Environmental management Plan

Baishan Agro-products Quality and Safety Testing Center

Jilin Province Academy of Environmental Sciences

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1 Backgrounds and Objectives of the Environmental management Plan (EMP)

1.1 Project Backgrounds

The aim of the Jilin Province & World Bank Project of Agro-products Quality and Safety is to control agro-products production and agro-products processing, expand standard production demonstration area (production bases) and channel most of the agro-products production and processing into standard production track in Jilin Province by means of advanced technologies and quality control such as GAP, GMP and HACCP.

The project centers on agro-products quality and safety guarantee system, covering whole-process standardization demonstration and promotion, whole-process quality control, product quality testing, quality traceability, awareness raising, training, research on agro-products quality and safety, etc. It has five components: agro-products quality and safety, good agricultural practice demonstration and promotion, agro-products quality and safety public monitoring, agro-products quality and safety practical research, training and awareness raising, safe agro-products production chain demonstration project (on-lending project), and project management. This proposal is about the Baishan agro-products quality and safety testing center under the 2nd component of the project, namely, public monitoring system of agro-products quality and safety.

The lab’s testing obligation scope covers Badaojiang District and Jiangyuan District – where the Baishan municipal government is located, and its monitoring obligation scope covers four counties under Banshan. The testing and monitoring tasks cover crops and livestock, from production origin environment, inputs, agro-products and market circulation, with sampling and testing focusing on product testing in production origins and whole-sale markets.

The planned project venue is on the east of the Foreign Language School of Badaojiang District, Baishan, Jilin Province. It plans to build a central testing building, including 2000 square meters of the lab (in construction area). It will be a three-story building, containing 10 offices, computer rooms, meeting rooms, etc., and 44 testing labs, instrument rooms, chemical rooms, etc. It includes civil works, decoration, ventilation and air conditioning systems, lighting systems, power supply, water supply and drainage systems, fire safety systems, emissions of wastewater treatment systems, heating systems, network monitoring system, the standardization of the laboratory, the purchase of some advanced equipment, focusing on advanced testing equipment for production origin environment, inputs and agricultural products, pesticide residues, veterinary drug residues, residues of prohibited toxic substances and heavy metals pollution, and advanced equipment for agricultural sampling, sample preservation and sample pre-treatment.

The total investment is 24.168 million Yuan, of which are 14.7621 million Yuan for lab equipment, 5.96 million for lab renovation (expansion) civil works, 1.029 million Yuan for auxiliary equipment in the lab (Attachment 1: World Bank Loan Investments in Baishan Agro-products Testing Lab Construction Component), and
2.4169 million Yuan as contingencies.

1.2 **Purpose of the Environmental management Plan**

The project environmental impact assessment shows that the environmental impact of the project is mainly generated during the construction period and operation period. Environmental Management Plan of the book will detail environmental mitigation measures, environmental management, environmental supervision, environmental monitoring and other aspects, the implementation of these activities. It will be the guiding document, and its role is as follows:

1. To provide environmental guidance documents. The Environmental Management Plan, after reviewed by the World Bank, will serve as the text of the provision of environmental protection to the construction supervision unit during the project implementation period and the operation period, environmental monitoring units and other related units.

2. To clarify the responsibilities of relevant units and functions. The relevant functional departments and management responsibilities and the role of institutions are clarified. It proposes communication channels and means between various departments.

3. To propose environmental monitoring programs during the construction period and operation period. In order to ensure environmental mitigation measures to address the effective implementation and unforeseen or unexpected environmental problems, the current environmental management plan proposes environmental monitoring plans for the construction period and operation period.

1.3 **Basis and Standards for the Plan Preparation**

1.3.1 **Preparation Basis**

1.3.1.1 **Relevant Chinese laws and regulations on environmental protection**

2) "People's Republic of China Air Pollution Control Act", 2000.4.29;
3) "People's Republic of China Water Pollution Control Act", 2008.2.28;
4) The State Council Order No. 284, "People's Republic of China Water Pollution Control Act Regulations";
5) "People's Republic of China Solid Waste Pollution Prevention Law," 2005.4;
6) "People's Republic of China Environmental Noise Pollution Control Act", 1997.3.1;
7) "Cleaner Production Promotion Law of People's Republic of China", 2003.1.1;
10) "Cleaner Production Promotion Law of People's Republic of China", (2002);
1.3.2 World Bank requirements

The World Bank requirements mainly include 10 major security policies, that is, operational policies, the World Bank procedures, operational guidelines, etc., 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) Ethnic minorities (OP4.20)
8) Heritage (OP4.11)
9) Regional projects controversy (OP/BP/GP7.60)
10) International Watercourses Project (OP/BP/GP7.50)

1.3.3 Technical specifications and guidelines

1) "Environmental Impact Assessment Technology Guidelines • Master" (HJ/T2.1-93);
   2) "Environmental Impact Assessment Technology Guidelines • Atmospheric Environment" (HJ/T2.2-93);
   3) "Environmental Impact Assessment Technology Guidelines • Surface Water" (HJ/T2.3-93);
   4) "Environmental Impact Assessment Technology Guidelines • Acoustic Environment" (HJ/T2.4-1995);
   5) "Environmental Impact Assessment Technology Guidelines • Non-polluting Ecological Impacts" (HJ/T19-1997);
   6) "Construction Project Environmental Risk Assessment Technical Guidelines"
(HJ/T169-2004);
(7) "Standards for Function Zone of Surface Water in Jilin Province" DB22/388-2004;
(8) "Technical Methods to Prepare Local Emission of Air Pollutants" (GB/T13201-91).

1.3.4 Standards

The project will follow the standards below according to Baishan’s environment function zones:

1.3.4.1 Standards for environment quality

(1) Ambient air
The air in the project area belongs with Grade-2 standards in the Evaluation of the implementation of regional environmental air, subject to "Ambient Air Quality Standard" (GB3095-1996). Refer to Table 1.3-1. for details.

<table>
<thead>
<tr>
<th>No.</th>
<th>Pollutant</th>
<th>Standards</th>
<th>Daily average</th>
<th>Hourly average</th>
<th>Assessment objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SO₂</td>
<td>Grade-2 standards in &quot;Ambient Air Quality Standards&quot; GB3095-1996</td>
<td>0.15</td>
<td>0.5</td>
<td>Ambient air in project area</td>
</tr>
<tr>
<td>2</td>
<td>TSP</td>
<td>&quot;Ambient Air Quality Standards&quot;</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PM₁₀</td>
<td>GB3095-1996</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>NO₂</td>
<td>GB3095-1996</td>
<td>0.12</td>
<td>0.24</td>
<td></td>
</tr>
</tbody>
</table>

(2) Surface water
The wastewater from this project is discharged into the municipal pipe network of Baishan, and ultimately into the HunJiang River. According to the "Functional Zone of Surface Water in Jilin Province" (DB22/388-2004) and the relevant provisions of Baishan City, the surface water quality applies to the Standard Category Ⅲ. Refer to Table 1.3-2. (Baishan City sewage treatment plant will be built at the end of this year and put into operation, so after the completion of the project the wastewater can be discharged directly into the municipal sewage treatment plant).

<table>
<thead>
<tr>
<th>Evaluation factor</th>
<th>Unit</th>
<th>Category III</th>
<th>Standards source</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODcr</td>
<td>mg/L</td>
<td>≤20</td>
<td></td>
</tr>
<tr>
<td>BOD₅</td>
<td>mg/L</td>
<td>≤4</td>
<td></td>
</tr>
<tr>
<td>NH₃</td>
<td>mg/L</td>
<td>≤1.0</td>
<td></td>
</tr>
<tr>
<td>SS*</td>
<td>mg/L</td>
<td>&lt;25*</td>
<td></td>
</tr>
</tbody>
</table>
(3) Acoustic environment

The acoustic environment in the project area will follow Category II of GB3096-2008 "Acoustic Environmental Quality Standards". Refer to Table 1.3-3.

Table 1.3-3 acoustic environmental quality standards

<table>
<thead>
<tr>
<th>Evaluation factor</th>
<th>Unit</th>
<th>Time period</th>
<th>Standard limit</th>
<th>Standards source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic level</td>
<td>dB(A)</td>
<td>Day</td>
<td>60</td>
<td>Planned factory area, Category 2 of GB3096-2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Night</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

1.3.4.2 Pollutant Emission Control Standards

(1) air pollutants

Laboratory exhaust emission control will follow the class II standards of the "Integrated Emission Standard of Air Pollutants" (GB16297-1996).

(2) water pollutant discharge standards

The project wastewater will be discharged into the urban drainage network after being treated, and the wastewater discharges will follow the CJ3082-1999 "Quality Standards of Sewer Effluent Water."

Table 1.3-3 Water Pollutants Discharge Standards

<table>
<thead>
<tr>
<th>Pollution category</th>
<th>Pollutant factor</th>
<th>Unit</th>
<th>Control standards</th>
<th>Standards source</th>
</tr>
</thead>
</table>
| Wastewater         | pH               | 6~9    |                   | CJ3082-1999 "Quality Standards of Sewer Effluent Water."
|                    | COD              | mg/L   | 500               |                                                       |
|                    | BOD5             | mg/L   | 300               |                                                       |
|                    | SS               | mg/L   | 150               |                                                       |
|                    | N                | mg/L   | 35.0              |                                                       |
|                    | BTEX             | mg/L   | 2.5               |                                                       |
|                    | Oil              | mg/L   | 100               |                                                       |
|                    | Nitrobenzene     | mg/L   | 5.0               |                                                       |
|                    | Anionic surfactant (LAS) | mg/L | 20.0               |                                                       |

(3) Plant environmental noise emission standards

During operating periods, the noise emission standards will follow the class II of the GB12348-2008 "Industrial enterprises environmental noise emission standards", and the construction site noise emission standards will follow the (DB22/272-2001) "Construction site noise limits".
Table 1.3-3 noise emission standards

<table>
<thead>
<tr>
<th>Pollution source category</th>
<th>Pollutant factor</th>
<th>Day limit value dB (A)</th>
<th>Night limit value dB (A)</th>
<th>Relevant regulations</th>
<th>Standard source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction (site)</td>
<td>Value</td>
<td>75</td>
<td>55</td>
<td>Earth and stone stage</td>
<td>(DB22/272-2001)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
<td>55</td>
<td>Structure stage</td>
<td>&quot;Construction site noise limits&quot;.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65</td>
<td>55</td>
<td>Decoration stage</td>
<td></td>
</tr>
<tr>
<td>Operation period (site)</td>
<td>Value</td>
<td>60</td>
<td>50</td>
<td>GB12348-2008</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;Industrial enterprises environmental noise emission standards&quot;</td>
<td></td>
</tr>
</tbody>
</table>

2 Major Environmental Impacts and Mitigation Measures

2.1 Environmental impact assessments and analyses

2.1.1 Environment impact assessments and analyses during construction periods

(1) Ambient air impact analysis

1) Construction dust

Construction dust is mainly from the following aspects: ① demolition of houses, land excavation, land formation, construction process, in the case of wind, the weather will cause dust, dust pollution and other air pollution; ② cement, gravel, concrete and other building materials transport, handling, improper storage warehouse, which may result in leakage of dust pollution; ③ lime-soil mixing, concrete mixing process will produce dust; ④ materials transport vehicles cause a large amount of dust.

The selection of construction dust and moisture content of dust, dust particle size, wind direction, wind speed, air humidity and garbage are closely related to survival time. According to the results of analog measurement data, we can see that in the windy days of adverse weather conditions, new construction dust can be more than 100m within the scope of the national secondary standards close to the construction site around the region with adverse air quality. Therefore the required engineering process of the sprinkler shall be equipped with facilities, together with regular watering to reduce dust generation; dumping raw materials at the same time should be covered to avoid dust.
In addition, sand, cement and other powdered materials and transport construction waste will produce dust pollution, and transportation dust contaminated spreads with linear distributions, causing relatively wider impact ranges, so the construction units in the process of powder material transport should cover the materials with canvas and reduce traffic speed to minimize air pollution from transportation to the environment.

2) construction machinery exhaust
Construction machinery are bulldozers, loaders, mixers, and automobiles. Construction machinery and fuel exhaust may also result in a certain degree of pollution, emissions of harmful substances of CO2, CO, NOX, HC and so on. Construction machinery has relatively low exhaust emissions, and the exhaust proliferation scope is smaller. Close-up air environment will have a certain impact, but at the end of the construction period, these effects will disappear.

(2) surface water environmental impact analysis
During the construction period, the construction wastewater discharges are mainly from wastewater and sewage of construction personnel daily life. Wastewater is generated mainly from cleaning tools, water leakage from mixing materials. The wastewater discharge is minor. The pollutants in construction wastewater are mainly sand, cement and other suspended matter. They should go through a sediment settling ponds on the construction site. The cleaned water should be used first as sprinklers to lower dust fall, and the remaining should be discharged into the municipal drainage network.

Construction teams should be selected from local construction companies, so there will be no construction camps. They can use the Baishan Farm Machinery Institute’s toilets. Their sewage should be discharged into the municipal drainage network.

During the construction period, the volume of wastewater produced is little, and the impact of surface water is a short-term impact, which can be terminated after the construction is completed, so it will not exert big impacts on the surface water body.

(3) Construction noise
The project construction transport vehicles, bulldozers, excavators, concrete mixer, vibration bar, electric saw, etc. may have a rather strong noise. Although these are non-continuous noise with intermittent emissions, because of the relative concentration of noise sources and noise sources are mostly bare, the noise impact on the scope and extent of radiation have a greater voice on the surrounding during the construction period and have a certain impact on the environment. By the forecast, daytime noise within 30 m is over 65dB, and nighttime within 55 m is beyond 55dB. According to field investigation, the proposed site boundary outside the 55m range of the south side, west side, east side are all residential buildings, and the construction noise will affect them, but these effects are short-term impacts, and they will be terminated after construction is completed.
(4) Solid waste

The project construction will have a certain amount of construction waste, and the construction people will produce a certain amount of solid waste. Transportation and disposal processes may have impacts on the environment. It is estimated that the construction will produce earth and waste to about 500m³ during the construction period. With random stacking it is easy to cause soil erosions in the rainy season. The project area is located in urban areas, so the earth may cause inconvenience to local pedestrians. Windy weather may have dust. Spoil transportation needs a large number of vehicles. During the day, it will certainly affect the region's traffic and cause traffic congestions. If a vehicle is loaded with too much soil it will lead to scattered soil all over the ground along the way. The wheels covered with mud from dirt roads will lead to muddy and dusty roads. In sunny days, it is dusty; in rainy days, it is muddy on the road. It will have impacts on pedestrians and vehicles and the environmental quality.

Livelihood waste, if not dealt with in time, will lead to breeding of mosquitoes and flies, and the stench arising from it will have impacts on the surrounding environment.

In order to avoid solid waste impacts on the environment, during the construction period, timely removal of construction waste should be performed and the waste should be transported to the location designated as municipal dumps of construction materials. On the construction site there should be garbage bins dedicated to collection of routine garbage, and they should be regularly transported to municipal solid waste landfill sites instead of being discarded carelessly.

If properly handled, solid waste will not cause much adverse impacts on the environment.

(5) Social environment

During the project implementation period, the social impacts to the environment are mainly the impacts on urban traffic and potential dust, noise and traffic inconvenience to the surrounding residents.

2.1.2 Analyses of impacts on environment during the operation period

(1) Waste gas

The waste gas from this project is a small number of experimental mist, NO2 and organic solvent emissions from a small amount of organic solvent emissions during testing. They should be discharged after being treated according to standards.

In the process of project construction, in some laboratory with waste gas, there are fume hoods. The waste gas from testing, after being collected by means of negative pressure, will be filtered through activated carbon filters before being discharged.

During the heating season, the heat comes from the central heating system. Around
the project site, there are no boilers, chimneys, no boiler smoke. There are no staff
dining halls, either, so there is no kitchen smoke.

(2) Wastewater
After the project completion, the total amount of wastewater discharge is 24.6m³/d, of
which are 23.9m³/d from testing and 0.7m³/d from domestic sewage. The
concentration of pollutants discharged is COD250mg/L, BOD200mg/L and SS200mg
/L. The water quality meets the GB8978-1996 "Integrated Wastewater Discharge
Standard" in the three-tier standard, and it can be directly discharged into the urban
drainage network. Major pollutants in the wastewater from laboratory testing and
experimental processes are acid, alkaline, heavy metals and various chemical reagents,
various additives, etc. Laboratory wastewater emissions are small, but they are
complicated. Through analogy investigations, the experimental wastewater
concentration of pollutants discharged are COD600mg/L, BOD5400mg/L and
SS210mg/L. The wastewater also contains heavy metals to varying degrees. If we do
not deal it, its direct discharge to surface water bodies will have a negative impact. It
should be dealt with to reach GB8978-1996 "Integrated Wastewater Discharge
Standard" to reach grade 3 to be discharged into the city drainage network.

During the renovation process, the production wastewater and domestic sewage are
divided. Laboratory wastewater will be treated with lab wastewater treatment facilities
to reach the standards before being discharged into the city after the drainage network.

The Baishan City sewage treatment plant under construction will be erected in
September 2010 and put into operation. The operation of the project will be launched in
2014, so, the wastewater from this project when completed can be directly discharged
into the urban drainage network and into the urban sewage treatment plants, with little
impacts on the water environmental.

(3) noise
The noise generated by the project is mainly from the multi-functional oscillators, the
air-conditioning, the ventilation devices, and the fans, etc. in the lab. Its strength is
between 75 and 90dB. It is planned that insulation rooms are to be built in the lab,
together with sound insulation windows and other measures to increase the damping
pad when the equipment is installed, so that the site noise meet the Class II
requirements of the GB12348-2008 "industrial enterprises in the environmental noise
emission standards".

After completion, this project does not have much impact on the acoustic surrounding
quality.

(4) solid waste
After the completion of this project, its solid wastes are mainly solid physical objects,
such as garbage from laboratories.
① waste agricultural products (vegetables, fruits, food, etc.), animal products, aquatic products samples

The project experiments with the general requirements under the different experimental will have samples of around 0.5-1kg, for experiments. A random sample is tested, and another is stored in the sample room. Agricultural products samples usually stay the sample storage room for around 3-6 months before being destroyed. Estimates based on analogy show that the waste is 13.8t/a. Agricultural (livestock, aquaculture) waste product samples will be disposed with other kinds of general solid wastes and garbage in a unified manner in the city’s plant for disposal.

② Disposable laboratory equipment apparatus, the experiment waste liquid and waste media.

After the completion of this project, experimental laboratory disposable instruments, consumables (testing paper, etc.) and damage to the apparatus (glass) are about 86.6kg/a. The experiment waste and media generated during experiments are about 41.8kg/a. Disposable laboratory equipment apparatus, the experimental liquid wastes are hazardous wastes and must be sent to the Changchun Blue Sky Hazardous Waste Treatment Center Co., Ltd. for disposal.

③ Replacement filter waste from the media or activated carbon

In order to ensure efficient air filtration efficiency filters generally need 6 months or so to replace the spent filter media or waste of activated carbon panels. The quantity generated is about 1t/a. The replaced waste or activated carbon filters will be sent back to the original producers or to the Changchun Blue Sky Hazardous Waste Treatment Plant for incineration disposal.

④ sludge generated by sewage treatment

The sewage treatment plant sludge generated is about 1t/a. The sludge is a hazardous waste containing heavy metals and should be stored properly and sent to the Changchun Blue Sky Hazardous Waste Treatment Center Co., Ltd. for disposal.

⑤ domestic garbage

Assuming 0.5kg per person per day, the daily quantity is 8.5kg, and the annual volume is 2.1t. The sanitation department will send the garbage to the municipal solid waste landfill.

To sum up, the wastes from the project are general solid waste and also hazardous waste, which, if improperly handled, will generate harmful impact on the surrounding
environment. There should be different ways of disposals according to the nature of the wastes. The general solid waste and hazardous waste disposal may not be mixed. As long as reasonable disposals are in place, we can effectively prevent the improper disposal of hazardous waste to prevent secondary pollutions.

### 2.2 Environment Impact Mitigation Measures

This project will implement the State Council of the People's Republic of China (1998) Decree No. 253 "Construction Project Environmental Protection Management Regulations", to ensure contemporaneous design, construction and operation of the project environmental protection facilities and the project implementation.

#### 2.2.1 Environment impact mitigation measures in the planning and design phases

In project selection and design stages, a comprehensive analysis of the potential impact of various factors is made, which takes into account the project design to maximize the environmental impact mitigation measures. Engineering design will take the environment and the specific implementation of mitigation measures summarized in Table 2.2-1.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Management/mitigation measure</th>
<th>Cost (in 10000 Yuan)</th>
</tr>
</thead>
</table>
| 1. wastewater | 1.1 Planning and design of the drainage system that divides clean water and sewage wastewater with separate independent pipelines  
1.2 Designing an experimental wastewater treatment plant to treat laboratory waste water to meet the "Integrated Wastewater Discharge Standard" (GB8978-1996) for class 1 emission. | 600,000 Yuan         |
| 2. waste gas | 2.1 Laboratory waste gas: In accordance with the "bio-safety laboratory construction technical specifications" GB50346-2004 for the design of the ventilation system. Laboratory exhaust air goes through high efficiency filters and activated carbon filter for processing, and the emissions should meet the GB 16297-1996 "Integrated emission standard of air pollutants" requirement.  
2.2 In the corridors, stairways, bathrooms and other places there are mechanical exhaust ventilation systems which can at any time exclude the effect of dirty air. There are 1 mechanical ventilation systems in local laboratories to address the issue of indoor ventilation in the absence of experiments or test operations.  
2.2 Relying on the existing central heating. | 500,000 Yuan         |
Notes: The investment in environmental protection should be part of the investment in the project.

### 2.2.2 Environment impact mitigation measures during the construction phase

The use of public bidding to choose a certain construction company with strength. The building units and the contractor sign the construction contract with the environmental impact mitigation measures during the construction period included. The contractor must comply with the implementation commitments. And we will require that contractors and construction supervisors of construction should receive training prior to acceptance of the environmental protection and environmental management. The provincial and municipal PMOs will send environmental experts regularly to the construction site for inspect to see if the environmental protection requirements are in place and to address problems in time.

Refer to Table 2.3.-1 for more details about environmental impact mitigation measures during the construction phase.

**Table 2.3-1 Environment impact mitigation measures during the construction phase**

<table>
<thead>
<tr>
<th>Category</th>
<th>Environment impact factor</th>
<th>Pollution prevention measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction phase</td>
<td>Ambient air</td>
<td>(1) Intensify management for civilized construction; be careful with loading and unloading of construction materials; try to get rid of dirt on vehicle wheels before start work; cover vehicles when they carry dusty materials such as lime, sand, cement, fly ash, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Try to avoid piling lime, sand, etc. in the open air; if it is unavoidable, sprinkle water to make them humid, which can suppress dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Select strong construction company through bidding; adopt commercialized premixed cement and sealed transport vehicles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Sprinkle water on and clean construction site and roads. It is suggested that water be sprinkled on the construction site 4-5 times a day.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5) Waste dirt should be promptly shipped to the landfill or garbage landfill designated by the urban administration. Overloading is prohibited to avoid leaking on the road. Vehicles must follow the</td>
</tr>
</tbody>
</table>
roads and timeframe designated by the government.

(6) Burning wastes and garbage is prohibited on the construction site.

(7) Take care of labor protection and provide workers with face masks, etc.

(8) Try to use lead-free fuel and clean fuel.

<table>
<thead>
<tr>
<th>Ambient water</th>
<th>Major pollutants in the construction wastewater are SS, which should go through the sedimentation tank. The clear water is used to sprinkle grounds to prevent dust, and the remaining water is discharged into the urban drainage networks.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2) There will be no construction team camp during the construction period. Workers will use the Baishan Agricultural Machinery School’s toilets. After sedimentation, the remaining water is discharged into the drainage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acoustic environment</th>
<th>Reasonable construction schedule. The project venue is surrounded by residential buildings on three sides, and it is close to residential quarters. In order to reduce noise impacts on surrounding residents, there should be reasonable construction schedule and try to avoid using noise equipment at the same time. Noise punching equipment should be used by day, and it is not allowed at night (22:00-6:00).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2) At the bidding, tell the bidders that quiet equipment is preferable.</td>
</tr>
<tr>
<td></td>
<td>(3) Intensify education to construction workers to lower noise</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solid waste</th>
<th>Construction garbage should be disposed of by classification. Recyclable garbage should be collected in time by designated people; unrecyclable garbage and waste dirt should be shipped to the places designated by the urban administration and planning administration.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2) Livelihood garbage during the construction period should be sent to garbage bins, which will be collected by the sanitation units to shipped to the garbage landfill of Baishan City. No littering is allowed.</td>
</tr>
</tbody>
</table>
2.2.3 Environment impact mitigation measures during operation periods

2.2.3.1 Mitigation measures for impacts on ambient air

The work in lab and testing rooms has high demands not only on indoor temperature and humidity, but also on clean air to varying degrees. In order to meet the demands on temperature, humidity and clean air for testing purposes, this renovation will set up ventilation and high-efficiency filters according to the "Bio-safety laboratory construction technical specifications" GB50346-2004.

（1）Optimal operation principle of the ventilation and exhaust systems
1）Laboratory chemical testing will produce gases and particles harmful to the human body. In order to protect staff health, harmful gases and particles must be removed in an effective and timely manner, while the laboratory needs to ensure a certain degree of negative pressure;
2）There should be good laboratory air, and the air flow speed of air supply and return, and turbulence intensity as well, should be controlled within a smaller scope. The laboratory ventilation rate can be effectively controlled, and the laboratory air should be effectively replaced to ensure its freshness.

（2）Laboratory ventilation and exhaust systems
Powerful exhaust systems: All the tests involving toxic and harmful gases must be performed in the ventilation cabinet in the lab. The lab has powerful ventilation cabinets for the tests that give out toxic and harmful gases directly. Negative pressure collects the waste gases from the testing, tests the gases and treats the gases through high-performance air filters (activated carbon filters) before they are discharged outside. The high-performance air filters’ efficiency should not be lower than the B category (no less than 99.97% efficiency).

Ventilation systems: In the corridors, stairways, bathrooms and other places mechanical exhaust ventilation system are set up, and they can, at any time, exclude the effect of dirty air. For local testing, the laboratory has mechanical ventilation systems to address the indoor ventilation issue in the absence of experiments or testing operations.

(2) Height of air discharge pipe
3m higher than the roof.

(3) risk prevention measures
With the air purification systems, in case of accidents or positive pressure in the polluted areas, the alarm will immediately be started. At this moment, testing should stop and the Emergency Program should be launched.

The laboratory should establish a strict responsibility system of safety.
2.2.3.2 Mitigation measures of impacts on ambient water

The water drainage system in the project separates sewage and production wastewater with independent pipelines for domestic sewage and production wastewater. The amount of domestic sewage is small. It has concentrations of about COD 250mg / L and BOD$_5$ 150 mg / L, which meets the emission concentration requirements of GB8978-1996 "Integrated Wastewater Discharge Standard" class 3 standards, so domestic sewage can not be directly discharged into the drainage network without being treated.

Although the amount of the laboratory wastewater is small, it is complicated in contents. It contains acid, alkali, organic matter, trace elements, etc., and, in particular, it contains heavy metals, which are very harmful. It should be treated to reach GB8978-1996 "Integrated Wastewater Discharge Standard" class 3 standards.

(1) Designed water quality and volume for the wastewater treatment station

In the project, the amount of testing wastewater generated is about 23.9m$^3$ / d. It is suggested that the designed capacity of the wastewater treatment plant is 25m$^3$ / d. Considering that the wastewater treatment station might have discharge accidents, we suggest that a 50m$^3$ storage tank be built for the storage of wastewater discharges in case of accident.

(2) Plans for production wastewater treatment

According to wastewater quality, amount and discharge requirements, taking the feasibility study into consideration, this environment assessment report makes the following comparative analyses of several wastewater treatment plans in terms of technical and economic operations.

Plan I: biochemical method (H / O)

Biochemical method is a widely used biological wastewater treatment method, suitable for handling high concentrations of organic wastewater. It takes up a small area; its operation is stable; it is easy to operate; it has strong impact resistance capacity.

Figure 2.3-1 Technical flow
Plan II: Complete sets of small-scale integration of laboratory wastewater treatment equipment

In the project, the wastewater discharge is small, so it can be directly treated with the purchase of complete sets of equipment. At present, China has many wastewater treatment equipment manufacturers to produce "laboratories wastewater processor series". The series of wastewater treatment machines mainly use technologies such as flocculation and precipitation, activated carbon catalyst - ozone oxidation, biological activated carbon adsorption. They have the features of small land occupation, high degrees of automation, satisfactory effect of treatment, economical operating costs, etc. Basically, there is no need to operate the machines. This kind of machine has won the appraisal certification for science and technology achievements issued by the Guangdong Science and Technology Department(YKJZ [2005] No. 287). It is expounded by authorities such as the Guangzhou Geographical Chemical Institute of the Chinese Academy of Sciences, and its treatment results can fully meet the relevant emission standards at the national level. It is used in Guangzhou University, Guangzhou Medical College, Chongqing Environmental Monitoring Center, Chongqing Environmental monitoring Center, Zhongshan Institute for Drug Control, Yuexiu CDC and other units with good results.

1) Technical processes and principles

First of all wastewater collection system by regulating access to pool, to carry out the regulation of water quality and quantity, then uniform pumping, constant processing wastewater into the tank, through the pH control in this device, the use of accurate dosing metering pump a certain volume of NaOH aqueous solution, adjusting pH value to between 8 to 9, at the same time adding coagulant flocculant PAC and PAM. In alkaline conditions, the waste water and the acid was in, iron, cadmium, copper,
manganese, nickel, lead, heavy metal ions with the chemical reaction to generate OH−
hydroxide precipitation, PAC and PAM in the cohesion and flocculation. Under the
effect of sediment response generated by each condensation, the existence of the
suspended particles in wastewater as well as some inorganic and organic substances by
adsorption, alum floc formation of large flowers.
Artesian water was to enter the inclined tube sedimentation tank, alum floc to spend in
more dependent on gravity, natural subsidence, to achieve the removal of suspended
solids in waste water, heavy metal ions, and part of the purpose of organic matter.
Bucket of Sludge cleaned regularly by the relevant departments to do the burning,
landfill or other processing.
Sedimentation tanks followed by the water pump into the pool of activated carbon
ozonation, due to the resistance to the role of filler, wastewater evenly arranged, from
the slow down infiltration. At the same time, to air as raw material, made by the ozone
generator ozone gas by the cloth from the oxidation pond system at the bottom of
penetration from the activated carbon fill up, or through the venturi jet device in the
form of inhalation of negative pressure in the water pressure in the gas-liquid full
contact two-phase process, the organic matter in waste water, bacteria, color, smell and
so on, through a great part of the pore structure and specific surface area of activated
carbon adsorption, retention, touch red, tape and other physical, chemical and was
removed; the other part of the act as a catalyst in the activated carbon, where a person
has a very strong oxidation, sterilization has a good deodorizing, decolorizing
purification, the ability of ozone degradation of organic matter removal.
Finally, biological wastewater into the activated carbon filter, which have not been to
remove small suspended solids, trace metals and a very small amount of organic matter
and so on, through a great part of the pore structure and specific surface area of
activated carbon adsorption, retention and other physical, chemical removal, etc.,
another was attached to the activated carbon on the membrane of the anaerobic
microorganisms, aerobic and facultative germs, etc. degradation of the removal,
retention of activated carbon adsorption, desorption and microbial degradation process
of interspersed, turn, cycle. This wastewater can be discharged.
The entire wastewater treatment process automation through PLC programming. Pool
float adjustment with level control device, a low liquid level automatic pump stop,
high-level automatically activated; plus kits with liquid level, the lack of medicine
automatic alarm and stop operation can be basically achieved machine unattended.
Wastewater Treatment Process Flow Diagram

2) Product features:
- adopted and coagulation-sedimentation, chemical oxidation, membrane separation, activated carbon catalyst - ozone oxidation, biological activated carbon adsorption technology for waste water treatment in various types of pollutants;
- real-time monitoring of micro-computer program to control the water quality of wastewater and process changes to achieve all-weather fully automated operation, no person on duty;
- PH of use, ORP meter and an accurate metering pump to control the import dosage and a liquid level control, lack of medicine, such as alarms and automatic sludge discharge devices;
- advanced jet Venturi Oxygenator, gas-water contact with the full, complete response;
- convenient operation, stable operation, long service life, operation and maintenance costs low;
- small footprint can be placed in different situations according to the indoor or outdoor;
- according to different requirements of users, tailored to the design, manufacture.

3) the scope of application:
Widely used in tertiary institutions, research institutes, testing agencies, chemical laboratory experiments the integrated treatment of wastewater.

4) Main technical parameters:

<table>
<thead>
<tr>
<th>Item</th>
<th>Technical parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated volume (m³/d)</td>
<td>25</td>
</tr>
<tr>
<td>Heavy metals (total lead, total manganese, total zinc, total mercury, total arsenic, etc.)</td>
<td>≥96</td>
</tr>
<tr>
<td>Chemical Oxygen Demand</td>
<td>≥93</td>
</tr>
<tr>
<td>Trichloromethane</td>
<td>≥93</td>
</tr>
<tr>
<td>Toluene</td>
<td>≥93</td>
</tr>
<tr>
<td>Phenol</td>
<td>≥93</td>
</tr>
<tr>
<td>Organophosphorus pesticide</td>
<td>≥90</td>
</tr>
<tr>
<td>Disinfection efficiency (%)</td>
<td>≥91</td>
</tr>
<tr>
<td>Number of fecal coliform (mpn / L)</td>
<td>≤220</td>
</tr>
<tr>
<td>Total number of bacteria (cfu / L)</td>
<td>≤7500</td>
</tr>
<tr>
<td>Noise (dB)</td>
<td>≤65</td>
</tr>
<tr>
<td>Price</td>
<td>500000</td>
</tr>
</tbody>
</table>

According to the plan selection, this assessment holds that the wastewater discharge from the lab is intermittent discharge, and, because of, different monitoring contents, the quality of wastewater discharged is also different, which is not suitable for
biochemical method (Plan I). With the volume and quality of the wastewater in the same conditions, the 2nd treatment plan has stable effects, better impact resistance capacity and extensive application. It is special laboratory equipment, so Plan II is recommended. The total investment in the wastewater treatment facilities is about 500000 Yuan (with capacity of 25m³ / d), and the operating costs is about 1 Yuan / ton of water.

2.2.3.3 Mitigation measures to impacts on acoustic environment

This project’s noise prevention and control mainly adopt the following measures:
(1) Design to use low noise equipment.
(2) Provide noisy equipment with rooms with separate insulation; install of acoustic doors.
(3) Take vibration-reducing measures on the basis of equipment.
After treatment, the noise can meet the GB12348-2008 "Noise Standards at Boundary of Industrial Enterprises", category 2 standard.
The project is rather close to residential areas, so its ventilation, exhaust systems, pumps, etc. are prohibited from being installed outdoors. They must be put in indoor closed rooms.

2.2.3.4 Mitigation measures to solid waste impacts on environment

The solid waste generated by the project is divided into general solid waste and hazardous waste, which are to be disposed of separately.
(1) general solid waste disposal:
Wastes produced from testing of agricultural (livestock, poultry, aquaculture) product samples, domestic garbage, etc. will be collected by the sanitation department of the city and sent to the sanitary landfills. They will be covered, leaving no sequelae.
(2) hazardous waste disposal:
laboratory equipment apparatus (disposable), culture medium, expired drugs or reagents, heavy metals resulting from wastewater treatment plant sludge, activated carbon waste, animal waste and feed residues, etc., as hazardous wastes, should be separately collected and sent regularly to the Changchun Blue Sky Hazardous Wastes Treatment Center Co., Ltd. for disposal.

In the course of transportation we should strictly adhere to the "Transfer and Contact Management Methods for Hazardous Wastes".

Disposal of solid waste in different ways can be seen in Table 2.3-3.
<table>
<thead>
<tr>
<th>Name of solid waste</th>
<th>Waste category</th>
<th>Industrial source and waste code</th>
<th>Package and storing method</th>
<th>Disposal plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agricultural (livestock, aquaculture) products sample</td>
<td>Conventional solid waste</td>
<td></td>
<td>Original package</td>
<td>Back to original unit or sanitation unit, sent to urban garbage landfill</td>
</tr>
<tr>
<td>2. Waste agricultural (veterinarian, fishery) drug, fertilizer sample</td>
<td>HW49 Hazardous waste</td>
<td></td>
<td>Original package, sealed</td>
<td>Back to original unit or Changchun Blue Sky Hazardous Waste Treatment Center Co., Ltd.</td>
</tr>
<tr>
<td>3. Disposable testing instrument, consumables, damaged instrument, etc.</td>
<td>Non-specialized industry 900-047-49 chemical and biological test lab wastes</td>
<td></td>
<td>Sealed container</td>
<td>According to &quot;State List of Hazardous Wastes&quot; (2008), wastes from labs are classified as hazardous waste, and they should be packed and sealed and sent to the Changchun Blue Sky Hazardous Waste Treatment Center Co., Ltd. for incineration Treatment</td>
</tr>
<tr>
<td>4. Waste liquid, culture, etc. from testing</td>
<td>HW49 Hazardous waste</td>
<td></td>
<td>10kg glass bottle, dispatch every six months or every year</td>
<td></td>
</tr>
<tr>
<td>5. Waste filtering material from high-performance filter, activated carbon</td>
<td></td>
<td></td>
<td>Changing filter plate every 3-6 months</td>
<td></td>
</tr>
<tr>
<td>6. Sludge from wastewater treatment station</td>
<td></td>
<td></td>
<td>Disinfected through pressure and filtering, shipped with sealed tank vehicle</td>
<td></td>
</tr>
<tr>
<td>7. Domestic garbage</td>
<td>Conventional solid waste</td>
<td></td>
<td>Sent to designated garbage bin</td>
<td>Collected by sanitation department and sent to urban garbage landfill for burial</td>
</tr>
</tbody>
</table>
Located in Weizigou Village, Yingjun Township, Erdao District, Changchun, the Blue Sky Hazardous Waste Treatment Center Co., Ltd. is the first specialized enterprise founded upon approval by the Jilin Province Development and Reform Commission and the Jilin Province Environmental Protection Bureau for comprehensive treatment of hazardous wastes according to the national standards. It is engaged mainly in collection, transportation, storage, disposal and integrated utilization of industrial solid wastes (including hazardous wastes, chemical/industrial scrapping/hazardous chemical wastes/shoddy and expired foods and drugs) disposal. Its annual disposal capacity is 6000 tons of hazardous substances. It has got the accreditation from the Jilin Province Environmental Protection Bureau for hazardous waste treatment. The project implementation entity has signed an agreement with the Blue Sky on hazardous waste treatment. As long as the hazardous wastes are promptly collected, they will not cause secondary pollution.

2.2.3.5 Risk prevention measures and contingency plans

(1) laboratory design, construction should meet the BSL-1 laboratory basic requirements.
1) Near the exit, each laboratory should have a hand-washing basin with automatic induction, a long handle or pedal-style, coupled with disinfectant soap.

2) The laboratory should have air and object surface disinfection facilities.

(2) The laboratory should develop contingency plans for environmental pollution, to be submitted to the environmental protection administration of the prefecture/county people's government, and hold regular exercises.

(3) In case of leak or proliferation from the lab, causing or probably causing serious environmental pollutions, contingency measures should be immediately taken, and notification should be made to the threatened units and residents. It should also be reported to the environmental protection administrative departments of the people's government and relevant departments, and get ready for investigations.

(4) If the laboratory produces hazardous wastes it should prepare accident prevention measures and contingency plans in accordance with the provisions of pollution prevention regulations of the state, and report it to the prefecture/county people's government or above governments.

The laboratory shall not engage in the activities of highly pathogenic microorganism experiments.
3 Project Implementation Institutions

3.1 Environmental Management Institutions

3.1.1 Structures of the environmental management institutions

Refer to Figures 3.1-1 and 3.1-2 for environmental management institution structures during the project implementation and operation periods.

Figure 3.1-1 Environment
### 3.1.2 Responsibilities of the environmental management institutions

According to the project features, the environmental protection of the project will be supervised not only by the Jilin Province Environmental Protection Department and the Baishan Municipal Environmental Protection bureau, but also by the relevant departments of the World Bank. During the project implementation, environmental monitoring staff will be in place to exercise monitoring together with the project implementation entities.

The responsibilities of various environmental management institutions are as follows:

- **Environmental protection department of the World Bank**: responsible for the project’s whole-process monitoring according to the World Bank requirement on...
environmental protection, and for raising requirements on environmental protection of the project.

**Jilin Province Environmental Protection Department:** responsible for the project’s whole-process monitoring according to relevant Chinese laws and regulations, and for raising requirements on environmental protection; also responsible for the “three synchronisms” examination/acceptance at the project completion; checking the implementation of the environmental management plan; reviewing the environmental monitoring plan and the environment assessment report.

The Provincial Project Management Office of the Jilin Province & World Bank Project of Agro-products Quality and Safety (PPMO): assisting the environmental protection department of the World Bank in exercising environmental monitoring during the project implementation.

**Baishan Municipal Environmental Protection Bureau:** monitoring the whole process of the project implementation according to the requirements of the environmental protection department of the World Bank and the Jilin Province Environmental Protection Department; exercising monitoring and check of prevention and treatment of wastewater, waste gas and noise of the lab and hazardous wastes; in case of detecting law violation, demanding improvement within limited period of time; recording monitoring findings and handling results, which are to be signed, filed and given back to the monitored entity as feedback.

**Baishan Municipal Agriculture Committee:** making unified plans for the project, delegating and coordinating pre-project preparations, project implementation and monitoring management; exercising monitoring during the project implementation and operation periods; responsible for the “three synchronisms” during the project implementation to ensure successful project implementation.

**Baishan Municipal Agro-products Quality and Safety Testing and Monitoring Center:** ensuring implementation of relevant environmental management measures of the environmental protection management institutions and the World Bank; assisting the environmental management institutions in routine environmental monitoring.

**Environment supervisors:** assisting the project implementation entity in environmental protection measure implementation at the worksite; assisting the environmental management institutions in routine environmental monitoring.

Major responsibilities of the environment supervisors:

1. ensuring all the project permits and requirements and the implementation of the environmental management plan before project implementation.
2. checking that all the staff of the project implementation entity and operation entity will implement the environmental protection measures according to the contracts.
3. exchanging ideas with project implementation staff to explain requirements for construction site environmental protection; suggesting remedial measures; offering remedial measures to correct non-compliance to the project; issuing official manuals to the project implementation and operation entities according to the requirements.
4. communicating with the project implementation and operation and consultancy entities to intensify exchanges; learning about other opinions about special problems to quickly relay the opinions about some problems to the construction
management engineers to help resolve them, for instance, potential damages to some sensible components of the project.

(5) monitoring the implementation of the environmental monitoring plans during the project implementation; monitoring the implementation of the “three synchronisms” about the project implementation to ensure project completion on schedule and pass the environmental protection examination/acceptance, etc.

Environmental protection staff: implementing and executing environmental protection laws and regulations; learning about the environment situation at the testing center; making statistics and analyses of pollutant discharges; organizing the preparation of worksite environmental protection planning and annual plans and being responsible for their implementation; responsible for worksite environmental management, environmental protection knowledge publicity and education, and extension of new technology; making regular checks of environmental protection facility operations and solving problems if there are any; learning about the unit’s environmental protection facility operations; establishing pollution source archives and environmental protection facility operation archives; making statistics about environmental protection; setting up and retaining testing archives, which should truthfully record testing activities and situations of facilities and equipment at work; learning about hazard-free treatment of wastewater, waste gases and hazardous wastes, their concentrate disposal and checks; according to the requirements of the superior environmental protection institutions, making environmental monitoring plans, and organizing and coordinating monitoring tasks; coordinating settlement of pollution accidents and pollution disputes; monitoring and checking implementation of the “three synchronisms” of new, renovation and expansion projects; participating in examination/acceptance of completion of environmental protection facilities, etc.

3.2 Responsibilities of Environmental monitoring Institutions

According to the nature of the project, the project implementation entity will not set up its own environmental monitoring institutions, and it can commission the work to the Baishan Municipal Environmental monitoring Station.

The Baishan Municipal Agro-products Quality and Safety Testing and Monitoring Center and the environment supervising engineer will be responsible for the worksite monitoring. The environmental monitoring during the project implementation and operation periods is mainly based on the environmental monitoring plan according to the monitoring plans in the environment assessment.

Their major responsibilities are: conscientiously implementing various laws and regulations and specification of the state, setting up and improving various regulations and rules, completing monitoring tasks; setting up statistical archives for monitoring and analytical data, filling in and submitting environment assessment reports; completing the environmental monitoring commissioned by the testing center; intensifying environmental monitoring instruments and equipment maintenance and calibration to ensure successful monitoring.

Monitoring staff should work with accreditations. And they should be responsible for various environmental monitoring data provided. They should be familiar with the
production technology, constantly raise their professional competence, and accept examinations from their superiors.

### 3.3 Responsibilities of Contractors

Strong contractors should be selected. Environment impact mitigation measures should be parts of the contractor’s bidding documents and they should be contained in the project implementation contract during the project implementation period as contractual requirements to the project contractor to ensure effective implementation of the environmental management plans. The contractor’s responsibilities are as follows:

1. The contractor and the construction supervisor should receive training on environmental protection and environmental management before construction launches. The contractor should appoint one full-time environment staff for the project, who should be trained to qualify for his work.

2. During the project implementation, the contractor should communicate and consult with the people in the project area, set up public announcement billboards at each of the construction sites to make known detailed construction work and time. At the same time, the contractor should make known the contact person and his/her telephone number so that the public can complain or make suggestions about the construction.

3. On-site environmental protection management. While taking care of prevention and treatment measures for wastewater, waste gases, noise and solid wastes, the project implementation entity should appoint its own professional environmental protection staff to be responsible for the environmental management during the project implementation. They should be equipped with noise detectors to test sensible spots around the project area to ensure that the acoustic environment is brought under control of the acoustic environment quality standards at the sensible spots.

4. Making reasonable construction schedule. Construction materials transportation should avoid rush hours. The vehicles must ride on designated routs. The construction with big noise generated during wall dismantling and decoration should be done by day and construction at night shall be prohibited.

5. Taking care of sanitation, safety and social management for the construction staff and workers.

### 3.4 Staff Training

Before the project implementation, compulsory training should be provided to project implementation entity, construction contractors and supervisors in terms of environment, health and safety.

#### 3.4.1 Training of new environmental protection staff and part-time staff during the project implementation

The project implementation entity should commission entities with accreditations to train professional environmental protection staff and part-time staff for the project implementation and supervising entities. Trainees are engineering and technical chiefs and professional management staff of the construction and supervising entities.
The training contents include:

1) Environmental protection laws and regulations, documents and relevant requirements of the state and Jilin Province on project implementation management.

2) Environmental protection measures during the project design and project implementation.

3) Environmental protection manual for the project implementation.

Directors of the environmental protection bureaus and design entities may be invited to work as trainers, and so are relevant specialists from environment assessment and monitoring entities.

**3.4.2 Training of new environmental protection professional staff and part-time staff during the project operation**

The training of new environmental protection part-time (or full-time) staff during the project operation should be organized by the environmental protection departments. Environmental protection specialists from universities, research institutes and operation management entities may be invited to work as trainers; or short-term training workshops may be offered.

The environmental protection training costs during the project implementation and operation periods total 50000 Yuan.
### Table 3.4-1  
Environmental protection staff training plan

<table>
<thead>
<tr>
<th>phase</th>
<th>Category</th>
<th>No. of Trainees (person)</th>
<th>Time</th>
<th>Cost (in 10000 Yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Visiting advanced lab and pollution prevention and treatment projects in China</td>
<td>1</td>
<td>Planning period</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Environmental protection staff from project implementation entity and project contractors</td>
<td>1 from each</td>
<td>After deciding on contractors, before construction launches</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>Environment supervising engineer</td>
<td>1 from construction entity and 1 from operation entity</td>
<td></td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>All construction staff</td>
<td>60人</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Implementing</td>
<td>Environmental management staff from operation entity</td>
<td>1</td>
<td>After construction, before project operation</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Environmental protection staff from operation entity</td>
<td>2</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Lab technicians from operation entity, environmental protection publicity and education staff</td>
<td>17</td>
<td></td>
<td>0.8</td>
</tr>
<tr>
<td>Before operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.5
<table>
<thead>
<tr>
<th>Training contents</th>
<th>Training contents</th>
<th>Training time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common knowledge to construction workers</td>
<td>Introduction to environment-related factors and the environmental impact of environmental protection measures; Building environmentally sensitive areas, attention to regional and environmental issues, the construction area near the region to introduce; Design engineers in environmental management, environmental supervision, construction supervision and the roles and responsibilities of the report on the main points of environmental issues; Construction camps and construction site waste management; Construction site pollution control measures; Fines based on laws and regulations</td>
<td>Half a day’s workshop on site</td>
</tr>
<tr>
<td>Construction workers’ health and safety</td>
<td>Including the dissemination and protection of the means to prevent HIV / AIDS and STD. Temperance, anti-drug Seeking emergency and non-emergency medical assistance under the process of and finding other related medical aid process (such as STD testing, counseling); Common sense about health and safety, including some of the basic processes: traffic safety, electricity safety, explosion, fire, hazardous waste management Use of personal protective equipment fines based on laws and regulations</td>
<td>Half a day’s workshop on site</td>
</tr>
</tbody>
</table>
Table 3.4-3 Training to environmental management staff of business operators

<table>
<thead>
<tr>
<th>Trainee</th>
<th>Training contents</th>
<th>Training time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental management staff</td>
<td>World Bank's project management procedures, Archives of environmental information, public, communication, reporting mechanisms, Environmental risk emergency, Health and safety inspection and reporting processes, Advanced technology and environmental management study</td>
<td>1 day</td>
</tr>
<tr>
<td>Environmental protection staff</td>
<td>Equipment operation, including standards, testing methods, sample transfer, data quality control, monitoring and reporting requirements, Environmental risks of emergency: Potential leaks and spills, leaks and spills impacts on environment and the personnel, emergency response processes, including priority response, reaction facilities’ location and use</td>
<td>2 days</td>
</tr>
<tr>
<td>All lab staff</td>
<td>World Bank's project management procedures, The &quot;three wastes&quot; treatment and disposal during testing processes, The proper use of environmental protection equipment, Environmental risks emergency: Potential leaks and spills, leaks and spills impacts on environment and the personnel, emergency response process including priority response, the reaction facilities’ location and use</td>
<td>1 day before operation starts project completion</td>
</tr>
</tbody>
</table>

4 Environmental Monitoring Plan

4.1 Objectives of environmental monitoring

The environmental monitoring covers the project implementation and operation periods, and its objectives are to learn about environment quality changes as a result of the project implementation, impact scopes and environment quality trends during the operation period in the timely manner, report to the department in charge promptly, and provide scientific basis for environmental management.

4.2 Monitoring implementation

During the project implementation and operation, the project contractors or business operators will commission the Changchun Environmental Monitoring Station
to exercise environmental monitoring. The Baishan Environmental Monitoring Station that is responsible for the monitoring is an entity with accreditation from the national environment quality monitoring authority. It has complete equipment and substantial technical strength, so it will be able to complete the task of environmental monitoring it contracts.

Based on environment impact projections, obvious sensibility spots will become monitoring spots. According to the pollution situations during the project implementation and operation, the monitoring contents will focus on acoustic environment, ambient air, surface water environment, and ground water environment that are likely to bear large impacts. The monitoring factors will be decided according to the pollution-featured factors in the project analysis. The monitoring methods will be based on the “Environmental Monitoring Technical Specifications” promulgated by the National Environmental Protection Bureau. The assessment standards will be based on the environment assessment report, namely, the national standards.

4.3 Environmental monitoring plan

According to the features of the project, the environmental management during the project operation will be part of the environmental management plan of the Baishan Municipal Agro-products Quality and Safety Testing Center. The environmental management plan in the project will mainly cover the environment-sensibility spots within 200m around the lab building during the project implementation.

Environmental monitoring spots during the project implementation: According to project implementation progress, environment-sensibility spots will become environmental monitoring spots (residential areas), where ambient air and noise will be monitored.
### Table 4.3-1 Environmental monitoring plan for planning/designing phases

<table>
<thead>
<tr>
<th>concern/problem/impact</th>
<th>Management/mitigation measure</th>
<th>Monitoring item</th>
<th>Time/frequency/continuous time</th>
<th>Responsible institution</th>
<th>Cost (in 10000 Yuan)</th>
</tr>
</thead>
</table>
| 1. wastewater          | 1.1 Planning and design of the drainage system that separates clear water and wastewater with separate discharge channels for domestic sewage and production wastewater independent emissions.  
1.2 Experimental design of a wastewater treatment plant, laboratory wastewater treated in conventional wastewater pollutants concentration meet the GB8978-1996 "Integrated Wastewater Discharge Standards" class 3 standards; the concentration of heavy metal emissions to meet the GB8978-1996 "Integrated Wastewater Discharge standards" the first category of maximum allowable pollutant emission standards. | Design review    | In the project design examination/approval procedures | Design and reviewing department     | Included in the design cost |
| 2.waste gas | 2.1 in accordance with the "bio-safety laboratory construction technical specifications" GB50346-2004 in the design of the ventilation and exhaust systems; 2.2 in the corridors, stairways, bathrooms and other places mechanical exhaust ventilation system are set up, which can at any time exclude the effect of dirty air. Mechanical ventilation systems are set up for local experiments the for the laboratory in the absence of experiments for ventilation | Ditto | Ditto | Ditto | Ditto |
| 3.noise | 3.1 Design of selected low-noise equipment, processing equipment based on vibration resulting in high-noise; fans and pumps are installed in the basement and closed high-noise equipment rooms with acoustic windows and doors and windows. | Ditto | Ditto | Ditto | Ditto |
### Table 4.3-2  Environmental monitoring plan during the project implementation

<table>
<thead>
<tr>
<th>concern/problem/impact</th>
<th>Management/mitigation measure</th>
<th>monitoring</th>
<th>Time/frequency/continuous time</th>
<th>Responsible institution</th>
<th>Cost(in 10000 y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. domestic sewage from construction staff</td>
<td>1.1. use of the original building toilets, sewage discharged into the urban drainage network. 1.2 A small amount of construction wastewater discharged into the sewer through post-precipitation.</td>
<td>1.1.1 to See city sewage is discharged into the drainage network instead of careless discharge 1.1.2 to see if there are sedimentation tanks, and if construction wastewater discharge is precipitated.</td>
<td>Construction period</td>
<td>Construction entity and supervisors</td>
<td>Included in the construction cost and supervising cost</td>
</tr>
<tr>
<td>2. construction dust</td>
<td>2.1 sprinkling water to lower dust; powder materials stacking and transportation covered with sheeting</td>
<td>2.1.1 to see if it is dusty</td>
<td>In windy and dry weather during the construction</td>
<td>Ditto</td>
<td></td>
</tr>
</tbody>
</table>
### 3. Noise

3.1 Selection of low noise equipment, rational planning of construction time, avoid continuous operating machinery noise impact on surrounding residents.

3.2 With advanced low-noise construction process instead of obsolete high-noise construction technology.

3.1.1 Meet the construction site boundary "Field construction sector" line noise value (GB12523-90)

During the construction, around the worksite; 1 time/month; twice a day (by day and at night)

### 4. Construction Garbage

4.1 Construction of the disposal of construction waste should be classified with the value of recycling. Construction waste should be recovered in time in person;

4.2 Unrecyclable construction waste sent to the local landfill construction.

4.1.1 to see if classified recovery is done.

4.1.2 to see if it is sent to the designated landfill in a unified manner.

Construction period

Ditto

Included in the construction cost and supervising cost

<table>
<thead>
<tr>
<th>3. noise</th>
<th>3.1 Selection of low noise equipment, rational planning of construction time, avoid continuous operating machinery noise impact on surrounding residents. 3.2 With advanced low-noise construction process instead of obsolete high-noise construction technology.</th>
<th>3.1.1 Meet the construction site boundary &quot;Field construction sector&quot; line noise value (GB12523-90)</th>
<th>During the construction, around the worksite; 1 time/month; twice a day (by day and at night)</th>
<th>Ditto</th>
<th>1.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. construction garbage</td>
<td>4.1 Construction of the disposal of construction waste should be classified with the value of recycling. Construction waste should be recovered in time in person; 4.2 Unrecyclable construction waste sent to the local landfill construction.</td>
<td>4.1.1 to see if classified recovery is done. 4.1.2 to see if it is sent to the designated landfill in a unified manner.</td>
<td>Construction period</td>
<td>Ditto</td>
<td>Included in the construction cost and supervising cost</td>
</tr>
<tr>
<td>5. domestic garbage generated by workers</td>
<td>5.1 collected and sent to the Baishan domestic garbage landfill</td>
<td>5.1.1 to see if the domestic garbage is collected and sent to the domestic garbage landfill in a unified manner</td>
<td>Construction period</td>
<td>Ditto</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.3-3  Environmental monitoring plan during operation period

<table>
<thead>
<tr>
<th>concern/problem/impact</th>
<th>Management/mitigation measure</th>
<th>Monitoring</th>
<th>Monitoring item</th>
<th>Time/frequency/continuous time</th>
<th>Responsible institution</th>
<th>Cost (in 10000 Yuan)</th>
</tr>
</thead>
</table>
| 1. waste gas from labs | 1.1 to maintain the experiment, laboratory ventilation and exhaust air purification system to work, after the high-altitude emissions of waste gas purification standards.  
1.2 Operations with toxic and harmful chemicals should be performed in the ventilation cabinet. In the laboratory ventilation cabinet there is a strong, negative pressure to collect emissions from the processes; use of high efficiency air filter processing to meet emission standards to discharge waste gases into the air through high-efficiency discharge pipes.  
1.3 in the corridors, stairways, bathrooms and other places, there are mechanical exhaust ventilation systems to exclude the effect of dirty air at any time. The laboratory has mechanical ventilation systems for indoor ventilation in the absence of experiments ventilation.  
1.4 a regular basis (6 months) high-performance air filter replacement of the filter plate to ensure that the filtering efficiency is more than 99.97%. | 1.1.1 laboratory emissions reach the "Integrated emission standards of air pollutants" (GB16297-1996), class 2 standards.  
Population monitoring laboratory emissions: TSP, SO2, total hydrocarbon | 4 times a year; 2 days each time | Baishan Municipal Environment Protection and Monitoring Station | 2.0 |
2. wastewater; wastewater from testing and domestic sewage from staff

2.1 The drainage system separates domestic sewage and production wastewater and discharges them separately through independent pipes.
2.2 Experimental wastewater treatment facilities to maintain normal operation.
2.3 Sewage sludge produced is to be sent to the Changchun Blue Sky Hazardous Wastes Treatment Center Co., Ltd. for disposal.

1.1.1 Sewage and experimental conventional pollutants in wastewater to meet the "Integrated Wastewater Discharge Standard" (GB8978-1996), class 3 level emission standards, emissions of heavy metals in the first category should meet the maximum allowable pollutant emission standards. pH, COD, BOD, ammonia nitrogen, heavy metals (based on detection of the content measured mercury, arsenic, lead), total coliforms (one/L)

4 time a year; each time lasts 1 day; 2 sample collections a day

Ditto 1.5
<table>
<thead>
<tr>
<th>3. noise</th>
<th>3.1 to ensure sound insulation units’ normal operation</th>
<th>3.1.1 Plant community to meet the &quot;noise at boundary of industrial enterprises Standard&quot; (GB12348-2008) class2 standards</th>
<th>Around the worksite; 4 times/year; twice a day (by day and at night)</th>
<th>Ditto</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By day ≤ 60dB (A) at night ≤ 50dB (A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. solid waste

<table>
<thead>
<tr>
<th>4.1 Disposal of solid waste in general: Livestock, poultry and aquatic sample wastes in general and other solid garbage will all be collected and sent to landfills for disposal by sanitation department.</th>
<th>4.1.1 to see if various solid wastes are collected and sent to designated treatment plants or landfills in a unified manner</th>
<th>1 check every month</th>
<th>Ditto</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2 Disposal of hazardous waste: Experimental equipment apparatus (disposable), culture medium, expired drugs or reagents, waste treatment stations’ sewage sludge containing heavy metals, activated carbon waste, animal waste and feed residues are all hazardous wastes. They will be classified, separated and collected regularly and sent to the Changchun Blue Sky Hazardous Wastes Treatment Center Co., Ltd. for unified disposal.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5 Budget for Monitoring in the Environmental Management Plan

Table 5.1-1 Temporary budget for the environmental management plan

<table>
<thead>
<tr>
<th>Monitoring program</th>
<th>Environmental management cost</th>
<th>Monitoring cost</th>
<th>Training cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget for construction phase (Yuan)</td>
<td>25000</td>
<td>15000</td>
<td>32000</td>
<td>72000</td>
</tr>
<tr>
<td>Budget for operation phase (Yuan)/Year</td>
<td>40000</td>
<td>23000</td>
<td></td>
<td>63000</td>
</tr>
</tbody>
</table>

The budget for the EMP totals 135000 Yuan.

6 Reporting

The contractors and the monitoring entities should record and report to relevant departments on project implementation progress, implementation of EMP, environment quality monitoring results, etc. during the project implementation. The reports will mainly cover EMP implementation by the monitoring entities and contractors, and they should be submitted to the PMO on schedule; the project implementation progress report prepared by the PMO (such as the semi-annual report) must contain EMP progress reports, such as EMP implementation progress and execution results, etc.; the annual EMP implementation report must be completed and submitted to the World Bank within the required timeframe.

The EMP implementation report should mainly contain the following:

1. project implementation progress
2. EMP implementation, including monitoring results and data
3. whether there are complaints from the public; if yes, main contents of the complaints, settlement, and public satisfaction rate
4. EMP implementation plan for the next year

7 Public Involvement

7.1 Information release

According to the interim methods for public involvement in the environment impact assessment (HF [2006] No. 28), the environment impact assessment entity should put up announcements in the residential quarters around the project area on April 21, 2009 and release the information about the environment impact assessment for the
project in the “Jilin Environment Information Net” on June 5, 2009. It should also submit a simplified version of the environment impact assessment report for the project to the PPMO and the environmental science institute to further solicit public opinions. No public complaint was received during the announcement period; no feedback, either.

7.2 Surveys on public involvement

On July 5, 2009, the Baishan lab project work team visited and invited residents to take part in the environmental impact assessment meeting for the Baishan & World Bank Project of Agro-products Quality and Safety. 20 people attended the meeting. See the pictures below.

Venue: Baishan Agricultural Machinery School
Time: July 6, 2009
Organizers of the meeting: Li Xixian, Ding Kai (look at table 7.2-1)
List of the participants in the meeting (residents) Li Huanming, etc. 20 people (look at table 7.2-2)

<table>
<thead>
<tr>
<th>NAME</th>
<th>SEX</th>
<th>WORKPLACE</th>
<th>TECHNICAL RANKING/POSITION</th>
<th>TEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li Xixian</td>
<td>Male</td>
<td>Baishan Municipal Agricultural Committee</td>
<td>Deputy director</td>
<td>04398689003</td>
</tr>
<tr>
<td>Ding Kai</td>
<td>Male</td>
<td>Baishan Municipal Agricultural Technology Extension Station</td>
<td>Party secretary</td>
<td>13843922516</td>
</tr>
</tbody>
</table>
Table 7.2-2 Name List of Local Residents to Forum of Public Participation of Laboratory Project of Agricultural Quality Supervision and Inspection Center of Baishan City

<table>
<thead>
<tr>
<th>NAME</th>
<th>DOMICILE/WORKPLACE</th>
<th>TEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li Huaiming</td>
<td>West building</td>
<td>13943907778</td>
</tr>
<tr>
<td>Liu Guilan</td>
<td>Jinhe Garden</td>
<td>13843978158</td>
</tr>
<tr>
<td>Duan Qingpeng</td>
<td>Jinhe Residential Quarters</td>
<td>13894014776</td>
</tr>
<tr>
<td>Yu Yede</td>
<td>Jinhe Garden</td>
<td>13614497189</td>
</tr>
<tr>
<td>Ying Hong</td>
<td>South building</td>
<td>13943920646</td>
</tr>
<tr>
<td>Li Shijun</td>
<td>Jinhe Residential Quarters</td>
<td>04395082719</td>
</tr>
<tr>
<td>Liu Fangmin</td>
<td>Jinhe Garden</td>
<td>13894018699</td>
</tr>
<tr>
<td>Ma Jianrong</td>
<td>Jinhe Residential Quarters</td>
<td>13904493634</td>
</tr>
<tr>
<td>Wang Yanbo</td>
<td>Jinhe Garden</td>
<td>13089399789</td>
</tr>
<tr>
<td>Shi Xiuyun</td>
<td>Jinhe Garden</td>
<td>13943973659</td>
</tr>
<tr>
<td>Liu Qi</td>
<td>Jinhe Residential Quarters</td>
<td>13596771661</td>
</tr>
<tr>
<td>Li Bingyang</td>
<td>Jinhe Residential Quarters</td>
<td>15943905556</td>
</tr>
<tr>
<td>Gai Xiaohua</td>
<td>West building</td>
<td>13180718808</td>
</tr>
<tr>
<td>Zhu Deyou</td>
<td>Jinhe Garden</td>
<td>04398689005</td>
</tr>
<tr>
<td>Guo Jianguo</td>
<td>Jinhe Residential Quarters</td>
<td>13331595657</td>
</tr>
<tr>
<td>Pan Weihui</td>
<td>Jinhe Residential Quarters</td>
<td>13596703862</td>
</tr>
<tr>
<td>Zhuang Xiaoxia</td>
<td>Jinhe Residential Quarters</td>
<td>13894001349</td>
</tr>
<tr>
<td>Xiu Shizhong</td>
<td>Jinhe Garden</td>
<td>13514398696</td>
</tr>
<tr>
<td>Zhang Menghua</td>
<td>Jinhe Residential Quarters</td>
<td>13704399328</td>
</tr>
<tr>
<td>Chen Long</td>
<td>Jinhe Garden</td>
<td>13894018660</td>
</tr>
</tbody>
</table>

Meeting minutes:

On July 6, 2009, the Baishan lab project work team convened a meeting with the residents in the Baishan Agricultural Machinery School. The meeting solicited public opinions on the Jilin Province & World Bank Project of Agro-products Quality and Safety. At the meeting there were 20 people who were from nearby Jinhe residential quarters, Jinhe Garden residential quarters, etc.

First of all, the lab project work team handed out copies of the environment management plan, briefed the project profile and the environment management plan, explained the waste discharge pollution issue, which was a concern to all, solicited opinions from the project affected people, and carefully listened to the residents’ suggestions and remarks on environmental protection in the project. The meeting discussed the project implementation progress and how it would benefit the agro-products quality and safety. It listened to people’s extensive opinions and suggestions, which are summarized as follows:

1) Zhang Menghua: a teacher from Jianshe Primary School and resident of Jinhe
Suggestions: intensifying control over noise and pollution during the project implementation and operation to avoid harming nearby residents’ health.

Project team’s reply: It is inevitable to affect the nearby residents and we hope to be excused for that. However, we will make scientific construction plans, intensify management during the project implementation, prohibit work at night, and do our best to reduce adverse impacts on the surrounding residents. Meanwhile, we will adopt counter-pollution measures during the project implementation and operation to reduce adverse impacts on the nearby residents and workplaces.

2) Guo Jianguo from Jinhe residential quarters

Question: Will the waste gas from the testing affect residents? Are you going to open your windows when you perform experiments?

Li Xixian’s reply: As for labs that give out alien smells, according to the state requirements, ventilation systems will be installed during the project implementation. The waste gas will be discharged through the outlet pipe at higher places, and if it reaches the standards, it will not affect people.

3) Ying Hong from the South Building

Question: The noisy blowers, etc. in the ventilation system should be installed inside sealed rooms to avoid affecting people.

Li Xixian’s replay: We will certainly tell the design institute about it and ask them to fully consider the noise problem of the blowers in their design and take measures to reduce adverse impacts on residential areas.

4) Li Huaiming from Jinhe residential quarters

Question: What does the lab test? What is the significance of the lab?

Ding Kai’s reply: The lab only test agro-products, agricultural environment, agricultural inputs, etc. to ensure agro-products quality and safety. The microbial testing lab in the project will normally test general bacteria like coliforms, and it will not be engaged in highly pathogenic microorganism experiments. It will take pollution prevention and treatment measures and normally it will not affect surrounding residents.

Statistics of the results from the public survey questionnaires

Not the rate of satisfaction to the agro-products quality and safety in Jilin Province was only 10%, and 90% did not think much of it. 100% of the survey respondents held that the project would improve agro-products quality and safety. Their biggest concern was disturbing noise during the construction, accounting for 95%; followed by air pollution, accounting for 10%; 5% of them were worried about destruction to eco-environment. As for the environment impacts during the operation period, the residents’ biggest concern was air pollution, accounting for 55%; followed by water pollution, accounting for 35%; eco-environment destruction, accounting for 10%, and noise pollution, accounting for 5%. 100% of them agreed that these impacts could be prevented with effective measures. 100% of the public supported the project implementation.
Through the project work team’s explanations about the existing problems of agro-products quality and safety in Baishan and the project’s significance, and through the questions and replies, all agreed that the project would benefit the people in a realistic way, and it could ensure safe food for local residents. All the people at the meeting supported the project implementation.

8 Dispute Settlement

8.1 Complaint mechanism and composition

In order to better safeguard project affected people’s legal rights, a complaint mechanism will be set up to provide the project affected people with a convenient, transparent, impartial and effective complaining channel. For this purpose, an environment impact complaint reception leading group will be formed for the project. The group leader will be the Enforcement Brigade Captain of the Baishan Municipal Environment Protection Bureau, and the members will be from the Baishan Agricultural Committee, the Baishan Municipal Environmental monitoring Station, environment assessment entities, etc. The environment impact complaint reception office will be responsible for collecting and processing complaint and propose settlement methods after consulting relevant responsible entities.

8.2 Complaint procedures

The complaint reception leading group and office will start dealing with outside complaints one week after the project launch, and a complaint hotline and a complaint mailbox will be open at the same time. Detailed complaint procedures are as follows:

When project affected people think that their rights have been infringed in any aspect of environmental protection, they shall be entitled to complain to the complaint reception office in writing or orally. In case of oral complaints, the office staff will make detailed records, process them and propose settlements within two weeks.

In case the complaining parties are dissatisfied with the settlement proposed by the complaint reception office, they can complain to the Jilin Province environmental Protection Department in writing within one month after receiving the proposed settlement, and the environmental protection department will propose settlements within one month.

In case the complaining parties are still dissatisfied with the settlement proposed by the Jilin Province Environmental Protection Department, they can bring the case to the local people’s court according to the "People's Republic of China Civil Procedure Law" after receiving the proposed settlement.