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ACC Users Group

Air-Cooled Condenser Cleaning



This Presentation Will Cover

- Fouling tendencies
- Impact of fouling
- Available cleaning technologies
- Leak detection of ACC units



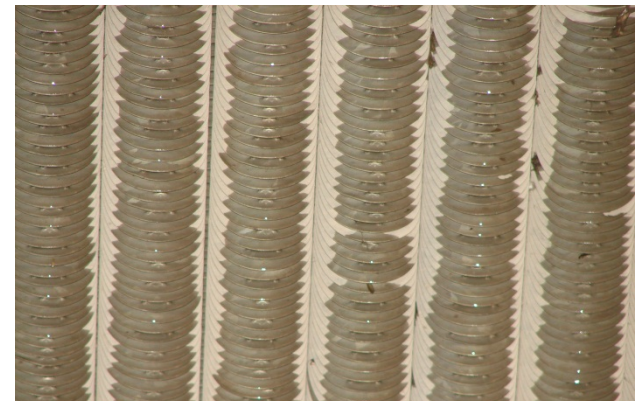
Fouling Tendencies

Finned tube surfaces are prone to collect all manner of environmental fouling including:

- Pollen
- Dust
- Leaves
- Insects and bird carcasses
- Plastic bags



Cottonwood Pollen



Environmental Fouling



User Influenced Fouling

Additionally, during periods of high ambient air temperatures, water is sprayed on finned tubes to improve heat transfer.



Which can precipitate the formation of scale on finned tube surfaces



Maintaining Efficiency

Easiest method of maintaining peak performance or improving lackluster performance is insuring fin tubes are free of fouling and debris

On a vacuum steam system, a 20% reduction in airflow will increase turbine backpressure by 33%



Impact of Fouling

- Poor heat transfer
- Higher operating costs
- Higher fan speeds = increased house load
- Reduction in MW output due to turbine backpressure



Offline Cleaning

Considering the economics of taking a unit down, “offline” cleaning performance benefits must be weighed with the loss of production

Types of Offline Cleaning:

- Fire hose
- High pressure hand lance
- Chemicals or foam



Technologies allowing cleaning to be performed online can offer greater ROI than offline systems

Types of Online Cleaning:

- Automated Cleaning System



Online Systems Evaluation

Automated Cleaning System

- High water volume but at pressures safe for fin and tube surfaces
- Water contains no additives, no need to collect and dispose
- No scaffolding required
 - Which is safer for the operator
 - Which prevents damage collateral damage to ACC



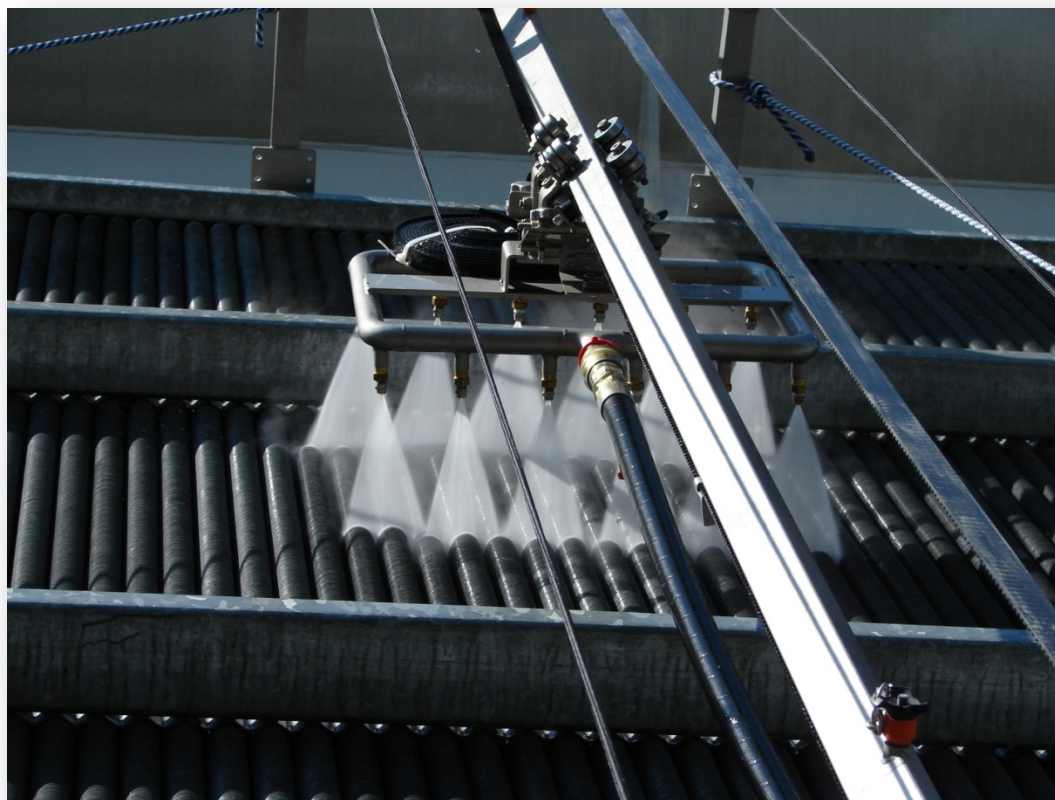
Automated ACC Cleaning

System features include:

- Focused array of water jets to distribute water deep into bundle
- Water jets can be manipulated to match fin geometry (optimizing washing effect)
- Water jet carriage moves at consistent speed across bundle. (Consistent speed = Consistent clean)

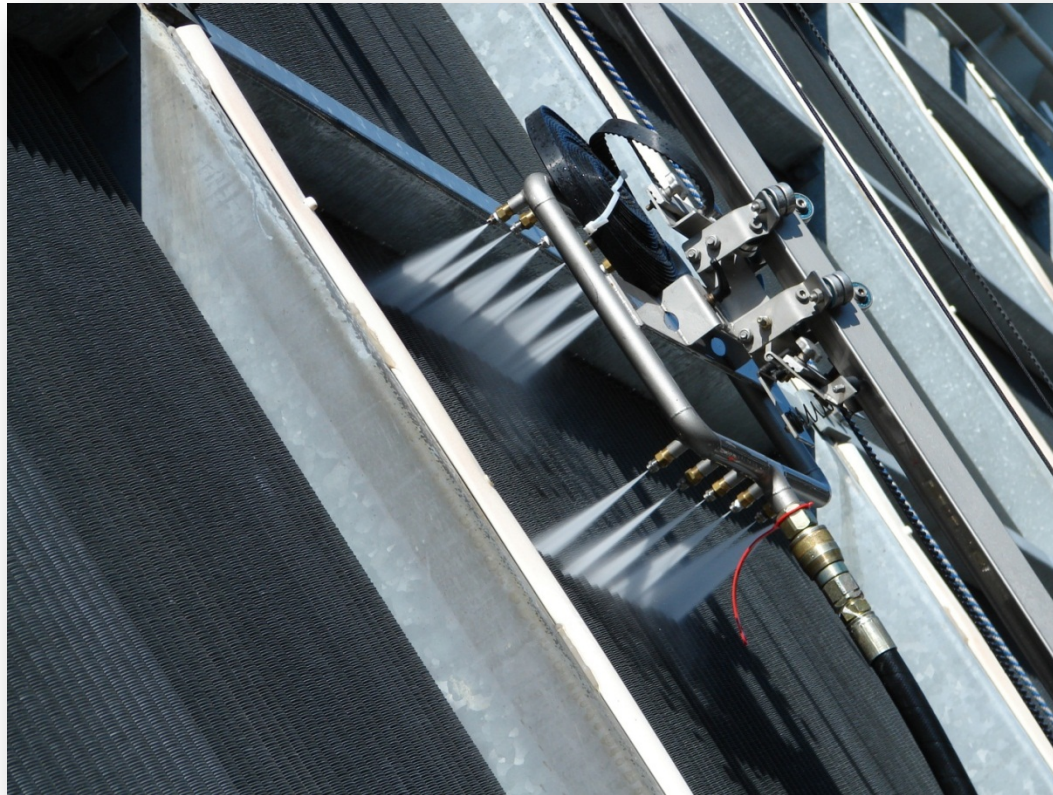


Computer Driven Carriage





Water Jets Match Fin Geometry



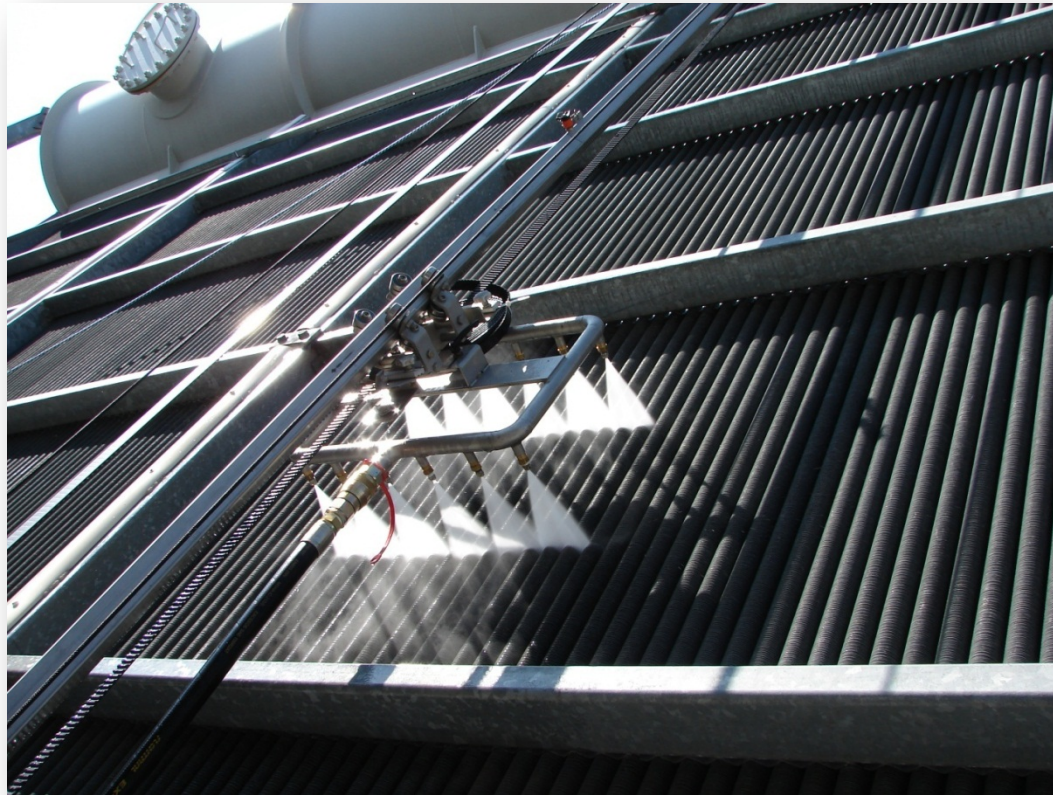


Full Dimensional Cleaning





Vertical ACC Applications





Horizontal Cooler Applications





Questions?

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