



## Condensate Treatment

**Customer:** Jilin Petrochemical Divn of PetroChina Synthetic Organic Plant

**Location:** Jilin, China

**Scope of Work:** Armstrong International designed, engineered, installed and implemented an oil removal and re-use project for the Synthetic Organic Plant at the Petrochemical Division of PetroChina and passed the final acceptance conducted by relevant departments.



This plant has tried to treat the condensate by pumping the mixed condensate and untreated water to the demineralized water system where iron exchange is made, and utilize the treated condensate as boiler feed water. The organic matters carried over by the condensate, however, lead to the enormous multiplication of mycete within the demineralized water equipment, which severely affects the safe production. The condensate has to be directly discharged. The inefficient oil removal is another bottleneck that restricts the condensate from being re-used.

**Upgrade Projects:**

- Install a heat recovery system to reduce the condensate temperature and to meet the process requirements of the condensate treatment system
- Install an oil removal system to remove the iron and floating matters in the condensate
- After oil and iron is removed, the condensate can be sent to the condensate treatment system

**Investment:** The total value of the agreement is \$142,000.

**Terms:** The projects were completed in December 2001.

**Benefits:** Condensate oil removal system: designed capacity 100 ton/hr. A monitoring system designed to detect condensate quality and other important operational parameters and dump contaminated condensate when detected.

- After treated by this system, oil content in the condensate is reduced from ~ 10ppm to below 1ppm; iron content in the condensate is reduced from 0.056mg/1 to 0.027 mg/1
- Space saving: the whole system is condensed within one single frame
- Operational costs reduced to \$3,600 – \$4,800/year
- Condensate recovery: 640,000 ton/year
- Net energy savings: \$228,000/year

