

# Implementing Oil Skimming Solutions

## Oil Skimmer Extends Life of Parts Washing Fluid and Ends Recontamination

Like many metal working shops, Anderson Screw Products of Jamestown, New York turned to aqueous parts cleaning because of limits imposed by the EPA on the discharge of emissions and wastes.

Anderson operates a 50,000 square foot plant with 65 machines, including a dozen or so parts washers - Magnus dip tanks filled with a mixture of water and cleaning compound. The cleaning compound utilizes an oil/water separation chemistry. But after three or four weeks, there was so much oil on the surface that parts were recontaminated when removed from the wash tank.

To solve this problem, Anderson installed a Mighty Mini® belt skimmer manufactured by Abanaki Corporation, Chagrin Falls, Ohio. The skimmer's belt is operated by a motor and pulley system, which keeps it in motion whenever the unit is activated. The design uses the difference in specific gravity and surface tension between oil and water to pick up oil, grease and other hydrocarbon liquids as the belt passes through the washwater. After the belt passes over the drive pulley, it travels through tandem wiper blades where the oil is removed into a discharge channel. The oil then flows into a coolant saving Abanaki Oil Concentrator® where any residual water picked up with the oil is separated and sent back to the wash tank. The water-free oil is then discharged into a waste oil container.

The trial use of the Abanaki unit proved that oil skimming could extend the life of parts washing fluid by several weeks. The average time between fluid replacements is now three to four months. With this improvement, Anderson has quickly recovered the cost of the Abanaki Mighty Mini. Additionally, since installing the Mighty Mini into a small cavity in the tank's cover, recontamination of washed parts has ceased to be a problem.

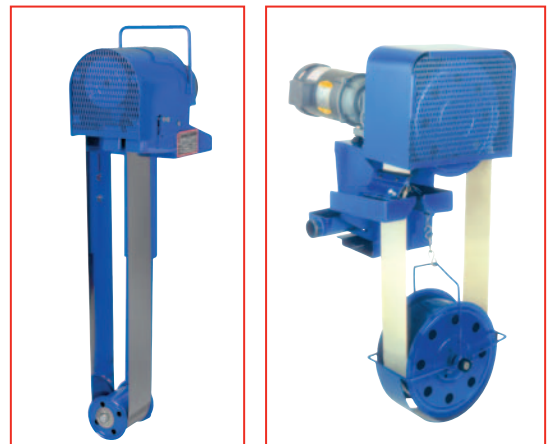
## Allegheny Ludlum Uses Abanaki to Support World-Class Wastewater Treatment Standards

### Model 4 and Tote-It® Installed at Key Sump Station Areas

*Allegheny Ludlum Corporation is a world leader in the technology, production and marketing of specialty materials – from stainless and silicon- electrical steels to titanium, nickel alloys and other advanced alloys. Its customers represent diversified consumer and capital goods markets in more than 30 nations.*

In keeping with the company's ISO 9001-certified quality system, the leader goes well beyond traditional business measurements to balance bottom-line efficiency with service excellence and a commitment to quality. Nowhere is this balancing act more in evidence than in the company's industrial wastewater treatment facility in New Bedford, Massachusetts.

Chief Wastewater Operator  
George Bergman's responsibilities



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encompass the restrictions on wastewater from regulation and corporate accountability practices with the need for quality water and a mandate to contain the overall cost of treatment.

## Sump Station Savings

Like most manufacturing or processing facilities, Allegheny Ludlum employs a collection system by which rinse water is collected before being transferred to the wastewater treatment system. Chemical residue floats on the surface of the tanks, oil drops to the middle while water is near the bottom. This continuous settling wastewater treatment process enables the company to reuse a high percentage of the liquid recovered from the production line – an important consideration as the quality water so necessary for industrial processing becomes harder and increasingly more expensive to obtain.

As Bergman points out, the savings start with “the effective removal of oil from the wastewater sump stations prior to treatment in the wastewater facility.” Yet as he and his three-man crew of wastewater operators discovered, hand skimming using absorbent pads was an inefficient and ultimately costly method.

Looking “to reduce the time and labor associated with manually removing the oil with absorbent pads during our daily checks of the system,” Bergman discovered Abanaki Corporation, a leading manufacturer of oil skimming solutions in the country.

Bergman first became familiar with the national leader by word of mouth and did further research on the company’s website.

## Belt-driven Benefits

He chose two of the company’s most popular models: the Abanaki **Model 4 Oil Grabber** and the **Tote-It® Portable Oil Skimmer**. Both skimmers rely on the differences in specific gravity and surface tension between oil and water to be effective. These characteristics allow the skimmer belts to attract oil and other hydrocarbon liquids from the fluid surface quickly and efficiently with little water content – a key factor in reducing the cost of disposal and lower the contingent liabilities of wastewater discharge.

Each system also delivered specific benefits for specific areas of the treatment facility.

Ideal as a pretreatment before filtration, Bergman requested the installation of the **Model 4** in a sump that collects water from several furnace wash tanks and used to remove oil. He and his team “inspect the process daily to ensure that the **Model 4 Oil Grabber** is working properly, check the condition of waste oil drum and inspecting and cleaning the wiper blades.”

He reports the unit operates quite well.

The **Model 4** removes oil at a rate of up to 20 gallons of oil per hour through a continuous belt and wiper action. The belt, operating on a motor and pulley system, runs through contaminated liquid to pick up oil from the surface. After traveling over the head pulley, the belt passes through tandem wiper blades where oil is scraped off both sides of the belt and discharged.

Bergman had Abanaki’s most mobile unit, the **Tote-It**, installed in a floor sump to remove oil from floor washing” – an ideal setting for this 36 lb portable unit that requires no modifications to mount and maintains skimming efficiency in fluctuating levels.

In fact, low maintenance and self-running sufficiency were key reasons Bergman chose Abanaki in the first place. As he explains, “I chose the Abanaki products for their simplicity of operation and automatic features, such as operation timer and shut off switch when the waste oil drum is full.”

Now, after six months in operation, Bergman reports that the two units have yielded even more benefits. “We have saved on labor and time by not having to apply and remove the oil absorbent pads every week,” he says.

Further, Allegheny Ludlum’s maintenance and wastewater operators are impressed with its ability to remove oil and simplicity. Maintenance Technician Bob Zussy, who installed both units, commented on the simplicity of the units, noting to Bergman that they were easy to install and delivered a high quality of the workmanship, from the way the parts lined up to the quality coating.

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Excellence in quality, price and delivery are key elements in Allegheny Ludlum's standing as a worldwide producer of specialty metals. A commitment to world-class production standards also necessarily involves operating an effective and efficient wastewater treatment facility. By installing Abanaki oil skimmers at key areas of the treatment process, the company underlines customer satisfaction, ensuring a residue-free product, and underscores community stewardship, providing proactive environmental protection measures.

## Independent Uniform Rental Provider Ensures Effective Wastewater Management With Abanaki

### Lord Baltimore Installs Model 8 Oil Grabber In Laundry

*Lord Baltimore Uniform is an independently owned company based in Baltimore, Maryland. Owner and President Ken Gore, Jr. and his staff of 55 provide outstanding garment rental, linen, and dust control services throughout the Mid-Atlantic States. Lord Baltimore services companies of every size throughout Maryland, Washington DC, northern Virginia, Delaware, and southern Pennsylvania.*

A large part of its commitment to excellence involves laundering a variety of items, including uniforms, linens, and mats. It currently processes around 2.34 million pounds of laundry per year, or approximately 9,000 pounds per workday. The 45,000 square foot laundry facility operates a single shift.

### Cost and Compliance Challenges

Lord Baltimore Uniform, as with all industrial laundries, is a water intensive facility, with a usage rate of 2,750 gallons per hour. Consequently, it must balance the escalating cost of water and wastewater services against increasingly stringent government regulations and the trend toward tighter TPH restrictions from wastewater treatment facilities.

Or, as Gore succinctly puts it, he was looking to "maintain profitability and growth while keeping 500 gallons of oil a year out of the Chesapeake Bay wastewater plants."

### Adopting the Abanaki Solution

Charged with this formidable task, Gore began inquiring how other commercial uniform facilities were handling the challenge. The search led him to Abanaki Corporation, a national leader in oil skimming solutions.

"A member of our cost group had purchased an Abanaki oil skimmer and was pleased with the results. We were able to see one of the products in action, at Gallagher Uniform in Michigan," Gore acknowledges.

He contacted the company and began working with an Abanaki sales rep to determine the best skimmer for their needs. They chose the Abanaki **Model 8 Oil Grabber** and installed it in October 2004. As a flagship product, the **Model 8** is one of the company's most dependable and effective means of removing oil from water and water-base solutions.

Designed to remove up to 40 gallons of oil per hour, the unit proved a good fit as a critical part of the water pretreatment system Lord Baltimore put in place. Like many laundries, the company operates a two-pit system: one for processing heavily soiled drain water and the other for clean drain water. In order to keep lint and solids from clogging the machinery, Lord Baltimore installed a baffled system over the 6000-gallon capacity heavily soiled pit, whereby laundry wastewater is pumped to an elevated station and run through a screen. The strained wastewater then flows into a holding tank where it is withdrawn by a feed pump. The Model 8 was installed in this tank, mounted near a clean water drain because it is here, where the liquid has sufficient dwell time, that the Abanaki unit can take advantage of the inherent tendency of oil and water to separate.

The **Model 8** then utilizes a continuous belt and wiper to efficiently remove oil and other hydrocarbon contaminants from the surface. First the belt, operating on a motor and pulley system, runs through the wastewater.

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Then it travels over a head pulley and through tandem wiper blades where oil is scraped off both sides of the belt and discharged. The tail pulley has flanges that allow it to roll freely on the inside of the belt without becoming dislodged. It requires no bearings and does not need to be mounted on the tank. If turbulent conditions exist, an optional tether and cage assembly prevents the tail pulley from being dislodged.

Depending on the characteristics of the liquid, the **Model 8** has been known to reduce oil content to less than five parts per million in water. Although it is too soon to calculate exact results at Lord Baltimore, Gore anticipates the Abanaki unit will help manage overall operating costs as part of an efficient effluent management system.

For now, he sums up his current satisfaction with the **Model 8** in just four words: "It does its job."

### F.S. Repair Underscores Commitment to Quality

*F.S. Repair, Inc., a family-owned and operated business, provides a range of services from industrial repair, machine shop, welding & fabricating, gearing, and CNC capabilities. The company, located in Kingsley, Iowa, incorporated in 1987 and continually strives to be the number one customer satisfaction company out there. Between Floyd Sitzmann and his two sons, Craig and Jamie, they have over 100 years of combined experience to offer their customers.*

Their company goal is to deliver quality products at a responsible and affordable price throughout the Midwest. So in 1995 when F.S. Repair's customer began experiencing a common challenge to the bottom-line in both cost and quality – wastewater – Jamie took action.

#### Keeping Wastewater Clean, Key to Quality

Jay Sitzmann's customer was experiencing a problem common to the food processing industry. A leading poultry company was looking for an efficient and cost-effective way of eliminating and disposing of unacceptable levels of oils and greases in their wastewater from the plant's food processing operations.

Jamie went to the Internet to research a solution that they could use. He was looking for an efficient and cost-effective way to remove the contaminants, maintain a high level of quality and, at the same time, reduce cleanup costs as well as eliminate any associated liabilities. He discovered one of the easiest ways to accomplish all of these goals was to install an oil skimmer. Upon further investigation, he located a leading supplier of oil skimmers, Abanaki, and found a low maintenance, easy to use tool in the Abanaki Model 8 Oil Grabber. The flagship product specifically targets applications with a high risk of oil and grease in wastewater discharge.



#### Lowering Hydrocarbon Levels, Quickly & Easily

With the help of the Abanaki technical staff that Jamie calls "second to none," he chose to distribute the Model 8 to his customer. Its belt-driven design works on the differences in specific gravity between oil and water. Water has a specific gravity of one and most oils have a specific gravity of less than one. This causes oil to float to the top of the water where it can be removed. The Model 8's belt action then breaks the surface tension of the water to attract and collect the floating oil. The belt passes through a set of wiper blades via a motorized head pulley where the oil is wiped off both belt sides and is allowed to flow through into a proper disposal container.

This type of skimmer maintains minimal operating space and maximum pick-up capacity. Because the Model 8's belt materials do not attract water, almost nothing but contaminant is picked up. Jamie reports that the Abanaki unit, which has the ability to separate oil at a rate up to 40 gph, was particularly appealing for its ability to produce "significant" savings in both time and money.

#### Low Maintenance Benefits to Boot

The Model 8 also is designed for virtually maintenance-free operation. Flanges on the tail pulley allow it to roll freely on the inside of the belt without becoming dislodged. It requires no bearings and does not need to be fastened to the tank. Its stainless steel belt material makes it well suited to operating in high

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temperatures without added expense. If turbulent conditions exist, an optional tether and cage assembly prevents the tail pulley from being dislodged.

## How's it working for F.S. Repair's customer?

According to Jamie, the experience has been good from start to finish: "The people at Abanaki were extremely helpful in advising the right solution at the right price. Since the Model 8 was put into service in 1995, their customer only had to replace the belts. It's proven to be a very reliable machine with good benefits," he says.

## Portable coolant-cleaning unit increases efficiency

*Maintaining a regular and systematic method of cleaning shop sumps and coolant can be an important step in maximizing the efficiency of manufacturing operations. Machining processes can dirty coolant over time, contaminating the fluids with tramp oil, chips and swarf. If left unattended, this can cause problems such as increased downtime of entire systems, slower cycle times and more tool and equipment replacements. Contaminated coolant also can contribute to an unsafe work environment by creating smoky conditions, an unpleasant odor and increased chance of contact dermatitis among susceptible workers.*

For Jay Wilson, facility engineer at a Stephenville, Texas-based plant within the FMC Technologies, Inc. (FMCTI) family, these issues are all too familiar.

Since 1976, Mr. Wilson has handled the heating, electrical, ventilation and air conditioning (HVAC) and other operational needs for the plant.

FMCTI, a global provider of technology solutions for the energy industry and other industrial markets, employs approximately 11,000 people and operates 33 manufacturing facilities in 19 countries. The company designs, manufactures and services systems and products such as sub sea production and processing systems, high-pressure fluid control equipment, measurement solutions and marine loading systems for the oil and gas industry. Additional work includes food-processing equipment and specialized products for the aviation industry.

Keeping coolant clean is a priority at FMCTI, which says outstanding Health, Safety and Environment (HSE) performance is a core value. Lines running along designated columns throughout the Stephenville plant deliver coolant from a central tank to each machine. The facility regularly cleans the coolant by pumping it from sumps, removing common contaminants and rinsing the systems with water before recharging them with reclaimed or new coolant. Mr. Wilson's team had been using coolant carts with diaphragm pumps to return the coolant after cleaning, but it needed a more efficient method. Mr. Wilson concluded that adding a sump-cleaning vacuum would make the entire process run more efficiently. After doing some research, he settled on the Abanaki **Chiperator**, which acts as both a vacuum and a pump. The air driven unit vacuums old cutting fluids from machine sumps and separates chips, swarf and muck from the liquid. After straining the unwanted solids, the unit pumps the coolant back to the sump. It is able to strain 40 gallons of coolant per minute, and it can drain or refill its 55-gallon drum in less than 2 minutes.

Now, coolant carts at the FMCTI facility incorporate the **Chiperator** along with a return diaphragm pump for additional pumping capacity. One important benefit, Mr. Wilson says, is that the entire cleaning system is on rollers for easy access. Without a portable solution, the shop would have to permanently station several coolant-cleaning devices at each machine sump. In addition, the **Chiperator** features disposable filter bags for easy cleanup. With no moving parts to malfunction, the unit is also easy to maintain. A float valve automatically shuts the unit off when the drum is full, and an automatic pressure relief valve is included for safety. An on/ off valve also offers easy shutoff.



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According to Mr. Wilson, the unit is more efficient than the previous system. He also comments that shop personnel find it easy to use. "The guys that work with it like it," he concludes.

*MODERN MACHINE SHOP, February 2008*

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## Reducing Those Troublesome Coolant Costs

### **Hahn Manufacturing chose oil skimming to remove tramp oils and saved money in the process**

*Hahn Manufacturing, a family-owned business, decided to skim oil, recycle coolant and help keep its part of the world cleaner.*

Hahn Manufacturing, located in Cleveland, Ohio, supplies precision prototype and production machined parts for OEMs across the country. The coolant tanks in Hahn's multiple machining centers were being contaminated with tramp oil. Plant manager Gary Ott was concerned with escalating disposal and replacement costs for the five machining centers. Coolant had to be replaced in the tanks every three months.

The **Mighty Mini**<sup>®</sup> oil skimmer looked as if it might fit the operation because of its ease of operation and compact size.

The Abanaki Corporation unit skims the floating tramp oil from the surface of the coolant and removes the oil at 1 gph by constantly rotating a stainless steel belt through the surface of the coolant sump, attracting tramp oils by breaking the surface tension of the coolant. The oil is then wiped off of the belt via tandem wiper blades and is discharged through a 3' discharge hose into a disposal container.

Access to the coolant sump is gained via the opening used for filling the machine sump. The built-in 24-hour timer permits the unit to skim oil when the machining center is not in operation, allowing the tramp oils to break out to the surface and be removed.

The oil skimmers paid for themselves in a few months. Hahn Manufacturing now runs the **Mighty Mini**<sup>®</sup> on its Okuma, Haas and Toyoda machining centers. Coolant costs have been reduced by 75 percent. The coolant stays clean and is replaced only yearly, saving the company time, money and coolant.

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## Leading Engineering Firm Tackles Ocean-Front Remediation with Well Oil Skimmers

### **PetroXtractors Pull Nothing But Product at Two Recovery Wells**

*For most people, the phrase "ocean-front property" carries a pleasant cachet. For project engineer Stephen Hanks, "ocean-front property" just meant a headache with a view.*

Hanks, who works for the Atlanta-based consulting firm MACTEC, was in charge of an ocean-front property containing a bulk fuel storage terminal. That terminal continued to create challenges caused by a spill that happened about 10 years ago. MACTEC engineers had dug a recovery trench to keep contaminants from leeching into the nearby natural water source. However, because of the site's close proximity to a coral reef, this solution proved untenable in the long term. The coral would re-grow in the trench.

Recovery wells were installed, but engineers quickly realized that this direct recovery approach needed additional support to be 100 percent effective. When the floating pump system mounted on the wells began to fail, Hanks knew it was time to do additional research.

Problem solving comes naturally to MACTEC, a leading consulting firm of 3,000 employees in 80 locations. It provides engineering, environmental and construction services to public and private clients worldwide. The company's core values of quality and accountability contribute to its ranking as a top

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design firms. A commitment to operational excellence was one reason the company chose to install two Abanaki **PetroXtractor® Well Oil Skimmers** to ensure effective remediation on its ocean-front project.

Hanks was looking for a solution that provided the accuracy of a pump to pull fuel from the surface of the well water — but without the complications. “The pump method ultimately failed because it had too many parts and needed to accommodate too many variables. The fluctuating salinity of the water caused the pump float to sink, and the tidal influence posed a tremendous obstacle,” Hanks explains. “Pump controls needed to be calibrated very accurately to the specific gravity of the fuel and water. We needed something less maintenance-intensive and more reliable.”

After an extensive online search, Hanks looked to a flagship product from Abanaki Corporation – the **PetroXtractor**. Two units were installed on different recovery wells on the site. With the ability to separate oil from the water surface from an elevation of up to 100 feet without a pump, the PetroXtractors maintained skimming efficiency even in the fluctuating water levels created by the tide. Their continuous belt action made use of the differences in the specific gravity and surface tension between oil and the water to attract floating oil from the well surfaces and skimming it very efficiently without additional labor. The fact that the units skimmed very little water during recovery was an added bonus that he and his team soon discovered.

“Prior to installing the Abanaki **PetroXtractors**, weekly visits to the well sites were made so that the fuel could be pumped by hand using diaphragm pumps,” Hanks says. “The skimmers are run approximately 16 hours per week, and have been working very well. Because the skimmers are not pumping water out of the wells there is no water treatment issue, which is a major benefit.”

The **PetroXtractors’** simplicity was another asset. After picking up the oil, the belts travel over head pulleys on each drive unit and through tandem wiper blades. Oil is then scraped off both sides of the belt and discharged through a small hose.



*The engineering consultants MACTEC were in charge of an ocean-side property containing a bulk fuel storage terminal. That terminal continued to create challenges caused by a spill that happened about 10 years ago. Seeking a solution, Engineer Stephen Hanks looked to a flagship product from Abanaki Corporation – the PetroXtractor Well Oil Skimmer. Two units were installed on different recovery wells on the site. With the ability to separate oil from the water surface from an elevation of up to 100 feet without a pump, the PetroXtractors maintained skimming efficiency even in the fluctuating water levels created by the tide.*



*The PetroXtractors’ simplicity was a great asset. After picking up the oil, the belts travel over head pulleys on each drive unit and through tandem wiper blades. Oil is then scraped off both sides of the belt and discharged through a small hose. Installation consists of merely lowering the belt and tail pulley into the casing until the pulley is fully immersed, placing the discharge hose in a container and switching the unit on.*

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and discharged through a small hose. Installation consists of merely lowering the belt and tail pulley into the casing until the pulley is fully immersed, placing the discharge hose in a container and switching the unit on.

“When dealing with remediation projects that can last over a period of many years, complicated systems are difficult to pass on as new project managers take over,” Hanks says. “The **PetroXtractor** is great for long-term projects and can easily be passed on with little explanation of how it works.”

“The **PetroXtractor** system is not complicated and was very simple to set up. Other systems using pumps have a complicated logic system control panel, which makes the pumps work in series when dealing with multiple wells at a site. When one part of this system goes down, the whole system goes down. With the multiple PetroXtractors installed at one site, each unit works on its own and can continue to operate should other units require maintenance.” he adds.

Most of all, the Abanaki oil skimmers have been consistent with MACTEC’s focus on making their clients more successful with value-added services. “With the Abanaki **PetroXtractors** in place site visits are much less labor intensive and the **PetroXtractor** has proven to be about 20 to 30 percent more efficient than manually pumping the wells,” Hanks says.

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## Leading Oil Refinery Underscores Compliance and Cost-Effective Commitments with Abanaki

### Montana Refining Installs Model 5x8 Oil Grabber MB in Wastewater Treatment System

*The world’s first oil refineries came into being in the mid 1800s to recover kerosene from crude oil. Gasoline was merely a waste byproduct. The automobile age changed all that, particularly in the United States, where refinery demand shifted significantly to the primary refined products of today – gasoline and diesel. Two world wars also increased the need for sustainable fuel sources for war ships.*

Strict legislation has since mandated that refineries meet stringent air and water cleanliness standards. In fact, obtaining a modern building permit for a refinery with minimal environmental impact is so difficult that no new refineries have been built in the United States since 1976. To keep up with demand – as well as to stay cost-effective – many facilities have expanded and the industry is rife with mergers and acquisitions.

Such is the case with the Montana Refining Company, a 10,000-barrel a day crude oil refiner purchased by world leader Connacher in March 2006. Like other large-scale plants with high capacity, process optimization and advanced process controls are very desirable at Montana Refining.

As Stephen Kind, a Reliability Engineer at the Montana Refining Company for the past 18 years puts it, the company’s number one goal is “to produce fuels as economical and environmentally friendly as possible.”

### How to Recapture 100% Hydrocarbon

Montana Refinery is a very sophisticated plant capable of producing everything from gasoline and jet fuel to asphalt. So when Kind went looking for a reliable method of capturing and transferring oil from the plant sewers before sending water to the city’s wastewater facility, he went on the Internet. That’s where he found Abanaki.

Abanaki Incorporated is the world’s leading manufacturer of oil skimmers, an efficient and cost-effective solution favored by wastewater engineers across industries for many years. The skimmer lends itself perfectly to wastewater collection and treatment systems designed to ensure that water running through the plant is suitable either for reuse or disposal.

Kind chose the Abanaki **Model 5x8 Oil Grabber MB** to replace a manual method. It was the unit’s reputation for removing relatively large amounts of hydrocarbons that appealed to Kind.



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Prior to implementing the Abanaki skimmer, hydrocarbons had been skimmed using an adjustable horizontal slotted pipe that was rolled by hand. Overtime, operating costs were increasing due to the labor-intensive requirements of these kinds of methods, becoming further compounded by the amount of water recovered that must then be treated or disposed of as hazardous waste.

Oil skimming makes use of the differences in specific gravity and surface tension between oil and water. These physical characteristics allow the Oil Grabber to attract oil and other hydrocarbon liquids from the surface of the fluid efficiently and cost effectively. Kind further ensured that oil would be removed at high rates by choosing a version of the unit that is built specifically for jobs requiring high capacity oil removal. The **5x8** version features five belts made of Abanaki's patented **Fuzzy Belt®** material. Not only do the multiple belts deliver eight skims simultaneously, their revolutionary material was patented by Abanaki to offer exceptional oil skimming performance on light, non-viscous hydrocarbons, such as gasoline diesel, and jet fuel, where rate of recovery is an important factor.

As a result, the continuous belt and wiper action of the **Model MB 5x8** removes up to 200 gallons of oil per hour from the fluid surface. The belts, operating on a motor and pulley system, run through the contaminated liquid to pick up oil from the surface. After traveling over the head pulley, the belts pass through tandem wiper blades where oil is scraped off both sides of the belts and discharged.

"We recapture 100% of all hydrocarbons that go down our drains," Kind confirms. "The sewer systems of the refinery go to a collection pit where we have the skimmer mounted. The skimmer collects the hydrocarbons and they are sent back to our crude tank."

## More Multi-Belt 5x8 Marvels

Abanaki also designed the unit to be an easy install without tank modification and with virtually no maintenance issues. The tail pulleys have flanges, which allow them to roll freely on the inside of the belts without becoming dislodged. They require no bearings and do not need to be fastened to the tank. If turbulent conditions exist, an optional tether and cage assembly prevents the tail pulleys from being dislodged in almost any depth, from a shallow one-foot up to 100 feet.

"We leave the skimmer on 24/7. If we can't transfer the oil for some reason we open a by-pass valve and let the oil go back to the pit until our secondary containment pit can be pumped," Kind says.

"The system is a great time saver. Operations doesn't have to baby-sit the skimmer. Since time is money, I believe the cost of electricity is more than off set, not to mention that less water is transferred to our break tank with the belt skimmer," he adds.

In fact, everything about the **Oil Grabber MB Model 5x8** is designed to last for many years. With proper configuration it can handle liquid temperatures up to 212°F, and the pH of the fluid can range from 3 to 13. The skimmer drive includes an oil filled gear reducer with bronze gears and ball bearings. The motor, reducer, and powder-coated finish of the weldments give the unit an exceptionally long life, even under the harshest conditions.

"Everyone seems to be impressed with the process. There has been no maintenance on it since we leveled it and deflected the inlet from impinging on the belts. Bart Eggert, (Abanaki's Regional Account Representative) was very responsive to our questions and extremely helpful in trouble shooting any installation problems we had." Kind concludes.

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## "Perfect" Finishing Operation Finds Perfect Solution to Combat Oily Wastewater

### Rosemont Industries Uses Customized Abanaki PetroXtractor in Black Oxide Operation for Cost Control and Compliance

*The origins of mass finishing can be traced to biblical times and the use of tumbling barrels. Today, vibratory finishing has emerged as one of the most popular finishing methods and manufacturers across a variety of metallic applications rely on leading providers such as Rosemont Industries in Cincinnati, Ohio.*

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For decades, Rosemont has provided high quality metal finishing services at affordable prices to its broad base of local, national and international customers. The company's full range of vibratory finishing services includes new and refurbished equipment for deburring, edge breaking and polishing; media and compounds for parts separation and finishing; and a job shop for customized finishing work.

## The process of perfection

For those applications where the finish must be "perfect" – with no visible blemishes or defects – Rosemont offers a black oxide process. "Products known for their metallic luster such as costume jewelry and guns rank among the most popular end uses for black oxide finishing," Scott Majors, Rosemont's President of Operations, explains.

The process requires parts to move through several stages. First, they are polished in the facility's vibratory finishing system using ceramic media. After polishing, the parts go through an alkaline cleansing process followed by a counterflow rinse. This allows Rosemont to remove buffing compounds and manufacturing residue such as oils and grease. Next, the parts proceed into Rosemont's 68-gallon black oxide bath in the facility's 16-foot tank and then are run through ambient rinses. The final step is immersion in soluble oil that provides corrosion protection and enhances the appearance of the blackened parts.

## Escalating concerns

Although a black oxide finish is highly valued for its final results, the process has come under increasing scrutiny from regulatory bodies such as the U.S. Environmental Protection Agency (EPA). In recent years, the EPA has focused on service shops that use harsh chemicals, concerned that oily wastewater could find its way into local drinking water. Leading finishers like Rosemont have taken a proactive position as a result.

"We know we need to be particularly vigilant in how we handle the wastewater from the cleansing stage where oil and other contaminants are removed from the parts. The water flows through a batch discharge and mixes with wastewater from the entire plant, so we have to be sure tramp oil from this operation won't leak into any other area of operation or, of course, out into the surrounding community," Major says.

Majors also reveals that Rosemont needs to be mindful of the escalating costs associated with a shortened washer fluid life due to oils as well as the rising costs of disposing of the contaminated fluids.

## Finding the preferred solution

More than six years ago, the facility was able to use an internally designed and built skimmer to remove contaminants from the wastewater but as local and federal regulations tightened and costs began to skyrocket, Majors began to research other solutions. He found Abanaki, a worldwide leader in oil skimming solutions, through one of their customers.

"We had the chance to tour a customer facility and saw the Abanaki name on a skimmer in use there. They were quite pleased with its performance and said Abanaki was the best in the business, so we call the headquarters outside Cleveland and the company sent a representative down to meet us," Majors says.

According to Majors, the decision to call Abanaki was a good one. After analyzing the operation and discussing Rosemont's specific needs, the decision was made to install the belt-driven oil skimmer, the PetroXtractor,

In general, belt oil skimmers work because of the differences in specific gravity between oil and water which causes oil to float to the top of the water where it can be removed. The special belt material breaks the surface tension of the water to attract and collect the floating oil. The belt passes through a set of wiper blades via a motorized head pulley where the oil is wiped off both sides of the belt. The oil then flows through the skimmer troughs and into a proper disposal container.

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## Making the best better

The **PetroXtractor** by Abanaki Corporation offered Rosemont several unique advantages over other choices. Its single unit design separates oil and elevates it up to 100 feet without a pump. It has a tethered tail pulley to prevent accidental belt loss, and it is designed to skim very little water, even with fluctuating water levels. This was an important consideration at the facility, since levels fluctuate often, with different shifts handling different production capacities.

In addition, factors such as variable pH levels and the use of rust inhibitors – both present at Rosemont – can affect a skimmer's ability to pick up oil and may require a specific skimming medium.

“Very early on, we experienced some problems with the belt as we often use some very harsh chemicals,” Majors acknowledges. “But all we had to do is call Abanaki and they sent someone down right away to assess the situation. Then they customized the belt material to fit our needs. All in all, the service response was excellent.”

## Good for costs - and compliance

Low initial cost and even lower maintenance are two common benefits of an Abanaki skimmer. The only required maintenance is replacing a belt and wiper blade set as needed and there are no filters to change. And the **PetroXtractor**, while boasting a pick-up rate of up to 16 gph, requires very little operating space with no tank modification.

“We have been very pleased with the Abanaki unit. It consistently pulls the right amount of material we need to stay in compliance and takes up very little room. From the time it was installed over six years ago in a corner of the plant, it hasn't required any special attention and it works great,” Majors concludes.

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## Oil Skimmer Technology offers Pollution Solution that Saves Money instead of Raising Operating Costs

*Oil skimming is a simple, dependable and effective means of removing oil from water. And unlike some other processes, it offers users the potential for major cost savings.*

At Schenectady Chemicals Canada, Ltd., plant manager Fred Soukereff estimates that his company has saved \$ 5,000 annually by using the skimmer instead of former methods of waste removal. “The real saving, however, is in the fact that we have a much cleaner plant effluent discharge,” he points out.

The individual designs employed in oil skimmers may vary widely, but all oil skimming devices rely on two well-known scientific principles: specific gravity and surface tension.

Oil is lighter than water so it floats to the surface. Floating oil clings to materials more readily than water so it can be picked up by passing a belt or pick up media through the surface. Oily material adheres to the media and is removed, while water runs off.

Schenectady selected an Abanaki **Oil Grabber Model 8** Skimmer for its Toronto, Ontario plant. The unit which is installed outside the plant operates with an 8 inch wide, 13 foot stainless steel, corrosion resistant belt.

Results, to date, are impressive. Schenectady's wastewater discharge meets Toronto municipal bylaw standards for ratio of oil to water, measured in parts per million. The new Toronto standards limit the discharge of mineral oil to 15ppm, and natural oil and grease to 150ppm. The Abanaki system is capable of skimming solvents as well as resins and oil.

Soukereff explains the operation: “We use a two stage interceptor system to separate any oils and solvent in our wastewater. Prior to the installation of the Abanaki skimmer, this interceptor had to be cleaned out annually, at considerable cost. The high costs were partially due to the premium we had to pay for the water content of the mixture.

“It was a trade magazine article that caught my attention. It discussed how oily waste could be removed from water using an oil skimmer. That's how we came in contact with Abanaki.”

# Implementing Oil Skimming Solutions

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Schenectady had a mixture of solvents, resin and oil/water interface so they were skeptical as to whether an oil skimmer would work for them. Test strips of the stainless steel belt material appeared to pick up some of the solvent.

Based on the ease of installation and the low cost of the Abanaki skimmer, Schenectady decided to try a unit with a 6 foot belt. The results were encouraging, says Soukereff. "We found that the belt picked up the solvent and the interface readily, and kept the interceptor relatively free of the solvent resin layer,"

"Once we found that the skimmer worked, we installed a more permanent and winterized system with a longer belt. It has been in routine service since March 1991, with little problem," says Soukereff.

At Schenectady, one maintenance operator monitors the operation on a routine basis.

According to oil skimmer manufacturer Abanaki, the experience at Schenectady of actually saving money after installing a skimmer to assure compliance with environmental regulations isn't all that rare. Skimming is a simple, effective means of removing floating oils, and other similar contaminants, and skimmers like Abanaki's are so easy to install, operate, and maintain that users often achieve savings based on decreased maintenance costs alone.

A second source of savings results from the fact that a properly installed system can provide a very good separation of the oil and water. For some users, the important part is to be able to re-use of discharge the water without further treatment, while for others, the important part is having to pay only for the disposal of the actual contaminating material instead of a much larger volume of contaminates mixed with water.

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## South Feather Water and Power Underscores Commitment to Clean Water, Efficient Power with Abanaki

### **California Utility Installs Model 8 Oil Grabber in Power Plant**

*The mission of South Feather Water and Power (SFWP) is two fold: to provide cost effective power with minimal impact on the environment; and to ensure a dependable supply of safe, quality drinking water as well as a reliable supply of water for agricultural users. In all instances, the California-based utility is committed to delivering water and power in the most economical, efficient and publicly responsible manner. It also is dedicated to providing its employees with a safe work environment.*

These commitments led SFWP to proactively seek out one of the industry's best solutions for guarding against oil leaking into the water supply.

### **The Abanaki Alternative to Messy Sorbents**

SFWP Electrical Maintenance Supervisor John Davis is responsible for the maintenance of the hydroelectric generation facilities. "Old generators have a tendency to leak oil, which can end up in the sump. Obviously, any discharge into the reservoir is unacceptable, so we're always on the lookout for a proactive solution," he said.

Davis witnessed what he thought was an excellent solution at Pacific Gas & Electric (PG&E) and was impressed. They had installed an Abanaki **Model 8 Oil Grabber** at a powerhouse to prevent oil from leading into the water supply.

"I started looking for an alternative to the method we had been using to remove oil from sump-- sorbents. While they can be effective, they're also very messy and time consuming, so I started searching the Internet for oil skimmers," Davis explained. In his search he found the Abanaki website and discovered more about the **Model 8**.

Today this device is mounted in a key power facility. Its continuous belt and wiper action makes use of the differences in specific gravity and surface tension between oil and water. The belt, operating on a motor and pulley system, runs through contaminated liquid to pick up oil from the surface. After traveling over the head pulley, the belt passes through tandem wiper blades where oil is scraped off both sides of the

# Implementing Oil Skimming Solutions

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belt and discharged into an Abanaki **Oil Concentrator**. From the oil concentrator any residual water is returned to the sump and the oil is sent to a 55 gallon drum.

## **Low Maintenance Benefits of the Model 8**

The Abanaki Model 8 Oil Grabber is designed to be a dependable and effective means of removing oil from water and water-base solutions, up to 40 gallons of oil per hour from the fluid surface. It is considered a good choice for applications with fluctuating water levels as it can be used in tanks with depths as shallow as one foot, or as deep as 100 feet.

How is it working at South Feather Water and Power? In use now about a year, Davis revealed that the Model 8 has been a welcome addition by his staff.

“The maintenance department really likes not having to manually remove oil. They no longer have to check on the sump as often or take the time out of routine maintenance checks to manually clean it,” Davis explained. He also reported that the **Model 8’s** low maintenance design has been well received.

The tail pulley has flanges that allow it to roll freely on the inside of the belt without becoming dislodged. It requires no bearings and does not need to be fastened to the tank. If turbulent conditions exist, an optional tether and cage assembly prevents the tail pulley from being dislodged.

“We’re a small staff with a large area to cover. The Abanaki oil skimmer in place gives us one less thing to worry about,” Davis concluded.

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## Great Lakes Fleet Improves Oily Water Separation with Skimmer, Planning

*Periodic cleaning of engine room equipment is part of the USS Great Lakes Fleet preventative maintenance program. To do a thorough job, it involves the use of cleaning compounds which dissolve lube oil and grease.*

Carl Walker, engineer–maintenance planning at USS Great Lakes Fleet, specifies these compounds, and one of his major concerns is what happens when they enter the bilge water – as he also has to ensure that the fleet’s oily water separators reduce the oil content of bilge water to a negligible amount, even in the presence of these chemicals. As Mr. Walker said, “Separators need help in the form of auxiliary equipment, and they benefit greatly from planning that considers the type of cleaning compounds used.”

The company has found an oil skimmer to be a piece of auxiliary equipment which greatly enhances the performance of an oily water separator. In many separators, filter element efficiency is affected by oil concentration in the water being processed. By reducing floating oil before it gets into the separator, the equipment performs more efficiently and filter elements last longer. The cost of the skimmer is quickly repaid through reduced element replacement cost and less time spent giving special attention to monitoring and reprocessing water whose oil content remains high.

On many USS Great Lakes Fleet bulk carrier vessels, Mr. Walker has installed an oil skimmer made by Abanaki Corp. of Chagrin Falls, Ohio, which helps reduce oil content of bilge water before it gets to the separator. The Abanaki **Model 4 Oil Grabber** specified by Mr. Walker uses a stainless steel belt operating on a motor and pulley system. This design makes use of differences in specific gravity and surface tension between oil and water to pick up grease, oil and other hydrocarbon liquids as the belt passes through the water. The unit can remove up to 20 gallons of oil per hour.

Still, peak skimming efficiency can more quickly be achieved through good installation practices, and by being selective in the types of cleaning compounds used. For example, some cleaning compounds have emulsifiers which help loosen oil and grease, but subsequently may cause the oil to form a tight emulsion in the bilge water.

# Implementing Oil Skimming Solutions

## An easy option for collecting oil

*Albert Looms recently purchased an oil skimmer to collect the oil from their interceptors and drains.*

Having previously used a saucepan with a long handle, the idea of a machine being able to do the work for them seemed quite appealing. Albert Looms' Operations Manager, Ray Kirk explained, "Removing the oil was one of those jobs that has to be done but is time consuming and no one really wants to do it. When we saw the oil skimmer we did have our doubts as to how effective it would be but this machine really has lived up to all our expectations." He continued, "We check the interceptor once a week and the drains on a daily basis. If we need to remove any oil, we drop the belt in and let it run. It couldn't be simpler."

Looms' skimmer was supplied by Abanaki UK Ltd., who manufactures a range of models to suit different applications. The model shown is the **Oil Grabber 4**, which can separate oil at a rate up to 20 gph and lift up to 100 ft without the need of pumps. The unit will maintain skimming efficiency with a fluctuating fluid level and can be used in depths as shallow as one foot.

If you think a skimmer could make your life easier, you can contact Abanaki on 01179 616679 or visit their website at [www.abanaki.co.uk](http://www.abanaki.co.uk)

