction unit to notice the public about specific construction activity and construction time. At the same time, provide the contact person and contact telephone in order to make it convenient for the public to complain and provide suggestions.

(3) Environmental protection management on the spot. Construction unit should do well the prevention and control measures of waste water, waste gas, noise and solid wastes, and at the same time, it should equip professional environmental protection personnel to be responsible for the environment management in the construction period. And equip noise meter to test the sensitive point in the project surrounding area in order to ensure the sound environment in the environment sensitive point be controlled within the sound environment quality standard.

(4) Reasonably arrange construction time. The transport of building material should avoid transport peak period, and vehicles should drive according to designated route. The construction that produces noise such as removing wall or decorating should be carried on in day time and night construction is strictly prohibited.

(5) Do well the professional sanitary management, safety management and social management of construction workers.

### **3.4 Training of workers**

Before project construction, the construction unit, employees of the construction contractor and supervising engineers are required to participate in compulsory training on environment, health and safety.

### **3.4.1 Training of newly added environmental protection full-time and part-time workers during construction period**

The construction unit commissions qualified unit to carry on training to the full-time and part-time workers in the construction and supervising unit. The training subjects are the engineering technical person in charge and full-time managerial personnel of each construction and supervision unit.

The contents of training include:

- 1) Laws and regulations, documents and related requirement of China and Jilin Province on environmental protection of construction project management;
- 2) The environmental protection measures and environmental protection requirement in construction period put forward in design period of this project;
- 3) The environmental protection guideline in construction period of this project.

The training may invite environmental protection bureau, the environmental protection person in charge of the design unit, environment assessment unit related experts of the monitoring and controlling unit.

### **3.4.2 Training of newly added environmental protection full-time and part-time workers during run period**

The training of newly added environmental protection part-time (for full-time) workers will be organized and implemented by environmental protection department, and we can invite related environmental protection experts from universities, scientific institutes and operational management unit to give lectures, or trainees can participate in short-term training seminars.

The total expense during construction stage and run stage is 56,000 Yuan.

**Table 3.4-1 List of training plan of environmental protection workers**

Stage	Type	Number of people (person)	Time	Expense (10,000 Yuan)
Design, planning stage	Observe and study the advanced domestic laboratories and pollution prevention and control project	1	Design, planning stage	1.0
Construction stage	Environmental protection personnel of the construction unit and project undertaker	One person, respectively	After determining the contractor, before construction	0.6
	Environment supervising engineer	One person from the construction unit, one person from the operation unit		0.6
	All the construction workers	30 persons		1.0
Before run stage	Environment management personnel of the operation unit	1	After construction completion, before project operation	0.5
	Environment workers of the operation unit	2		1.0
	Publicity, education and training of experiment technical personnel on environmental protection of the operation unit	28		1.4
				5.6

**Table 3.4-2 Training contents in construction stage**

Contents of training		Training time limit
General environment common knowledge of	Introduce environment impact factors and environment protection measures relating to the environment; Introduction to the environment sensitive area in the construction area and the problems that should be paid	Hold half-day seminar on the spot

<p>construction workers</p>	<p>attention to, introduction to the nearby area in the construction area;          Environment management design engineer, environment supervisor, the role and responsibility of construction supervisor as well as the key points of report on environment issues;          The waste management in the construction camp and site;          Pollution control measures in the construction site;          Illegal regulations, fine of violation against laws and regulations;</p>	
<p>General health and safety knowledge of construction workers</p>	<p>Include means of communication and protection, prevent HIV/AIDS and STD;          Alcohol prohibition and drug control;          The process of seeking medical assistance under emergent and non-emergent condition, and the process of seeking other related medical assistance;          (such as STD inspection, consultation)          Health and safety knowledge includes certain basic processes: transportation safety, safety of using electricity, explosion, fire, dangerous waste management;          Use personal protection device;          Fine for violation against laws and regulations.</p>	<p>Hold half-day seminar on the spot</p>



**Table 3.4-3 Training of environment management personnel of the operator**

Subject	Contents of training	Training time limit
Environment management personnel	Management procedure of World Bank project; Environment information archiving, opening, exchanging and reporting system; Environment risk contingency; Checking and applying process of health and safety.	1 day
	Inspection of advanced technique and environment management	Inspection of advanced domestic lab and pollution control project
Environment workers	The use of equipments includes standard, testing, method, sample transport, data quality control monitoring and reporting requirement; Environment risk contingency: Potential leakage and spill, and the environment and body health impact of leakage and spill, and contingency reaction process include preferential reaction, the location and use of reaction facilities.	2 days
All the experiment personnel	Management procedure of World Bank project The treatment of “three wastes” in experiment process, and matters needing attention in treatment; The correct use of environmental protection equipments; Environment risk contingency: Potential leakage and spill, and the environment and body health impact of leakage and spill, and contingency reaction process include preferential reaction, the location and use of reaction facilities.	Before project construction completion and run, one day.

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## **4 Environment monitoring plan**

### **4.1 The purpose of environment monitoring**

Environment monitoring includes construction stage and run stage, and the purpose is to comprehensively and timely master the pollution tendency of the project that will be built, understand the environment quality change degree, impact range of the construction project on the project area as well as the environment quality tendency in run stage, feed back the information to department in charge, and provide scientific foundation for the environment management of the project.

### **4.2 Implementation of monitoring**

The environment monitoring in construction stage and run stage will be entrusted by project undertaker or operator to Jilin City Environment Monitoring Station. Jilin City Environment Monitoring Station that undertakes monitoring is the national environment quality monitoring certification unit, with complete facilities and solid technical strength. It can complete the environment monitoring tasks that is undertakes.

According to the environmental impact forecast result, the sensitive point with obvious pollution will be used as monitoring point, and according to the pollution condition in construction and run stage, the monitoring contents will choose sound environment, environment air, surface water environment, underground water environment that is under relatively big influence, and monitoring factors will be determined according to the pollution feature factor in project analysis; monitoring analysis method will adopt the monitoring analysis method of correspondent project in “Technical Regulations of Environment Monitoring” issued by the State Administration of Environmental Protection, and the assessment standard implements the national standard determined in the environment assessment.

### **4.3 Environment monitoring Plan**

According to the project feature, the environment management in project run stage will be included into the environment management plan of Jilin Province Control Institute of Veterinary Bioproducts and Pharmaceuticals. The environment monitoring

plan of this project is mainly the environment monitoring in construction stage, and the main environmental protection subject in construction stage is the residents within 200m of the surroundings of the lab building.

The environment monitoring point in construction stage: according to project construction progress, select the place that is close to environment sensitive point subjects (residential area) at the construction concentration section, and at the same place, monitor the environment air and noise in the functional area.

**Table 4.3-1**  
**stage**

**Environment monitoring plan in planning/design**

Consideration/ problem/impact	Management/relieving measures	Monitoring			Expense (10,000 Yuan)
		Monitoring item	Time/frequency/duration	Organization in charge	
1. Waste water	<p>1.1 The plan and design practices diffluence of clear and filthy water in the drainage system, and sets independent pipeline to discharge life sewage and production waste water respectively.</p> <p>1.2 Design a lab waste water processing station, and after being processed, the lab waste water quality meets the grade three standard in GB8978-1996 <del>Integrated</del> Discharge Standard of Waste Water”.</p>	Examine design	Be included in project design and examination and approval procedure	Design and examination and approval department	Be included in the design fee

<p>2. Waste gas</p>	<p>2.1 Design ventilation and air discharging system according to related requirement in —Technical Regulations on Biologically Safe Lab Construction” GB50346-2004; 2.2 Sets mechanic fume discharge ventilation system in corridor, stair well and toilet etc. places, can discharge polluted air at any time. In certain labs and inspection laboratories, also set mechanic ventilation system in order to solve the ventilation problem under the condition without experiment and inspection work. 2.3 The design should consider to build 0.5t/h type coal-burning furnace, and height of exhaust funnel should not be lower than 20m.</p>	<p>Examine design</p>	<p>Be included in project design and examination and approval procedure</p>	<p>Design and examination and approval department</p>	<p>Be included in the design fee</p>
<p>3. Noise</p>	<p>3.1 In design, select low noise facilities, practice vibration reducing treatment to basic facilities, the air blower and pump that produces high noise should be installed in cellar and be sealed.</p>	<p>Examine design</p>	<p>Be included in project design and examination and approval procedure</p>	<p>Design and examination and approval department</p>	<p>Be included in the design fee</p>

Table 4.3-2

Environment monitoring plan in construction stage

Consideration/ problem/impact	Management/relieving measures	Monitoring			Expense (10,000 Yuan)
		Monitoring item	Time/frequency/duration	Organization in charge	
1. Waste water in construction	1.1 Use the toilet in the original building, life sewage will be discharged in city network of drains. 1.2 Little amount of construction waste water will be discharged into underground drainage after sedimentation.。	1.1.1 Check whether life sewage is discharged into city network of drains, and life sewage should not be discharged at any time. 1.1.2 Check whether there is sedimentation tank, and whether construction waste water is discharged after being precipitated.	Construction stage	Construction unit, construction supervisor	Expense will be calculated into construction expense and supervision expense
2.Dust in construction	2.1 Spray water to reduce dust, piling of powder raw material, covered with tarpaulin in transport	2.1.1 Check whether there is dust.	Strong wind and dry weather in construction stage	Construction unit, construction supervisor	

3.Noise	<p>3.1 Choose low noise facilities, reasonably plan construction time, and avoid strong noise working mechanics to influence the surrounding residents.</p> <p>3.2 Replace backward high noise construction technique with advanced low noise construction technique</p>	3.1.1 Construction site meets the noise limit of “Noise limits for construction site” (GB12523-90).	Construction stage, four-direction boundary, 1time/month, 2 times 1 day (day time, night time)	Construction unit, construction supervisor	1.5
4. Construction garbage	<p>4.1 Construction and building garbage should be treated according to category, and the construction garbage with recycling value should be timely recycled by specific person;</p> <p>4.2 The construction garbage that can not be recycled should be transported to local construction garbage landfills.</p>	<p>4.1.1 Check whether there is categorized recycling.</p> <p>4.1.2 Check whether is transported to designated landfill.</p>	Construction stage	Construction unit, construction supervisor	Expense will be calculated into construction expense and supervision expense

5. Life garbage of workers	5.1 After collecting it, transport to Changchun life garbage landfills.	5.1.1 Check whether life garbage is collected and transported to Changchun life garbage landfill.	Construction stage	Construction unit, construction supervisor	
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**Table 4.3-3**

**Environment monitoring plan in operation stage**

Consideration/ problem/impact	Management/relieving measures	Monitoring			Expense (10,000 Yuan)
		Monitoring item	Time/frequency/duration	Organization in charge	

<p>1. Lab waste gas</p>	<p>1.1 Maintain the normal work of ventilation and purification and air discharging system of lab and inspection laboratory, and discharge the waste gas after being purified and reaching standard.</p> <p>1.2 The operation that produces poisonous and toxic chemical gas should be completed in fume hood. Set strong fume hood in the inspection laboratory, and collect the waste gas in inspection process under negative pressure, and adopt high efficient air filter to process it. After reaching discharge standard, it will be discharged into air through high exhaust funnel.</p> <p>1.3 Sets mechanic fume discharge ventilation system in corridor, stair well and toilet etc. places, can discharge polluted air at any time. In certain labs and inspection laboratories, also set mechanic ventilation system in order to solve the ventilation problem under the condition without experiment and inspection work.</p> <p>1.4 Regularly (six months) replace the</p>	<p>1.1.1 Lab waste gas discharge reach the grade two standard in "Integrated emission standard of air pollutants" (GB16297-1996) .</p> <p>Waste gas discharge outlet of monitoring lab: TSP, SO<sub>2</sub>, total hydrocarbon particulate matter 120 mg/m<sup>3</sup>; sulfuric acid mist 45 mg/m<sup>3</sup>; mercury and its compound 0.7 mg/m<sup>3</sup>; hydroxybenzene 100 mg/m<sup>3</sup></p> <p>1.1.2 The discharge density of boiler fume reaches grade II standard in II period of "Emission standard of air pollutants for coal-burning oil-burning gas-fired boiler" (GB13271-2001)</p> <p>Smoke and dust: 120mg/m<sup>3</sup>; SO<sub>2</sub>900 mg/m<sup>3</sup>.</p>	<p>Testing four times each year, two days each time</p>	<p>Changchun City Environmental Protection and Monitoring Station</p>	<p>2.0</p>
	<p>filter board of high efficient air filter to ensure the filtering efficiency of air filter to reach over 99.97%.</p> <p>1.5 The cooking fume in dining hall</p>	<p>-56-</p>			

<p>2. Waste water: the waste water produced in experiment and life sewage of employees</p>	<p>2.1 The drainage system practices diffuence of clear and filthy water, and sets independent pipeline to discharge life sewage and production waste water respectively. 2.2 Maintain the normal function of lab waste water processing facilities. 2.3 The dirt produced in treating waste water will be sent to Changchun Lantian Dangerous Waste Processing Center Co., Ltd. for treatment.</p>	<p>2.1.1 The common pollutants discharge in life sewage and experiment waste water meets the grade three discharge standard in “Integrated Wastewater Discharge Standard” (GB8978-1996) , and discharge of heavy metal meets the highest allowed discharge standard of type I pollutant. pH, COD, BOD, ammonia nitrogen, heavy metal (according testing contents, measure mercury, arsenic and lead etc.), total coli group (one/L)</p>	<p>Testing four times each year, one day each time, and two samplings each day</p>	<p>Changchun City Environmental Protection and Monitoring Station</p>	<p>1.5</p>
<p>3. Noise</p>	<p>3.1 Maintain the normal function of sound insulation facilities</p>	<p>3.1.1 Construction site meets type II standard in “Standard of noise at boundary of industrial enterprises” Day time <math>\leq 60\text{dB (A)}</math> , night time <math>\leq 50\text{dB (A)}</math></p>	<p>At the surrounding of the factory, 4times/year, two times each day (day time, night time)</p>	<p>Changchun City Environmental Protection and Monitoring Station</p>	<p>0.5</p>

<p>4.Solid waste</p>	<p>4.1 Treatment of general solid waste: The waste agricultural produce sample and life garbage etc. general solid waste in experiment will be collected and sent to environment and health department and then to city garbage processing factory for sanitary land filling.</p> <p>4.2 Treatment of dangerous wastes: Experiment facilities (one-time), culture solution, overdue experiment medicine or reagent, dirt containing heavy metal produced in waste water treatment station, waste active carbon, animal excrement and feed waste residual etc. dangerous waste should be collected according to category, and sent to Changchun Lantian Dangerous Waste Treatment Center Co., Ltd. for treatment.</p>	<p>4.1.1 Check whether different solid wastes are collected and sent to designated processing factory or landfill.</p>	<p>Inspect one time each month</p>	<p>Changchun City Environmental Protection and Monitoring Station</p>	
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## 5 Estimate of environment management plan monitoring

**Table 5.1-1**  
**management plan**

**Temporary estimate of environment**

Monitoring item	Environment management expense	Monitoring expense	Training expense	Total
Budget in construction stage (Yuan)	10000	15000	29000	54000
Budget in run stage (Yuan)		40000	27000	67000

Through estimate, the total EMP expense of the project is 121,000 Yuan.

## 6 Report

The contractor, monitoring unit and project office should records the project progress condition, management plan (EMP) implementation condition, environment quality monitoring result etc. and reports them to related department. This mainly includes detailed recording on EMP implementation condition of the monitoring unit and contractor, and report them to the project office; project progress report (such as half year report etc.) by the project office must include the contents of EMP progress, such as the implementation progress and implementation effect of EMP; the annual EMP implementation report of the project must be finished within the time regulated by the World Bank and submitted to the World Bank.

The EMP implementation report includes the following contents:

- (1) Project progress condition;
- (2) EMP implementation condition; include monitoring condition and data
- (3) Whether there is public complaint, and if there is complaint, record the main contents of complaint, solving method and public satisfaction.
- (4) EMP implementation plan in the next year.

## 7 Public participation

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## **7.1 Information openness**

According to related regulations in interim measures for public participation in environment impact assessment (HF [2006] number28), the environment assessment unit will issue announcement in the surrounding area of the project on April 23<sup>rd</sup>, 2009, and issue the environment impact assessment information announcement in “Jilin Environment Information Net” on June 5<sup>th</sup>, 2009, and will put the simple copy of environment impact assessment report of this report and the initial draft of this environment management plan in the provincial project office and environment science institute, and further ask for the opinion of the public. During the announcement period, we did not receive the report or complaint of the public, nor feedback.

## **7.2 Public’s participation in investigation**

The investigation range that the public participates in is mainly the residents in the affected area and local environmental protection and agricultural experts and workers. The whole process of participation of the public conforms to the principle of representation and randomness. We carried on investigation in the form of holding seminar, and listened to the opinions and suggestions of nearby residents and related experts on environmental protection of this project.

Place of seminar: conference room of Changchun City Agricultural Machinery Development and Service Center (Dongrong Road 569, Erdao District, Changchun City)

Time of conference: afternoon 13:30, July 6<sup>th</sup>, 2009

Name list of conference organizers: Wang Dezhong, Wang Mansheng etc. (look at table 7.2-1)

Name list of participants: Wang Cuizhi, Lin Jinjuan etc. (look at table 7.2-2)

Recorder of conference: Zhang Long



公众参与座谈会公告

公众参与座谈会公告

Announcement of the public's participation in the seminar

座谈会现场 Scene of the seminar



座谈会现场



居民林金娟发言

居民林金娟发言 Resident Lin Jinjuan is making a speech



居民马兰庭发言

居民马兰庭发言 Resident Ma Lanting is making a speech

**Table 7.2-1 Name list of public participation organizers**

NAME	LIVING PLACE/UNIT	TITLE	CONTACT TELEPHONE	NAME
Wang Dezhong	Male	Changchun City Agricultural Produce Quality and Safety Inspection Center	Director	13943189988
Wang	Male	Changchun City	Research	13894851672

Mansheng		Agricultural Produce Quality and Safety Inspection Center	fellow	
Zhang Tao	Male	Changchun City Agricultural Produce Quality and Safety Inspection Center	Associate research fellow	13039319431
Zhang Long	Male	Changchun City Agricultural Produce Quality and Safety Inspection Center	Office director	13944939828

**Table 7.2-2 Name list of participants in the seminar (employees of nearby units and residents)**

NAME	UNIT	TITLE	CONTACT TELEPHONE	LIVING PLACE	DISTANCE TO THE CONSTRUCTION AREA
Wang Cuizhi	Changchun International Trade Centre	Warehouse Keeper	13843191145	Dongrong Road 560	100m
Lin Jinjuan	City Flour Factory	Worker	88527430	Dongrong Road 560	100m
Ma Lanting	Changchun City Food Group Co., Ltd.	Leader	15844082556	Dongrong Road 560	120m
Fang Shuxian	Retired		13943061969	Dongrong Road 553	150m
Wang Xiaoyu	Wait for employment		15948735677	Dongrong Road 553	140m
Zheng Yingzhu	Shengyuan reasonably priced restaurant		13596007660	Near Dongrong Road, without house number	200m
Jiang Shubo	Jinbao Logistics	Warehouse Keeper	13844863402	Near Dongrong Road, without house number	160m



Lv Dun	Chunlin Automobile Repair Plant	Worker	13196006510	Near Dongrong Road, without house number	190m
Shi Ji	Changchun City Agricultural Machinery Development Center	Leader	18943107135	Dongrong Road 569	50m
Dong Lifeng	Changchun City Agricultural Machinery Development Center	Section chief	13756066906	Dongrong Road 569	50m
Zhao Minglei	Changchun City Agricultural Machinery Development Center	Employee	13404323260	Dongrong Road 569	50m
Liu Cong	Changchun City Agricultural Machinery Development Center	Assistant	84727250	Dongrong Road 569	50m
Wang Li	Wait for employment	Employee	13039011366	Dongrong Road 558	120m
Shi Ying	Changchun City Agricultural Machinery Development Center	Leader	84727250	Dongrong Road 569	50m
Zhou Liwei	Changchun City Agricultural Machinery Development Center	Leader	84727250	Dongrong Road 569	50m

Li Xiang	Changchun City Agricultural Machinery Development Center	Leader	84727250	Dongrong Road 569	50m
Song Jihong	Tire Renovation Center	Worker	13159688371	Dongrong Road 562	200m
Gong Limin	Wait for employment	Employee	15943064915	Dongrong Road 562	200m
Yang Lixiang	City Bus Company	Worker	13069205001	Dongrong Road 550	150m
Xu Jianjun	Chunlin Automobile Repair Plant	Worker	13943153709	Dongrong Road 550	150m

#### Preparation for the meeting

On July 1st, 2009, working group of Changchun City food quality and safety inspection center lab project noticed the residents to hold a public seminar on environment impact assessment of Changchun City food quality and safety inspection center lab project” on July 6<sup>th</sup>, in the form of posting announcement (Please look at the photos). Workers of the center participated in organizing of the seminar, arranged the meeting room, and prepared needed materials (environment management plan, environment assessment report and public participation investigation form, etc.)

#### Records of the meeting:

On July 6th, 2009, working group of Changchun City food quality and safety inspection center lab project held residents’ seminar in the conference room of Changchun Agricultural Machinery Development and Service Center at Dongrong Road 569, Kuancheng District of Changchun City.

The main participants are nearby residents and employees of units near the lab.

Altogether 20 residents and employees participated in the seminar.

The lab working group first introduced the project survey, construction contents, environment management plan, and the possible environment impact factor, intensity,

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range and the environmental protection measures that will be adopted

It carefully listened to the opinions of residents and units affected by this project in order to deeply understand the residents' suggestion and opinion on project construction significance and effect as well as regional environment quality. They asked for the suggestions and opinions of the residents on environmental protection of this project, and filled in investigation form. They discussed the project progress and the benefit to agricultural produce quality and safety together, and the working group broadly listened to the suggestions and opinions of the public.

In the meeting, 8 residents and employees from nearby units voiced their opinions on this project, and put forward their suggestions, which are summarized as follows:

1) Fang Shuxian (Female, 76 years old, Dongrong Road 553, retired)

I am a veteran resident here, and this land was originally farmland, and in recent years, with the city development, it gradually becomes industrial land, and this construction project is very good. It can provide the common people with worry-free agricultural produce. The problem is how to control the noise in construction process, and how big is the voice, and whether there will be pollution after construction, and will it affect the life of people?

Answer: A scientific construction plan has been formulated in order to strengthen management during the construction period. Construction at night is forbidden in order to avoid impact on the nearby residents. This point can be ensured.

2) Ma Lanting (Male, 60 years old, Dongrong Road 558, retired leader of Changchun City Food Group)

With improvement of living standard, the number of households here is gradually decreasing, and many people moved away long time ago. The temporary renting household is many, and an inspection center will be built here simultaneously. The problem is how to control waste gas and waste water, and will they bring impact on us?

Answer: During lab operation, certain amount of waste gas will be produced. We will set fume hood or biosecure cabinet to collect waste gas under negative pressure according to state requirement, and filter it by active carbon filter or high efficient air filter, and then discharge it to upper air through exhaust funnel. Under the condition of

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standard discharging, it will not bring impact on the surrounding residents.

3) Wang Cuizhi (Female, 50 years old, Dongrong Road 560, warehouse keeper of Changchun International Trade Center)

At first, I support this project construction. The number of household here is very small, and the households living here have no money to buy house, and they can not move away. The project is good, which can ensure we citizens to each worry-free vegetables, so I support this project. The problem is will the experiment wastes during lab testing process cause impact on our life? And how to deal with it?

Answer: After project construction completion, we will strengthen the management of recycling experiment wastes according to related state laws and regulations on environmental protection, and then them to qualified dangerous waste processing unit for treatment, which will not cause secondary pollution to the environment. We have already signed agreement with Changchun Lantian Dangerous Wastes Processing Center Co., Ltd., and entrust the company to process the dangerous wastes discharged in this project.

4) Lin Jinjuan (Female, 48 years old, Dongrong Road 560, worker of city flour factory)

I'm 48 years old and have been living here. The changes here are great, and I support this project construction, because it takes into consideration of the health of the mass. I hope the noise and pollution during construction process and carrying on business will be under good control in order to avoid affecting the health of nearby citizens.

5) Shi Ji (Male, Dongrong Road 569, employee of city Agricultural Machinery Development Center)

The municipal government decides to build this agricultural produce inspection center project within the yard of our unit, and this has nothing to do with our individuals, but the noise and pollution during construction process should be controlled through proper measures in order to avoid bad impact on our office environment.

Answer: We are very grateful for your support of this project. The reason why we hold this seminar before project construction is to understand your opinion and improve

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our control measures. We set high standard in project design process, and in pollution control, we will set high standard to ensure the body health and normal work and life of nearby residents and employees of nearby units not affected by it.

6) Zhou Liwei (Female, Dongrong Road 569, employee of city Agricultural Machinery Development Center)

The agricultural produce quality and safety level in Jilin Province needs improving and enhancing, and I agree with this project construction. But after construction completion, your work should be to reduce pollution to the surrounding environment in order not to affect the life and work of local residents and workers of nearby units. In this aspect, you should have good measures to control it.

7) Dong Lifeng (Male, Dongrong Road 569, employee of city Agricultural Machinery Development Center)

I work in the Agricultural Machinery Development Center, and later we will be neighbors. I agree with the construction, and during the construction process, there will be noise, and I hope it will be controlled and improved.

8) Liu Cong (Male, Dongrong Road 569, employee of city Agricultural Machinery Development Center)

I welcome this project construction, not matter from the aspect of food safety or personal aspect. We eat agricultural produce every day, and we hope to eat safe ones. I also hope to strengthen management of the construction unit, and reduce environmental pollution to the minimal degree.

## 7. Conclusion

This public participation results show that most residents are worried about the current agricultural produce quality and safety condition in Jilin Province (of the 20 respondents, 7 persons are satisfied, making up 35%, 12 persons hold so-so opinion, making up 60%, and 1 person is dissatisfied, making up 5%); the majority of people think this project construction is beneficial to improving the agricultural produce quality and safety level in Jilin Province (of the 20 respondents, 16 think it is beneficial, accounting for 80%, 4 person are not clear, making up 20%).

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After the project unit analyzed the environment impact and solutions of the project in construction and run stage, most residents held supporting attitude to this project construction (of the 20 correspondents, 19 agreed with it, making up 95%, and one person thought it doesn't matter, making up 5%).

At the same time, the participating residents and employees of nearby units put forward many relevant suggestions and suggestions on how to reduce impact on the environment and life of people in construction and run stage, and our project group has already given them reply, and recorded their suggestions and requirements for the convenience of solving them in project construction and run stage.

By summarizing above points, we can see that the residents and employees of nearby units participating in this seminar think that this project construction is beneficial to improving food quality in our province and city, ensuring local people to eat worry-free agricultural produce, and that this project should be constructed as soon as possible.

## **8 Channel of disputes complaints**

### **8.1 Establishment and composition of complaint organization**

In order to better ensure the legal rights of affected people, a complaining mechanism will be established to provide a convenient, transparent, fair and effective complaining channel for the affected people. Therefore, we establish project environment impact complaint handling leaders' group, and the group leader will be undertaken by director of Changchun Environmental Protection Bureau Supervision Brigade, and group members come from Jilin Province agriculture comprehensive development office, Changchun City Environment Monitoring Station, and environment assessment unit etc. The environment impact complaint handling office will collect and arrange the complaints, and after discussing with related accountability units, put forward opinions for handling.

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## **8.2 Complaining procedure**

The complaint handling leaders' group and office will start to accept and handle external complaints one week after starting of project, at the same time, a complaint hotline and e-mail will be opened. The specific complaining procedure is as follows:

When the affected people think their own rights are infringed in the aspect of environmental protection, they can complain to the complaint handling office in written or oral form. If it is oral complaint, the complaint handling office member will make detailed record, and arrange it, and submit handling opinions within two weeks.

If the complainer is not satisfied with the handling opinion of the complaint handling office, he can appeal to Jilin Province Environmental Protection Department in written form within one month after receiving the handling opinion. The Environmental Protection Department should give handling opinion within one month.

If the complainer is still not satisfied with the handling opinion of the Environmental Protection Department, he can appeal to local people's court after receiving the handling opinion according to "The Civil Procedural Law of the Peoples Republic of China", and the court will give final judgment.