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## **AIR STRIPPERS**

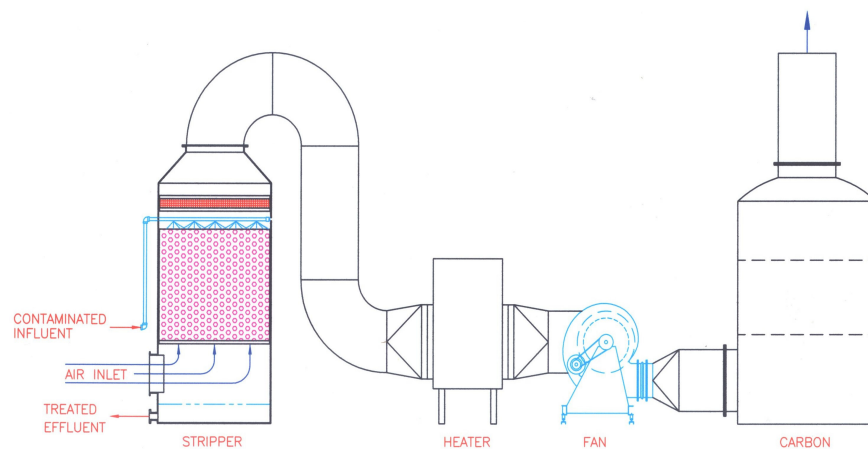


B6-San Gabriel Valley Water District Project  
Four (4) 10-foot diameter ACS Air Stripper Towers with FRP Ductwork

## AIR STRIPPERS

Air strippers work by cascading contaminated water over a media and a counter-current air stream.

The media is geometric shapes designed for maximum surface contact area and low-pressure drop for the airflow.



## APPLICATION

Air strippers are used for Volatile Organic Compounds (VOC) contaminated groundwater as found in:

- Superfund clean up sites
- Municipal and private water companies
- Oil refineries
- Gasoline service stations
- Large farms with water run off contaminated by fertilizer chemicals
- Military installations

## **DESIGN**

In order to properly size an air stripper system the following information must be determined:

- Water flow
- Water temperature (lowest possible)
- Contaminants and concentrations
- Removal efficiency required (at present anything less than 0.5 ppb is considered non-detectable)
- Elevation

This information is necessary to determine:

- Tower diameter
- Packing height
- Air flow requirement
- Fan size and horsepower

## **WATER TEMPERATURE**

Air stripping is extremely temperature sensitive; one-degree difference from the design parameters can cause a performance failure.

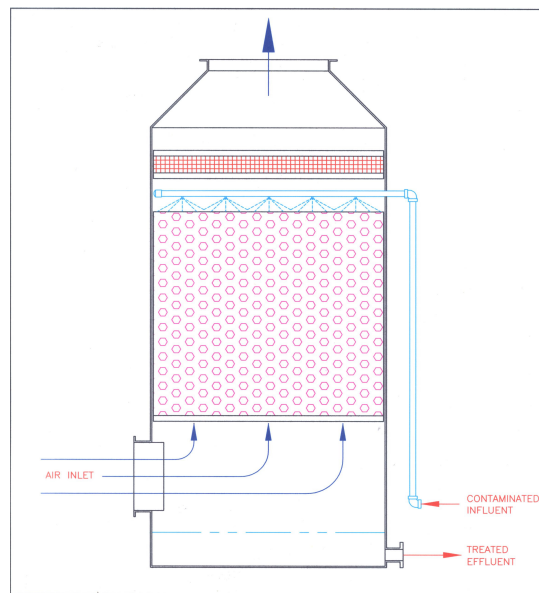
In addition, the air temperature can heat or cool the water stream therefore calculations need to take into consideration the range of prevailing temperatures in the area the unit is to be operating in.

## OFF-GAS TREATMENT

Once the VOC has been stripped out of the water supply the contaminated air stream must be treated. If the ppm is very small and local EPA codes permit, no treatment is necessary.

If treatment is necessary and the ppm is not extreme carbon treatment may be the optimal choice.

In order to extend the life of the carbon it is desirable to dehumidify the air stream by installing a heating unit to bring up the temperature of the air to at least 90<sup>0</sup> F.



On rare occasions the VOC content is high enough to warrant a thermal oxidizer to burn the off-gas. There must be a high concentration of combustible gas to make these systems economical to run otherwise the gas consumption is too costly to justify.

## CONSTRUCTION

All AIR CHEM ENGINEERED SYSTEMS, LLC FRP Air Strippers are fabricated of corrosion-resistant, fiberglass reinforced plastic (FRP), a material commonly used in the marine industry for its lightweight, extremely strong and durable characteristics. This material is long lasting, low maintenance and eliminates contamination from rust or oxidation found in metal systems.

FRP is superior to non-reinforced plastics such as polypropylene, polyvinyl chloride (PVC), polyethylene, etc., all of which will lose their plasticity over time causing them to become brittle and crack. These types of vessels cannot be repaired whereas FRP strippers can.