



## Improved efficiency for gas processing

Gas processor, Texas, U.S.

Case story

A gas processor wanted to improve efficiency of the NGL fractionator process while reducing operating costs and increasing NGL production.

An Alfa Laval Niagara Wet Surface Air Cooler offered the perfect solution. The WSAC was used for the de-propanizer, de-butanizer, and de-isobutanizer reflux cooling streams. It produces a colder outlet temperature than a conventional cooling system could offer. The WSAC is also used as a condenser in the de-ethanizer refrigeration system allowing for a colder condensing temperature of the refrigerant. By condensing the refrigerant at a lower temperature, the compressor operating horsepower in the system is reduced. Since the refrigerant is used to cool the distillate columns, it directly affects the efficiency of the fractionation process. In addition, production rates also increased during the hot summer months due to the ability to maintain condenser performance during higher ambient temperatures.

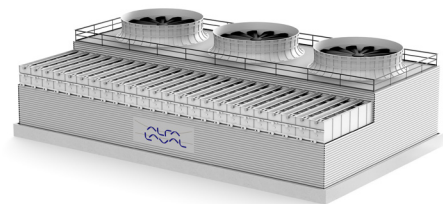
The WSAC also provides colder condensate outlet temperatures for reflux streams when compared to fin fan air coolers or a cooling tower/heat exchanger combination.

The Wet Surface Air Cooler was determined to be the most cost effective system when compared to cooling towers and fin fan air coolers. The WSAC allows the refrigerant to be condensed directly within the integrated tube bundles, requiring less horsepower and allowing for downsizing of the compressor equipment.



### Results

- Improved NGL production by 20%.
- Significant reduction in compressor horsepower, typically one full compression train.
- Improved refrigeration efficiency by lower condensing temperature and operating pressure (de-ethanizer multistage refrigeration).
- Fewer components—process stream is cooled directly inside an integral, closed-loop ASME code tube bundle
- Smaller footprint than conventional cooling systems.
- Reduced capital and operating costs.



#### WetSurface

Maximum cooling efficiency and lowest possible outlet temperature.

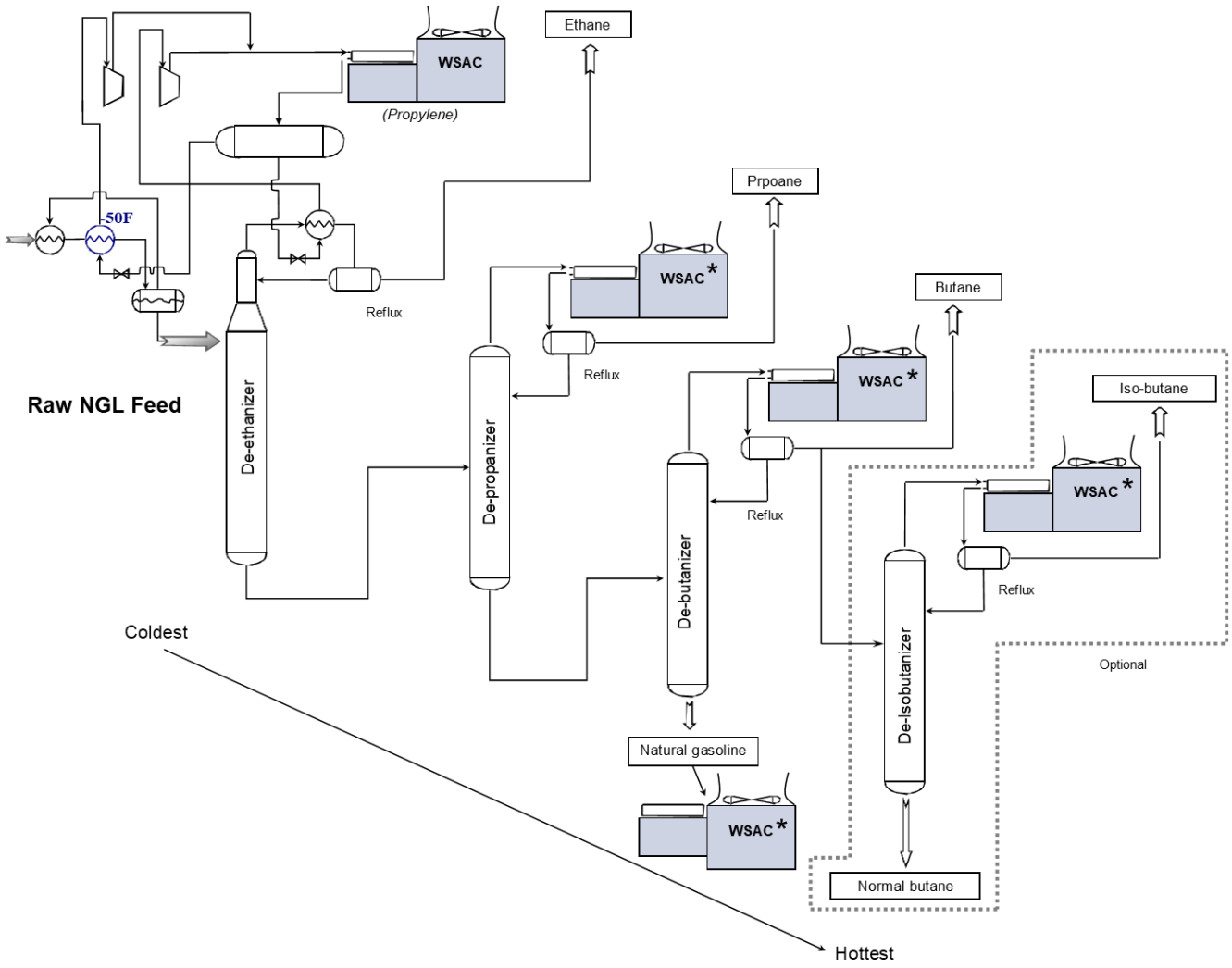


#### FlexWater

A WSAC can operate on recycled water of low quality such as blowdown water.

Learn more at [www.alfalaval.com/wsac](http://www.alfalaval.com/wsac)

**Alfa Laval Niagara WSAC applications  
for NGL fractionation flow diagram**



\*Note: These WSAC streams are combined into a common unit with separate bundles.

Why Alfa Laval Niagara Wet Surface Air Coolers (WSAC)		
<b>Maximize uptime</b> <ul style="list-style-type: none"> <li>• High reliability</li> <li>• Minimal maintenance</li> </ul>	<b>Cut costs</b> <ul style="list-style-type: none"> <li>• Minimal energy consumption</li> <li>• Reduced maintenance costs</li> </ul>	<b>Increase capacity</b> <ul style="list-style-type: none"> <li>• WSAC maximizes cooling performance for increased production</li> </ul>