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: December 23, 2016
Cal. Date: December 23, 2016
Report Date: December 23, 2016

Report No.: 336979
Serial No.: 051271555-0101
Barcode: 202151

Calibration Certificate

RJT TESTING & SERVICE
49134 150TH ST
DONNELLY, MN 56235
Contact: RANDY FULTS
Phone: 320-589-4421
PO Number: NONE
SOP: 19
Technician ID: 07

Item(s) Submitted: 100 Gallon Prover
Manufacturer: Determan Brownie
Material: Stainless Steel (304)
Type: No Bottom Zero
Condition: Good
Temperature: 18.6 °C
Pressure: 736.4 mmHg
Relative Humidity: 47.8 %
Standard H_2O Temp.: 10.1 °C
Artifact H_2O Temp.: 10.1 °C

RECEIVED
JAN - 6 2017
ND Public Service Commission

Nominal Volume (gal)		Calibrated Volume (gal)	Error (in^3)	k	U (in^3)	CCE (/°F)
100	As Found	99.992	-1.8	2.01	3.3	0.0000288
	As Left	99.992	-1.8			

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

This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of full flow.

The vessel 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.

All tolerances and specifications were evaluated according to NIST Handbook 105-3 (2010). Uncertainty calculations contain the components in NIST SOP 19 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including covereage factors (k) calculated at the approximate 95.45 % confidence level. Results apply to item identified in this report only.

CCE is the cubical coefficient of thermal expansion, and the reference temperature is 60 °F
Conversion to SI unit: 1 gallon = 231 in^3 = 0.00378541 m^3.

Mark Nicollet
Quality Manager

Reviewed by:
Erik Alfvin
Metrologist

NVLAP® NVLAP LAB CODE 105003-0

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Receipt Date: April 29, 2016
Cal. Date: April 29, 2016
Report Date: April 29, 2016

Report No.: 335894
Serial No.: 44588
Barcode: 202232

Calibration Certificate

RJT TESTING & SERVICE
49134 150TH ST
DONNELLY, MN 56235
Contact: Randy Fults
Phone: 320-589-4421
PO Number: None
SOP: 34
Technician ID: 19

Item(s) Submitted: 100 Gallon LPG Prover
Manufacturer: Arrow Tank
Material: Mild Steel
Description: Zero Bottom
Condition: Good
Temperature: 19.2 °C
Pressure: 741 mmHg
Relative Humidity: 45.5 %
Standard H_2O Temp. 10.7 °C
Artifact H_2O Temp.: 11.0 °C

Nominal Volume (gal)		Calibrated Volume (gal)	Error (in^3)	k	U (in^3)	CCE (/°F)
100	As Found (at 100 psig)	99.970	-7.0	2.02	5.3	0.0000186
	As Left (at 100 psig)	99.970	-7.0			

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

This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of full flow. 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.

All tolerances and specifications were evaluated according to NIST Handbook 105-4 (2010). Uncertainty calculations contain the components in NIST SOP 21 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including covereage factors (k) calculated at the approximate 95.45 % confidence level. Results apply to item identified in this report only.

CCE is the cubical coefficient of thermal expansion, and the reference temperature is 60 °F.

Erik Alfvin
Metrologist

Reviewed by:
Mark Nicollet
Quality Manager

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COMMERCE
WEIGHTS & MEASURES DIVISION

14305 SOUTHCROSS DRIVE #150
BURNSVILLE, MN 55306-7008
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651.539.1555 FAX 651.539.1553
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Receipt Date: April 29, 2016
Cal. Date: April 29, 2016
Report Date: April 29, 2016

Report No.: 335894
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Pressure Correction Chart

RJT TESTING & SERVICE
49134 150TH ST
DONNELLY, MN 56235
Contact: Randy Fults
Phone: 320-589-4421
PO Number: None
SOP: 34
Technician ID: 19

Item(s) Submitted: 100 Gallon LPG Prover
Manufacturer: Arrow Tank
Material: Mild Steel
Description: Zero Bottom
Condition: Good
Temperature: 19.2 °C
Pressure: 741 mmHg
Relative Humidity: 45.5 %

Pressure Gauge Reading (psig)	Corrected Volume (gal)
0	99.857
10	99.869
20	99.881
30	99.893
40	99.905
50	99.917
60	99.928
70	99.938
80	99.949
90	99.959
100	99.970
110	99.979
120	99.988
130	99.997
140	100.006
150	100.015
160	100.022
170	100.030
180	100.038
190	100.046
200	100.053

Erik Alfvin
Metrologist

United States Department of Commerce

National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Minnesota

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

Scope

Mass Echelon II
50 kg to 1 mg
1000 lb to 0.001 lb
4 oz to 0.03125 oz

Mass Echelon III
50 kg to 1 mg
5000 lb to 0.001 lb
4 oz to 0.03125 oz

Weight Carts
10 000 lb to 2000 lb

Wheel Load Weighers
20 000 lb to 2000 lb

Railroad Test Cars
110 000 lb to 80 000 lb

Volume Gravimetric, I
20 L to 10 mL
100 gal to 0.25 qt

Volume Transfer, II
1500 gal to 5 gal
100 gal to 25 gal LPG

2016 to 2017

Carol T. Hockert

Carol T. Hockert, Chief
NIST Office of Weights and Measures

Effective Dates: 2016-01-01 to 2017-12-31

(Rev.: March 2013)