United Puts Prevention First at New Maintenance Center

In designing its new Indianapolis Maintenance Center, United Airlines put pollution prevention first, saving $5 million in capital equipment costs, plus additional savings in annual operating costs.

United worked with ENSR Consulting and Engineering, based in Acton, Mass., to design a facility that meets or exceeds controls designated by the U.S. Environmental Protection Agency (EPA) and, at the same time, satisfies its maintenance needs. They have succeeded. The maintenance center at this point requires no air pollution control devices at all, thanks to preventing pollution at the source.

To start, the site was investigated before being leased to ensure no contamination already existed. Then, they considered what it would cost to permit and build a facility given air quality regulations both now and in the future. The result is a facility that meets current regulations, while being adaptable to meet more stringent regulation later by adding controls.

"We have significantly reduced air emissions compared to our other maintenance facility, thereby being able to build the facility without emission controls," says Max Malone, manager of environmental safety for United.

The facility will emit less than 100 tons per year of volatile organic compounds throughout its life when it goes into operation, which is expected early in 1994.

Emissions at the maintenance center are controlled, in part, by using high solids paints on all aircraft, using citrus-based or water-based solvents and using aqueous processes to clean parts. No ozone-depleting substances are used at the facility.

"We analyzed all the materials we use for certain procedures," says Malone, "including the materials used in maintenance activities."

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for employees and an awareness of the amount of solvents they were using vs. what was required, solvent consumption has dropped compared to United’s San Francisco, Calif., maintenance facility, which services the fleet’s wide-bodied aircraft. United also has reduced the amount of hazardous wastes on the site, detailed handling procedures for them, and provided training for its employees. Many of the operational changes developed for the new facility are being transferred to San Francisco and implemented at that facility as well.

High transfer efficiency spray equipment has cut paint consumption. “We’ve reduced over-spray and emissions. We don’t waste paint,” says Don Trueblood, ENSR project manager.

For paint stripping, methylene chloride traditionally has been used, but new regulations are forcing them to look for new methods. United is planning to test wheat starch blasting on its parts, as well as other chemicals, including alcohol- or ammonia-based processes.

With ENSR’s help, United has developed a containment program in case of any spills at the facility. Floors and the hanger are covered with a chemically resistant coating. Pipes are double contained when below ground, but most are aboveground so leaks can be spotted promptly, Trueblood says.

United has developed emergency response procedures to contain and clean up any spills that may occur, Trueblood says. As a final precaution, United also has installed a groundwater monitoring well system to identify any potential problems from either its property or other properties.

United has designated three outside areas for washing, fueling and maintenance. The rest is performed inside the hanger. Some runoff goes to the facility’s industrial wastewater treatment system, the rest goes down storm water drains. The treatment plant also collects drainage from the shop. The treatment plant is designed so it is expandable if required by future regulations.

If air pollution control devices are needed down the road, United at this point plans on using carbon adsorption. That could change, depending on regulatory requirements and technological developments. The facility will be under construction for the next 10 years, ultimately comprising 18 hangers. It will be built in phases as the fleet grows in order to accommodate United’s narrow-bodied aircraft.

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