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CIP Cleaning Systems Division



CHEMICAL GRADE TANKWASH CIP SYSTEMS: Applied Mechanical Technology is an industry leader in Clean In Place (CIP) Tank Cleaning Systems. Our chemical grade cleaning systems are used for everything from bunker oil to latex and are available in everything from portable single tank/pump units to large scale commercial duty multi-bay tank, ISO container and railcar cleaning systems. Our systems are designed with water and energy saving features and state of the art controls and are built with high quality components expertly designed and fabricated in our own shop to ensure you the highest quality standards.



FOOD GRADE TANKWASH CIP SYSTEMS: Applied Mechanical Technology is an industry leader in Clean In Place (CIP) Tank Cleaning Systems. Our food grade cleaning systems are designed for every food grade application from Dairy to Pharmaceuticals. The systems are made with food grade welded and polished stainless steel piping with sanitary rated pumps, valves, sensors, etc. Systems are available for everything from plant stationary to large scale commercial multi-bay tank, ISO container and railcar cleaning systems.



WATER / WASTEWATER TREATMENT: Applied Mechanical Technology – Water / Wastewater Systems Division builds water and wastewater treatment equipment and systems for industry and governments worldwide. Our Oil Water Separators, DAF Flo-tation, clarifiers, chemical feed systems, filters and controls provide the performance you need to be in compliance with today's stringent discharge requirements. With over 20 years of staff expertise we can provide the right solution to your water / wastewater treatment project. If you need a single treatment component or a complete treatment system. We have the expertise and the solution for your project.



CONTROL SYSTEMS: Applied Mechanical Technology designs and builds high quality, high performance controls systems for all types of systems. Our control panels are installed in our systems as well designed for installation in existing systems that need new controls. All our control panels meet UL508a standards and can be certified UL if required. Each control panel is expertly designed and built by experienced controls engineers and technicians to the highest quality standards using industry standard proven components, sensors, instruments, actuators, recorders, etc.



PORTABLE SYSTEMS – Applied Mechanical Technology designs and builds the core technologies that make up our systems. We provide these either for installation in a building or we can install in a shipping container for a truly portable or non-permanent installation. We regularly install CIP systems, boilers and water treatment equipment in portable containers complete with wiring, plumbing, controls, insulation and HVAC in a complete fully tested system.

Our equipment and systems provide the performance and reliability you need to keep running. With over 20 years of staff experience in system design and fabrication we have the tools and technology to provide you the best built tank wash on the market today.

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Water / Wastewater Division



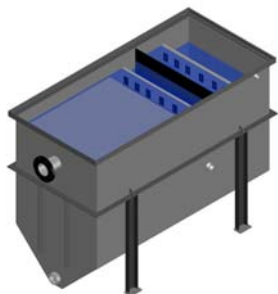
CLARIFIERS – We offer several models of High Performance Inclined Plate Clarifiers that are excellent for separating and removing sinking solids, metallic floc, coagulated solids, sand and grit and any other settleable material from water or wastewater at any flow rate. The clarifiers are available in a variety of configurations and materials to suit any water and wastewater treatment application including NSF61. The ultra smooth steep angle inclined plates and adjustable effluent troughs are designed to get the best possible flow distribution and settling performance. The bottom sludge chambers gently thicken the sludge. Bottom augers available on some models.



FLOTATION – We offer a complete line of dissolved air flotation (DAF) systems. Our systems are carefully designed to create high efficiency dissolved air that is comingled with the wastewater in a specially designed reaction chamber to ensure excellent bubble impingement. Bubbles and particulate create a strong bubble-particle bond that ensures good flotation and a stout float blanket. Design velocities are carefully controlled to ensure a non-turbulent separation cell. The surface skimmer removes the solids allowing the clean treated water to exit. Our DAF is available in a variety of materials.



FILTERS & IX – We offer a complete line of filters and Ion Exchange Systems including MultiMedia, Silica, Anthracite, Activated Carbon, OrganoClay, Demineralizers, Metal Ion Specific, Organic Traps and Manganese Greensand filters. Our filters are offered in a variety of materials and configurations. Automatic backwash, manual backwash, single and multicell, same source and separate source backwashing, mixed media and IX regeneration. Materials of construction include fiberglass, steel, ASME rated, stainless steel, and various other alloys. Operator interface control panels are provided with large intuitive displays for easy operation without extensive training.



OIL WATER SEPARATORS – Our line of oily water separators provide high performance in a relatively small package. We offer high performance coalescing media separators, open channel separators, and enhanced gravity separators (see DAF below). The high performance coalescing media separators pack a lot of coalescing surface in each cubic foot and are well suited for most industrial oils or other lighter than water non aqueous products. Our open channel separators are ideal for thick non-flowable material with their mechanical surface skimmers and optional bottom augers. Our oil water separators are available in a variety of materials and coatings to suit.

COMPLETE SYSTEMS – Applied Mechanical Technology designs and builds the core technologies and can provide them as individual components, or in a complete water/wastewater treatment system. Our in-house engineering, fabrication and strategic relationships with suppliers for instruments, dosing pumps, mixers, pumps etc enable us to provide a complete, fully integrated system with complete system responsibility. From Treatability to Turnkey, we can provide a successful project from start to finish.



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Statement of Qualifications

Applied Mechanical Technology has been making advanced technology components and systems for the industrial cleaning and wastewater industries since 1997.

We have two divisions; The Industrial Water Wastewater Equipment and Systems Division making oily water separators, clarifiers, DAF flotation, filters and controls and the Industrial Cleaning Systems Division making industrial wash systems for tank trailer, railcar, tanks and ISO containers. Both divisions operate from design to fabrication building the best industrial quality systems in the industry.

Applied Mechanical Technology is a wholly owned subsidiary of Bulk Resources L.L.C. Bulk Resources is a company that specializes in industrial bulk liquid transportation infrastructure and environmental equipment and systems.



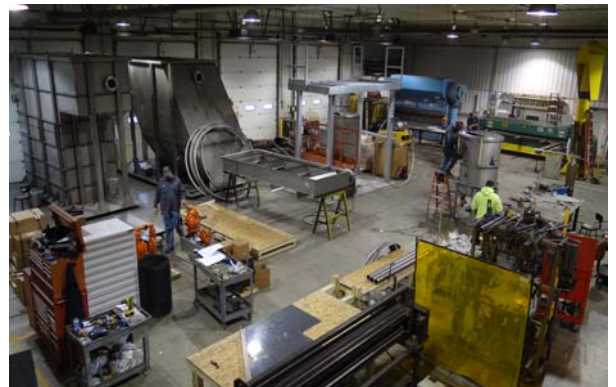
With over 80 years of collective experience in these industrial fields we are uniquely positioned to apply that experience and provide our customers with robust solutions to the various applications that challenge our customers today. We're not just an industrial wastewater equipment/systems maker, we're experts in the field.



Our broad base of core technologies are designed and built in our facility in Mokenca IL. These core technologies are perfectly suited as standalone technologies such as Oil Water Separator, Inclined Plate Clarifiers, DAF and Filter Systems and Chemical, Food Grade, and Kosher grade CIP systems. In addition, our systems group utilizes our core technologies to design complete systems solutions for those who need it.

Applied Mechanical Technology is an industry accepted expert in designing and fabricating high quality industrial wastewater treatment systems and tank and railcar CIP wash systems. Our 12,000 ft² facility in Mokenca, IL (suburb of Chicago) houses our engineering offices, assembly and light manufacturing facility, machine shop, control panel shop, and parts and inventory.

Applied Mechanical Technology has complete in-house design and fabrication capabilities including steel and stainless steel structural fabrication including ASME B31.3 pipe, complete state of the art 3D engineering department, process designs, electrical design and complete in-house UL-58A style industrial control panel shop capable of complete SCADA, PLC, and HMI programming in several standard platforms.



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Tank and Railcar CIP Wash System - Project Examples

Applied Mechanical Technology LLC is a company specializing in industrial water process since June of 1997. With two major divisions, Tank Wash and Water Wastewater Treatment that compliment one another well for a customer service perspective. Our in-house design, engineering and fabrication capability makes us both competitive and high quality with complete control over every aspect of design and fabrication. Our property, offices, and shop are perfectly suited for fabrication and assembly of both small and large projects. Our in-house electrical design and fabrication builds strictly to UL508A standards for industrial control panels. Our welder/pipe fitters are trained and certified. Our sub-suppliers are carefully certified by our own QC to ensure they meet our standards of quality and performance.

The following is a list of typical projects that touch on the company's experience.

Customer: Matson Terminals. Year: 1997. Location: Honolulu, Hawaii

Equipment: 2 bay truck tank wash, Boiler Package

Value: \$600,000.00

Applied Mechanical Technology: was responsible for the intermodal design for ease in shipping overseas and the installation of the equipment once on-site in Honolulu, Hawaii. AMT designed a boiler/CIP system combo unit to wash out liquid food grade truck tanker trailers with a sophisticated electrical controls system to monitor all aspects of the wash and boiler system. AMT worked with local contractors during the installation process for a smooth start-up.



Customer: Transport de Mexico. Year: 1999. Location, Guadalajara, Mexico

Equipment: 2 bay truck tank wash, Boiler Package

Value: \$750,000.00

Applied Mechanical Technology: Responsible for the intermodal design for ease in shipping across the border and the installation of the equipment once on-site in Mexico. AMT designed a boiler/CIP system combo unit to wash out liquid food grade truck tanker trailers with a sophisticated electrical controls system to monitor all aspects of the wash and boiler system, all while conserving as much water and electricity as possible.

Customer: Midwest Services Inc., Year: 2000. Location: Joliet, Illinois

Equipment: 2 bay truck wash, Boiler Package, Waste Water System, General Contractor

Value: \$1.5 million

Applied Mechanical Technology: was the acting general contractor for this project with the overall control of all aspects of the construction. This was a new construction site that AMT oversaw beginning with the excavation of the land, construction of a building with over 3,000sq. ft. of office space, 3 truck mechanic bays, 2 chemical tank wash bays, boiler room and waste water room.



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CIP Tankwash Systems Division

Customer: Foodliner Inc. Year: 2002

Location: Lake City, Minnesota

Equipment: 1 bay dry bulk hopper trailer wash and water heating system.

Value: \$1,250,000.00

Applied Mechanical Technology: Designed and built a dry bulk hopper trailer wash system at this location for Foodliner used for washing out dry bulk flour trailers. System was designed to maximize the water usage, heat consumption and operator intervention with the system. Wash system was completely automated.



Customer: Carry Transit Inc. Year: 2005

Location: Arlington, Texas

Equipment: 2 150HP Boiler packages, CIP System, transload pipeline, Liquid load out lines

Value: \$2.6 million

Applied Mechanical Technology: Responsible for taking an old wash system and completely re-furbishing the system to a new state of the art wash bay. System is completely automated from HMI terminals. The installation of 2 – 150HP boiler systems for the CIP and the transload pipeline allows over 19 million gallons of liquid fructose to be transferred from rail car to truck annually along with over 17,000 trailers washed.

Customer: Dow Chemical/Arkema. Year: 2006/2010

Location: Garland, Texas

Equipment: Storage tanks, pump house, transload pipeline

Value: \$3 million

Applied Mechanical Technology: was the original contractor that custom built and designed a pump house capable of pumping over 100,000 gallons of latex via an underground pipeline from the distribution center to Sherwin Williams plant for the making of latex paints. With the expansion in 2010, this distribution center can now off load or load rail cars for shipment to other locations with the United States.

Customer: Bulk Resources/Gulf Gateway Terminal. Year: 2012/2013

Location: New Orleans LA.

Equipment: Crude oil transloading railcar to pipeline to barge or tank project.

Value: \$24 million

Applied Mechanical Technology provided engineering support, project management support, Wastewater Treatment Systems and complete DCS Controls design and equipment. Provided supervisory capacity during plant startup and first oil transfers.



Customer: Ergon Refining – Oil Loading Terminal. Year: 2013/2014

Location: Vicksburg, MS.

Equipment: Refined oil tanktrailer CIP cleaning system including complete Wastewater Treatment System.

Value: \$550K

Applied Mechanical Technology provided design and engineering assistance and provided the complete systems for a single bay refined oil tanktrailer cleaning system complete with state of the art controls, heated blower dryer system and a complete Wastewater Treatment System including DAF dissolved air flotation separator.

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Industrial Wastewater Systems - Project Examples

Customer: US Navy
Date: 2011 to present
Site: Puget Sound Naval Shipyard
Engineer: US Navy Dry Dock Engineering Group Code 980
Application: Industrial bilge water and contaminated dry-dock water. Removal of FOG, Cu, and Zn
Project Value: >\$5,000,000



Overview: We provided process and controls design and supplied a complete 200 gpm system including Oil Water Separator, Chem Feed Systems, Flash/Floc mixing, high profile Clarifier, Effluent Polishing, and IX System for residual Cu and Zn. The entire system fits into a 22'x30' foot print in a two story configuration. The influent has ~1000 mg/L Oil and Grease, ~15 ppm Cu and ~15 ppm Zn. The performance goal is to achieve ND on hydrocarbons and < 4 PPB on metals. The contract was for two systems with options for 2 more. After delivery, performance testing and acceptance of the first two the US Navy ordered the others.

Customer: Atkore Conduit (Tyco)
Date: May 2011 to Oct 2011
Site: Philadelphia PA mfg facility
Engineer: MWH Philadelphia and Chicago offices
Application: Industrial oily wastewater with Zn and Cr from metal drawing, galvanizing, and brightening.
Project Value: >\$465,000



Overview: We provided a complete system including an Oil Water Separator, Chem Feed Systems, Flash/Floc mixing, Clarifier, Effluent polishing filter and complete controls package. The entire system was installed in an existing facility with limited space. Our low profile clarifier was provided conservatively sized. We made several value added recommendations that saved cost up front and allowed them to double flow rate in the future.

Customer: Gulf Gateway Terminals
Date: August 2012 to March 2013
Site: New Orleans East
Engineer: WS Nelson
Application: Crude oil trans-loading facility. Taking oil from railcars to pipeline to barge or tank.
Project Value: >\$650,000



Overview: We provided overall project design assistance as project manager for the owners, controls design and systems, and environmental systems. The controls package incorporated pumps, flow monitoring, LACT data generation and flare gas treatment system. The controls package was central located in the Master Command Center with rekote local panels with HMI located strategically in 3 other locations around the plant and the dock. The environmental systems included collection sumps and Oil Water Separator system.

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Customer: ARAMCO (Saudi Arabian Oil Company)
Date: Mar 2011 to April 2013
Site: Yanbu Industrial City K.S.A.
Engineer: KBR
Application: Oily water separator for high temperature and high pressure cooling water application.
Project Value: >\$1,300,000



Overview: We provided designs and fabricated equipment for a multi cell (6) 3800 gpm, 200F, 140 PSI Oil Water Separator with automatic air scour cleaning system. The Oil Water Separator treats process cooling water for removal of free and dispersed hydrocarbons. The design incorporates tangential inlet and centrifugal force in combination with API 421 style coalescing plates made from stainless steel. The design is very efficient at oil removal and solids reduction.

Customer: BRP Bombardier Recreational Products
Date: August 2013
Site: Spruce Pine NC
Engineer: Rivers Bend Engineering
Application: Plating and CCC wastewater with Cr
Project Value: >\$965,000



Overview: We provided a Cr treatment package including flow thru Cr reduction and flash/floc mix tanks, Clarifier, and Chemical feed systems to designs mutually determined between us and the Engineer. This is the second system thru this engineer to this customer. The first system was ~7 years ago and designed for 75 gpm.

Customer: Hart Engineering
Date: July 2013
Site: TF Green Airport - RI
Engineer: Gresham Smith and Partners
Application: DAF system for removal of biologic floc from biologic wastewater process treating glycol based aircraft de-icing fluids.
Project Value: >\$100,000 our portion, multi million total project.

Overview: We provide the DAF Dissolved Air Flotation system that is used to remove residual boil solids from bio wastewater that is treating de-icer fluids at an airport. Our design was customized to meet project specific requirements for oxygenation of effluent. We provide the local controls and instruments for the DAF system.

