

# CASE STUDY 4

## THE SILVAN DISINFECTION PLANT

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### PURAFIL ESD PREVENTS ACCIDENTAL CHLORINE RELEASES 4 THE SILVAN DISINFECTION PLANT



#### ABOUT THE SILVAN DISINFECTION PLANT

Located in the mountains outside Melbourne, the Silvan Disinfection Plant was classified under state government legislation as a major hazard facility.

#### THE PROBLEM

According to plant project manager Stephen Answerth, "Melbourne Water was required to reduce the risk of a chlorine release 'so far as practicable.'"

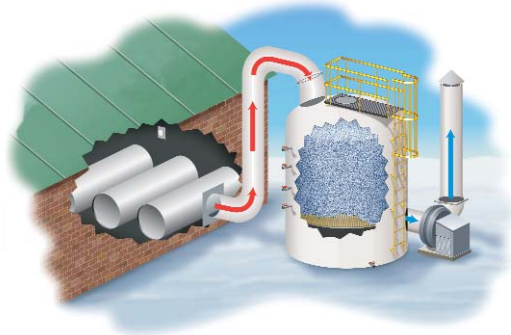
Plant representatives considered using wet scrubbers, which were less expensive but required more maintenance and could harm humans, wildlife, and the environment.

#### PURAFIL PROVIDES THE SOLUTION

To prevent accidental chlorine ( $\text{Cl}_2$ ) releases, Silvan opted to use a Purafil Emergency Gas Scrubber (EGS) that measured 10 feet in diameter by 15 feet tall and held 25,000 pounds of CSO™ media. Local Purafil representative James McIntosh (Airepure Australia) facilitated their request.

In the event of an unintentional  $\text{Cl}_2$  emission, the EGS follows these steps to eliminate the gas from the air:

- 1) Released  $\text{Cl}_2$  is drawn into the scrubber through a blower and contacts dry-scrubbing media.
- 2) Media react with  $\text{Cl}_2$  and permanently convert the gas to non-toxic solids.
- 3) Clean air is discharged to the outdoors with a  $\text{Cl}_2$  concentration of less than 5 parts per billion.



PURAFIL® EMERGENCY GAS SCRUBBER

The EGS requires significantly less maintenance than a wet scrubber. It does not need heaters for outdoor applications, and it has just one moving part—a blower. Instead of using liquid caustic, the EGS neutralizes  $\text{Cl}_2$  with dry-scrubbing media, which are highly porous, spherical pellets that permanently transform the gas into harmless solids. As long as media do not react with  $\text{Cl}_2$ , they do not need to be replaced; they only require occasional testing to determine remaining life and to project change-out dates. Non-toxic and non-hazardous, media do not require special handling and can be disposed in landfills.

"The dry scrubber was selected because it is a simpler system and does not involve having liquid caustic soda on-site," Answerth said.

#### ABOUT PURAFIL ESD

For more than 15 years, Purafil ESD has been the premier single-source provider of clean air to over 100 North American and European clients. A division of Purafil, Inc., Purafil ESD manufactures a broad range of dry-scrubbing media and systems that remove odorous, toxic, and corrosive gases at water and wastewater applications.

Purafil ESD's Emergency Gas Scrubber (EGS) removes the contents of a fully-loaded chlorine ( $\text{Cl}_2$ ) or sulfur dioxide ( $\text{SO}_2$ ) cylinder in a worst-case release scenario and discharges less than 5 parts per billion. The EGS works in temperatures ranging from -40 degrees to 200 degrees Fahrenheit.

In the event of a release, the EGS draws  $\text{Cl}_2/\text{SO}_2$ -laden air through a bed of dry-scrubbing media. The gases react irreversibly with the media's chemical impregnant, and the products of this reaction are solid salts that can be disposed of in common landfills.

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