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:	September 5, 2017	Report No.:	338181
Cal. Date:	September 5, 2017	Set Serial No.:	4AC1-3, Individual
Report Date:	September 5, 2017	Barcode:	201186

Calibration Certificate

GREAT PLAINS SCALE INC.
2014 15TH ST S
MOORHEAD, MN 56560

Contact:	JOHN HEINISCH
Phone:	218.790.2378
PO Number:	NONE
Procedure:	NIST SOP 8
Technician ID:	11

Item(s) Submitted:	Cast Cube Weights
Manufacturer:	Toledo/Rice Lake
Weight Type:	II
Equipment ID:	None
Condition:	Good
Temperature:	19.6 °C
Pressure:	737.5 mmHg
Relative Humidity:	48.7 %

Nominal Value		Serial No.	CM Correction (g) As Found	CM Correction (g) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	*k*	U (g)
500	lb	3	8.22	8.22	F	F	2.01	0.90
500	lb	2	-6.18	-6.18	F	F	2.01	0.90
1000	lb	Divot on top	-34.5	-34.5	F	F	2.01	1.5
1000	lb		2.5	2.5	F	F	2.01	1.5
1000	lb	4AC1	33.5	33.5	F	F	2.01	1.5
1000	lb	4AC2	25.5	25.5	F	F	2.01	1.5
1000	lb	4AC3	11.5	11.5	F	F	2.01	1.5

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 at 20 °C. The items listed above have been calibrated using 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. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Pete Whebbe
Metrologist

Reviewed by:
Erik Alfvin
Metrologist

NVLAP® CALIBRATION
NVLAP LAB CODE 105003-0

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Receipt Date:	September 5, 2017	Report No.:	338182
Cal. Date:	September 5, 2017	Set Serial No.:	None
Report Date:	September 5, 2017	Barcode:	201187

Calibration Certificate

GREAT PLAINS SCALE INC.
2014 15TH ST S
MOORHEAD, MN 56560

Contact:	JOHN HEINISCH
Phone:	218.790.2378
PO Number:	NONE
Procedure:	NIST SOP 8
Technician ID:	11

Item(s) Submitted:	Cast Hand Weights
Manufacturer:	Fairbanks
Weight Type:	II
Equipment ID:	None
Condition:	Good
Temperature:	19.7 °C
Pressure:	737.4 mmHg
Relative Humidity:	48.9 %

Nominal Value		Serial No.	CM Correction (mg) As Found	CM Correction (mg) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	*k*	U (mg)
50	lb		-1326	-1326	F	F	2.01	56
50	lb		-706	-706	F	F	2.01	56
50	lb		-136	-136	F	F	2.01	56
50	lb		-1226	-1226	F	F	2.01	56
50	lb	F35	-1356	-1356	F	F	2.01	56
50	lb	F40	-1696	-1696	F	F	2.01	56
50	lb	F21	-1736	-1736	F	F	2.01	56
50	lb		-1006	-1006	F	F	2.01	56
50	lb		-346	-346	F	F	2.01	56
50	lb		-1406	-1406	F	F	2.01	56
50	lb		-3256	44	*	F	2.01	56
50	lb		-1766	-1766	F	F	2.01	56
50	lb	F21	-916	-916	F	F	2.01	56
50	lb	F14	-1046	-1046	F	F	2.01	56
50	lb	F33	-1576	-1576	F	F	2.01	56
50	lb	F26	-936	-936	F	F	2.01	56
50	lb		-526	-526	F	F	2.01	56
50	lb		-356	-356	F	F	2.01	56
50	lb		-3666	174	*	F	2.01	56
50	lb	F39	204	204	F	F	2.01	56
50	lb		304	304	F	F	2.01	56
50	lb		-116	-116	F	F	2.01	56
50	lb		-986	-986	F	F	2.01	56
50	lb		-1106	-1106	F	F	2.01	56
50	lb		-516	-516	F	F	2.01	56
50	lb		-476	-476	F	F	2.01	56
50	lb		-1866	-1866	F	F	2.01	56

* Weight(s) as found exceed NIST HB105-1 Class F tolerance.

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Receipt Date: September 5, 2017
Cal. Date: September 5, 2017
Report Date: September 5, 2017

Report No.: 338182
Set Serial No.: None
Barcode: 201187

Calibration Certificate

GREAT PLAINS SCALE INC.
2014 15TH ST S
MOORHEAD, MN 56560
Contact: JOHN HEINISCH
Phone: 218.790.2378
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 11

Item(s) Submitted: Cast Hand Weights
Manufacturer: Fairbanks
Weight Type: II
Equipment ID: None
Condition: Good
Temperature: 19.7 °C
Pressure: 737.4 mmHg
Relative Humidity: 48.9 %

Nominal Value		Serial No.	CM Correction (mg) As Found	CM Correction (mg) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	*k*	U (mg)
50	lb		-4496	654	*	F	2.01	56
50	lb	F32	-1966	-1966	F	F	2.01	56
50	lb	F25	-2346	464	*	F	2.01	56
50	lb	F29	-956	-956	F	F	2.01	56
50	lb		-3576	244	*	F	2.01	56
50	lb		-2436	294	*	F	2.01	56
50	lb		-1846	-1846	F	F	2.01	56
50	lb		-756	-756	F	F	2.01	56
50	lb		-1366	-1366	F	F	2.01	56
50	lb	F34	-2596	134	*	F	2.01	56
50	lb		-1746	-1746	F	F	2.01	56
50	lb	F12	404	404	F	F	2.01	56
50	lb	F27	-696	-696	F	F	2.01	56
25	lb		-463	-463	F	F	2.02	52

* Weight(s) as found exceed NIST HB105-1 Class F tolerance.

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 at 20 °C. The items listed above have been calibrated using 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. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Pete Whebbe
Metrologist

Reviewed by:
Erik Alfvin
Metrologist

DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION

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An equal opportunity employer

Receipt Date:	September 5, 2017	Report No.:	338183
Cal. Date:	September 6, 2017	Set Serial No.:	None/Set 8
Report Date:	September 6, 2017	Barcode:	201772

Calibration Certificate

GREAT PLAINS SCALE INC.
2014 15TH ST S
MOORHEAD, MN 56560

Contact:	JOHN HEINISCH
Phone:	218.790.2378
PO Number:	NONE
Procedure:	NIST SOP 8
Technician ID:	09

Item(s) Submitted:	30 lb kit w/ decimals & ounces
Manufacturer:	Rice Lake
Weight Type:	I & II
Equipment ID:	None
Condition:	Good
Temperature:	19.5 °C
Pressure:	740.2 mmHg
Relative Humidity:	44.2 %

Nominal Value		Serial No.	CM Correction (mg) As Found	CM Correction (mg) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	*k*	U (mg)
10	lb		203	203	F	F	2.01	12
10	lb		201	201	F	F	2.01	12
5	lb		44.2	44.2	F	F	2.01	6.0
2	lb		24.0	24.0	F	F	2.01	3.1
2	lb		32.7	32.7	F	F	2.01	3.1
1	lb		25.0	25.0	F	F	2.01	1.6
0.5	lb		15.6	15.6	F	F	2.01	1.3
0.2	lb		6.96	6.96	F	F	2.02	0.22
0.2	lb		4.41	4.41	F	F	2.02	0.22
0.1	lb		8.11	8.11	F	F	2.02	0.14
0.05	lb		3.24	3.24	F	F	2.02	0.11
0.02	lb		1.479	1.479	F	F	2.02	0.066
0.02	lb		1.252	1.252	F	F	2.02	0.066
0.01	lb		1.035	1.035	F	F	2.02	0.052
0.005	lb		-0.099	-0.099	F	F	2.02	0.073

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Receipt Date: September 5, 2017
Cal. Date: September 6, 2017
Report Date: September 6, 2017

Report No.: 338183
Set Serial No.: None/Set 8
Barcode: 201772

Calibration Certificate

GREAT PLAINS SCALE INC.
2014 15TH ST S
MOORHEAD, MN 56560
Contact: JOHN HEINISCH
Phone: 218.790.2378
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 09

Item(s) Submitted: 30 lb kit w/ decimals & ounces
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.5 °C
Pressure: 740.2 mmHg
Relative Humidity: 44.2 %

Nominal Value		Serial No.	CM Correction (mg) As Found	CM Correction (mg) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	*k*	U (mg)
4	oz		17.05	17.05	F	F	2.00	0.22
2	oz		9.42	9.42	F	F	2.00	0.14
1	oz		4.36	4.36	F	F	2.00	0.11
1/2	oz		2.096	2.096	F	F	2.00	0.092
1/4	oz		1.419	1.419	F	F	2.00	0.056
1/8	oz		1.147	1.147	F	F	2.00	0.046
1/16	oz		0.733	0.733	F	F	2.00	0.070
1/32	oz		0.697	0.697	F	F	2.00	0.044
1/32	oz		0.437	0.437	F	F	2.00	0.044

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 at 20 °C. The items listed above have been calibrated using 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. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Pete Whebbe
Pete Whebbe
Metrologist

DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION

14305 Southcross Drive #150
Burnsville, MN 55306-7008
mn.gov/commerce/
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An equal opportunity employer

Receipt Date: September 5, 2017
Cal. Date: September 5th & 6th, 2017
Report Date: September 6, 2017

Report No.: 338184
Set Serial No.: None
Barcode: 201149

Calibration Certificate

GREAT PLAINS SCALE INC.
2014 15TH ST S
MOORHEAD, MN 56560
Contact: JOHN HEINISCH
Phone: 218.790.2378
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 09

Item(s) Submitted: Metric weight set
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.2 °C
Pressure: 738.9 mmHg
Relative Humidity: 43.2 %

Nominal Value		Serial No.	CM Correction (mg) As Found	CM Correction (mg) As Left	NIST HB105-1 Class As Found	NIST HB105-1 Class As Left	*k*	U (mg)
5000	g		154	154	F	F	2.04	13
2000	g		49.1	49.1	F	F	2.02	5.7
2000	g		63.1	63.1	F	F	2.02	5.7
1000	g		29.1	29.1	F	F	2.02	2.5
500	g		12.0	12.0	F	F	2.02	2.0
200	g		11.71	11.71	F	F	2.02	0.55
200	g		7.31	7.31	F	F	2.02	0.55
100	g		4.71	4.71	F	F	2.02	0.25
50	g		3.47	3.47	F	F	2.03	0.16
20	g		1.23	1.23	F	F	2.02	0.11
20	g		1.11	1.11	F	F	2.02	0.11
10	g		0.051	0.051	F	F	2.02	0.072
5	g		0.048	0.048	F	F	2.02	0.054
2	g		0.477	0.477	F	F	2.02	0.048
2	g		0.290	0.290	F	F	2.02	0.048
1	g		0.041	0.041	F	F	2.03	0.039
0.5	g		0.010	0.010	F	F	2.05	0.021

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 at 20 °C. The items listed above have been calibrated using 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. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Pete Whebbe
Peter J Whebbe
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.

2017

Scope

Mass Echelon I
10 kg to 1 mg

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

Georgia L. Harris, Acting Chief
NIST Office of Weights and Measures

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

Amended: 2016-12-31
Scope modified for 2017.

(Rev.: March 2013)