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**ESTABROOK'S EZY CHEK**  
**PRODUCT LINE TESTING DATA COLLECTION PROTOCOL**  
 NEW "MINIMUM" HALF HOUR PROTOCOL  
 RE: NWGLDE - KEN WILCOX 3<sup>rd</sup> PARTY EVALUATION

Starting at a zero (0) reading; data shall be collect every 15 minutes. The loss or gain registered on the cylinder at the 15 minute data points shall be multiplied by .0037, this will give you the 15 minute RES (result) then multiply that 15 minute RES (result) by four (4) to give you the GPH (gallon per hour) leak rate.

Data shall continue until there are three (3) consecutive readings (RES (results)) that are within .020 of each other and less than .050 to pass the line. This would meet stop test criteria with a passing result.

**A. Half Hour Minimum - Product Line Test Data Collection Protocol**

1. Start with a zero (0) reading.
2. Data shall be collected every 15 minutes via the lines on the glass cylinder
3. Loss or gain registered on the cylinder X .0037 = 15 minute RES
4. 15 minute RES X 4 = GPH leak rate
5. Continue to collect data until three (3) consecutive GPH leak rate readings are achieved.
6. GPH must be within .020 of each other. ("consistent" reading requirement)
7. GPH must be less than .050 to "pass" the line. (This meets the "stop test" criteria).

Sample Test

TIME	DATA	-/+	GPL	RES	GPH
12:00	89	0	.0037	0	0
12:15	88	-1	.0037	.0037	.0148
12:30	87	-1	.0037	.0037	.0148
<b>Final Result: PASS</b>					

This test was completed in one half hour. All three readings are within .020 of each other; and the GPH (results) are less than .050. This line passes.

Sample Test

TIME	DATA	-/+	GPL	RES	GPH
12:00	89	0	.0037	0	0
12:15	85	-4	.0037	.0148	.0592
12:30	81	-4	.0037	.0148	.0592
12:45	77	-4	.0037	.0148	.0592
<b>Final Result: FAIL</b>					

This test was completed in 45 minutes. All three readings are within .020 of each other; however the GPH (gallons per hour) readings never go below .050. This line fails.

Issue Date: November 22, 1995  
Revision Date: September 2, 2008

**Estabrook EZY CHEK Systems**  
**(originally listed as Horner EZY CHEK)**

**EZY-Chek Manual Line Leak Detector (for Rigid Pipelines)**

**LINE TIGHTNESS TEST METHOD**

<b>Certification</b>	Leak rate of 0.1 gph with PD = 98.0% and PFA = 1%.
<b>Leak Threshold</b>	0.05 gph. A pipeline system should not be declared tight if the test result indicates a loss that equals or exceeds this threshold.
<b>Applicability</b>	Gasoline, diesel, aviation fuel, fuel oil #4. Other liquids may be tested after consultation with the manufacturer.
<b>Specification</b>	System tests fiberglass and steel pipelines. Tests are conducted at 150% operating pressure. Mechanical line leak detector must be removed or manually isolated from pipeline for duration of test, or if testing is to be conducted with mechanical line leak detector in place, check valve in pump must be manually closed.
<b>Pipeline Capacity</b>	Maximum of 426 gallons.
<b>Waiting Time</b>	None between delivery and testing. None between dispensing and testing.
<b>Test Period</b>	Under ideal conditions, 30 minutes; actual test time will depend on line size and temperature conditions at the site. Data are collected every 15 minutes. Three consecutive consistent readings are required for a valid test, with the first reading taken at zero time. Test data are acquired and recorded manually. Manual calculations performed by the operator on site.
<b>Calibration</b>	No temperature sensors used. No calibration required. System must be checked annually in accordance with manufacturer's instructions. Technicians must be certified by the manufacturer prior to using this equipment and recertified every two years.

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Evaluator: Ken Wilcox Associates  
Tel: (816) 443-2494  
Dates of Evaluations: 07/09/92, 05/21/08

Issue Date: October 13, 2006  
 Revision Date: September 2, 2008

**Estabrook EZY CHEK Systems  
 (originally listed as Horner EZY CHEK)**

**EZY-Chek Manual Line Leak Detector (for Flexible Pipelines)**

**LINE TIGHTNESS TEST METHOD**

- Certification** Leak rate of 0.1 gph with PD = 99.8% and PFA = 0.2%.
- Leak Threshold** 0.05 gph.  
 A pipeline system should not be declared tight if the test result indicates a loss that equals or exceeds this threshold.
- Applicability** Gasoline, diesel, aviation fuel, fuel oil #4.  
 Other liquids may be tested after consultation with the manufacturer.
- Specification** System tests flexible pipelines.  
 Tests are conducted at 150% operating pressure.  
 Mechanical line leak detector must be removed or manually isolated from pipeline for duration of test, or if testing is to be conducted with mechanical line leak detector in place, check valve in pump must be manually closed.
- Pipeline Capacity** Maximum of 101 gallons (example: 275 feet of 3 inch line).
- Waiting Time** None between delivery and testing. None between dispensing and testing.
- Test Period** Under ideal conditions, 30 minutes; actual test time will depend on line size and temperature conditions at the site.  
 Data are collected every 15 minutes.  
 Three consecutive consistent readings are required for a valid test.  
 Data from the evaluation suggests that the actual minimum test time for a line this size is 2 hours.  
 Test data are acquired and recorded manually.  
 Manual calculations performed by the operator on site.
- Calibration** No temperature sensors used.  
 No calibration required.  
 System must be checked annually in accordance with manufacturer's instructions.  
 Technicians must be certified by the manufacturer prior to using this equipment, and recertified every two years.

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