

CASE STUDY



LEAD ABATEMENT WITH COMPLETE ENVIRONMENTAL CONTROL, LAKELAND, FL

BACKGROUND

In the Fall of 1994, the City of Lakeland, Florida, needed to recoat one of its three steam generating systems, Lakeland Unit #1. The system had been constructed in 1969, and then recoated in 1977. On both occasions, a lead based primer had been used. To comply with Environmental Protection Agency standards, city officials ran TCLP tests for 13 heavy metals. The finding showed that the plant's coating exceeded EPA standards for lead. As a result, Lakeland was required to contain all particulate removed from the facility.

THE PROBLEMS

Because Lakeland needed to contain all lead particulate during the blasting project, a huge temporary containment structure was built. The structure, 100 feet square by 150 feet high, created a vast area of 1.5 million cubic feet that was needed to enclose Unit #1. Inside, 565,000 cubic feet of air had to be changed twice each hour.

To successfully complete the project, Tom Cochran, project manager for the City of Lakeland, had to simultaneously control four complex factors. He asked Munters to help him conceive, and then build, a state-of-the-art environmental control system designed to facilitate: 1) lead abatement, 2) temperature and humidity control, 3) visibility, and 4) a demanding deadline for completion.



Above: A 150-foot high containment structure, built to surround the City of Lakeland's Unit #1 steam generating system, kept lead particulate contained on the site.

Left: To meet arduous coating and lead abatement standards, Tom Cochran, project manager for the City of Lakeland, chose Munters Moisture Control Services to help him create a controlled working environment.



THE SOLUTION

Munters created a system that would control humidity and temperature consistently, maintaining inside air conditions at 80°F and a relative humidity of less than 60%. The Munters system completely changed the air twice each hour, removing all particulate. It maintained negative air pressure, while offsetting positive pressure created by up to ten blasting hoses.

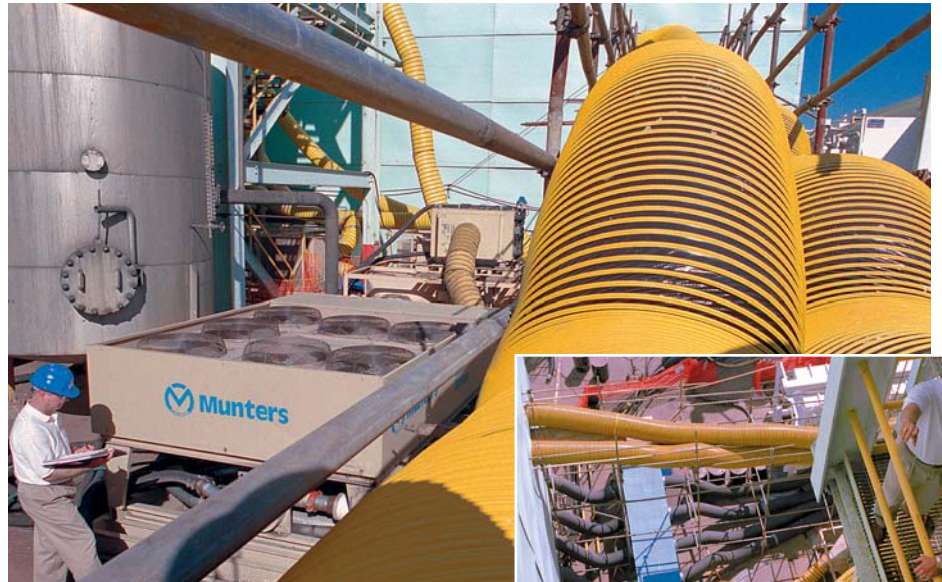
Because of other upcoming maintenance programs, the project had to start in October and conclude by December. This time of year, which is known in Florida as "The Hurricane Season," typically experiences high humidity, extensive rain, and, of course, major storms. As a result, it is the most difficult period to conduct blasting and coating projects.

"Meeting our deadline was of utmost concern," said Lakeland's Tom Cochran, "as it is very important that shutdowns be conducted when our demand for power is the lowest. With two maintenance projects scheduled back to back, we could not afford delays on Unit #1. We had to do the job without nuisance interruptions and without blasting or coating failures."

Virtually every exposed surface had to be blasted clean of the deteriorating lead based coatings, and then recoated. "Since we had decided to remove the old coating," said Cochran, "we also had to meet EPA standards which required that absolutely no fugitive particulate reach the outside air. This was a matter of great concern to us, since it involved the health of our employees."

As a first step toward meeting this complex group of requirements, a contractor was hired to build a massive temporary containment structure over the entirety of Unit #1. The pitched-roof structure was made of tubular scaffolding and lightweight, rigid plastic panels. All joints were taped to prevent the outside air from leaking in.

To further ensure that no particulate escaped from the containment building, Munters was asked to filter the air while holding humidity and temperature conditions. Munters combined two 20-ton DX units with a 40-ton chiller. This



Munters combines a 40-ton chiller and two 20-ton DX units with dust extractors and HEPA filters to condition 565,000 cubic feet of air twice each hour inside the Lakeland containment structure.

created a capacity to hold the blast, and maintain a reasonable temperature for the workers, while processing the 565,000 cubic feet of air twice each hour. To remove particulate, Munters used two dust extractors with capacities of 27,000 scfm and 20,000 scfm. Once the dust was extracted, extremely fine particulate was removed with a HEPA (high efficiency particulate) filter.

Another concern was visibility in the work area during blasting, according to Tom McGuire, Munters district manager. "For safety, Lakeland wanted the blasters to be able to see at least 10 feet at all times," said McGuire. "Our system generally created about 60 feet of visibility, providing a substantial advantage for the workers."

Unit #1 was coated with a surface tolerant epoxy primer and a surface coat of high build aliphatic polyurethane. By holding precise conditions, Munters allowed the coating process to proceed around-the-clock. "It was a pleasure to work with Munters," said Cochran. "We had to fashion a system that observed EPA and OSHA regulations, and met tight deadlines. It was not a simple project, but working together I believe we created a state-of-the-art solution."

BENEFITS

■ Substantial Cost Reductions

By avoiding work interruptions, the City of Lakeland avoided the high cost of delays—delays that are common when humidity is out of control during blasting and coating projects.

■ Ensured Coating Performance

Using humidity control, Unit #1 could be blasted entirely without corrosion occurring. The primer adhered firmly without the presence of moisture and curing was improved by controlled temperature and humidity conditions. As a result, the plant can expect a 20-year life from the coating system.

■ No Problems with Regulations

OSHA and EPA standards were met or exceeded with a Munters engineered climate control system. Project workers and city employees were protected from harmful lead particulate and working conditions were optimized.

■ Complete Munters Service

Munters provided a wide range of equipment integrated into a system to meet the customer's needs. When conditions required expansion or alteration of the system, Munters' large fleet allowed a rapid response that kept the job on schedule.

MUNTERS CORPORATION
MOISTURE CONTROL SERVICES
79 Monroe Street, P.O. Box 640
Amesbury, MA 01913-0640
TEL: 1-800-I-CAN-DRY (422-6379)
978-388-4900
FAX: 978-388-4939
WWW: <http://www.muntersmcs.com>
E-Mail: moreinfo@muntersmcs.com

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