



Steam and Condensate Recovery

Customer: Fushun Petrochemical Divn of PetroChina
Detergent Chemical Plant

Location: Fushun, China

Scope of Work: Armstrong International designed, engineered, installed and financed a steam system and condensate recovery system optimization project for the Detergent Chemical Plant, Fushun Petrochemical Division of PetroChina.



This is one of the several sub-projects covered in a system optimization agreement under the cooperation of Fushun Petrochemical and Armstrong.

- Upgrade Projects:**
- Optimize condensate collection stations for tracing lines
 - Merge, terminate or re-route the existing condensate return lines; change overhead pipelines and buried pipelines to overhead pipelines
 - Re-design the flash steam utilization system
 - Install condensate treatment to system (IEF) to remove oil, iron, silicon and floating matters from the condensate before being pumped to the demineralized water tank
 - Apply steam traps in tracing lines that resist back pressure and reduce steam carry-over

Investment: The total value of the agreement is \$955,000.

Terms: The projects were completed in July 2001.

- Benefits:**
- The annual condensate recovery: 103,000 tons; steam saving rate: 30%; annual steam savings: 43,000 tons; net energy savings: \$434,000; payback period: 2.5 years
 - Pipelines enjoy little heat loss, even resistance distribution, high reliability and easy maintenance
 - Condensate heat is recovered to its utmost. No steam is discharged directly to the atmosphere
 - Condensate treatment integrates filtering with ion exchange. With a fully developed monitoring system, PLC control system and two industrial PC work stations, the system is automatic and carefree.
 - After treatment, the condensate can fully comply with the quality requirements for MP boiler feed water

