LIQUID RECYCLING
used oil | parts cleaning | anti-freeze | filters & absorbents | wastewater | chemicals

2016 NORA Annual Conference & Trade Show
Kohala Coast, Big Island of Hawaii
November 9-12, 2016

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$20/issue | FREE for Members | 2016, Issue 3

NORA
AN ASSOCIATION OF RESPONSIBLE RECYCLERS
HAZ~MAT’s Flash Fractional Vacuum Distillation Systems are specifically designed to purify antifreeze and industrial source glycols in accordance with ASTM specifications. A variety of configurations are available. Single and Double stage systems can be used in various combinations to increase production capacity.

**SINGLE STAGE SYSTEM PROVIDES SIMPLE “FLASH VACUUM DISTILLATION” FOR PRODUCTION OF PRE-MIXED ANTIFREEZE BLENDS.**

**TWO STAGE SYSTEMS UTILIZE A SECOND COLUMN WITH INTERNAL PACKING DESIGNED TO ALLOW RISING GLYCOL VAPOR TO UNDERGO A SERIES OF VAPORIZATION AND CONDENSATION STEPS TO FURTHER ENRICH THE GLYCOL VAPOR.**

For more information, contact Bill Dempsey at 402-297-2643 or email bill@hazmatnc.com.
Introducing NORA SocialLink
Year-Round Networking Made Easy

As I regularly interact with NORA members, they tell me the greatest value they find in their NORA membership is networking. This leads to business development and greater knowledge of their industry.

Most NORA networking has been concentrated around the various events the association hosts. That is until now.

NORA has worked with our partners to develop a first of its kind solution that will allow member to utilized social media and mobile integration to allow members to easily stay connected every day.

Professional Networking
NORA’s SocialLink will allow members to build stronger connections throughout the industry to help grow their businesses and gain the information they need to effectively run their businesses.

Members will receive highly-personalized and relevant content in a secure and private online social venue. The user experience is naturally intuitive and similar to social media platforms members already use; but the great thing is this community will be limited to the professionals and industry leaders who are members of your trade association. This will elevate the quality of the conversation and interaction.

SocialLink aggregates content sources in a simple, single highly-personalized view found on a member’s feed, and delivers alerts and notifications to allow for easier engagement.

The flexible and easy-to-use desktop design of NORA SocialLink mimics the user interfaces of other popular social sites to allow members to share ideas, ask questions and network with peers and experts when they want, where they want and how they want.

Mobile
Today, NORA members are always on the go. NORA SocialLink is built for on a mobile responsive design platform. In fact, NORA SocialLink will be available to members as an App for the iPhone and Android devices in the near future.

When will this be available?
NORA will be finalizing this program over the next few weeks and will be formally announcing this new value of membership at the NORA Annual Conference in November in Hawaii.

This new member benefit will allow members to easily network all year long.

Liquid Recycling is published by NORA, An Association of Responsible Recyclers. Copyright, 2016 NORA. The opinions expressed in the articles are those of the author of the articles and not necessarily the publisher. While every attempt has been made to assure that the information in the magazine is accurate, the publisher assumes no responsibility for any omissions or errors, nor for the application of any advice or suggestions in any particular situation. Due to space limitations, all items published are subject to abridgment. Unsolicited items will not be returned.

NORA, 7250 Heritage Village Plaza, Suite 201, Gainesville, VA 20155 | P: 703-753-4277 | info@noranews.org | www.noranews.org

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Aevitas Specialty Services Corp.
Greg Reichard
Detroit, Michigan
(313) 924-5175

B & E Oil Svcs. Inc.
William Ensor
Cochranville, Pennsylvania
(610) 593-5010

Environmental Packaging Technologies
Allan Doris
Houston, Texas
(713) 961-2795

Evolution Sorbent Products
Chris Keagle
West Chicago, Illinois
(630) 450-6558

TopSail Energy LP
Walt Finch
the Woodlands, Texas
(832) 823-0147

US Ecology, Inc.
Livonia, Michigan
(734) 521-8000

YES
Doug Keeney
Yuma, Arizona
(909) 228-8128

INDUSTRY CALENDAR

2017 NORA WINTER MEETING AND EH&S FORUM
February 22-24, 2017
Las Vegas, Nevada

2017 NORA MID-YEAR MEETING
June 21- 23, 2017
Pittsburgh, Pennsylvania

2017 NORA ANNUAL CONFERENCE & TRADE SHOW
November 8-11, 2017
Naples, Florida

INDUSTRY NEWS

For additional information on these news items, visit noranews.org/news

TopSail Energy Announces Plans
TopSail Energy, a newly-formed midstream energy company completed the acquisition of a 44 acre undeveloped industrial site in Texas to begin construction on a new used oil processing facility, to be operational by the beginning of 2017. The facility will have the ability to receive and process over 125,000 gallons per day of used motor oil.

Aaron Oil Company, Inc. Announces 35th Anniversary
On August 5th, Aaron Oil Company celebrated their 35th anniversary of providing service to customers across the Southeast. In honor of Aaron Oil's historic contribution to Mobile, Alabama's economic progress, the GulfQuest Maritime Museum commemorated this special occasion by lighting their downtown buildings in red, Aaron Oil's Company's logo color.

Vertex Energy, Inc. Announces Agreement with Penthol
Vertex Energy announced it has agreed with Penthol C.V. of the Netherlands to act as Penthol’s exclusive agent to market Group III base oil. Penthol will import Group III base oil from the United Arab Emirates to the United States.

Share your news with the industry! Email info@noranews.org
Air Products Investing in Hydrotreatment Capability

The Air Products Hydrogen Reactions Lab is on-stream. Air Products continues to focus on the growth and support of the Waste Oil Refinery industry by using its knowledge to support re-refiners. The new lab enables companies with small hydrotreaters, such as waste oil recyclers, to perform tests on their material before changing their larger processes. Air Products can assist current hydrogen customers as well as other hydrotreaters with strategies to minimize their cost. The new lab has the benefit of multiple reactors, variable flow and pressure capability, process pressures up to 2000 psig and flexible interconnection. Air Products has gained a vast knowledge of hydrotreatment through 50+ years of supplying gases and technology to purify new and different materials in the crude oil industry. By simulating various hydrotreatment processes in the new lab, Air Products can help customers:

- Optimize hydrotreatment severity for your specific set of waste oil impurity and process conditions
- Optimize oil-to-hydrogen ratio
- Understand waste oil impurities and their effect on discoloration and off-spec oil
- Identify differences in performance between various catalysts

Refiners can test things such as feedstock changes or variation, a new catalyst or new operating conditions before applying the change within their process. Air Products team can help determine how to use industrial gases more effectively and efficiently. They strive to assist their customers by generating, and now testing, ideas that can allow for safe and profitable growth.

For more information, contact Air Products at 800-654-4567, code 7401 or gigmrktg@airproducts.com.

Need hydrogen for recycling waste oil?

Air Products cryogenic hydrogen compressor system can give you:

- High pressure, high flow flexibility
- Lower capital expense
- Reduced operating costs through minimized vent losses
- Increased efficiency through load-following

800-654-4567 (mention code 7401)
TRADE SHOW – NORA’s Largest Hawaii Trade Show, limited booths still available
The NORA Trade Show will feature the latest products and services available to the liquid recycling industry. See page 14 for the current trade show floor plan and exhibitors. A limited number of booths are still available. Companies interested in exhibiting should contact Casey Parker at (703) 753-4277 or casey@noranews.org.

SPONSOR THE EVENT
Sponsorship and advertising opportunities are still available for the 2016 NORA Conference & Trade Show. For as low as $150, you can support your industry as well as promote your company. See page 8–10 or the NORA website for current availability or call Casey Parker at (703) 753-4277. NORA thanks all who have already sponsored - your support helps the Conference be a memorable event.

REGISTER NOW
Register now to attend the Conference, either online, by using the form on page 7 or by calling the NORA office. A list of preregistered attendees is located on the NORA website.

HOTEL INFORMATION: ROOM BLOCK
80% SOLD – BOOK BY OCTOBER 14
Hotel rooms are available at the beautiful four-diamond oceanfront Fairmont Orchid for just $229/night. This rate is available beginning November 3 and is good through November 16—extend your stay and enjoy the Big Island! To reserve your room call 1-(800)-845-9905 and ask for the NORA room block, or book online through www.noranews.org. Book by October 14, but please be aware that discounted rooms may sell out early.

AIRPORT INFO
The closest airport is KONA (KOA), which is located about 20 miles from the hotel. A rental car is the easiest means of transportation to the hotel from the airport.
Kohala Coast, Hawaii | November 9-12, 2016
2016 NORA Conference Registration Form

Complete one form for each person. Only one form required to include payment information.

EXHIBITORS: Do Not Use This Form - Use Exhibitor Agreement Form

Contact Info

Name
Badger Name, if different

Company

Address City State Zip

Phone Email

Registration Choices

Full Registration (you may assign/change names to the registration at any time) includes all conference sessions, conference materials, opening reception (members only), two continental breakfasts, breaks and Friday Night Closing Party Dinner.

Payment must be emailed, faxed, or postmarked by the dates to be eligible for the discounted prices.

PRICES

Regular (Paid by October 14) Late (after October 14)
NORA Member: First person $880 $910
NORA Member: Additional person $780 $810
Non-Member: First person $2400 $2500
Non-Member: Additional person $2300 $2400
Government Representatives $350 $350

EXTRAS

☐ Spouse/Guest: Full Package....$299*
☐ Spouse/Guest: Friday Only....$219**
☐ Golf (Sponsored by Dexsil)..................$165
☐ Golf Clubs Rentals.....................$75
☐ Fishing (Sponsored by Vertex)........$175

If you selected spouse/guest package, please enter their name here:

If you selected golf, please included your average score:

If you selected fishing, please include your shirt size:

Is this your first time attending a NORA Meeting? ☐ Yes ☐ No

Payment Options

Total Amount Due $☐ Check (payable to NORA)
☐ American Express ☐ Visa ☐ MasterCard

All payments are in US Dollars, drawn on US Bank.

Name on Card Signature

Card Number Exp. Date Security Code

Billing Street Number & Zip (if different than above) Email to send receipt (if different than above)

Submit Your Registration

Credit Card Only: Check or Credit Card: Email casey@noranews.org or fax 703-753-2445
Questions: Mail to 7250 Heritage Village Plaza, Suite 201 Gainesville, VA 20155
Call 703-753-4277 or email casey@noranews.org

*This package includes access to the opening reception on Wednesday including food and drinks, the Thursday spouse brunch, a spouse gift and the Friday night closing party. This package is for spouses and families of registered attendees; this may not be used for employees of an attending company.

**This package includes food and drinks at the Friday night Closing Party Dinner. This package is for spouses and guests of registered attendees; this may not be used for employees of an attending company.

All guests must register in advance for the closing party.

Book Your Hotel Room

The Fairmont Orchid
1 North Kaniku Drive, Kohala Coast
The Big Island of Hawaii, 96743

NORA Rate $229/night
To secure your room, call 1 800-257-7544 and ask for the NORA Conference or reserve your rooms online at www.noranews.org > Events by October 14 to book at a discounted rate (though rooms may sell out early).

Cancellations through August 26: A $100 service charge. Between August 27-October 14: 50% refund of the registration fee. No refunds after October 14.
## Sponsorships

<table>
<thead>
<tr>
<th>Sponsorship Level</th>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naming Rights</td>
<td>$10,000</td>
<td>(Exclusive)</td>
</tr>
<tr>
<td>Level 1 Sponsor</td>
<td>$5,000</td>
<td>(only 3 remain available)</td>
</tr>
<tr>
<td>Level 2 Sponsor</td>
<td>$2,000</td>
<td>(only 7 available)</td>
</tr>
<tr>
<td>Level 3 Sponsor</td>
<td>$1,000</td>
<td>(only 12 available)</td>
</tr>
<tr>
<td>Level 4 Sponsor</td>
<td>$500</td>
<td></td>
</tr>
<tr>
<td>Level 5 Sponsor</td>
<td>$250</td>
<td></td>
</tr>
</tbody>
</table>

**SPONSORSHIPS**

- Logo on Conference Book Cover
- Large Logo on Commemorative Photo Jacket
- Large Logo displayed at Closing Party
- Closing Party Sponsor ribbon on badge
- Recognition at Closing Party dinner
- Full Page Color Ad in Conference Book ($625 Value)
- Color Logo with Company/Exhibitor Index in Conference Book

**LEVEL 1 SPONSOR**

- Logo on Conference Book Cover
- Large Logo on Commemorative Photo Jacket
- Large Logo displayed at Closing Party
- Closing Party Sponsor ribbon on badge
- Recognition at Closing Party dinner
- Full Page Color Ad in Conference Book ($625 Value)
- Color Logo with Company/Exhibitor Index in Conference Book

**LEVEL 2 SPONSOR**

- Logo on Conference Book Cover
- Large Logo on Commemorative Photo Jacket
- Large Logo displayed at Closing Party
- Closing Party Sponsor ribbon on badge
- Recognition at Closing Party dinner
- Color Half Page Ad in Conference Book ($475 Value)
- Color Logo with Company/Exhibitor Index in Conference Book

**LEVEL 3 SPONSOR**

- Name on Conference Book Cover
- Logo on Commemorative Photo Jacket
- Logo displayed at Closing Party
- Closing Party Sponsor ribbon on badge
- Recognized at Closing Party dinner
- Black & White Logo with Company Listing in Conference Book

**LEVEL 4 SPONSOR**

- Small Logo on Commemorative Photo Jacket
- Small Logo displayed at Closing Party
- Closing Party Sponsor ribbon on badge
- Recognized at Closing Party dinner
- Black & White Logo with Company Listing in Conference Book
- Logo on “Thank you” page in Post-Conference magazine

**LEVEL 5 SPONSOR**

- Small Logo on Commemorative Photo Jacket
- Small Logo displayed at Closing Party
- Closing Party Sponsor ribbon on badge
- Recognized at Closing Party dinner
- Logo on “Thank you” page in Post-Conference magazine

**CONTACT INFO**

Name:  
Company:  

**PAYMENT OPTIONS**

Total Amount Due $  

- Check (payable to NORA)  
- American Express  
- Visa  
- MasterCard  

Name on Card:  
Signature:  
Card Number:  
Exp. Date:  
Security Code:  
Billing Street Number & Zip (if different than above):  
Email to send receipt (if different than above):  

**SUBMIT YOUR AGREEMENT**

Credit Card Only:  Email casey@noranews.org or fax 703-753-2445
Check or Credit Card:  Mail to 7250 Heritage Village Plaza, Suite 201 Gainesville, VA 20155
Questions:  Call 703-753-4277 or email casey@noranews.org
Gain exposure for your company at the premier event in the liquid recycling industry. All members, even those not attending the conference, may sponsor to help make this an amazing event. For just a small contribution, you can support your industry and promote your business. All sponsors will be thanked on the NORA website with a link to your company’s website, in Liquid Recycling Magazine, which is distributed to 2,000 industry leaders, on oversized signage at the conference and in the conference books distributed at the event and posted on the NORA website after the event. Contact casey@noranews.org with any questions.

- **Golf Tournament Naming Rights** $1800
  Your logo will be printed on the front cover of the NORA Conference Book and on large signage at the event. You receive a complimentary full page color ad in the event book. Your company will be thanked at the conference opening session. Includes a golf hole sponsorship and company logo printed on the fabric conference bags. - 10 available

- **Drum Ticket Sponsor** $1000
  Your logo will be printed on the drink tickets for the Wednesday Opening Reception and on signs around the bar. Please order by October 30 to allow time for printing. - Eight available

- **Fishing Naming Rights** SOLD
  Your logo will be prominently featured on the front cover of the NORA Conference Book and on all name badges. You receive the back cover ad of the conference book. Your company will be thanked at the opening session. In addition, your logo will be screenprinted on the tote bags distributed at registration. Only one available.

- **Premier Sponsor** SOLD
  Your logo will be prominently featured on the front cover of the NORA Conference Book and on all name badges. You receive the back cover ad of the conference book. Your company will be thanked at the opening session. In addition, your logo will be screenprinted on the tote bags distributed at registration. Only one available.

- **Charging Station Sponsor** $600
  Your logo will be prominently displayed at a charging station near the registration desk to supply power for mobile devices.

- **Bag Sponsor** $550
  Your logo will be printed on the conference bags distributed to attendees. Available through September 26 to allow time for printing.

- **Lanyard Sponsor** SOLD
  Your company logo will be printed on the lanyard handed to all attendees. Only one available.

- **Event Page Banner Ad** $500
  You will receive ad space on the event page of your choice. Only one ad space available per event page. Ad must be 180 pixels by 574 pixels.

- **Key Card Sponsor** SOLD
  Your logo will be printed on key cards distributed to NORA guests at hotel check-in. Only one available.

- **Grand Opening Exhibit Reception** $450
  Your logo will be prominently displayed on all signs for the reception and printed next to the event on conference agendas.

- **Bag Insert Sponsor** $325
  You provide the insert and NORA will distribute it in the conference or golf bags. Examples include hats, coozies, flyers, etc. Please deliver items to hotel by November 9.

- **Spouse Brunch Sponsor** $300
  Your logo will be printed next to the event on conference agendas.

- **Candy Bowl Sponsor** $275
  Your logo will be displayed around the NORA Candy Bowls at the registration table. - Only six available

- **Thursday Continental Breakfast** $250
  Your logo will be prominently displayed on signage at the breakfast and included next to this event on conference agendas.

- **Friday Continental Breakfast** $250
  Your logo will be prominently displayed on signage at the breakfast and included next to this event on conference agendas.

- **Gold Sponsor** $225
  Your logo will be printed on a sign placed at one of the holes during the golf tournament.
CONFERENCE BOOK ADVERTISING

The conference book is distributed to attendees, new members who join throughout the year, and posted on the NORA website. Attendees refer to this book for contact information for all attendees and exhibitors, the event agenda, and exhibitor and speaker information. NORA will design your ad for free.

- Back Cover Ad ................................................................................................................... Included with premier sponsorship
- Inside Front Cover Ad .................................................................................................. SOLD
- Inside Back Cover Ad ................................................................................................... SOLD
- Full Page Color Ad (7-1/2" x 10") .................................................................................. $625
- Full Page Black & White Ad (7-1/2" x 10") .................................................................. $475
- Half Page Color Horizontal Ad (7-1/2" x 5") .............................................................. $475
- Half Page Black & White Horizontal Ad (7-1/2" x 5") ................................................ $260
- Half Page Color Vertical Ad (3-3/4" x 10") .................................................................. $475
- Half Page Black & White Vertical Ad (3-3/4" x 10") .................................................. $260
- Third Page Color Ad (7-1/2" x 3-1/2") ......................................................................... $375
- Third Page Black & White Ad (7-1/2" x 3-1/2") ............................................................ $200
- Color Logo by Company Index (1" high) ....................................................................... $150
- Color Logo by Exhibitor Index (1" high) ........................................................................ $150

SUBMIT SPONSORSHIP/ADVERTISING FORM

CONTACT INFORMATION

Name __________________________ Title __________________________

Company __________________________ Email __________________________

PAYMENT OPTIONS

Total Amount Due $ ____________

☐ Check (payable to NORA) ☐ American Express ☐ Visa ☐ MasterCard

Name on Card __________________________ Signature __________________________

Card Number __________________________ Exp. Date __________________________ Security Code __________________________

Billing Street Number & Zip (if different than above) __________________________ Email to send receipt (if different than above) __________________________

SUBMIT YOUR AGREEMENT

Credit Card Only: Email casey@noranews.org or fax 703-753-2445
Check or Credit Card: Mail to 7250 Heritage Village Plaza, Suite 201 Gainesville, VA 20155
Questions: Call 703-753-4277 or email casey@noranews.org
### 2016 Conference & Trade Show

#### TENTATIVE AGENDA

**WEDNESDAY, NOVEMBER 9**

- **8:00 AM - 2:30 PM**: Optional Group Excursion: Kohala Waterfall Adventure
- **10:00 AM - 2:00 PM**: Exhibitor Set Up
- **2:00 PM - 7:00 PM**: Conference Check-In/Registration
- **3:00 PM - 4:00 PM**: Board Member Meeting
- **4:00 PM - 4:30 PM**: New Member/Board Member Reception
- **4:30 PM - 8:30 PM**: Grand Opening Reception in Trade Show

**THURSDAY, NOVEMBER 10**

- **7:00 AM - 11:45 AM**: Conference Check-In
- **7:00 AM - 8:00 AM**: Continental Breakfast in Trade Show
- **8:00 AM - 10:00 AM**: Conference Sessions Open
- **10:00 AM - 10:35 AM**: Refreshment Break in Trade Show
- **11:00 AM - 11:45 AM**: Spouse/Guest Brunch
- **10:35 AM - 12:00 PM**: Conference Sessions
- **12:30 PM - 7:00 PM**: 25th Annual NORA Golf Tournament
- **1:00 PM - 6:00 PM**: Optional Spouse Excursion: Kona Coffee, Chocolate + Brew Tour
- **1:00 PM - 7:00 PM**: NORA Annual Fishing Expedition

**FRIDAY, NOVEMBER 11**

- **7:30 AM - 8:30 AM**: Continental Breakfast in Trade Show
- **8:30 AM - 10:00 AM**: Conference Sessions
- **10:00 AM - 11:00 AM**: Refreshment Break in Trade Show
- **11:15 AM**: Trade Show Tear Down
- **5:00 PM - 9:00 PM**: NORA Closing Party

**SATURDAY, NOVEMBER 12**

- **8:00 AM - 2:00 PM**: Optional Group Excursions — See NORA Website

**TUESDAY, NOVEMBER 8**

- **10:30 AM - 9:30 PM**: Optional Group Excursion: Twilight Volcano Adventure
SESSION TOPICS

When will Oil Break Out of the $40 Funk?
For the last two years oil has been hovering around $40/barrel compared to levels twice that high for the three years prior to that. The oil market has tremendous impact on how NORA membership operate their businesses and plan for the future. Is oil going to stay at $40 or are there fundamentals indicating change is on the way? An industry expert will inform attendees what they believe the market will look like in the next three to twelve months. This will help member prepare their companies to succeed.

Used Oil Market Trend & Price Survey: Understand Your Market
NORA is planning on conducting the first ever survey of market trends and pricing data related to the used oil market. The information will be collected and compiled by the association and then distributed to members. At the conference, you will have the opportunity to learn about this program and have input on what type of data will be collected. (This program has been carefully crafted to comply with the Nation's anti-trust laws and has been reviewed by a legal counsel).

Explore the Big Island
To avoid confusion with the name of the entire state, the Island of Hawaii is often called the “Big Island”. It is the youngest and largest island in the Hawaiian chain and home to one of the most active volcanoes in the world, black sand beaches and 8 of world’s 13 different climate zones each with unique ecosystems. Explore with the following tours:

Tuesday, November 8
Twilight Volcano Tour
Journey through Hawaii Island’s incredible range of ecosystems and climate zones before experiencing first-hand the phenomena that makes it all possible – an erupting volcano. This in-depth experience takes you off-the-beaten path to sites unknown to most visitors.

Wednesday, November 9
Kohala Waterfall Adventure
Immerse yourself in stunning private waterfalls, tranquil streams, scenic coastlines and rugged valleys on this North Kohala adventure. Kick off the fun with an off-road drive to an exclusive trailhead.

Thursday, November 10
Coffee, Chocolate, & Brew
Indulge your taste buds and experience the more sumptuous side of Kona. Visit three local companies who have helped put Kona “on the culinary map” by producing delicious 100% Kona coffee, decadent chocolate confections and island fresh ales. Go behind the scenes to learn (and taste) how they’ve each mastered their respective crafts.

To register for these tours, go to noranews.org or call the NORA office at 703-753-4277.

Clinton or Trump: How the 2016 Election will Affect NORA Members
The NORA Conference will take place two days after the Presidential Election. A comprehensive analysis of the election results and what they mean for American businesses and our industry will be provided. If the Democrats take over the Senate, who will be in charge of environmental legislation? What can we expect at EPA if Donald Trump is elected? Will there be more (not less) Washington gridlock regardless of who is elected President? What is the future of the Republican Party if Trump is defeated?

Industry Roundtable: A Look into the Next 12-24 Months
Flat oil prices. Industry consolidation. Changing end-user markets. NORA is bringing together an all-star panel of industry leaders to assess the current state of the industry and what it will look like over the next 12-24 months. This is a must attend for the strongest companies that are looking to survive and thrive by gaining robust insight into the market. This panel will be moderated by NORA’s Executive Director.

Monitoring Critical Machinery Health and Reliability with the Industrial Internet of Things
As the Industrial Internet of Things (IIoT) gains popularity, the cloud of confusion around it seems only to grow. What is the Industrial Internet of Things? What kind of data does it create and what value does it add to the business? Most importantly, how does that relate to the lube, fuel and refining markets? Businesses are quickly putting together their IIoT strategies to insure critical uptime and improve machine reliability and those who don’t are losing market share. The presentation will include a case study piece from an IIoT user.

Introducing NORA SocialLink: Year-round Networking Made Easy
The greatest value of NORA membership is networking which leads to business development and greater knowledge of your industry. However, most NORA networking has been concentrated around the various events the association hosts. That is until now. NORA has developed a first of its kind solution that will allow members to utilize social media and mobile integration to allow members to easily stay connected every day.

Learn how you can use NORA’s new SocialLink to easily build stronger connections throughout the industry to help grow your business and gain the information you need to effectively run your business by leveraging the NORA network.

Government Affairs: Executive Summary
2016 has been a very active government affairs year. The current and future health of the industry that responsibly recycles used oil and related materials is largely dependent on the regulatory environment. This session will provide a high level view of the major government affairs projects NORA has addressed in 2016 and how they affect your business.
New & Used Tank Sales

Werts Welding & Tank Service, Inc. believes in the term stocking distributor, all eight of our locations carry a large, diversified inventory.

Let us put our knowledge and experience to work for you!

St. Louis, MO 800-851-4452
Tampa, FL 800-886-6003
San Antonio, TX 800-551-8265
Des Moines, IA 866-610-2225
Birmingham, AL 800-264-6437
Billings, MT 855-259-7563
Atlanta, GA 800-893-1511
Denver, CO 855-580-1001
Integrated Insurance Programs for the Recycling Industry

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The Closing Party at the 2016 NORA Conference is a great way to conclude the networking at the event in an informal setting. The Closing Party is included with all conference registrations, exhibitor registrations, and spouse/guest/child packages. However, the registration fees simply cover the basic food costs. To make this event memorable, your help is needed – please consider being a closing party sponsor.

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Join your NORA colleagues on the afternoon of Thursday, November 10 for the annual NORA golf tournament at the Francis H. I’l Brown South Course.

The tournament will start at 12:30 PM, following conference sessions on Thursday, November 10.

The tournament fee is $165, and club rentals are $75. The tournament fee includes a box lunch, hosted beverage cart, and an awards reception following the tournament.

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Use the tear-out form on page 7 or visit www.noranews.org to register.

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Brandon Girmus was too young in early 2006 for the Commonwealth of Virginia to issue him a license to drive.

The persuasive teenager convinced his parents, Greg and Darcie, of the practicality of him purchasing a motor vehicle. With a limited budget he set about finding a vehicle that he assumed would need serious cosmetic and mechanical work.

“I’ve always liked old Jeeps,” Girmus says. They are basic vehicles and almost indestructible so the search for an old Jeep began in 2006. Most of the Jeeps he found appeared as if they had been in a war – and lost.

On the way back home to Vienna, Va., Girmus and his father spotted an old Jeep by the side of the road. He was disappointed to learn that it was not for sale but the owner said he had a 1946 Jeep CJ2A that was available.

Upon hearing that news Girmus’ eyes lit up. “I wanted a flat fendered Jeep,” he says. He was led through the woods back to where a mostly rusted away Jeep sat, corralled by trees that had grown up around the 10-foot, 3-inch-long vehicle.

Girmus says there were three positive aspects to the Jeep. The frame was perfect, it had a title and it was cheap. Most everything else was on the negative side of the ledger.

“It was a ‘Flintstone Special,’ Girmus recalls. “It might as well be now,” he thought and bought the derelict Jeep. The owner said he would cut down some trees so the Jeep could be dragged out with a winch.

The next day Girmus and his father returned towing a trailer and loaded it with the Jeep. As they were about to leave the owner surprised them with boxes of Jeep spare parts. In the summer of 2006 Girmus began to take inventory as he disassembled his Jeep. “I found the engine had a cracked block and the floors didn’t exist,” he says.

On ebay he located a wrecked 1946 Jeep, this one also in Pennsylvania, which he and his father retrieved. From that Jeep the three-speed manual transmission and 60-horsepower, 134-cubic-inch, four-cylinder engine were salvaged.

The body was beyond reclamation so young Girmus went hunting and found a parts Jeep in North Carolina. He bought it sight unseen and when it was delivered he found the body in worse condition than his own Jeep. He was able to use the engine hood and windshield frame.

Used parts were found for the front fenders and the famous grille with the vertical slots. Behind the grille is the original radiator but with new insides.

Girmus had good luck with a reproduction three-spoke steering wheel so he took a chance on a reproduction body tub manufactured by a company in Pennsylvania. “It fit, sort of,” Girmus says.

With some cutting, welding and muscular persuasion the 57-inch-wide body finally was in place on the 80-inch wheelbase of the Jeep.

Girmus opted for non-directional military treads on the five new 6.00x16-inch tires. Only two of the original wheels were usable.

As the Jeep began to resemble a real vehicle Girmus noted a total of 22 tie down brackets which were remnants from the old military specifications that had not be eliminated on the 1946 Jeep.

He also noticed that a red reflector at the right rear substitutes for a taillight. The left rear corner of the Jeep has a tail/brake light.

Fluids to keep the sturdy little vehicle running include 10.5 gallons of gasoline, 11 quarts of coolant and 5 quarts of oil. Although the speedometer can register speeds up to 75 mph “Girmus believes such speed to be wildly optimistic.

By July 2008 a monumental event occurred when Girmus pumped the accelerator and activated the 6-volt starter and, he happily reports, “It started right up.”

Inside and out, the Jeep was painted an original color, Pasture Green with Autumn Yellow wheels. “It looks kind of cool,” Girmus opines as he surveys his handiwork.

Now the race was on. In April 2009 Girmus began assembling his Jeep. He was to graduate from Paul VI Catholic High School May 31 and he wanted his Jeep completed by then. He beat his self-imposed deadline by two weeks.

After almost three years of labor and sacrifice, Girmus achieved his goal and now can enjoy his Jeep all summer until he leaves for college in the fall.

As for his Jeep?

“It’s not going to college,” he says.
The core mission of the International Used Oil Research Institute (IUORI) is to research, develop and implement best practices for the international used oil recycling industry. The IUORI also serves as an industry watchdog, monitoring practices in an effort to educate, protect and promote better health and safety practices within the used oil international recycling industry.

The Institute is committed to being an active participant in developing educational resources for the advancement of technological discoveries in the used oil industry. In addition to its work with U.S. national accredited universities, the IUORI is dedicated to the development, promotion and compliance with international environmental laws, as well as federal, state and local regulations within the U.S. as a responsible steward of our natural resources and better management of human health and environmental standards.

The IUORI advocates the collaborative efforts between stakeholders within industry, academia, regulatory agencies and concerned citizens in securing technology and practices which provide a long-term strategic approach to the management of our industry’s challenges throughout the world.

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The company is in a continuous state of development of new technologies, management software, automation, robotics and best available technologies in the used oil and petroleum reclamation industry. The experts at Aaron Oil are setting new standards for the industry by creating new strategies, new markets and concepts unlike any other service provider in the world.
Recent developments in safe, lower cost technologies for small and medium scale UMO re-refineries.

By Luke Staengl

Re-refining of Used Motor Oil (UMO) has seen unprecedented acceptance and growth worldwide over the past decade. Much of the focus has been on construction of large sophisticated plants which use a combination of vacuum distillation followed by high pressure Hydrotreatment of the distilled oil to produce Group 2 Base Oil. Plant sizes have tended to range from over 20 million gallons per year to over 100 million gallons per year. These facilities require big capital investments and also highly trained technicians and engineers to operate. They also present more hazards due to the high pressure and temperature hydrogen needed for the hydrotreating process.

In recent years it has become clear that in many developing countries, the increasing availability of UMO due to the rapidly growing automotive fleets and related infrastructure needs to be handled in environmentally responsible ways, and there is growing interest in re-refining this UMO. The economics tend to be attractive because most of these countries import all the Base Lube they consume at high cost. However, both the total UMO available as well as the capital available for investment into such plants is much lower than in the developed world. Additionally finding highly trained technicians with refinery operating skills is difficult.

However, recent developments in low impact, low hazard, and low cost re-refining technologies have proved to be very useful in such situations. Specifically the downstream "polishing" of the distilled UMO has seen developments which allow much smaller less costly facilities to also reach the target of producing high quality Group 1 and Group 2 Base Oil.

Solvent Extraction Systems (SES):

Solvent Extraction Technology has been in use in major refineries for decades, and has been used to remove aromatics and other contaminants from hydrocarbon streams. It has now been adapted from existing crude oil refining technology for the used oil recovery sector. Solvent Extraction can be used as either a stand-alone lube polishing option to upgrade distilled used lube oils (or VGO) to a Group I comparable base lube, or in combination with bauxite based Lube Polishing Systems (LPS) to produce Group II comparable base lube.

The combination of Solvent Extraction technology with LPS technology produces a high quality Group II base lube, without incurring the significantly higher costs and increased safety issues associated with hydrotreating. Solvent Extraction Process has been demonstrated to effectively improve the percent saturates, Sulphur level, color, stability, aromatics content, and odor of typical recovered oil by:

- increasing the saturates by 3 – 5+%,
- decreasing Sulphur levels
- dramatically improving oil color of distilled used lube oil from ASTM 4.0 – 6.0 down to ASTM <1.0
- significantly enhancing base oil stability (no color deterioration or gum formation in storage)
- effectively reducing PAH (polyaromatic hydrocarbons) content to BDL (below detectable levels)
- markedly reducing odor

The basic process can be broken up into 4 operations that
are outlined below. The entire process is designed to run on a continuous basis.

**Extractor.** A Rotating disk Extractor (RDC) is used to continuously wash the oil feed with NMP Solvent. Feed Tanks and receiver tanks for the centrifuges used to pull the last bit of NMP out of the oil raffinate will also be located on this skid. The 2 centrifuges are expected to be mounted adjacent to this skid directly to concrete foundations.

**Raffinate Solvent Strip.** The washed oil is referred to as the raffinate. A two step distillation process is used to strip the solvent out of the raffinate (washed oil) before the final product is pumped to the product tank.

**NMP Recovery.** The NMP solvent containing the PCA’s is reclaimed in a 2 step distillation process that involves steam stripping prior to the PCA concentrate being pumped to storage.

**NMP Dehydration.** The solvent is stripped of water by simple distillation prior to being pumped back to the clean solvent tank for reuse in the process.

Some of the key advantages of this technology over hydrotreating are:

- It is easily scaled down to relatively small plants – with capacities of from 300 gallons per hour up to 2,000 gallons per hour.
- It is much safer – the solvents are safe and non-flamable, and he vessels all operate at either vacuum or low pressure.
- The capital costs are relatively low, usually only a fraction of what a hydrotreater would cost.
- It is a continuous and completely automated process.

To summarize, Solvent Extraction Technology is a low impact, safe and scalable process to polish distilled used lube oil which is much less expensive than hydrotreating, and also much safer. By itself it will produce a good Group 1 Base lube, and in combination with a bauxite filtration system it will produce an excellent Group 2 Base Lube.

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**Luke Staengl** is the President & CEO at PESCO BEAM Environmental Solutions, Inc., and he can be reached at luke@pescobeam.com or 540-206-2788. Meet with PESCO BEAM Environmental Solutions, Inc. at booth #101 at the 2016 NORA Conference and Trade Show.

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Recovering glycol from used antifreeze not only benefits the environment but presents a profitable business model. In this article, “glycol recovery” is defined as the separation of ethylene or propylene glycol from water, dissolved and suspended contaminants. The recovered ethylene glycol is commonly used in automotive antifreeze formulations. Automotive feed stocks often contain other glycols such as Diethylene, Triethylene, and Dipropylene. Though allowable up to 5% in concentrated finished glycol, these other glycols are not discussed in this brief article.

Two distinct distillation treatment types will be differentiated; flash fractional vacuum distillation and simple nucleate vacuum distillation. The effectiveness of each process is gauged using ASTM standards as the measure of final product quality. Both methods utilize high vacuum vessel conditions to lower the boiling point of the liquids to be separated.


Flash Fractional Vacuum Distillation versus Simple Nucleate Distillation

Both separation methods are similar in that the process fluid is heated, vaporized and condensed. Nucleate systems heat the process fluid internally with submerged heat exchangers. Flash systems use external heat exchangers that are more accessible and serviceable. As the feedstock boils in a nucleate system, steam bubbles rise to the surface and burst. Rupture of the bubble surface film releases fine particles of raw process fluid that become vapor entrained and carried to the condenser. Flash fractionation systems operate by heating the raw process feed from an internal vessel reservoir, circulating and spraying the liquid downward in the evacuated flash vessel. The spray rapidly vaporizes when introduced into the high vacuum environment and cleanly disengages from the downward directed liquid spray. The resulting vapor from flash systems contains less entrained raw process feed and is of higher purity when compared to vapor generated from Simple Nucleate systems.

Simple Nucleate systems normally employ only one process vessel that has less than one theoretical plate of separation. Optimum vapor rectification may require 4 to 25 theoretical plates depending on the amount of solids and dissolved impurities in a given raw process feed. Conversely, Flash Fractional Distillation systems use a two vessel design that includes a dedicated packed fractioning vessel that allows additional rectification of the flash vessel vapors. The packing in the fractionating vessel allows the vapors to undergo a series of condensation and vaporization steps that enriches glycol vapor and condenses impurities. The number of theoretical plates of separation can be increased or subtracted from the packed vessel based on purity targets. The increase in theoretical plates of separation in Flash Fractioning systems produce a highly concentrated glycol product with purity conforming to ASTM specifications. Vapors from each isolated liquid component (i.e., water and glycol) are condensed, separated and collected as pure liquid fractions.
Single and Double Pass Distillation Methods

Single Pass
In a single pass process, the entire solution is passed through the system, heated to boiling point under high vacuum, vaporized, condensed and collected in a recovery tank. The resulting purified product is a mixture of water and glycol that will have the same concentration as the initial raw process feed, minus the EG retained in the waste bottoms. For example; processing a 50% glycol / 50% water mixture will result in approximately 43% glycol / 50% water / 7% waste bottoms. Additional highly concentrate or virgin glycol must be added to reach the original 50/50 mixture.

Double Pass
A double pass system contains two distinct unit operations; (1) low temperature water removal and (2) high temperature glycol purification.

(1) Water is removed, purified and recovered at a temperature of <180 °F until the still bottoms reach a glycol concentration of >95%.

(2) Glycol is removed, purified and recovered at high temperature < 300 °F with less than 7% still bottoms remaining for disposal.

One major advantage of the Flash Fractional Distillation and Double Pass operation is the ability to produce ethylene glycol with sufficient purity to meet ASTM specifications without having to add virgin glycol to the finished product.

Bill Dempsey is the Vice President, Glycol Recovery Services at HAZ~MAT Environmental Services and he can be reached at bill@hazmatnc.com or 704-332-5600. Meet with at HAZ~MAT Environmental Services at booth #109 at the 2016 NORA Conference and Trade Show.
Introduction
As the Industrial Internet of Things (IIoT) gains popularity, the cloud of confusion around it seems only to grow. What is the Industrial Internet of Things? What kind of data does it create and what value does it add to the business? Most importantly, how does that relate to the lube, fuel and refining markets?

The Industrial Internet of Things is the great disruptive force of this decade and as technology has advanced, the cost of adoption has decreased. In fact, businesses are quickly putting together their IIoT strategies to insure critical uptime and improve machine reliability and those who don’t are losing market share.

Remote monitoring of industrial processes and equipment health is perhaps the best example of how the IIoT can be integrated into the industrial sector. By adding sensors to industrial products like pumps, valves, filters, or motors, businesses are able to keep an eye on their critical assets from anywhere in the world. This data can tell an operator if a piece of equipment is not operating properly, has completed the requisite number of cycles, or has completely failed. Analysis of the data created can result in reduced downtime, predictive maintenance, and a fine tuning of overall processes. The Industrial Internet of Things is not only up in the cloud - the power of data and analytics can be delivered right to a computer on an operator’s or owner’s desk and change how business is done forever.

IIoT Technology Stack
The IIoT technologies are put together in what some term as a stack, because they build on each other. One version of that stack is shown in the diagram below. Essentially, sensors emit data to the cloud where data reporting, data analysis and a variety of specialty applications are utilized to produce meaningful information. That information, in turn, is used to influence human behavior, such as driving route optimization or improved maintenance scheduling, to optimize business performance.

The application of this stack of technologies can get tricky and integration can become difficult. Choosing partners to assist with the technology deployment becomes critical to insure the success of any IIoT program a business is considering undertaking.

Example Industrial Use Cases
The possible IoT applications in an industrial setting are vast. Here is a short list to get started.

A. Manufacturing
The manufacturing industry is rife with opportunities for a successful IIoT deployment. First, there are many different critical operations that can be monitored to reduce downtime on a factory floor. Second, these critical operations are generally so big that the monitoring cannot be efficiently done by visual inspection only. By monitoring several machines all on one dashboard, all of a factory can be seen together on one screen.

B. Industrial Pumps and Valves
Pumps are the lifeblood of many industrial processes. Without pumps operating at their peak, valuable production capacity is lost. Continued wear and tear can lead to unexpected downtime. Monitoring industrial pumps or smart pumping systems for cycles completed, unexpected vibration, or high temperatures can indicate unusual operating conditions. This allows for a service technician to be sent before the operation is shut down completely.

C. Vibration
Used especially in motors and other manufacturing machinery, measuring vibration can be a strong indicator of an oncoming problem. As the vibration in devices continues to grow stronger, it can mean that a device is dangerously close to failure. Catching this change early enough in the process means that a service technician can be dispatched to the site to fix the problem before a complete breakdown.

D. Fluid and Flow
A pressure drop across a valve could indicate a ruptured seal or a pressure increase could mean a blocked filter. A higher temperature could mean a problem somewhere in the production process. Having these data points means that a problem can be solved before there is a loss of quality in product or a shutdown of a factory floor.

continues on page 30
Porocel Adsorbents, Catalysts & Services is a leading supplier of hydrotreating catalyst, activated bauxite, and related products and services to the Re-Refining industry. We also offer a comprehensive selection of catalyst services at plants strategically located around the globe. Our technologies provide our customers with high performance, cost saving solutions.

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E. Temperature and Humidity
Temperature and humidity variations can mean many different things for different applications. Perhaps food ingredient supplies will spoil if above a certain temperature. Maybe crops will grow mold if it gets too humid. A motor will stop functioning if it gets too hot. Throughout all of these scenarios, IIoT technologies can gather this data and alert a problem through preset parameters.

Business Process/Business Model Disruption
The IIoT alone does not create efficiencies or optimize services on its own. Instead it is up to the businesses to include the new IIoT data in their business processes in such a way that they transform how business is being done today. Being able to change predictive maintenance to completely avoid expensive downtime is an example of business transformation that is actually happening for industrial customers today, like those in the fuel and lube businesses. It’s important to note that the value of the Internet of Things does not come from connected devices, but rather from the ability to extract, mine, organize, and influence action from the information stemming from connected device data.

When thinking of the Internet of Things or connected products, it’s easy to think of the hyper-connected world of gadgets today - whether it be smart phones, refrigerators, or toothbrushes that appear to have non-essential and cool product features for the technophile. When looking at the world of sensors, internet-enabled products, and cloud computing, it’s a bit harder to truly comprehend the enormity of what’s happening at a fundamental level, that the definition of business value and how IoT will affect every business going forward.

Even new business models will emerge based upon an ongoing relationship, outcome-based approach to doing business. The subscription and membership economy is becoming a dominant model in many applications – think Netflix – with less ownership of the solution and more leasing or subscribing to a service. It becomes easier to think about this in the world of oil recycling where the future could be a world of contracts built out upon data that is captured in the cloud for both the user and recycler to see. SaaS (Software as a Service) is morphing into things like SeaS (Sensor as a Service). For the scrappy independent business owner, considering this shifting landscape and embracing it could lead to significant gains and huge disruptions in the fuel, lube and recycling industries.

Dan Yarmoluk is an IoT Business Development Executive for ATEK Access Technologies’ AssetScan product line. Dan has a technical background in OEM product design with batteries, chargers and sensors. He can be reached at dyarmoluk@atekcompanies.com. More information can be found at www.AssetScan.com. Meet ATEK at booth #306 at the 2016 NORA Conference and Trade Show.
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When run properly with the correct fluid, heat transfer systems are safe and low maintenance by design. The inherent dangers of any high-temperature operation increase exponentially when these factors are taken for granted. It requires a series of fluid and equipment failures compounded over time to yield a catastrophic outcome such as a fire or major leak. A system utilizing an under-designed fluid and operating outside of its designed limitations is the start of that series of failures.

Using the proper heat transfer fluid is paramount. The wrong fluid will likely lead to accelerated degradation, equipment failures associated with those degradation products, fouling of the fluid onto the surface elements of equipment, increased maintenance activities, and decreased efficiency of both heat transfer and overall system operation. Equally important are maintenance and operating procedures. Operating outside of your design specifications such as temperature limitations and flow rates, and failing to adhere to basic preventive maintenance practices, can lead to irreversible damages to both the fluid and equipment.

To help mitigate problems, a reputable specialty supplier can assist in selecting a high quality, specifically engineered specialty heat transfer fluid. Your supplier should be able to co-develop an operation-specific preventive maintenance plan for your plant. They should be proactive in helping to manage and facilitate this plan on an ongoing basis by providing consultation and a comprehensive service offering. This level of support will lead to prolonged fluid life as well as decreased potential for equipment fouling, operating issues and unscheduled change outs.

Investment in a supply partner should extend well beyond the fluid sale. Inventory levels should be reviewed regularly and the products you need should be stocked strategically. As a supplement to this, they should offer 24-hour emergency shipping and direct access to commercial/technical support to back this level of availability. Your thermal fluid supplier should proactively stress the importance of ongoing support and will have the ability to plan key aspects of a comprehensive service offering with you.

Maintaining the Investment

Having confidence in products and capabilities means that a supplier’s focus should not be on the next fluid sale, but on working with the user to prolong fluid life and prove the value of their brand. Fluid degradation either reduces the safety margin or increases the amount of maintenance required. Fluid degradation over time is inevitable. The goal is to minimize the rate at which it happens. No matter how high of a quality fluid you have with great thermal stability, purity and efficiency, the opportunity for fluid degradation is always there.

As a minimum preventive maintenance practice, your supply partner should highly recommend performing an annual fluid analysis. Furthermore, they should offer to proactively manage this program for you. The tests should be specific to heat transfer fluids and shouldn’t be lumped in with any lube oil or hydraulic fluid analyses. The supplier should provide a full report of your fluid condition, giving you expert recommendations and verbal review on the results and best practices for controlling any degradation that could be happening. This has to go beyond results.

They should be offering you a plan of action based on those results. Any unanticipated or premature degradation should not just be addressed with action on the fluid, but also with maintenance suggestions or operating adjustments to avoid similar results in the future.

Heat transfer fluids and thermal fluid systems play an integral role in processing operations. In order to fully optimize the user experience, the importance of the technology needs to be realized and dedicated considerations need to be made in the investments surrounding it. You should be choosing the right fluid to optimize your operating specifications, your equipment design features, the budget and any other key elements that are specific to your plan. Look for superior fluids that will feature the most effective combination of high purification, high heat transfer efficiency and superior thermal stability in comparison to competitive options. The decision to purchase a high quality thermal fluid should be complimented by choosing a high caliber supplier to protect that investment: a highly qualified and capable partner that will help maximize fluid value and minimize any potential negative outcomes.

Ryan Ritz is the Global Technical Business Manager at Paratherm A Division of Lubrizol, and he can be reached at rritz@paratherm.com. Meet with Paratherm A Division of Lubrizol at booth #301 at the 2016 NORA Conference and Trade Show.
Offer eligible from January 1, 2016 to December 31, 2016. To be eligible, the company you refer cannot be a current NORA member or a former NORA member who was active within the last year. See list of current NORA members at www.noranews.org/noramemberlist

*iPad will be an iPad Air 2 16GB ($399 value)

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Email info@noranews.org with an email, phone, name, and company name for the prospective member. Your gift will be shipped to your home. In order to qualify your name must be listed on the “referred by” line of the member application or exhibitor form, or NORA member must have contacted NORA HQ Staff in writing prior to new member joining.

Offer eligible from January 1, 2016 to December 31, 2016. To be eligible, the company you refer cannot be a current NORA member or a former NORA member who was active within the last year. See list of current NORA members at www.noranews.org/noramemberlist

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Guidance for All Storage Tank Owners: Different types of Above Ground Storage Tanks follow different industry standards. Make sure your site is performing the most relevant industry standard, it will not only produce the best results, but can save tens of thousands of dollars every year. Many tank owners are not aware they can still meet SPCC and PSM requirements while extending formal inspection intervals through utilizing STI SP001 – Steel Tank Institute’s Standard for the Inspection of Above Ground Storage Tanks.

During a recent “do it yourself” project, I needed to cut a number of strings to specific lengths to meet specific requirements while installing a new wall decoration. While shopping for a pair of scissors, I laughed to myself thinking about how my wife would react if I returned home instead with the industrial strength bolt cutters on display to cut a few pieces of string. More importantly, I couldn’t help but make the comparison between using bolt cutters to cut string with a number of tank owners I have seen following the API-653 inspection standard to inspect small diameter storage tanks. They are more expensive, much less relevant, and require a heck of a lot more work to accomplish a task that should be performed by utilizing a tool specifically designed for the task at hand.

What is API 653? API 653 is an inspection standard published by the American Petroleum Institute for Tank Inspection, Repair, Alteration, and Reconstruction. This standard is typically applied to steel storage tanks built to API 650 and includes minimum requirements for maintaining the integrity of such tanks after they have been placed in service. Tanks built to API 650 and inspected per API 653 encompass a large variety of tank configurations, ranging from small tanks less than 20ft in diameter to bulk storage tanks exceeding 2000ft or even 3000ft in diameter. When following this standard, formal external inspections by an authorized inspector are required every 5 years, in addition to formal internal inspections. Formal internal inspection requirements vary depending on a number of factors, but typically range from 10-20 years. For a while, this was the only inspection available for above ground storage tanks. Because of this, many sites were forced to utilize the same standard established for large field erected tanks for the small diameter tanks they had on site. Other sites were unable to afford these specialized inspection services at all. Why should a tank only 8 feet in diameter be held to the same inspection standard as a tank larger than a football field?

What is STI SP001? At the turn of the century, a group of experienced professionals got together to create a more relevant tank inspection standard, specifically for small field erected and shop built tanks. STI SP001 is an inspection standard specific to tanks less than 30ft diameter and 50ft in height. It provides tank owners the ability to conduct inspections more closely related to the type of equipment they have. The advantages are perhaps most apparent when reviewing inspection intervals for shop built tanks per STI SP001. For shop built category 1 tanks (tanks with spill control and a continuous release detection method), inspection intervals can range from; periodic only (completed by facility personnel), to periodic inspections with formal external inspections required only once every 20 years! By comparison, tanks inspected to API 653 require a formal external inspection once every 5 years, along with monthly inspections completed by facility personnel.

How do I know which standard should be used for my tank? If you are currently working with an experienced and reputable tank inspection company, your representative should already be discussing the most relevant standard for inspections completed at your site. If you have already read this far that may not be the case, so here are a few considerations when identifying the best way to inspect your tank. API 653 should be considered for any field erected tank constructed to API 650. If this tank is less than 30ft in diameter and less than 50ft in height it is a good candidate for utilizing the STI SP001 inspection standard. When an STI inspector conducts a formal inspection for field erected tanks, they still utilize the relevant portions of API 653, which are specifically outlined within the STI SP001 standard. It is important to realize that STI SP001 is not a second rate standard. It is a standard specific to smaller tanks that allows smaller sites and facilities to use the right tool.
for the job. Additionally, if the tank is a shop built tank less than 50,000 gallons, STI SP001 is going to provide the most value while still working to meet SPCC and PSM program requirements.

Do you find yourself “using bolt cutters to cut string” when it comes to completing your required tank inspections? Buying a pair of bolt cutters over scissors will only cost an additional $40. Utilizing the wrong inspection standard can cost your facility thousands of dollars per tank. Using bolt cutters to cut string and using the incorrect inspection standard for a tank both result in a frustrating situation where you end up doing a greater amount of work than is necessary. Let me save you a headache and encourage you to at least give the scissors a shot: Use the right tool for the job.

Dylan Brown is the Project Coordinator at Tank Consultants, Inc. For additional information on how TCI can help with environmental compliance and storage tank inspection in your area, please contact Dylan Brown. dbrown@tank-consultants.com Office: (281) 842-1126 Cell: (815) 861-1240.

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Hydrotreating is a common technology used by re-refiners to produce high quality Group II and III base oils from used motor oil. At the heart of the process are the metal traps and catalysts that fill the hydrotreaters. Proper selection of these items can have a tremendous impact on cost, product quality and cycle length.

Metal Traps
The additive packages used in motor oil contain elements such as silicon, phosphorus, calcium and zinc which poison hydrotreating catalyst and substantially reduce its effective life. The most efficient way to deal with these impurities is with the proper selection of metal traps. These grading materials, placed in front of the catalyst, can selectively remove these catalyst poisons, thereby protecting the main catalyst bed and prolonging its life. Among the top performing metal traps in the market today are Porocel’s CatGuard® products.

Catalyst
Hydrotreating catalyst performs hydrodesulfurization and hydrodenitrogenation on the used oil stream. The process reduces the sulfur content of the stream to within specification, eliminates most color bodies, and performs some hydrogenation of active olefinic compounds which untreated could contribute to unwanted polymerization. There are a wide variety of shapes, sizes, and compositions of hydrotreating catalysts available, often making the catalyst selection process a challenge.

Some re-refiners still use fresh, never-before-used catalyst, but a large percentage of the market has shifted to regenerated and rejuvenated catalysts. These are catalysts that have been used once before in conventional refining applications, then reprocessed to restore most of their original catalytic activity. The catalyst must be low in adsorbed impurities to be a candidate for reprocessing. In most cases an appropriate regenerated and/or rejuvenated catalyst can replace fresh catalyst, potentially reducing a re-refiner’s catalyst costs by over 60% without any loss in performance.

Regenerated catalyst has been carefully oxidatively
regenerated to burn off the carbon that accumulated on the catalyst during its prior use. Depending on the specific catalyst, this can restore 70-90% of the original catalytic activity. Rejuvenated catalyst undergoes an additional processing step which in many cases can further restore the catalyst’s activity to a level close to that of fresh catalyst.

Catalyst activity relative to that of fresh catalyst (or any other catalyst) can be quantified by pilot plant testing and reported as RVA (relative volumetric activity). This information can be very useful in the catalyst selection process.

**Catalyst Activation**
Hydrotreating catalyst is activated by the presence of sulfur during the start-up process. The sulfur can be added “in situ” using various sulfur dopants or “ex situ” by a third party. Today the vast majority of the industry has migrated to ex situ solutions due to the inconvenience and potential HSE issues surrounding the use of sulfur dopants.

Ex situ solutions fall into two categories – presulfurization and full activation. Presulfurization involves the application of a sulfur-containing compound to the catalyst by a vendor. The catalyst is partially activated during the application process, and the remaining activation takes place during the start-up of the catalyst. Fully activated catalyst is completely activated by the vendor. The start-up processes are almost identical for both options, and for re-refiners the significant cost advantage of presulfurization makes it the preferred sulfiding solution.

**Technical Support**
Proper catalyst selection is not a trivial matter. The re-refiner should choose a catalyst vendor that can provide technical guidance during the selection process as well as during the start-up and operation of the unit. The technical support engineer should be able to assist the unit engineer with unit monitoring, continuously assessing the performance of the catalyst. This can provide invaluable information for future metal trap and catalyst selection and potentially allow the re-refiner to improve their unit performance and cycle length from run to run.

**Summary**
Catalyst selection and the appropriate use of metal traps can have a huge impact on hydrotreating unit performance. A variety of high performance regenerated and rejuvenated catalyst options exist, all priced well below fresh catalyst. Each hydrotreating unit is unique – there is no “one size fits all” solution. However, with the help of an experienced vendor technical support engineer, low risk customized solutions can be identified and implemented, potentially leading to substantial cost savings.

*Peter Douvry is the Business Development Manager at Porocel International, and he can be reached at pdouvry@porocel.com or (281) 469-8555. Meet with Porocel International at booth #204 at the 2016 NORA Conference and Trade Show.*
In Part 1 of this article on Superfund logistics and liability, the point was made that strict liability (liability without the need to prove fault or negligence) and joint and several liability (one entity can be held liable for the entire cost of clean-up) were the twin Draconian legal weapons in the hands of the government or private plaintiffs. Basically, the law was clear and harsh: if your hazardous substance was found at the site you became a “responsible party” – responsible for remediating the site. This was essentially the status of Superfund liability for the first 25 years. In recent years, however, a line of cases emerged that reconfigured the architecture of Superfund liability.

Two related concepts are involved in this line of cases. The first has to do with “arranger” liability under the Superfund statute. Stated simply, someone who “arranges” for the disposal of a hazardous substances at a “facility” (a Superfund site) can be held liable. But what if that someone had no intent to dispose of the hazardous substance? Is intent to dispose a requisite element of arranger liability? In 2009, the United States Supreme Court in Burlington Northern & Santa Fe Ry. v. United States, 556 U.S. 599 (2009) answered this question in the affirmative. Under Burlington Northern the plaintiff (including the government) must establish that the purported arranger took “intentional steps to dispose of a hazardous substance.” 556 U.S. at 611. Thus, arranger liability under CERCLA is premised upon an intentional act directed toward the disposal of hazardous waste.

Now consider the question about intent in the context of the second concept: useful products. In one scenario, someone takes a gallon of gasoline, just purchased at the local filling station, and deliberately pours it on the ground at a location of a future Superfund site. That person would obviously be liable under CERCLA because he or she intended to dispose of it.

In another scenario, a gallon of gasoline is found in a
warehouse at that Superfund site. Although it was intended by the owner of the site to be used as fuel in a lawnmower, the EPA emergency response team conducted the initial remediation of the site, removed the gasoline and included it in the inventory of hazardous substances found at the site. Is the owner of the site liable for removal/remediation of that gallon of gasoline? The useful products defense holds that the owner is not liable because the gasoline remained a useful product (intended to be used as fuel) and the owner had no intent to dispose of it.

A relatively recent decision by the U.S. Court of Appeals for the Fifth Circuit that addressed liability under both CERCLA and the Texas Solid Waste Disposal Act stated: “this Court has long recognized the so-called ‘useful product doctrine,’ and we have held that a party is not liable as an arranger if it were engaged in the mere sale of a useful product that is not properly to be considered ‘waste.’” Vine Street LLC v. Borg Warner Corp. (5th Cir. 2015) citing Dayton Independent School District v. U.S. Mineral Products Co., 906 F.2d 1059, 1065-66 (5th Cir. 1990).

The Court of Appeals' decision in the Vine Street case relies, in part, on the district court's evaluation of the underlying transaction and its conclusion “that the purpose behind the transaction was to sell useful chemical to distributors and not to dispose of them.”

These Fifth Circuit cases are in accord with decisions by numerous other courts. For examples: “if the material at issue is ‘a useful product, then it [is] not waste and not subject to CERCLA.’” Solvent Chem. Corp., 225 F. Supp. 2d at 281 (quoting A & W Smelter and Refiners, Inc. v. Clinton, 146 F.3d 1107, 1112 (9th Cir. 1998)). See also AM Int'l Inc. v. InternationalForging Equip. Corp., 982 F.2d 989, 999 (6th Cir. 1993) (focus is on the value and usefulness of the product and the intent of the parties); Florida Power & Light Co. v. Allis Chalmers Corp., 893 F.2d 1313, 1317 (11th Cir. 1990) (focus is on intent and the value of the product); Peterson, 806 F. Supp. at 1354 (focus is on the type of agreement, the usefulness of product and intent to use product entirely as sold).

What does any of this have to do with oil recyclers? Well, actually, a lot. Oil recyclers (as well as antifreeze recyclers and oil filters recyclers) are in the business transforming a generator’s discarded material into a valuable product (i.e. turning a waste into an asset). On-spec used oil fuel should be in the same useful product category as the gasoline intended to be used as lawnmower fuel and therefor immune from Superfund liability. But what if the generator has to pay the collector/recycler to take the used oil off his property? Doesn’t mean that the used oil, as generated, is more like a waste than a useful product? No court case has specifically answered that question. However, in a CERCLA liability situation there are definitely a few things that can do to help persuade a court to approve of a useful product defense in the case of a used oil product. First, it helps if the oil recycler has paid the used oil

continues on page 40
generator, proving that at the very beginning of the process the used oil had value. Future market conditions may return the industry to that situation. Second, the oil recycler should establish that the processed used oil meets EPA’s Part 279 specifications as well as one of the four ASTM specifications for recycled fuel oil (“RFO”). In addition, the customer (the burner or re-refiner) is likely to require additional specification requirements such as ash content and viscosity. Meeting the customer’s specifications obviously makes it more of a useful product. Third, the market for selling the used oil products should be healthy and robust. Documentation of sales is crucial to this component of the useful product defense. Fourth, if the used oil is considered an asset it should be managed as an asset: stored in non-leaking containers, insurance coverage in the case of a loss, etc. Proof of compliance with Part 279’s used oil processor requirements as well as SPCC regulations will assist in making this argument.

Finally, for those who think that Superfund liability is just a highly remote and miniscule possibility, consider that over the past 25 years a number of oil recycling facilities have become Superfund sites. These include:

- U.S. Oil Recovery site in Pasadena, Texas
- ESI site in Indianapolis, Indiana
- Texas American Oil site in Midlothian, Texas
- Lenz Oil site in Lemont, Illinois
- P&W site in Nevassa, North Carolina
- Beede Waste Oil site in Plaistow, New Hampshire
- York Oil site in Moira, New York
- Voda Petroleum site in Clarksville City, Texas
- Ekotek site in Salt Lake City, Utah

Used oil generators, transporters and recyclers have become entangled in these very costly Superfund nightmares. However, in the future, with enough preparation and documentation, an oil recycler in most cases can invoke the useful product defense and avoid liability – and the sleepless nights.
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What products/services does your company provide?
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What value do you find in NORA Membership to expand your business opportunities?
Because most NORA members are directly or indirectly involved in the collection and processing of Used Lube Oil this has been an invaluable source of business contacts and good prospects for our company. We have also gained a lot of valuable knowledge from NORA and its professional consultants as well as its members.

What are the biggest challenges and opportunities you see facing the industry over the next five years?
The biggest challenges and opportunities I see for the industry are actually around the same issue – that is the increasing pressure on collectors and aggregators of Used Lube Oil from environmental and regulatory authorities regarding the best practices in the disposition of this resource. On the one hand changes in environmental regulations which limit burning will decrease the immediate markets for it, and therefore potentially disrupt pricing and profitability for this sector. However often positive changes are initially difficult to deal with but later bring about what has needed to happen. So eventually I see most, if not all, ULO being re-refined and re-introduced into the lubricants markets, which will improve the value and therefore profits for this very valuable resource.

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This is an open call for candidates for the 2017-2018 NORA Board of Directors. There are a total of four open Recycler Member Board seats this year. If you would like to nominate yourself, or someone else, please email info@noranews.org by September 23rd at Noon Eastern. NORA will contact you to review the board position responsibilities and answer your questions. The term for each Board seat is two years (2017-2018). Generally, Board members are requested to be at the three NORA events each year as well as on 2-3 additional phone calls per year.

In addition to Board seats, the association is also seeking individuals to serve on a variety of committees for 2016. These positions are not elected; the President appoints them. NORA thanks those who have served in the past and encourages members to help lead our industry into the future.
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