

Plant Name	Shengfang Phase 1, Hebei Province
Date of Report	25 th January 2005
Brief Description	This is a municipal waste water treatment plant and the matched pipeline and pumps with daily capacity of 20,000m ³ .
Plant Layout	Total area is 25000m ² , including plant of 8467m ² , and the greenbelt 11820m ² , and roads of 4713m ² .
Input Water Quality	COD _{Cr} =400mg/L BOD ₅ =200mg/L SS=250mg/L Ammonium nitrate =35mg/L Phosphate =4.0mg/L pH:6 to 9.
Output Water Quality	COD _{Cr} <=90mg/L BOD ₅ <=30mg/L SS<=25mg/L Ammonium nitrate <=21mg/L Phosphate <=2.4mg/L pH:6 to 9.
Labor Force	Project labor of 32 persons, including technical and management team of 4, manufacturing group of 22, supporting manufacturing group of 3 and support crew of 3.
Brief Description of Concession Area	<ul style="list-style-type: none"> - Location: Shengfang is in the middle of Beijing, Tianjin and Baoding. - Climate: Having continental climate, the city have four seasons. The average temperature is 11.5 degree and the average rainfall is 502mm, which concentrates in mid July to mid August (80% of total rainfall of the year). There are 2762 hours of sunshine in the place, leading to a sunshine percentage of 62%. Frost free period is 178 days in a year and the deepest frozen earth is 66cm (in 1997). Main wind direction is northeast-southwest. - Hydrology: Located in the downstream of Haihe River and next to Bo Sea, there are 5 rivers and canals in Shengfang, which are respectively Zhongting River, Chuanxin River, Pai River, Hebeigan Canal and Sanjiu Canal. The city is in a transition zone of Taixing Mountain Alluvial Plain and Binhai Plain. With the change of ancient geography, ancient climate and crustal structure, the hydrogeologic condition is complex. Underground water are divided to no salt, low salt and high salt regions. - Topography and physiognomy: The max height difference is 60cm. Northwest is (highest) 4.2m, and the southeast is (lowest) 3.6m. Average gradient is 0.1‰. The location is in a wind sand area and the soil is of the alleviation product including silver sand and small-to-medium sand. The urban is miscellaneous fill with limited bearing capacity, which is around 6-8 ton/m². The bearing capacity in north and east part is higher at 10-14ton/m², which is more suitable for plant construction. City area is 150km². Total population of 209,000. Key economic sectors are light industries, furniture, food, petrochemical and printing.
Summary of Environment	<ul style="list-style-type: none"> - Atmosphere Result from Jan 22 to Jan 24, 2002: Fanrong Street of Shengfang satisfies level 2 of GB3095-1996. According to results monitored in environment bureau and Dongsheng Garden, the standards are exceeded. This is mainly because of the heating activities in winter, cleared area and the high traffic flow. - Water

	<p>Result from Aug 13 to Aug 21, 2003, Shengfang Bridge showed Type V of GB3838-88 standard is exceeded. It is mainly because of the previous direct sewage disposal.</p> <ul style="list-style-type: none"> - Noise There is little noise as it's far away from the major manufacturing parks. 																																							
Standards Applied	<ul style="list-style-type: none"> - Environmental Standard <ul style="list-style-type: none"> ✓ Surface water: 3838-2002, type V ✓ Atmosphere: GB3095-1996, level 2 ✓ Noise: GB3096-93: level 2 - Waste Disposal Standard <ul style="list-style-type: none"> ✓ Waste water disposal: GB 18918-2002 Table 1- level 2; GB5084-92, dry farming ✓ Odor pollutant: GB18918-2002, table 4, level 2 ✓ Boiler: GB 13271 -2001 Type 2, period of time II ✓ Noise: GB 12523-90: type II ✓ Sludge to be applied as fertilizer: GB 18918-2002, table 6. - Overall Control Standard <ul style="list-style-type: none"> ✓ COD_{Cr}: 1314ton/a ✓ Nitrogen: 306.6t/a ✓ SO₂: 0.77t/a ✓ Soot: 0.17t/a 																																							
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Summary of Key Impacts on the Environment during operations	<ul style="list-style-type: none"> - Waste water After treatment, the wastewater improves in quality: COD_{Cr} decreases by 2263t/year, BOD₅ by 1241t/year, SS by 1642.2 t/year, ammonium nitrate by 102.2 t/year, and phosphate by 11.68t/year. - Odor Emission Iceas Technique is applied. It is expected that the plant boundary will satisfy the standard. - Noise pollution The plant will control noise via proper machinery management as well as the greenbelt establishment. Besides, the nearest factory is 300m away and the nearest residence is 1500m. - Sludge / other physical materials 1265 ton of solid waste is produced per year, and is delivered to the landfill. The 20 ton slacks are used for railway construction. The treatment of 511 ton sludge is to be decided by the actual metal content. It will be used a fertilizer if it satisfies GB18918-2002, Table 6. 																																							
Conclusion and Recommendation	<ul style="list-style-type: none"> - Conclusion <ul style="list-style-type: none"> ✓ The project is good for the environment improvement and its technology and process are in compliance with the national policy (including construction bureau, national 																																							

	<p>environment bureau and ministry of technology).</p> <ul style="list-style-type: none"> ✓ The site location allows for wastewater collection and discharge, and is far away from general population. ✓ The key impacts on environment are controllable. ✓ The waste gas emission and solid waste disposal will satisfy the standards, and will have limited impact on the environment. The treated water will be disposed as per plan, which is beneficial to environment. ✓ The reduction in COD_{Cr}, BOD₅, SS, ammonium nitrate, and phosphate contributes to the environment. ✓ Requiring little area and energy, the technique of Iceas is in accordance with Requirement of Clean Production. ✓ As per national requirement, standard emissions are as below: COD_{Cr} 657t/year, nitrogen 219t/year, SO₂ 0.77/year and soot 0.17t/year. ✓ Recommendation <ul style="list-style-type: none"> ▪ The plant shall ensure all the facilities are well managed. ▪ The plant shall ensure the greenbelt is also well managed. ▪ Local environment bureau shall monitor the water output, making sure it satisfies the standards. ▪ Further development of 20,000 ton expansion shall be taken into consideration during plant design and construction.
Approval	Obtained