MINNESOTA DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION

14305 SOUTHCROSS DRIVE #150
BURNSVILLE, MN 55306-7008
MN.GOV/COMMERCE/
651.539.1555 FAX 952.435.4040
AN EQUAL OPPORTUNITY EMPLOYER

Receipt Date:	June 16, 2015	State Test No.:	334409
Test Date:	June 18, 2015	Serial No.:	24360
Report Date:	June 18, 2015	Barcode:	201188

Calibration Report

WESTMOR FLUID SOLUTIONS LLC
14044 W. FREEWAY DRIVE
COLUMBUS, MN 55038
Contact: Ryan Hartin
Phone: 763-502-9613
PO Number: NONE
SOP: 34
Technician ID: 11

Item(s) Submitted:	25 gallon LPG Prover
Manufacturer:	Arrow
Material:	Mild Steel
Description:	Wet Bottom
Condition:	Good
Temperature:	25.1°C
Pressure:	737.6 mmHg
Relative Humidity:	53. %
Standard H_2O Temp.:	16.8 °C
Artifact H_2O Temp.:	17.4 °C

Nominal Volume (gal)	Error As Found (in^3)	Error As Left (in^3)	Uncertainty (in^3)	Coefficient of Expansion(/°F)
25	-5	-5	4	0.0000186

Neck Calibration: No neck calibration was done at this time.

This prover has been calibrated as a "to contain after wet down" vessel at a reference temperature of 60 °F and a reference pressure of 100 psig.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

The reported uncertainty conforms to NIST Technical Note 1297. The confidence interval is 95%.

Results apply to item identified in this report only.

Pete Whebbe
Metrologist

Reviewed by:
Mark Nicollet
Quality Manager

NVLAP®
NYLAP LAB CODE 105003-0

MINNESOTA DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION

14305 SOUTHCROSS DRIVE #150
BURNSVILLE, MN 55306-7008
MN.GOV/COMMERCE/
651.539.1555 FAX 651.539.1553
AN EQUAL OPPORTUNITY EMPLOYER

Receipt Date: June 16, 2015
Test Date: June 18, 2015
Report Date: June 18, 2015

State Test No.: 334409
Serial No.: 24360
Barcode: 201188

Pressure Correction Chart

WESTMOR FLUID SOLUTIONS LLC
14044 W. FREEWAY DRIVE
COLUMBUS, MN 55038
Contact: Ryan Hartin
Phone: 763-502-9613
PO Number: NONE
SOP: 34
Technician ID: 11

Item(s) Submitted: 25 gallon LPG Prover
Manufacturer: Arrow
Material: Mild Steel
Description: Wet Bottom
Condition: Good
Temperature: 25.1°C
Pressure: 737.6 mmHg
Relative Humidity: 53. %

Pressure Gauge Reading (PSIG)	Volume Correction (gal)
0	-0.079
10	-0.071
20	-0.062
30	-0.054
40	-0.045
50	-0.037
60	-0.034
70	-0.031
80	-0.028
90	-0.025
100	-0.022
110	-0.019
120	-0.017
130	-0.014
140	-0.012
150	-0.009
160	-0.007
170	-0.004
180	-0.002
190	0.001
200	0.003

Pete Whebbe

Peter J Whebbe

Metrologist

MINNESOTA DEPARTMENT OF
COMMERCE
WEIGHTS & MEASURES DIVISION

14305 SOUTHCROSS DRIVE #150
BURNSVILLE, MN 55306-7008
MN.GOV/COMMERCE/
651.539.1555 FAX 952.435.4040
AN EQUAL OPPORTUNITY EMPLOYER

Receipt Date:	June 16, 2015	State Test No.:	334410
Test Date:	June 17, 2015	Serial No.:	28816
Report Date:	June 17, 2015	Barcode:	019785

Calibration Report

WESTMOR FLUID SOLUTIONS LLC
14044 W. FREEWAY DRIVE
COLUMBUS, MN 55038
Contact: Ryan Hartin
Phone: 763-502-9613
PO Number: NONE
SOP: 34
Technician ID: 11

Item(s) Submitted:	100 gallon LPG Prover
Manufacturer:	ARROW
Material:	Mild Steel
Description:	Wet Bottom
Condition:	Good
Temperature:	25.5°C
Pressure:	735.1 mmHg
Relative Humidity:	50. %
Standard H_2O Temp.:	15.1 °C
Artifact H_2O Temp.:	15.7 °C

Nominal Volume (gal)	Error As Found (in^3)	Error As Left (in^3)	Uncertainty (in^3)	Coefficient of Expansion(/°F)
100	-14	-14	10	0.0000186

Neck Calibration: No neck calibration was done at this time.

This prover has been calibrated as a "to contain after wet down" vessel at a reference temperature of 60 °F and a reference pressure of 100 psig.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

The reported uncertainty conforms to NIST Technical Note 1297. The confidence interval is 95%.

Results apply to item identified in this report only.

Pete Whebbe
Metrologist

Reviewed by:
Mark Nicollet
Quality Manager

MINNESOTA DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION

14305 SOUTHCROSS DRIVE #150
BURNSVILLE, MN 55306-7008
MN.GOV/COMMERCE/
651.539.1555 FAX 651.539.1553
AN EQUAL OPPORTUNITY EMPLOYER

Receipt Date: June 16, 2015
Test Date: June 17, 2015
Report Date: June 17, 2015

State Test No.: 334410
Serial No.: 28816
Barcode: 019785

Pressure Correction Chart

WESTMOR FLUID SOLUTIONS LLC
14044 W. FREEWAY DRIVE
COLUMBUS, MN 55038
Contact: Ryan Hartin
Phone: 763-502-9613
PO Number: NONE
SOP: 34
Technician ID: 11

Item(s) Submitted: 100 gallon LPG Prover
Manufacturer: ARROW
Material: Mild Steel
Description: Wet Bottom
Condition: Good
Temperature: 25.5°C
Pressure: 735.1 mmHg
Relative Humidity: 50. %

Pressure Gauge Reading (PSIG)	Volume Correction (gal)
0	-0.228
10	-0.207
20	-0.186
30	-0.165
40	-0.144
50	-0.123
60	-0.111
70	-0.098
80	-0.086
90	-0.073
100	-0.061
110	-0.054
120	-0.047
130	-0.040
140	-0.033
150	-0.026
160	-0.020
170	-0.015
180	-0.009
190	-0.004
200	0.002

Pete Whebbe

Metrologist

MINNESOTA DEPARTMENT OF
COMMERCE
WEIGHTS & MEASURES DIVISION

14305 SOUTHCROSS DRIVE #150
BURNSVILLE, MN 55306-7008
MN.GOV/COMMERCE/
651.539.1555 FAX 651.539.1553
AN EQUAL OPPORTUNITY EMPLOYER

Receipt Date: June 16, 2015
Test Date: June 16, 2015
Report Date: June 17, 2015

State Test No.: 334411
Set Serial No.: None
Barcode: 201189

Calibration Report

WESTMOR FLUID SOLUTIONS LLC
14044 W. FREEWAY DRIVE
COLUMBUS, MN 55038
Contact: Ryan Hartin
Phone: 763-502-9613
PO Number: NONE
SOP: 12
Technician ID: 11

Item(s) Submitted: Cast Hand Weights
Manufacturer: Rice Lake
ASTM E617 Type: II
Equipment ID#: None
Condition: Fair/Heavy Paint
Temperature: 20.°C
Pressure: 740.3 mmHg
Relative Humidity: 45. %

Nominal Value		Serial No.	Correction (mg) As Found	Correction (mg) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	Unc. (mg) (k=2)
25	lb		9980.	590.	*	F	75.
25	lb		10630.	-30.	*	F	75.
25	lb		10140.	-260.	*	F	75.
25	lb		9590.	800.	*	F	75.
25	lb		9240.	-50.	*	F	75.
25	lb		9370.	470.	*	F	75.
25	lb		10130.	-40.	*	F	75.
25	lb		8640.	130.	*	F	75.
25	lb		10640.	30.	*	F	75.
25	lb		10410.	690.	*	F	75.
25	lb		10510.	210.	*	F	75.
25	lb		8250.	410.	*	F	75.
25	lb		10390.	110.	*	F	75.
25	lb		7450.	50.	*	F	75.
25	lb		10550.	80.	*	F	75.
25	lb		10180.	130.	*	F	75.
25	lb		8510.	30.	*	F	75.
25	lb		9730.	500.	*	F	75.
25	lb		9320.	-60.	*	F	75.
25	lb		10390.	160.	*	F	75.

* Weight(s) as found exceed NIST HB 105-1 Class F tolerance.

Weights were heavily painted. A light coat of sprayed-on flat aluminum paint is recommended. See attached.

When used as a set these weights meet NIST HB 105-1 class F tolerances.

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³. The items listed above have been compared to the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. Uncertainty calculations conform to NIST Technical Note 1297. Results apply to items identified in this report only.

Pete Whebbe
Peter J Whebbe
Metrologist

Reviewed by:
Mark Nicollet
Mark Nicollet
Quality Manager