

# THE CLARIFIER

Volume 15 Number 3

December 2004

## Rip Taylor, Former VP, Pioneer in the Industry

We report with great sadness that, after a long illness, Richard B. Taylor (Rip) passed away August 7, 2004 at the age of 74 in Los Altos.

Rip joined Velcon Filters in 1955 and retired as Vice President Sales and Marketing in 1993. After retirement Rip continued to support the company as President of Velcon Canada and as a Director of Velcon Filters, Inc. Rip will be remembered for his significant role in developing the company's sales and marketing program and developing new products during a very active period for aviation fueling. Rip also played a key role in developing company sales in Europe through our partner Warner Lewis Jr.



He leaves a wife, Marjorie, as well as two sons, Matt of Oregon, Ben of Colorado Springs and two daughters, Katherine of Santa Maria and Lucy of Seattle. He also leaves five grandchildren.

*"Rip, together with Bob Marting, had been instrumental in the setting up of Hanevel in Singapore, without which, we would not be where we are today. We are truly indebted to him for his support."*

Sam & David Ngiam,  
Hanevel (Far East) Filters, Pte Ltd

*"I had the pleasure of doing business with Rip during the mid to late 1980's...He was always a perfect gentleman, and he and his family always showed me great kindness. I have nothing but the happiest memories of working with Rip..."*

Malcolm Willars, Shell Global Solutions

*"I knew Rip for several years during the time the company was headquartered in San Jose. He made a significant contribution to the aviation industry and will be missed."*

Fred Barnes, formerly with Chevron

## Holiday Shutdown

Please note that Velcon will also be closed the following dates in 2004-2005 due to holidays:

December 24 – 27 ~ Christmas  
December 31 ~ New Years Holiday  
February 21 ~ Presidents' Day

## CHANGE OF ADDRESS

Please be advised that our corporate headquarters' mailing/bill to/remit to address has changed. Effective immediately, please change your records to show the following for Velcon Filters, Inc. address:

1210 Garden of the Gods Road  
Colorado Springs, CO 80907-3410

Our phone and fax numbers, email address and web site address all remain the same.

### CONTENTS

|   |   |
|---|---|
| Discussion of Clay Treatment for Fuel .....                   | 2 |
| Q&A .....   | 3 |
| Ice Crystals & Filtration .....                               | 3 |
| Velcon Service Awards .....                                   | 3 |
| Sheryl Farris - 30 Yrs at Velcon .....                        | 3 |
| Vegas Bound... Aviation Industry Week.....                    | 4 |
| API/IP 1581 5 <sup>th</sup> Edition Specification Update .... | 4 |



Velcon.

## Discussion of Clay Treatment for Fuel

Below is a series of questions and answers between one of our distributors and Greg Sprenger, General Manager, Lab Services, on various aspects of clay treatment.

If clay is saturated by water will it result in a rise in DP?

I think so, since the water is taking up space where fuel flow might normally go.

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*Clay is a bit of a 'chicken or the egg' situation: we need to clay treat in order for the FWS to work effectively and yet we need to have the product as dry as possible going into the clay. How do we dry surfactant laden fuel?*

Yes you are right. Generally we sequence prefilter/clay/filter-separator. I think, only because fuel is usually dry.

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*If we haypack upstream of a clay and get the dirt and water down to say 20 micron and 30 ppm I guess we should still microfilter between haypack and clay but what about the 30 ppm water? Is that a normal level into a clay treater? If so can we expect the clay to last a good time or will even 30 ppm affect the clay quickly? Certainly the water droplets will compete with the surfactants, so wet clay will adsorb less. I don't have real good field data for you; however, in our lab, our fuel is ALWAYS saturated, and may contain some free water, but life/capacity is not really degraded too much. Results of work done by CRC\* on clay adsorption show some preferentiality of the clay for various additives. Possibly the water is not really adsorbed at the active sites, but just 'gets in the way'.*

*If water and dirt are kept out of the clay treater then we simply monitor the effectiveness of the clay using a SMFTkit® or MSEP I guess, the elements would be replaced when the effect of the clay becomes negligible. Another statement but please correct me if necessary.*

The problem is that you really need to compare inlet fuel to outlet fuel. If the fuel is quite surfactant-free, both MSEPS/SMFTkits will be quite good, and you can't tell if the clay is exhausted.

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*Why does water saturate the clay rather than flush the surfactant out the way it does with a coalescer?*

I don't really have good data on this. I suspect the following two things are happening:

1. The surfactants are 'bound' pretty tight to the clay. Probably not quite a "chemisorption", but still with some strength. Water may not be a proper "solvent".
  2. To really pull off the surfactants, they would have to dissolve a bit into the water; they really won't do that. An organic polar solvent is needed, like isopropyl alcohol or methyl ethyl ketone or acetone. These have enough polarity to dissolve the surfactant and pull it off.
- Having written that, I think that if enough water was present such that water was actually pushed through the clay like a coalescer, then some surfactant would be pulled off.

*If a clay treater is subject to fuel with 30ppm and then the next day dryer fuel passes through, will the water be carried out of the clay by the fuel and thus extend the life of the clay again?*

I think so, but again no real data. I suspect what actually happens in the field is that the water is re-dissolved back into the dryer fuel (fuel below saturation), so the clay surface is really then recovered.

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*How do we determine whether water has been the cause of the clay to stop functioning rather than surfactant? Hence my first question on DP rise. If no DP rise, then we'll pick up the performance deterioration with the SMFTkit, but was water or surfactant the cause?*

I suspect that water will cause dP rise, but it could also be dirt causing the dP rise. I think we would have to examine the clay itself to really know.

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*From Robin Mason, VP:*

We do a lot of clay treatment and have not seen the releasing of surfactants - if too much water is present then the clay will stop removing the surfactants. I do not believe the 30 ppm is a big issue. Regarding haypacks, we prefer to use a design with plenty of fall out space and our series 4 coalescers (I-6xx4).

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*\*The Coordinating Research Council (CRC) is a non-profit organization that directs, through committee action, engineering and environmental studies on the interaction between automotive equipment and petroleum products.*

## Questions & Answers

**Q** Regarding API/IP 1581 5th Edition Specifications, in looking at commercial (Category C) vs military (Category M & M100) vessels, why does a vessel have a lower flow rate for military than for commercial - even though the vessel is the same size for both?

**A** Even though the vessels are the same size, the lower flow rate for Category M & M100 vessels is due to the additional additives in military jet fuel that keep dirt particles dispersed, making them harder to trap within the filter media.

**Q** Our company is converting our filter/separators back to having coalescers & separators instead of ACI water absorbing monitors. Is there anything special we need to do as part of that conversion?

**A** Yes, one thing you will need to do is to re-install a float valve assembly if that had been removed. You also need to ensure that you have correct procedures for dealing with water and water slugs in the system. Separated water will accumulate continuously in the filter/separator sump and will have to be routinely monitored and drained. Water slugs can close the water slug valve, shutting off the fuel flow.

Note - you may have installed a number of blind caps when you converted to **Aquacon**® water absorbing cartridges. Ask Velcon for a similarity report to confirm that you are using the correct number of coalescers and separators.

## Ice Crystals & Filtration

(Contributed by Bill Mononen of Velcon Canada)

Ice crystals will act as a solid particulate and can rapidly cause a sharp rise in pressure drop on CDF® elements in particular if they are present in quantity. Jet fuel can be clear and bright after passing through filter separators at a terminal, where it is dispensed onto a tanker for delivery to an airport. During or after delivery to the airport the fuel temperature often drops causing water to come out of solution and forms ice crystal in fuel without FSII present.



If ice crystals are a persistent problem we recommend using a filter/separator or filter housing using **Aquacon**® elements which have more surface area prior to a fuel monitor with CDF® elements.

We have also used dehydrators with excelsior repacks for diesel fuel coming from barges and storage tanks. The repack is made of a coarse wood fiber that will hold large quantities of ice before rising in pressure drop. Rob Guglielmi of Velcon Canada was present upon opening a dehydrator and witnessed shovel-fulls of ice being removed prior to the repack removal.

Sump heaters and heat tracing are not effective in reducing ice particle problems, because they are intended to keep water that is present in sumps from freezing, not for melting ice that is already present in a fuel stream.

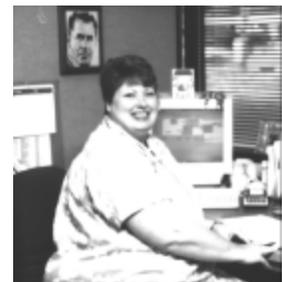
## Velcon Service Awards

Congratulations to these Velcon employees who have recently celebrated special anniversaries with Velcon:

**30 Years**  
Sheryl Farris  
**15 Years**  
Patsy Holmes  
**10 Years**  
David Cottingham  
**5 Years**  
Jolene Freitag  
Janice Rudd

## Sheryl Farris ~ 30 Years at Velcon

Sheryl Farris recently celebrated her Thirty Year Anniversary with Velcon Filters. You may know Sheryl, now Customer Service Supervisor. Some of her previous roles at Velcon are: Personnel Coordinator, Sales Coordinator, and Lead Order Entry Supervisor. She appreciates the atmosphere of trust and respect at Velcon, and attributes her longevity to being "lucky enough to work with people who tolerate my shortcomings, forgive my mistakes, and appreciate my effort."



Sheryl at her desk, photo of Glenn Ford, her "true love since age 5", behind her.

March 8 - 10, 2005

**AVIATION  
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## Vegas Bound... Aviation Industry Week 2005

**Please join us in Las Vegas  
March 8-10, 2005!**

Velcon will be exhibiting -  
you'll find us in Booth 11048.  
Please note that this year  
the show is located at the  
*Sands Expo Center*  
201 East Sands Ave,  
(adjacent to the Venetian).

## API/IP 1581 5<sup>th</sup> Edition Specification Update

Velcon Filters, Inc. announces the successful completion of its latest API/IP 1581 5<sup>th</sup> Edition qualification test. The test was for a horizontal filter/separator vessel with an 800 GPM flow rate, in Category C (Commercial), Type S, as shown:

HV2856 Three-Stage Vessel, 800 GPM with cartridges:

First stage: 5 x I-656C5TB coalescers

Second stage: 6 x SO-633GS separators

Third stage: 30 x CDF®-230K monitors

This event marks Velcon's twelfth successful completion of 5<sup>th</sup> Edition qualification testing. Velcon Filters, Inc. will be supplying these Fifth Edition, Three-Stage vessels for the Port Authority of NY & NJ's terminal at Newark Int'l Airport.

Velcon Filters, Inc.

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Velcon Filters, Inc. is an Equal Opportunity Employer



If you know anyone who would like to receive *The Clarifier*, fax their name, company and address to the address listed on the left.

We also welcome your comments and suggestions on topics covered in *The Clarifier*.

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