

South Dakota Department of Public Safety  
Office of Weights and Measures  
Metrology Lab

Lab: 1500 N Garfield - E. Truck Bypass Phone: 605-773-3170  
Office: 118 West Capitol Avenue Phone: 605-773-3697  
Pierre SD 57501

## REPORT OF CALIBRATION

LAB TEST NUMBER: MP3679 Amended  
DATE OF REPORT: 01/11/2017  
DATE RECEIVED: 01/09/2017  
DATE OF TEST: 01/10-11/2017



**Submitted By:** Prairie Scale Systems INC (FL-70)  
**Contact:** Cooper Anderson  
**Mailing Address:** 7805 112th Ave S PO Box 69  
**City, State, Zip:** Horace, ND 58047  
**Phone:** 701-281-9373  
**S/A Number:** 131

**Standards Submitted:**

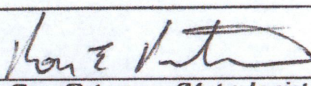
40 - 50 lb weights	2 - 1000 lb weights
1 - 20 lb weight	1 - 30 lb kit
4 - 500 lb weights	

**Uncertainty Statement:** The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor  $k$  to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 1995 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

**Traceability statement:**

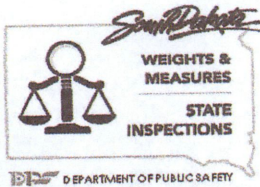
The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. The reported test values relate only to the observations made at the time and conditions of the test. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

  
**Ron Peterson, Metrologist**



02/13/17  
**Date**



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<b>Submitted by:</b>	Prairie Scale Systems INC (FL-70)	<b>Report Number:</b>	MP3679 Amended
<b>Mailing Address:</b>	7805 112th Ave S PO Box 69	<b>Date Received:</b>	01/09/17
<b>City, State, Zip:</b>	Horace, ND 58047	<b>Date tested:</b>	01/10-11/2017
<b>Artifacts Submitted</b>	1000 lb weights	<b>Condition of Weights:</b>	GOOD
		<b>Temperature (c):</b>	712.1
<b>Test Method Used:</b>	SOP 8/ MODIFIED SUB, Jun 2015	<b>Humidity:</b>	53.3
<b>Equipment Used:</b>	Russell Balance/ Vaisala PTU301	<b>Pressure (mm/Hg):</b>	21.1

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight.

Standards Used: SD Lab 1000 lb and/or 500 lb Working Standards.

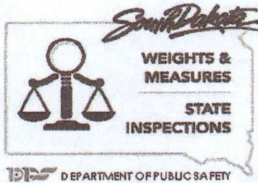
The values reported below relate only to those observations made at the time and conditions of the test. This test report, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism and effects of magnetism is not included in the uncertainties.

A weight with an "As Found" and "As Left" correction was adjusted.

Nominal	Serial Number	Correction As Found		Correction As Left		Tolerance	Uncertainty	k
1000 lb	1k-02	-0.224 lb	-101.6 g	0.000 lb	0.11 g	45 g	5.9 g	2.04
1000 lb	1k-01	-0.234 lb	-106.0 g	0.001 lb	0.50 g	45 g	5.9 g	2.04

Ron Peterson, Metrologist

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<b>City, State, Zip:</b>	Horace, ND 58047	<b>Date tested:</b>	01/10-11/2017
<b>Artifacts Submitted</b>	500 lb weights	<b>Condition of Weights:</b>	GOOD
		<b>Temperature (c):</b>	712.1
<b>Test Method Used:</b>	SOP 8/ MODIFIED SUB, Jun 2015	<b>Humidity:</b>	53.3
<b>Equipment Used:</b>	Russell Balance/ Vaisala PTU301	<b>Pressure (mm/Hg):</b>	21.1

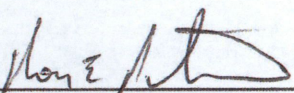
Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight.

Standards Used: SD Lab 1000 lb and/or 500 lb Working Standards.

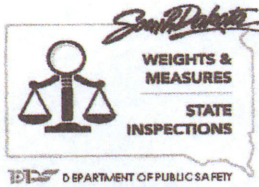
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A weight with an "As Found" and "As Left" correction was adjusted.

Nominal	Serial Number	Correction As Found		Correction As Left		Tolerance	Uncertainty	k
500 lb	500-01	-0.101 lb	-45.6 g	0.001 lb	0.55 g	23 g	3.7 g	2.05
500 lb	500-02	-0.122 lb	-55.2 g	0.000 lb	-0.13 g	23 g	3.7 g	2.05
500 lb	500-03	-0.078 lb	-35.3 g	0.000 lb	0.01 g	23 g	3.7 g	2.05
500 lb	500-04	-0.044 lb	-20.2 g	0.000 lb	0.20 g	23 g	3.7 g	2.05

  
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<b>City, State, Zip:</b>	Horace, ND 58047	<b>Date tested:</b>	01/10-11/2017
<b>Artifacts Submitted</b>	50 lb cast weights	<b>Condition of Weights:</b>	GOOD
		<b>Temperature (c):</b>	20.5
<b>Test Method Used:</b>	SOP 8/ MODIFIED SUB, Jun 2015	<b>Humidity:</b>	54.0%
<b>Equipment Used:</b>	Mettler KA-30/ Vaisala PTU301	<b>Pressure (mm/Hg):</b>	707.8

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight.

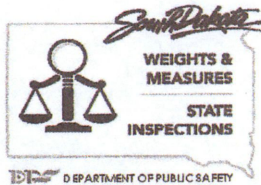
Standards Used: SD Lab Working Standards.

The values reported below relate only to those observations made at the time and conditions of the test. This test report, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism and effects of magnetism is not included in the uncertainties.

Nominal	Serial Number	Correction As Found	Correction As Left	Tolerance	Uncertainty	k
50 lb	001	-904 mg	-904 mg	2300 mg	283 mg	2.04
50 lb	002	1876 mg	121 mg	2300 mg	283 mg	2.04
50 lb	003	-1774 mg	111 mg	2300 mg	283 mg	2.04
50 lb	004	2051 mg	1 mg	2300 mg	283 mg	2.04
50 lb	005	-1024 mg	-1024 mg	2300 mg	283 mg	2.04
50 lb	006	421 mg	421 mg	2300 mg	283 mg	2.04
50 lb	007	461 mg	461 mg	2300 mg	283 mg	2.04
50 lb	008	1986 mg	66 mg	2300 mg	283 mg	2.04
50 lb	009	-1639 mg	-34 mg	2300 mg	283 mg	2.04
50 lb	010	2756 mg	51 mg	2300 mg	283 mg	2.04
50 lb	011	-739 mg	-739 mg	2300 mg	283 mg	2.04
50 lb	012	121 mg	121 mg	2300 mg	283 mg	2.04
50 lb	013	-894 mg	-894 mg	2300 mg	283 mg	2.04
50 lb	014	-899 mg	-899 mg	2300 mg	283 mg	2.04
50 lb	016	-2494 mg	61 mg	2300 mg	283 mg	2.04
50 lb	017	786 mg	786 mg	2300 mg	283 mg	2.04
50 lb	018	-939 mg	-939 mg	2300 mg	283 mg	2.04
50 lb	019	-1264 mg	-1264 mg	2300 mg	283 mg	2.04
50 lb	020	-1214 mg	-1214 mg	2300 mg	283 mg	2.04
50 lb	021	-2269 mg	-24 mg	2300 mg	283 mg	2.04

  
Ron Peterson, Metrologist

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<b>City, State, Zip:</b>	Horace, ND 58047	<b>Date tested:</b>	01/10-11/2017
<b>Artifacts Submitted</b>	50 lb cast weights	<b>Condition of Weights:</b>	GOOD
<b>Test Method Used:</b>	SOP 8/ MODIFIED SUB, Jun 2015	<b>Temperature (c):</b>	20.5
<b>Equipment Used:</b>	Mettler KA-30/ Vaisala PTU301	<b>Humidity:</b>	54.0%
		<b>Pressure (mm/Hg):</b>	707.8

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight.

Standards Used: SD Lab Working Standards.

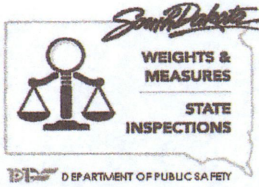
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Nominal	Serial Number	Correction As Found	Correction As Left	Tolerance	Uncertainty	k
50 lb	022	-824 mg	-824 mg	2300 mg	283 mg	2.04
50 lb	023	2561 mg	-24 mg	2300 mg	283 mg	2.04
50 lb	024	-3984 mg	1 mg	2300 mg	283 mg	2.04
50 lb	025	516 mg	516 mg	2300 mg	283 mg	2.04
50 lb	026	-2059 mg	66 mg	2300 mg	283 mg	2.04
50 lb	027	-2544 mg	21 mg	2300 mg	283 mg	2.04
50 lb	028	381 mg	381 mg	2300 mg	283 mg	2.04
50 lb	029	-424 mg	-424 mg	2300 mg	283 mg	2.04
50 lb	030	-2194 mg	6 mg	2300 mg	283 mg	2.04
50 lb	031	476 mg	476 mg	2300 mg	283 mg	2.04
50 lb	032	646 mg	646 mg	2300 mg	283 mg	2.04
50 lb	033	2706 mg	91 mg	2300 mg	283 mg	2.04
50 lb	034	581 mg	581 mg	2300 mg	283 mg	2.04
50 lb	035	-2284 mg	111 mg	2300 mg	283 mg	2.04
50 lb	036	1301 mg	1301 mg	2300 mg	283 mg	2.04
50 lb	037	-529 mg	-529 mg	2300 mg	283 mg	2.04
50 lb	038	-1109 mg	-1109 mg	2300 mg	283 mg	2.04
50 lb	039	1011 mg	1011 mg	2300 mg	283 mg	2.04
50 lb	058	961 mg	961 mg	2300 mg	283 mg	2.04
50 lb	17872-1	-1579 mg	-29 mg	2300 mg	283 mg	2.04

  
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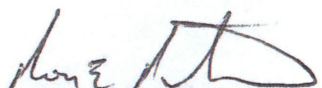
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<b>City, State, Zip:</b>	Horace, ND 58047	<b>Date tested:</b>	01/10-11/2017
<b>Artifacts Submitted</b>	20 lb cast weight	<b>Condition of Weights:</b>	GOOD
<b>Test Method Used:</b>	SOP 8/ MODIFIED SUB, Jun 2015	<b>Temperature (c):</b>	20.5
<b>Equipment Used:</b>	Mettler KA-30/ Vaisala PTU301	<b>Humidity:</b>	54.0%
		<b>Pressure (mm/Hg):</b>	707.8

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight.

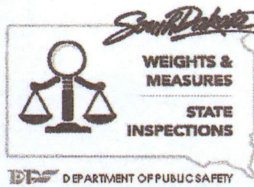
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Nominal	Serial Number	Correction As Found	Correction As Left	Tolerance	Uncertainty	k
20 lb.	65XC	-280 mg	-280 mg	910 mg	120 mg	2.05

  
Ron Peterson, Metrologist

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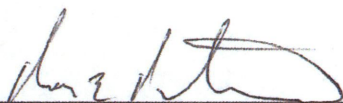
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<b>City, State, Zip:</b>	Horace, ND 58047	<b>Date tested:</b>	01/10-11/2017
<b>Artifacts Submitted</b>	22 piece avoirdupois kit	<b>Condition of Weights:</b>	GOOD
		<b>Temperature (c):</b>	20.5
<b>Test Method Used:</b>	SOP 8/ MODIFIED SUB, Jun 2015	<b>Humidity:</b>	54
<b>Equipment Used:</b>	Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301	<b>Pressure (mm/Hg):</b>	707.8

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight.  
Standards Used: SD Lab Working Standards.  
The values reported below relate only to those observations made at the time and conditions of the test. This test report, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism and effects of magnetism is not included in the uncertainties.

Nominal	Identifier	Correction As Found	Correction As Left	Tolerance Class F	Uncertainty	k
5 lb	1	5 mg	5 mg	230 mg	28 mg	2.04
5 lb	2	-55 mg	-55 mg	230 mg	28 mg	2.04
5 lb	3	33 mg	33 mg	230 mg	28 mg	2.04
5 lb	4	0 mg	0 mg	230 mg	28 mg	2.04
5 lb	5	-22 mg	-22 mg	230 mg	28 mg	2.04
1 lb	6	-7.4 mg	-7.4 mg	70 mg	8.5 mg	2.04
1 lb	7	-0.4 mg	-0.4 mg	70 mg	8.5 mg	2.04
1 lb	8	24.6 mg	24.6 mg	70 mg	8.5 mg	2.04
1 lb	9	7.6 mg	7.6 mg	70 mg	8.5 mg	2.04
1 lb	10	-2.4 mg	-2.4 mg	70 mg	8.5 mg	2.04
0.5 lb	11	-12.9 mg	-12.9 mg	45 mg	5.6 mg	2.04
0.2 lb	12	1.9 mg	1.9 mg	18 mg	2.3 mg	2.05
0.2 lb	13	-2.1 mg	-2.1 mg	18 mg	2.3 mg	2.05
0.1 lb		4.9 mg	4.9 mg	9.1 mg	1.1 mg	2.05
0.05 lb		3.77 mg	3.77 mg	4.5 mg	0.55 mg	2.05
0.02 lb	.	1.30 mg	1.30 mg	1.8 mg	0.22 mg	2.05
0.02 lb	..	0.64 mg	0.64 mg	1.8 mg	0.22 mg	2.05
0.01 lb		0.89 mg	0.89 mg	1.5 mg	0.19 mg	2.05
0.005 lb		0.57 mg	0.57 mg	1.2 mg	0.19 mg	2.05
0.002 lb	.	0.40 mg	0.40 mg	0.87 mg	0.11 mg	2.05
0.002 lb	..	0.70 mg	0.70 mg	0.87 mg	0.11 mg	2.05
0.001 lb		0.52 mg	0.52 mg	0.7 mg	0.10 mg	2.05

  
Ron Peterson, Metrologist

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# United States Department of Commerce

## National Institute of Standards and Technology

Certificate of Metrological Traceability For:

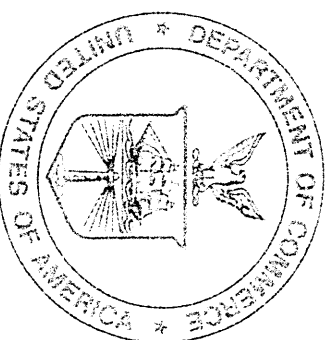
# South Dakota

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 III  
30 kg to 100 mg  
1000 lb to 0.001 lb  
8 oz to 0.03125 oz  
Weight Carts  
4000 lb to 2000 lb  
Volume Transfer, II  
5 gal



2017

A handwritten signature in black ink, appearing to read "Georgia L. Harris".

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

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