



KLM



Engineering Inc.

WATER TOWER SPECIALISTS

Protecting America's Water
One Tank at a Time



Engineering Inc.
WATER TOWER SPECIALISTS

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Established in 1995, KLM Engineering, Inc. is a structural engineering and inspecting firm with offices in Minnesota, Kansas and Wisconsin. KLM prides itself on being able to help owners in all aspects of water storage tank maintenance. Having an experienced and qualified staff means we work with you on every phase of a project.

The experience of KLM's staff in water tank inspection and maintenance is enhanced by our training as National Association of Corrosion Engineers (NACE) Certified Coatings Inspectors and American Welding Society (AWS) Certified Welding Inspectors. This training, plus years of experience in abrasive blasting (surface preparation), painting, rigging, welding, and inspecting has given us unparalleled knowledge for performing this type of work in a safe and professional manner.

EVALUATIONS:

KLM is a leader in water tower evaluations. Our team inspects over 100 tanks per year for structural and coating integrity. Frequently employing the Floatdown, ROV, and Dry Tank methods, our inspection clearly identifies all of the maintenance requirements of the tank and will define the next time it needs maintenance. Reports submitted after the evaluation are critical for writing specifications and scope of work.

KLM specializes in the Floatdown inspection. This allows the inspector the opportunity to inspect surfaces inaccessible when performing dive, dry, or ROV evaluations. The inspector observes where the water meets the interior coating without the need for scaffolding or rigging, and further allows the inspector to observe all surfaces in contact with the water.

EVALUATION TECHNIQUES:

- ◆ Corrosion Assessment
- ◆ Measuring All Appurtenances
- ◆ Ultrasonic Readings
- ◆ Coating Adhesion Testing
- ◆ Coating Cohesion Testing
- ◆ Substrate Examination and Evaluation
- ◆ Dry Film Thickness Testing
- ◆ Coating Serviceability

INSPECTION AND EVALUATION OF:

- ◆ Elevated Water Tower
- ◆ Ground Storage Reservoirs
- ◆ Concrete Tanks
- ◆ Pressure Vessels
- ◆ Water & Wastewater
- ◆ Treatment Plants

PREPARATION OF SPECIFICATIONS FOR:

- ◆ Steel & Concrete
- ◆ Tank Rehabilitation
- ◆ Lead Paint Abatement

WELDING INSPECTION:

- ◆ Rehabilitation
- ◆ New Construction
- ◆ Antennas

COATING INSPECTION DURING RECONDITIONING OR NEW CONSTRUCTION:

- ◆ Shop Coatings
- ◆ Field Coatings
- ◆ Lead Paint Identification
- ◆ Failure Analysis

Depend on KLM for your next project.



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THE FLOATDOWN

- ♦ Is the most comprehensive type of inspection for your water tower.
- ♦ Allows the inspector access to surfaces which are usually inaccessible to inspectors who perform dive, ROV, and dry tank inspections.
- ♦ The inspector is right where the water meets the interior coating without requiring scaffolding or rigging, and further allows the inspector to observe all surfaces in contact with the water.

THE KLM INSPECTORS

- ♦ KLM inspectors who perform coating evaluations will be NACE Certified Coatings Inspectors and/or AWS Welding Inspectors.
- ♦ KLM senior inspectors have at least 20 years experience in inspection of coatings and steel structures and will work under the direct supervision of a registered engineer.

THE FLOATDOWN INSPECTION PROCEDURE

KLM was the first in the industry with the Floatdown procedure for inspecting, cleaning, and disinfecting water storage tanks. An inspector floats in a sterilized rubber raft while the tank is drained.



CLEANING

EXTERIOR PRESSURE WASHING

Washing tank exteriors to make them aesthetically pleasing is not always an easy process. Our experience with coating types and manufacturers provides KLM with unique knowledge of how to effectively remove the existing exterior staining and bring the tank's coating back to like-new condition.

INTERIOR CLEANING

KLM will disinfect the tank in accordance with AWWA C652.

Why do water systems need to be cleaned?

Biofilm briefly grows on any surface that is in contact with water. Biofilms is resistant to many traditional methods used for controlling bacteria including:

- ♦ Chlorine
- ♦ Antibiotics
- ♦ Soap
- ♦ Detergent

Removing and controlling biofilm requires a new approach. Using custom-engineered chemicals, KLM can safely remove biofilm from your water storage tank.



CHEMICAL CLEANING AND BIOFILM REMOVAL

KLM's interior chemical cleaning process provides substantial benefits over traditional cleaning methods. Using innovative chemistry to remove biofilm from water tank surfaces is important for preserving water quality and coating systems.



before

after



SHOP INSPECTIONS

Past experience has shown that coating failures can frequently be traced back to the original shop coating. To mitigate the chance of poor shop coating, to ensure adherence to the specifications and good painting practices, KLM performs inspections at the fabricator's shop. Our inspectors look for proper surface preparation, coating mixing, and coating application.

ANTENNAS

KLM provides technical lease reviews, engineering reviews of proposed installations, shop inspections, field inspections, and construction management to assist with the addition of antennas onto water storage tanks. Our experience allows us to recognize and correct unsatisfactory design and to ensure proper installations that maximize leased space.

SERVICES PROVIDED
DURING ANTENNA
INSTALLATIONS ON
WATER TOWERS
INCLUDE REVIEW
OF THE FOLLOWING:

- ♦ Ability to withstand any additional loading from antennas
- ♦ Antenna attachments and penetrations for structural integrity
- ♦ Surface preparation and coating applications

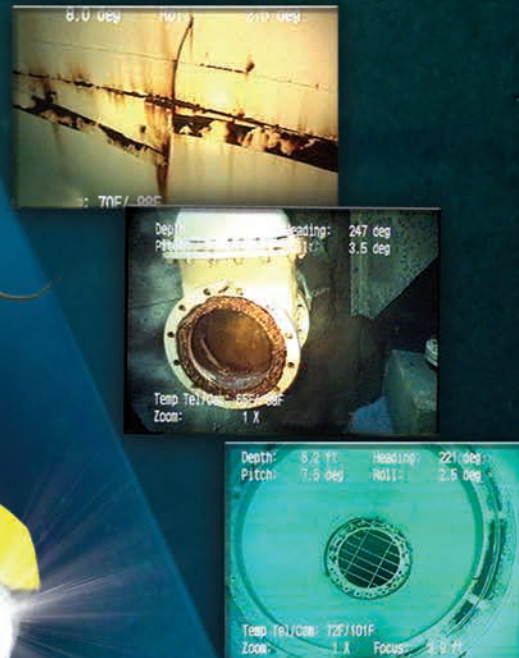


PROTECTING YOUR INVESTMENT

Hire KLM's experienced professionals who have reviewed and inspected over 1,000 antenna installations. Protect your rights and your property with help from KLM Engineering, Inc.

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ROBOTIC TECHNOLOGY



WHY USE ROVs

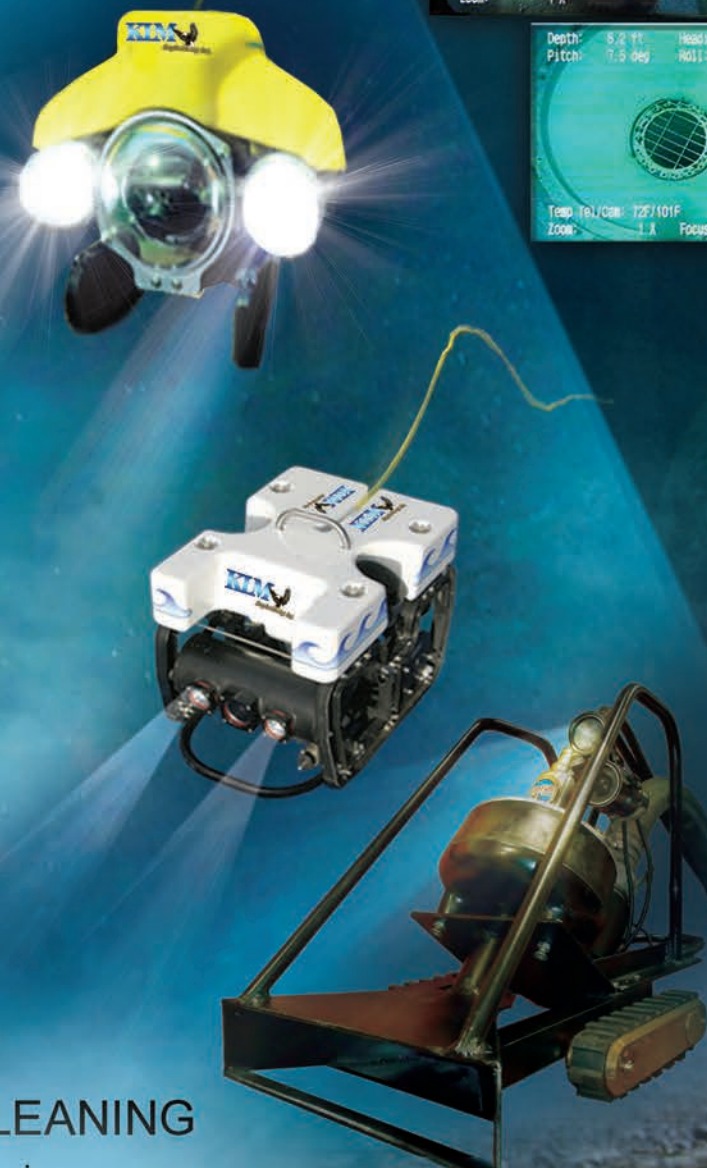
KLM brings you a fleet of state-of-the-art ROV technology which gives a safe and dependable way to evaluate, inspect, and clean your tanks.

- ♦ ROVs allow you to perform an inspection on clear wells, concrete reservoirs, and steel tanks.
- ♦ The reservoir remains in service during the inspection process which does not compromise fire protection or water quality.
- ♦ Robotic inspection is cost effective, saves man-hours, and costs of disposing of water for your utilities.
- ♦ No confined space entry required.
- ♦ All equipment is designated for potable water only.
- ♦ KLM provides qualified NACE / AWS Inspectors to operate the ROV.
- ♦ KLM will provide a video and written inspection report giving the owner details needed to make decisions on maintenance, repairs, and overall condition of their tank.



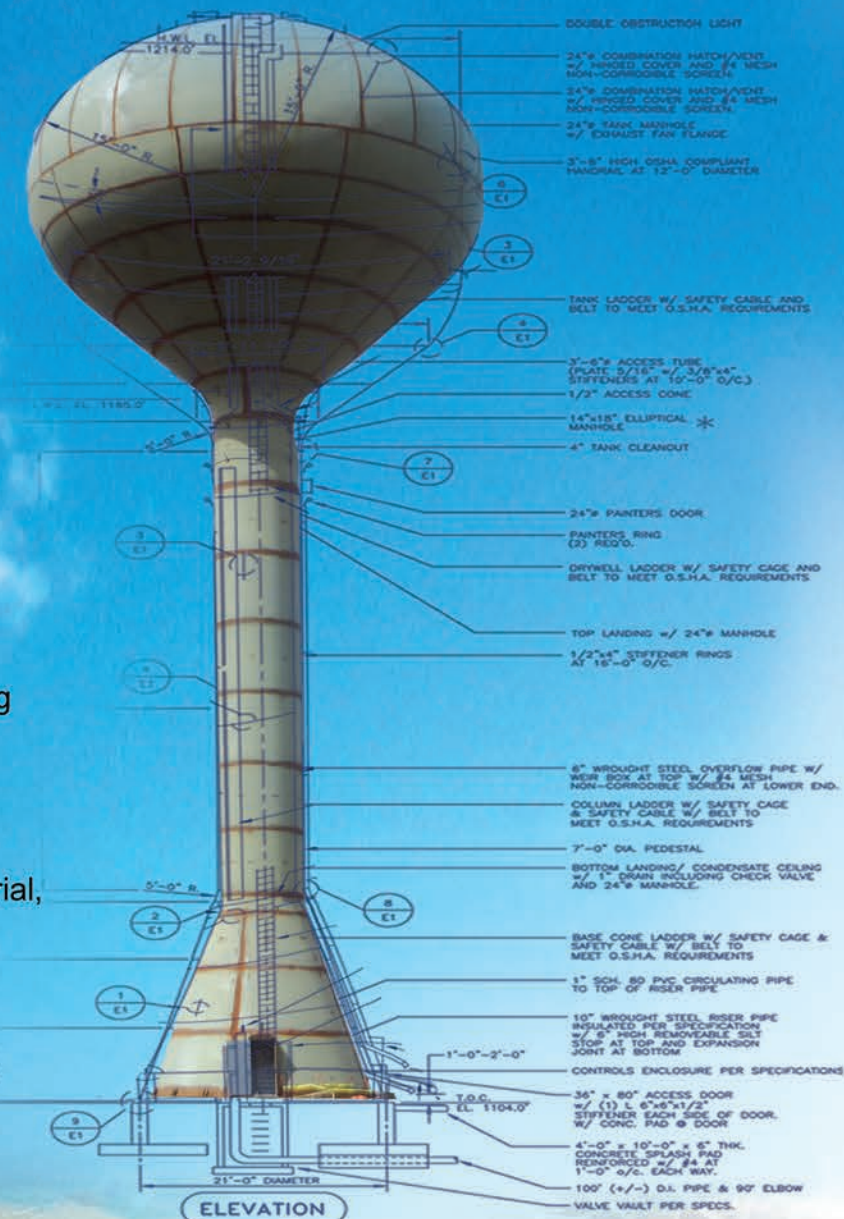
ROBOTIC CLEANING

With the robotic cleaning, you receive a video of the complete process. This assures the cleaning was performed to the owner's satisfaction.



KLM'S ENGINEERING SERVICES FOR NEW AND EXISTING TANKS

- ♦ Evaluation and design of water towers and ground storage tanks
- ♦ Evaluation of structural and coating conditions of existing storage tanks
- ♦ Preparation of plans and specifications for rehabilitation of elevated water towers, ground storage reservoirs, bridges, dams, power plants, and water treatment plants
- ♦ Conducts pre-bid meetings with clients and prospective bidders
- ♦ Technical reviews and on-site inspections of antenna installations
- ♦ Primary contact with client through the bidding phase of projects
- ♦ Project and construction management during reconditioning projects
- ♦ Structural engineering for commercial, industrial, and residential applications



DESIGN-BUILD

KLM's design-build projects are all about teamwork. The most successful projects include the owner, engineer, and contractor who collaborate seamlessly for the duration of the project. KLM works together as a team based on trust with a single goal to deliver a quality project on time and on budget.



ASSET MANAGEMENT

When you hire KLM, you are taking the guesswork out of your water storage tank, leaving you to focus on other tasks important to you!

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