



Vapor Systems Technologies, Inc.

Corporate Profile Products Literature Distributors Compliance Customer Support

News and Notes for the Fuel Dispensing Industry Professional

# The ! Voice

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Hello!



This edition promises more of Doug's great Troubleshooting Tips designed to lend clarity to the EVR market place as more GDFs convert their stations from Vac Assist to Balance Systems.

**Inside this issue:**

Tech Talk

Then in the Training section, our gentle reminder to make sure all field technicians are current on their Level A Training... and a guide to receiving VST Level B/C Certification extensions.

VST Training

...From Scott Bennett a highlight of VST's newest Products and Programs.

New VST Products

**COMING IN APRIL:**

From Rodger Grantham, another chapter of The VST Special Edition.

Until next time,

*Susie*

Susie McLaughlin  
Editor, The VST Voice

## Tech Talk

BY DOUG HARTY: SENIOR APPLICATIONS ENGINEER: HARTY@VSTHOSE.COM

### Troubleshooting Veeder-Root Flow Collect Warnings for Balance EVR Systems

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The life of a field service tech is hectic to say the least, so having quick tips for diagnosing and troubleshooting field alarms may be the best time and money saver at your disposal... particularly when you're troubleshooting elusive flow-collect alarms.

The purpose of this document is to offer field-tested and field-proven troubleshooting techniques so that when you're faced with flow-collect alarms, you'll know exactly where to start your troubleshooting and what pitfalls to be aware of. To do this, we're going to cover the following topics:

1. Background information about Veeder Root Flow Collect Warnings for Balance EVR Systems
2. Causes of Flow Collect Warnings
3. Troubleshooting Tests & Techniques for Flow Collect Warnings

Let's begin with a bit of background information.

### Background

ISD Flow Collect Warnings and Alarms are caused when the hose collection is 50% below the site collection average. This means that the hose is acting differently than the other hoses at the site. The Flow Collect Alarm can be caused by failed hanging hardware components at the fueling position (FP) in Alarm, vapor leaks at the site, or abnormal traffic patterns at a specific FP.

Flow Collect warnings can be difficult to troubleshoot and the warning can sometimes continue to the "Fail" condition even after compliance testing has been performed. If a Liquid Removal Device stops working or if fuel is leaking from the product hose into the vapor path, the repair of the bad component is an easy fix. The normal compliance test procedures will detect these equipment problems.

## Troubleshooting Veeder-Root Flow Collect Warnings for Balance EVR Systems, continued

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### Causes

**The number one thing to keep in mind as you're making your diagnosis is that you should be looking at the site as a whole and not just at the fueling point in question.**

Sometimes the cause of the alarm is an abnormally high amount of ORVR cars (multiple low V/L results in a row) at a specific FP, which can look like a blockage to the TLS-350 ISD system.

Other times, the cause of the Flow Collect alarm is a vapor leak at a different fueling point from the one shown on the Alarm report. I have found that most Flow Collect Warnings are followed by a Vapor Leakage Warning within 7 days. The ISD Daily report will often report a 0 CFH leak rate for several days, even when there is a leak present.

See the example scenario below:

#### Example ISD Daily report results:

Day 1 – Drive off – hose damaged – ISD Vapor Leakage on Daily report – 0 CFH  
Day 2 – Hose damaged – ISD Vapor Leakage on Daily report – 0 CFH - Flow Collect Warning  
Day 3 – Hose damaged – ISD Vapor Leakage on Daily report – 0 CFH  
Day 4 – Hose damaged – ISD Vapor Leakage on Daily report – 0 CFH  
Day 5 – Hose damaged – ISD Vapor Leakage on Daily report – 0 CFH – Flow Collect Warning  
Day 6 – Hose damaged – ISD Vapor Leakage on Daily report – 0 CFH  
Day 7 – Hose damaged – ISD Vapor Leakage on Daily report – 15 CFH – Vapor Leakage Warning

Figure 1

## Troubleshooting Veeder-Root Flow Collect Warnings for Balance EVR Systems, continued

### Troubleshooting Tests & Techniques

If you are dispatched to troubleshoot a FP2 FLOW COLLECT WARN reported on the TLS-350, think about these important steps to make sure you don't have to go back to the same site the next day for a FP2 FLOW COLLECT FAIL.

The normal procedures for troubleshooting a Flow Collect are:

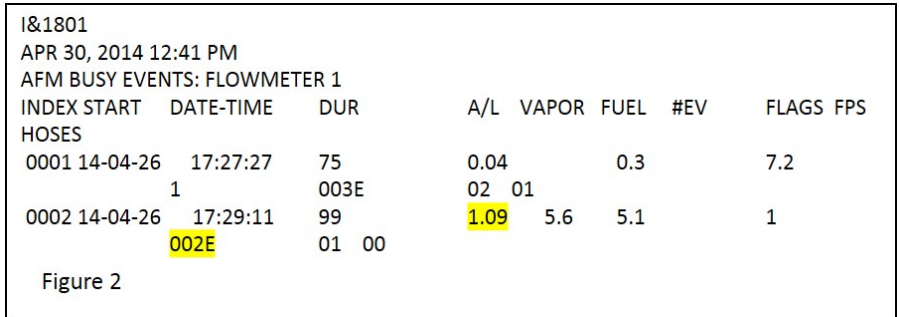
Procedure	Reasons
<b>Dynamic Backpressure Test</b>	Backpressure is an important test because not all balance components behave the same. <u>Some combinations of different brands of hanging hardware</u> can create substantially higher backpressure and cause reduced collection efficiency, creating the Flow Collect Warning. Correcting high backpressure issues will significantly reduce the possibility of a Flow Collect Warning. Test at 60 and 80 CFH, limit is <u>0.35"WC @ 60 CFH and 0.62"WC @ 80 CFH</u> .
<b>Flow Meter Operability Test</b>	Flow meters can get stuck, and leaks on the dispenser will reduce vapor flow measured by the flowmeter. Low readings can indicate leaks in the dispenser or hanging hardware. Remember to <u>always vent the UST</u> when conducting this test.
<b>Liquid Removal Test</b>	The liquid removal device plays a very important role in reducing ISD Flow Collect Warnings. Even if the hose is dry when you arrive on site, it could still have a bad liquid removal device. Remember hoses will absorb some fuel, and fuel will evaporate as well. I know it can be a pain to do a liquid removal test, but it will help eliminate intermittent Warnings.
<b>Pressure Decay Test</b>	A Pressure Decay test is HIGHLY recommended if no problems are detected during Dynamic Backpressure, Liquid Removal, and Flow Meter Operability Tests. Leaks on other dispensers WILL cause Flow Collect Warnings. A quick leak check can also be done using the flowmeter tests explained in the next section.

## Troubleshooting Veeder-Root Flow Collect Warnings for Balance EVR Systems, *continued*

### Other Troubleshooting Techniques

If the Flowmeter Operability, Dynamic Backpressure, and Liquid Removal test all pass, try these additional troubleshooting steps:

Procedure	Reasons
<b>Check Transactions</b>	Use a sealed V/L test tank and dispense 5 gallons on the FP in Warning. Repeat 1-2 more times, and check the transactions using I&180X TLS-350 serial command. Check that the transaction is close to 1.0 V/L and flagged 002E. If the reading is lower than normal, double check the dispenser piping, hanging hardware, and front end kits. Damaged front end kits can cause Flow Collect Warnings too. Having a few good transactions will push the FP V/L average up, and it will prevent the Warning to progress to Fail. See Figure 2 below.



Procedure	Reasons
<b>Check Flow Meter Movement</b>	Cone off a couple dispensers, and leave the rest of the site open. Check the Flow Meter position using the IV8700 command, and look for any movement. Move the cones, and check the next set of Flow Meters. Repairing vapor leaks at a site will prevent unnecessary return service calls.
<b>Check the ISD Meter Mapping</b>	Review the ISD Meter Mapping on the ISD Printout, and confirm the proper order on dispensers and flow meters. Re-map the site if in doubt.
<b>Check the DIM String</b>	Check to see if the DIM requires a DIM INIT String. Some sites will require a G programmed in to the dim string. (DIM P/N 330273-002C)
<b>Look for Low Performance Trends</b>	Download the I&3300 report and look for a trend of low performance. You can specify the number of records displayed by typing I&330003600005 to review data from the last 5 days. <a href="#">Notice</a> in the Figure 3 example <a href="#">that FP7 had low V/L results two days before the WARNING.</a>



## Troubleshooting Veeder-Root Flow Collect Warnings f or Balance EVR Systems, continued

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I&3300
  12-19-14 12:03 PM
BALANCE FLOW MONITORING TEST RESULTS

Rec# Test_Timestamp EstPrOrvr OrvrLimit SiteChi^2 CritVal SiteChi^2Result
0100 12-03-28 22:00:09 46.49% 91.00% 18.14 24.73 ignore_orvr_tests
Dispenser-----Flow Monitoring-----Orvr-----
Labl Hose AFM Status A/L Days Evnt Status V #0 #AL %Blck %Thrs %Zero
01 00 00 PASS 1.04 0.9 77 PASS 0 36 77 46.75 62.45 30.54
02 00 00 PASS 1.06 0.9 33 PASS 0 13 33 39.39 70.86 22.12
03 00 01 PASS 0.89 0.9 61 PASS 0 33 61 54.10 64.42 28.56
04 00 01 PASS 1.05 0.9 19 PASS 0 6 19 31.58 78.61 14.37
05 00 02 PASS 1.05 0.9 83 PASS 0 36 83 43.37 61.86 31.12
06 00 02 PASS 1.04 0.9 24 PASS 0 6 24 25.00 75.07 17.91
07 00 03 PASS 0.76 0.9 45 PASS 0 20 45 44.44 67.36 25.62
08 00 03 PASS 1.00 1.9 22 PASS 0 13 22 59.09 76.34 16.64
09 00 04 PASS 0.91 0.9 70 PASS 0 27 70 38.57 63.22 29.76
10 00 04 PASS 0.95 0.9 30 PASS 0 12 30 40.00 72.05 20.93
11 00 05 PASS 1.04 0.9 53 PASS 0 33 53 62.26 65.72 27.26
12 00 05 PASS 0.97 1.9 28 PASS 0 15 28 53.57 72.95 20.03

Rec# Test_Timestamp EstPrOrvr OrvrLimit SiteChi^2 CritVal SiteChi^2Result
0101 12-03-29 22:00:09 46.43% 91.00% 18.72 24.73 ignore_orvr_tests
Dispenser-----Flow Monitoring-----Orvr-----
Labl Hose AFM Status A/L Days Evnt Status V #0 #AL %Blck %Thrs %Zero
01 00 00 PASS 0.95 0.9 58 PASS 0 31 58 53.45 64.81 28.05
02 00 00 PASS 1.09 0.9 29 PASS 0 14 29 48.28 72.42 20.43
03 00 01 PASS 1.05 0.9 46 PASS 0 18 46 39.13 67.07 25.79
04 00 01 PASS 0.95 0.9 24 PASS 0 3 24 12.50 75.00 17.85
05 00 02 PASS 0.88 0.9 68 PASS 0 32 68 47.06 63.41 29.45
06 00 02 PASS 0.96 0.9 20 PASS 0 7 20 35.00 77.73 15.13
07 00 03 PASS 0.75 0.9 34 PASS 0 13 34 38.24 70.44 22.42
08 00 03 PASS 0.94 1.9 26 PASS 0 14 26 53.85 73.88 18.97
09 00 04 PASS 0.97 0.9 72 PASS 0 27 72 37.50 62.93 29.93
10 00 04 PASS 1.05 0.9 19 PASS 0 10 19 52.63 78.54 14.31
11 00 05 PASS 0.97 0.9 27 PASS 0 15 27 55.56 73.37 19.49
12 00 05 PASS 0.80 1.9 23 PASS 0 12 23 52.17 75.62 17.24

Rec# Test_Timestamp EstPrOrvr OrvrLimit SiteChi^2 CritVal SiteChi^2Result
0102 12-03-30 22:00:09 46.36% 91.00% 18.04 24.73 ignore_orvr_tests
Dispenser-----Flow Monitoring-----Orvr-----
Labl Hose AFM Status A/L Days Evnt Status V #0 #AL %Blck %Thrs %Zero
01 00 00 PASS 0.97 0.9 84 PASS 0 36 84 42.86 61.63 31.09
02 00 00 PASS 0.79 0.9 35 PASS 0 18 35 51.43 70.02 22.70
03 00 01 PASS 0.94 0.9 50 PASS 0 32 50 64.00 66.16 26.56
04 00 01 PASS 0.91 0.9 19 PASS 0 5 19 26.32 78.47 14.25
05 00 02 PASS 0.91 0.9 73 PASS 0 35 73 47.95 62.74 29.98
06 00 02 PASS 1.11 0.9 25 PASS 0 9 25 36.00 74.35 18.36
07 00 03 WARN 0.58 0.9 52 PASS 0 27 52 51.92 65.77 26.95
08 00 03 PASS 0.94 0.9 21 PASS 0 12 21 57.14 76.90 15.81
09 00 04 PASS 0.98 0.9 67 PASS 0 29 67 43.28 63.46 29.26
10 00 04 PASS 0.66 0.8 17 PASS 0 9 17 52.94 80.31 12.41
11 00 05 PASS 1.20 0.9 48 PASS 0 25 48 52.08 66.56 26.16
12 00 05 PASS 0.90 0.9 18 PASS 0 4 18 22.22 79.35 13.37

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Figure 3

## **Troubleshooting Veeder-Root Flow Collect Warnings for Balance EVR Systems, continued**

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### Summary

So in summary, we've covered the following:

1. Background information about Veeder-Root Flow Collect Warnings for Balance EVR Systems
2. Causes of Flow Collect Warnings
3. Troubleshooting Tests & Techniques for Flow Collect Warnings

Now when you get that call about a flow collect alarm, you'll know where to start and what to look out for. **Remember to look beyond the hose that is in Warning and think about the site as a whole.**

**Using these techniques can help you avoid return trips and keep your customers satisfied.**

### Coming Next

In the next issue of The VST Voice, we will address "Troubleshooting INCON Weekly Vapor Collection Warnings for Balance EVR Systems."

## VST Training

BY SUSIE MCLAUGHLIN: MANAGER, TRAINING & CERTIFICATIONS: MCLAUGHLIN@VSTHOSE.COM

### Level A Training - Get it Done!

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Executive Orders VR-203/204 Rev. P were signed in April of 2014. And with them came the **new requirement** that all contractors with existing VST Level A certifications are REQUIRED to re-certify their VST Level A by taking the Level A online training.

VST offers this training online, in a self-paced format, and at no charge to afford contractors an efficient / no cost way to keep themselves compliant with Air & Resources Board requirements. We strongly urge all contractors to get this done as soon as possible to take advantage of this wonderful opportunity.

The Level A training is available online, at no cost. To access the training, go to [www.vsthose.com](http://www.vsthose.com). Attached are instructions for getting started, but here are some things to keep in mind:

1. When you are filling out the online registration form, know that however you enter your name and your company is the exact way your certificate will be generated. So if you use all lower case letters to fill out the form, your certificate will be generated with your name and your company's name in lower case letters.
2. The training takes about 1 hour.
3. Once you start the training, you may pause or suspend it and finish it later; however, you have only 30 days to do so.
4. Once you finish the training and pass the quiz, you may immediately generate your certificate.

### Level B/C Certification Extensions

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If you have previously held a VST Level B or Level C certification, you are eligible for an extension on both levels by sending in the appropriate paperwork. Just scan and email the paperwork below to me, Susie McLaughlin: [mclaughlin@vsthose.com](mailto:mclaughlin@vsthose.com)

To get a Level B or a Level B/C extension:

1. Provide VST with a copy of your Level A certificate generated from the online training.
2. Provide VST with current Veeder-Root certs:
3. For Level B: VR Tank Monitoring



## New VST Products

BY SCOTT BENNETT: V.P. SALES & MARKETING: BENNETT@VSTHOSE.COM

### VST's Highly Engineered Premium Diesel Fuel Delivery System

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VST Introduces NEW Diesel Fuel Delivery System used for retail auto, light truck, and marine applications.

**The most unique retail auto diesel dispensing solution  
in the marketplace today!**



This completely integrated family of products includes:

- The ENVIRO-LOC ECO Diesel Nozzle
- The VSTaflex Green Curb Pump Hose
- Whip Hose
- Sentry Breakaway

**This entire system uses the technology  
developed for the most stringent market  
in the world: California.**

## VST's Highly Engineered Premium Diesel Fuel Delivery System, continued

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### The ENVIRO-LOC ECO Nozzle

The ENVIRO -LOC™ ECO Diesel Nozzle keeps a cleaner forecourt through the technology developed for one of the most stringent markets in the world, California.

#### A few of the benefits are:

- A cleaner forecourt, which reduces staining of the dispenser panels; creates a better image; and keeps your customer from coming into contact with the diesel fuel.
- Complete integrated system of Nozzle, Hose, and Breakaways.
- Used in retail auto, light truck, and marina applications.
- Nozzle is available in both NEW and Rebuilt.
- Easy to handle.
- Built in splash guard.
- Safer refueling with a patented interlock design.
- Designed to "not dispense" if the interlock return spring were to break.
- Secondary safety device significantly reduces the probability of errant spills associated with damage to the nozzle caused by customer abuse, a drive-off, or end of life.



**This nozzle design exceeds the performance standards  
currently found in the market today.**

### **Benefits of the VSTaflex Green Curb Pump Hose**

- Light weight assembly
- Easy to handle
- Factory assembled and tested
- UL 330 Listed
- Designed for diesel, gasoline, or marine applications
- Available in both ¾" and 1" ID coupled assemblies

### **Benefits of the SENTRY Safety Breakaway**

- Field reattachable
- Unique design that compensates for dispenser spike pressure and nuisance breaks
- Protective "stay-put" scuff guard that protects both the customer and the equipment in the event of a drive off.