



# UNIT TURNOVER SERVICES

FASTER, SAFER EQUIPMENT CLEANING & VESSEL ENTRY



**USA DEBUSK**

Powered by Farr Front Resources



## A WELCOME RESOURCE

USA DeBusk's unit turnover platform is the answer to requests by managers of hydroprocessing operations for more and better options.

For years, the services needed to clean, clear, and decontaminate units prior to shutdown have been limited. In some cases, the chemistries and application processes were provided on a "one-size-fits-all" basis, when a more customized approach would yield better results. In others, the level of service was lacking or the provider was unable to meet the scope or timing needed. Worse still, no single company could provide a full range of related services to make unit turnover projects as fast, efficient, and cost-effective as they could be.

### **I am pleased to announce that the days of settling for less than you deserve are over.**

USA DeBusk is providing elite, full-spectrum unit turnover services—at scale, nationwide. We have assembled many of the industry's foremost experts, developed a full range of chemistries and technologies, and amassed the most modern and diverse fleet of equipment to support operations.

We now offer an industry-leading chemistry portfolio with unit clearing and chemical cleaning, as well as patented non-exotherm reactor cleaning technology. A full staff of engineers and plant-experienced personnel is ready to plan and execute your entire unit shutdown.

And finally, you have a single source for all the services you need to make projects fast and efficient, from specialty emission control and catalyst removal to traditional hydro blasting and vacuum services.

With USA DeBusk, the unit turnover options you wanted are now available. Let's talk soon about your new opportunities.

Best regards,

Andrew DeBusk  
Chairman and CEO  
USA DeBusk



## OUR COMMITMENT TO SAFE UNIT TURNOVERS

Safe turnovers are everyone's responsibility. From the first steps in planning to the final step in demobilization, we are committed to the highest standards to protect people on the jobsite and in the communities where we work.

### COMMITMENT BY LEADERSHIP

Safety is our highest priority and is intrinsic to our culture. Our leadership team's goal is to ensure that all levels of employees share this philosophy and demonstrate their commitment to meeting all safety goals. We consistently and frequently review policies, procedures and preventative incident practices to enhance our best-in-class safety culture.

### DEDICATED SAFETY TEAM ACROSS THE COMPANY

We have a highly qualified, credentialed team of safety professionals with extensive experience working for customers and various contractors.

### EHS INSIGHT SOFTWARE

Our custom-built software system is used to manage audits/inspections, compliance obligations, incidents, corrective actions and more.

### COMMUNICATION

We enforce audit expectations at every level. We take a proactive approach to incident prevention by broadcasting near misses, incidents, and related events.

### TRAINING AND ORIENTATIONS

All new hires are required to complete and demonstrate competency of our rigorous safety standards. Refresher courses are required to ensure continual compliance. Continuous on-job/off-job training stresses the importance of safety and reduces complacency.

### COMMITMENT TO TECHNOLOGY AND AUTOMATION

Our advances in technology and automation improve both safety and efficiency, removing the need for employees in hazardous areas while developing more efficient and effective ways to complete our scope of work across all service lines.





## A RESOURCE UNIQUELY CRAFTED TO FACILITATE UNIT TURNS

USA DeBusk has an extensive portfolio of services to support you before, during, and after unit turnovers. Our capabilities include highly specialized technologies—unit decontamination, chemical cleaning, reactor cleaning, emission control, hot catalyst handling, inert catalyst services, pigging and decoking, and coker services—as well as traditional services such as hydro blasting, vacuuming, transportation and other support services.

These integrated capabilities are custom orchestrated to deliver unmatched value for your shutdown. Your savings and operational improvements are realized from multi-service synergies, best-in-class safety procedures, strategic project planning, and use of advanced, automated technologies throughout your project.

## UNIT TURNOVER ADVANTAGES

- Elite and proven safety culture
- Nationwide footprint
- Unique and scaleable solutions
- Extensive plant supervisory and decon project experience
- Patented chemistries and processes
- Specialized, no-exotherm reactor cleaning
- Multi-service savings opportunities
- Custom engineering
- Turnkey planning, equipment, mechanical, and execution

## UNIT TURNOVER SOLUTIONS

- Heavy oil units
- Light oil units
- Alkylation units
- Supporting units



# UNIT TURNOVERS

## TIMELINE OF PROGRESS

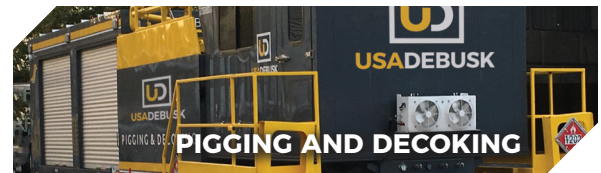
**2012** - Following decades of success in the industrial services sector, a core platform of cleaning services was consolidated into USA DeBusk.

Building on an industry-leading safety record and a commitment to advanced technologies and automation, our company grew into a provider of more than a dozen routine and mission-critical services. We developed deep customer relationships and became a trusted resource for refiners and petrochemical plants throughout North America.

**2021** - USA DeBusk acquired Kixmon Solutions, a premier provider of chemical cleaning and decontamination products and services. This added proprietary and patented chemistries and application processes, as well as highly qualified engineering talent.

USA DeBusk also acquired Farr Front Chemical Services, a leading provider of chemical cleaning, pipeline pigging and emissions control services. This development supplements our resources with elite expertise, equipment assets and technologies.

Combining these unmatched decontamination and chemical cleaning capabilities with continuous growth in related services, USA DeBusk is uniquely positioned to deliver unprecedented value for unit turnover projects.





## ONE SOURCE, UNLIMITED SOLUTIONS

USA DeBusk offers the industry's most comprehensive capabilities for decontaminating and chemically cleaning process equipment, including heavy oil, light oil, alkylation, and supporting units.

We help you carry out safer, faster, more predictable maintenance projects and turnarounds by using patented processes and chemistries to remove hydrocarbon deposits and clear LEL, H<sub>2</sub>S, benzene, and other noxious gases.

## VETERAN EXPERTISE

Decontamination and chemical cleaning projects are managed by a team of industry veterans who understand your operations and project requirements. Our deep bench of experts includes former plant operations professionals, as well as degreed engineers and specialists in reactive chemistry, unit decontamination, and reactor cleaning technology.

Our team provides a customized plan for engineering and operational support that provides maximum value for you. What's more, we have the ability to execute projects while making informed critical path decisions and overcoming unexpected challenges. We follow up with post-project reporting on lessons learned and opportunities for future improvement.



Experts with plant experience

## TECHNIQUES

- Circulation
- Steam blows
- Cascading
- Liquid fills
- Foaming
- Vapor phase cleaning
- Patented reactor cleaning



Best-in-class cleaning, decontamination and effluent management



# UNIT DECON AND CHEMICAL CLEANING

## THE RIGHT CHEMISTRY FOR THE JOB

We offer the industry's most extensive lineup of proprietary and patented chemistries, including:

- KixSolv® decontamination cleaning chemical
- KixClear® reactor clearing chemical
- Pyrox® pyrophoric treatment cleaning chemical
- Remedi® vapor pyrophoric treatment cleaning chemical

Our full range of patented chemistries and application processes enable us to apply the most effective technologies for your objectives, whether you need unit cleaning, passivation, neutralization, pre-commissioning, or other turnover support. USA DeBusk chemistry gives you unparalleled opportunities to decrease cleaning timelines, lower your costs, and alleviate environmental concerns.



Broadest range of proprietary chemistries

## PATENTED REACTOR CLEANING

USA DeBusk is one of two companies in the U.S. with the ability to effectively chemically clean high-pressure reactor loops. This patented, non-exothermic, online cleaning and degassing process provides faster cleaning, improved schedule predictability, reduced costs, cleaner equipment, and increased fluidity of spent catalyst to streamline dumping.

## EXTENSIVE EQUIPMENT INVENTORY

USA DeBusk has the largest state-of-the-art fleet of purpose-built, ASME-coded equipment to support your de-inventory and decontamination requirements. We also custom fabricate as needed. Our teams arrive on site with everything required to clean and decontaminate your process equipment while effectively managing effluent.



Complete equipment solutions



## COMPLETE EMISSIONS MANAGEMENT

Unit turnover projects require effective controls to safeguard people, protect the environment, and ensure regulatory compliance. USA DeBusk offers specialized processes that collect and treat flammable and hazardous gases and vapors using thermal oxidation and combustion, degassing vapor recovery, and carbon adsorption.

For maximum speed, our processes operate at flow rates up to 28,000 SCFM. For the highest levels of compliance, our systems achieve destruction-removal efficiency (DRE) certifications of 99.98%.

## CUSTOM SOLUTIONS

With a full range of technologies and equipment, USA DeBusk has the ability to apply the right tools for the job. We analyze the unique parameters of each project and custom-engineer emission control solutions to achieve your objectives. In-depth pre-project planning includes treatability studies and coordination with your HSE and operations personnel.

## CAPABILITIES

- Unit clearing
- Tank degassing, refills and vapor control
- Pressured vessel and sphere degassing
- Pipeline degassing and commissioning
- Vapor scrubbing
- Thermal oxidation and vapor combustion
- MSS (Maintenance Start-up and Shutdown) compliance
- Flare replacement
- Turnaround support: unit depressurization, unit clearing steam and wash out
- Frac tank vapor recovery
- API cleaning and maintenance
- Natural gas line purging







# EMISSION CONTROL

## RESOURCES

**MOBILE THERMAL OXIDATION UNITS** - Achieve the highest vapor destruction efficiency while maintaining high-volume throughput.

**MOBILE SCRUBBER SOLUTIONS** - Safely and efficiently remove and neutralize HAPs (hazardous air pollutants), VOCs (volatile organic compounds), and odor-causing emissions. Systems are engineered to satisfy EPA and MSS requirements, as well as state and local regulations.

**CHEMICAL MEDIA SCRUBBERS** - Capture and neutralize dangerous compounds such as  $H_2S$ ,  $SO_2$ ,  $NH_3$ ,  $HCl$ , and other HAPs.

**FLARE REPLACEMENT SYSTEMS** - Completely replace or temporarily augment flare capacities during scheduled maintenance. Systems may handle multiple units and/or processes with a single setup while remaining environmentally compliant and ahead of schedule during critical downtimes.

**SPENT MEDIA SERVICES** - Manage, transport, and dispose of spent media.

**PROPANE CONSERVATION SYSTEMS** - Operate from 1.5 to 45 MMBTU/hr. Blowers, burners, and pressure regulators ensure maximum DRE while conserving auxiliary fuel.





## TOTAL CATALYST SUPPORT

USA DeBusk provides comprehensive catalyst services to support FCCU and inert reactor turnarounds. Proprietary technologies and procedures provide industry-best safety, speed and efficiency.

## FCCU HOT CATALYST HANDLING

We offer complete catalyst support services for FCCU turnarounds—from the time the blowdown process begins through final removal and storage of material.

Our specialized equipment handles catalyst up to 1,250°F (677°C), allowing catalyst removal during unit shutdown and eliminating entire days from the turnaround schedule. Our team begins vacuuming catalyst immediately after main air blower shutdown, while operations personnel are performing LOTO and blinding. Vacuuming from multiple draw points and using a robotic system for enhanced access, we remove most residual catalyst before entry is made. These procedures minimize manned entry time and total time on site, improving safety and mitigating risks.

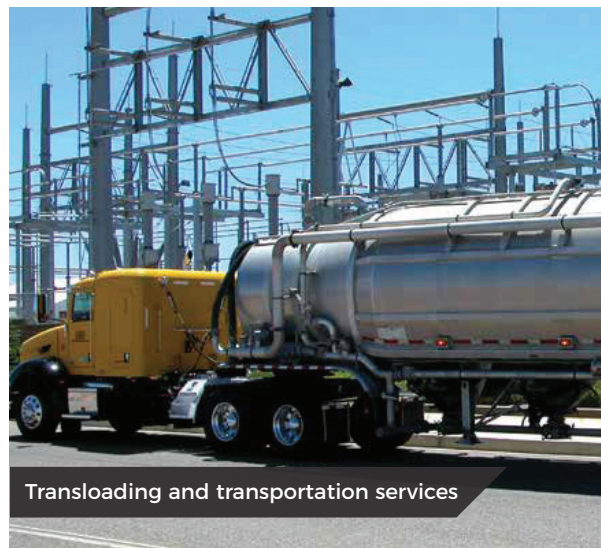
## FULL SERVICE

Our turnkey services include bulk transportation, transloading, environmental services, spent catalyst recycling, and secure storage for fresh or equilibrium catalyst.

We provide venting support during the operations blow-over, saving time, eliminating emissions and dusting, and allowing positive determination of de-inventory. We also offer de-inventory support for hoppers undergoing hot storage inspections. This service can remove all material required for entry in a fully closed-loop process.



Purpose-built, high-temperature equipment



Transloading and transportation services

# CATALYST SERVICES

## INERT CATALYST SERVICES

USA DeBusk provides turnkey inert catalyst services to support routine maintenance and full unit turnarounds, including:

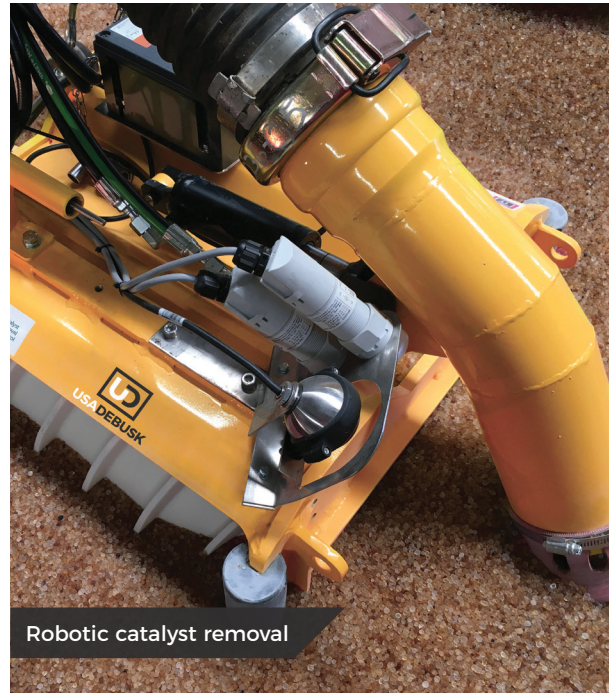
- Mechanical scope
- Surface preparations
- Unloading/loading of catalyst
- Separation of spent material for regeneration
- Transportation services

Our management team has served customers throughout North America for more than 25 years and our supervisors have a combined 100 years of catalyst-handling experience. Technical innovations include robotic catalyst removal, biometric safety systems, CO<sub>2</sub> gas expansion fracturing to dislodge fused catalyst deposits, and purpose-built vacuum units.

## SAFETY INNOVATIONS

USA DeBusk has developed innovative technologies to protect people, the environment, and your equipment.

- Remotely controlled robotic catalyst removal
- Life Support Units with biometric personnel monitoring systems for technicians entering confined spaces
- Locking air supply valve handles to prevent inadvertent interruption of fresh air to the technician
- Live Doppler weather radar map to monitor precipitation, wind conditions and lightning strikes
- Low-pressure air systems with integrated communications
- Independently powered emergency alarm notification
- Hands-free communications systems
- High-definition cameras for work area monitoring and quality assurance documentation



Robotic catalyst removal



Industry-best safety technology

USA DeBusk offers industrial services to clean, decontaminate and support maintenance operations in every unit of your plant.

From standalone projects to complex turnarounds, you'll find single-source solutions to boost efficiency, savings, and safety.



**USA DEBUSK**

**ADVANCED TECHNOLOGIES FOR SAFETY & SAVINGS**

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