

**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

REPORT OF CALIBRATION

**LAB TEST NUMBER: MP3338
DATE OF REPORT: 10/30/2014
DATE RECEIVED: 10/27/2014
DATE OF TEST: 10/29/2014**

Submitted By: K-Scale
Contact: Kevin Baumgartner
Mailing Address: 1701 W Madison
City, State, Zip: Sioux Falls, SD 57104
Phone: 605-334-8003
S/A Number: 90

Standards Submitted:

- | | |
|--------------------------|----------------------------|
| 1 -WEIGHT CARTS | 3 -METRIC WEIGHT KITS |
| 28 -1000 LB TEST WEIGHTS | 3 -AVOIRDUPOIS WEIGHT KITS |
| 48 -50 LB TEST WEIGHTS | 1 Loose Weights |
| 40 -25 LB TEST WEIGHTS | |

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard, the standard uncertainty for the measurement process, and a component of uncertainty to account for any observed deviations from values that are less than surveillance limits. 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 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. All established Uncertainties are less than 1/3 applicable Class "F" tolerances.

Traceability statement:

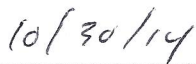
The Standards of the SD Metrology Laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified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

The artifacts submitted for calibration have been examined by the State of South Dakota and found to be appropriate for the intended use and to be accurate within Class "F" Tolerances as established by the National Institute of Standards and Technology-Weights and Measures Division. Test methods are in accordance with NIST Handbook 145 and NIST IR 6969 and/or NIST IR 7383.

This document does not represent or imply endorsement by NIST Office of Weights and Measures, NMI, 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




Date

SOUTH DAKOTA 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

| | | | |
|--------------------------|-----------------------|---------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Manufacturer: | Dunbar WM-20 | Condition of Cart: | GOOD |
| Serial Number: | 11111885 | Temperature (c): | 21.5 |
| Test Method Used: | SOP 33/ Double Sub. | Humidity: | 42.8% |
| Nominal (lb): | 3000 | Pressure (mm/Hg): | 717.2 |
| Tolerance (lb): | 1.00 | | |

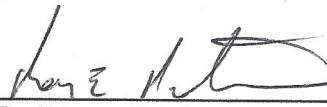
The values reported below relate only to those observations made at the time and conditions of the test. This test report, so numbered, may not be reproduced, except in full, without approval of the laboratory.

| As Found (lb) | As Left (lb) | Uncertainty-lb. (K=2) |
|---------------|--------------|-----------------------|
| -0.91 | 0.09 | 0.13 |

The weight cart was cleaned and painted (if needed) and allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted, as needed and noted above, as close as possible to zero error. All fluid levels were adjusted by the customer to as close as possible to the full/reference marks. Liquid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require calibration of the weight cart prior to subsequent use.

This weight cart and associated uncertainties were evaluated against NIST Handbook 105-8 Specifications and Tolerances for Field Standard Weight Carts and was within tolerance at the time of calibration.

The above weight cart was compared with standards of the State of South Dakota, which are traceable the National Institute of Standards and Technology(NIST) Weights and Measures Division and have known values. The assigned test number provides documented evidence for measurement traceability.



 Ron Peterson, Metrologist

10/30/2014

 Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|---------------------------------|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/28/14 |
| Artifacts Submitted | 1000 lb test weights | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake/ Other | Temperature (c): | 22.1 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44.2 |
| Equipment Used: | Russell Balance/ Vaisala PTU301 | Pressure (mm/Hg): | 716.5 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.

Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.

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

| Nominal | Serial Number | Correction As Found | | Correction As Left | | Tolerance | Uncertainty | K |
|---------|---------------|---------------------|-------|--------------------|-------|-----------|-------------|------|
| 1000 lb | 1 | 0.033 lb | 15 g | 0.033 lb | 15 g | 45 g | 7 g | 2.04 |
| 1000 lb | 2 | -0.025 lb | -11 g | -0.025 lb | -11 g | 45 g | 7 g | 2.04 |
| 1000 lb | 3 | -0.043 lb | -20 g | -0.043 lb | -20 g | 45 g | 7 g | 2.04 |
| 1000 lb | 4 | -0.032 lb | -14 g | -0.032 lb | -14 g | 45 g | 7 g | 2.04 |
| 1000 lb | 5 | -0.018 lb | -8 g | -0.018 lb | -8 g | 45 g | 7 g | 2.04 |
| 1000 lb | 6 | -0.002 lb | -1 g | -0.002 lb | -1 g | 45 g | 7 g | 2.04 |
| 1000 lb | 7 | -0.025 lb | -11 g | -0.025 lb | -11 g | 45 g | 7 g | 2.04 |
| 1000 lb | 8 | 0.204 lb | 93 g | 0.000 lb | 0 g | 45 g | 7 g | 2.04 |
| 1000 lb | 9 | 0.120 lb | 54 g | 0.000 lb | 0 g | 45 g | 7 g | 2.04 |
| 1000 lb | 10 | -0.019 lb | -9 g | -0.019 lb | -9 g | 45 g | 7 g | 2.04 |
| 1000 lb | 11 | 0.019 lb | 9 g | 0.019 lb | 9 g | 45 g | 7 g | 2.04 |
| 1000 lb | 12 | 0.053 lb | 24 g | 0.053 lb | 24 g | 45 g | 7 g | 2.04 |
| 1000 lb | 13 | 0.021 lb | 10 g | 0.021 lb | 10 g | 45 g | 7 g | 2.04 |
| 1000 lb | 14 | 0.008 lb | 4 g | 0.008 lb | 4 g | 45 g | 7 g | 2.04 |
| 1000 lb | 15 | -0.046 lb | -21 g | -0.046 lb | -21 g | 45 g | 7 g | 2.04 |
| 1000 lb | 16 | -0.027 lb | -12 g | -0.027 lb | -12 g | 45 g | 7 g | 2.04 |
| 1000 lb | 17 | -0.072 lb | -33 g | -0.001 lb | 0 g | 45 g | 7 g | 2.04 |
| 1000 lb | 18 | -0.021 lb | -9 g | -0.021 lb | -9 g | 45 g | 7 g | 2.04 |
| 1000 lb | 19 | -0.010 lb | -5 g | -0.010 lb | -5 g | 45 g | 7 g | 2.04 |


 Ron Peterson, Metrologist

10/30/2014
 Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|---------------------------------|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/28/14 |
| Artifacts Submitted | 1000 lb test weights | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake/ Other | Temperature (c): | 22.1 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44.2 |
| Equipment Used: | Russell Balance/ Vaisala PTU301 | Pressure (mm/Hg): | 716.5 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.

Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.

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

| Nominal | Serial Number | Correction As Found | Correction As Left | Tolerance | Uncertainty | K |
|---------|---------------|------------------------|-----------------------|-----------|-------------|------|
| 1000 lb | 20 | -0.028 lb -13 g | -0.028 lb -13 g | 45 g | 7 g | 2.04 |
| 1000 lb | 21 | 0.095 lb 43 g | 0.000 lb 0 g | 45 g | 7 g | 2.04 |
| 1000 lb | 23 | -0.031 lb -14 g | -0.031 lb -14 g | 45 g | 7 g | 2.04 |
| 1000 lb | 24 | 0.085 lb 38 g | 0.002 lb 1 g | 45 g | 7 g | 2.04 |
| 1000 lb | 25 | 0.014 lb 6 g | 0.014 lb 6 g | 45 g | 7 g | 2.04 |
| 1000 lb | 26 | -0.036 lb -16 g | -0.036 lb -16 g | 45 g | 7 g | 2.04 |
| 1000 lb | 122 | 0.065 lb 29 g | 0.065 lb 29 g | 45 g | 7 g | 2.04 |
| 1000 lb | 5EJU | 0.054 lb 25 g | 0.054 lb 25 g | 45 g | 7 g | 2.04 |
| 1000 lb | R17 | -0.008 lb -4 g | -0.008 lb -4 g | 45 g | 7 g | 2.04 |


 Ron Peterson, Metrologist

10/30/2014
 Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|-------------------------------|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 50 lb TW | Condition of Weights: | GOOD |
| Manufacturer: | Various | Temperature (c): | 21.6 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 45.0% |
| Equipment Used: | Mettler KA-30/ Vaisala PTU301 | Pressure (mm/Hg): | 713.7 |


Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.

Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.

Standards Used: SD Lab 50 lb and/or 25 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

| Nominal | Serial Number | Correction As Found | Correction As Left | Tolerance | Uncertainty | K |
|---------|---------------|---------------------|--------------------|-----------|-------------|------|
| 50 lb | 1 | -2069 mg | 1 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 1 | -3109 mg | 31 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 2 | -1024 mg | -1024 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 3 | -924 mg | -924 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 4 | -2579 mg | 116 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 5 | -2614 mg | 21 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 6 | -3064 mg | 36 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 7 | -1424 mg | -1424 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 10 | -614 mg | -614 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 11 | -1799 mg | 26 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 13 | 56 mg | 56 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 14 | -2079 mg | 191 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 15 | -1459 mg | -1459 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 17 | 671 mg | 671 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 18 | -1769 mg | 36 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 20 | -1154 mg | -1154 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 20 | -344 mg | -344 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 21 | -639 mg | -639 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 23 | -919 mg | -919 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 24 | -2979 mg | 81 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 25 | -3424 mg | 156 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 26 | -1504 mg | -1504 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 27 | 551 mg | 551 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 28 | -1014 mg | -1014 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 29 | -2684 mg | -4 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 31 | -99 mg | -99 mg | 2300 mg | 304 mg | 2.23 |


Ron Peterson, Metrologist

10/30/2014

Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|-------------------------------|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 50 lb TW | Condition of Weights: | GOOD |
| Manufacturer: | Various | Temperature (c): | 21.6 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 45.0% |
| Equipment Used: | Mettler KA-30/ Vaisala PTU301 | Pressure (mm/Hg): | 713.7 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.

Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.

Standards Used: SD Lab 50 lb and/or 25 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

| Nominal | Serial Number | Correction As Found | Correction As Left | Tolerance | Uncertainty | K |
|---------|---------------|---------------------|--------------------|-----------|-------------|------|
| 50 lb | 32 | -744 mg | -744 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 33 | -859 mg | -859 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 34 | -1724 mg | 26 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 36 | 2866 mg | 151 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 38 | -2654 mg | 81 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 39 | 391 mg | 391 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 40 | -1549 mg | 6 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 41 | -1049 mg | -1049 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 45 | -2579 mg | 131 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 47 | -2509 mg | 86 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 48 | -474 mg | -474 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 50 | -4554 mg | 6 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 51 | -1159 mg | -1159 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 53 | -1049 mg | -1049 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 91 | -2969 mg | 41 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 96 | -1329 mg | -1329 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 97 | -1659 mg | 96 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 98 | 206 mg | 206 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 99 | -974 mg | -974 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 321 | -1139 mg | -1139 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | 333 | 136 mg | 136 mg | 2300 mg | 304 mg | 2.23 |
| 50 lb | KS-C44 | -514 mg | -514 mg | 2300 mg | 304 mg | 2.23 |


 Ron Peterson, Metrologist

10/30/2014
 Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|-------------------------------|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 25 lb TW | Condition of Weights: | GOOD |
| Manufacturer: | Various | Temperature (c): | 21.9 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 42.4% |
| Equipment Used: | Mettler KA-30/ Vaisala PTU301 | Pressure (mm/Hg): | 717.7 |

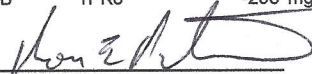
Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.

Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.

Standards Used: SD Lab 50 lb and/or 25 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

| Nominal | Serial Number | Correction As Found | Correction As Left | Tolerance | Uncertainty | K |
|---------|---------------|---------------------|--------------------|-----------|-------------|------|
| 25 LB | 2 | 672 mg | 672 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 56 | 267 mg | 267 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1P | 662 mg | 662 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1P12 | 17 mg | 17 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJ | 212 mg | 212 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJ1 | 222 mg | 222 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJ6 | 112 mg | 112 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJD | 1197 mg | -448 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJE | -803 mg | 2 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJF | 127 mg | 127 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJG | 882 mg | -273 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJH | 712 mg | 712 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJM | -88 mg | -88 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJN | 357 mg | 357 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJQ | -383 mg | -383 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJS | 347 mg | 347 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJT | -18 mg | -18 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJV | 1212 mg | 127 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PJX | 502 mg | 502 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK1 | 452 mg | 452 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK2 | 2007 mg | 32 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK4 | 807 mg | -78 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK5 | 692 mg | 692 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK6 | 1987 mg | -103 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK7 | 1052 mg | -153 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK8 | -253 mg | -253 mg | 1100 mg | 148 mg | 2.28 |


Ron Peterson, Metrologist

10/30/2014

Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|-------------------------------|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 25 lb TW | Condition of Weights: | GOOD |
| Manufacturer: | Various | Temperature (c): | 21.9 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 42.4% |
| Equipment Used: | Mettler KA-30/ Vaisala PTU301 | Pressure (mm/Hg): | 717.7 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.

Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.

Standards Used: SD Lab 50 lb and/or 25 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

| Nominal | Serial Number | Correction As Found | Correction As Left | Tolerance | Uncertainty | K |
|---------|---------------|---------------------|--------------------|-----------|-------------|------|
| 25 LB | 1PK9 | -8 mg | -8 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PK9 | 122 mg | 122 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKD | 297 mg | 297 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKE | -338 mg | -338 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKF | 637 mg | 637 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKG | -78 mg | -78 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKH | -278 mg | -278 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKJ | -1073 mg | 437 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKK | -108 mg | -108 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKL | 472 mg | 472 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKL | 552 mg | 552 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKM | -1023 mg | 257 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | 1PKX | -648 mg | -648 mg | 1100 mg | 148 mg | 2.28 |
| 25 LB | KSD2 | 1377 mg | -88 mg | 1100 mg | 148 mg | 2.28 |
| 10 LB | 58 | 1263 mg | -4 mg | 450 mg | 55 mg | 2.10 |


 Ron Peterson, Metrologist

10/30/2014
 Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|--|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 081500B | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake | Temperature (c): | 21.4 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44 |
| Equipment Used: | Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301 | Pressure (mm/Hg): | 713.6 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.
 Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.
 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.

| Nominal | Identifier | Correction As Found | Correction As Left | Tolerance Class F | Uncertainty | k |
|---------|------------|------------------------|-----------------------|----------------------|-------------|------|
| 10 lb | KS | -135 mg | -135 mg | 450 mg | 55 mg | 2.10 |
| 10 lb | KS1 | -99 mg | -99 mg | 450 mg | 55 mg | 2.10 |
| 5 lb | | 27 mg | 27 mg | 230 mg | 28 mg | 2.08 |
| 1 lb | 1 | -4.8 mg | -4.8 mg | 70 mg | 8.5 mg | 2.08 |
| 1 lb | 2 | 1.2 mg | 1.2 mg | 70 mg | 8.5 mg | 2.08 |
| 1 lb | 3 | 7.2 mg | 7.2 mg | 70 mg | 8.5 mg | 2.08 |
| 1 lb | 4 | -18.8 mg | -18.8 mg | 70 mg | 8.5 mg | 2.08 |
| 1 lb | 5 | 17.2 mg | 17.2 mg | 70 mg | 8.5 mg | 2.08 |
| 4 oz | KS1 | 7.8 mg | 7.8 mg | 23 mg | 2.8 mg | 2.11 |
| 4 oz | KS2 | 10.9 mg | 10.9 mg | 23 mg | 2.8 mg | 2.11 |
| 4 oz | KS3 | 0.5 mg | 0.5 mg | 23 mg | 2.8 mg | 2.11 |
| 1 oz | 1 | 1.35 mg | 1.35 mg | 5.4 mg | 0.65 mg | 2.08 |
| 1 oz | 3 | 1.97 mg | 1.97 mg | 5.4 mg | 0.65 mg | 2.08 |
| 1/2 oz | | 0.21 mg | 0.21 mg | 2.8 mg | 0.34 mg | 2.09 |
| 1/4 oz | | 0.03 mg | 0.03 mg | 1.7 mg | 0.21 mg | 2.08 |



 Ron Peterson, Metrologist

10/30/2014
Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|--|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 081500C | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake | Temperature (c): | 21.4 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44 |
| Equipment Used: | Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301 | Pressure (mm/Hg): | 713.6 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.
 Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.
 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.

| Nominal | Identifier | Correction As Found | Correction As Left | Tolerance Class F | Uncertainty | k |
|----------|------------|------------------------|-----------------------|----------------------|-------------|------|
| 5 lb | 9 | 29 mg | 29 mg | 230 mg | 28 mg | 2.08 |
| 2 lb | 5 | 11 mg | 11 mg | 91 mg | 11 mg | 2.10 |
| 2 lb | 6 | 29 mg | 29 mg | 91 mg | 11 mg | 2.10 |
| 1 lb | 4 | 11 mg | 11.2 mg | 70 mg | 8.5 mg | 2.08 |
| 8 oz | 3 | 5 mg | 4.8 mg | 45 mg | 5.5 mg | 2.08 |
| 0.2 lb | 1 | 9 mg | 8.5 mg | 18 mg | 2.2 mg | 2.10 |
| 0.2 lb | 2 | 8 mg | 8.3 mg | 18 mg | 2.2 mg | 2.10 |
| 0.1 lb | | 8.5 mg | 8.5 mg | 9.1 mg | 1.1 mg | 2.10 |
| 0.05 lb | | 2.34 mg | 2.34 mg | 4.5 mg | 0.55 mg | 2.10 |
| 0.02 lb | | 1.50 mg | 1.50 mg | 1.8 mg | 0.23 mg | 2.10 |
| 0.02 lb | | 0.93 mg | 0.93 mg | 1.8 mg | 0.23 mg | 2.10 |
| 0.01 lb | | 1.47 mg | 1.47 mg | 1.5 mg | 0.19 mg | 2.10 |
| 0.005 lb | | 0.74 mg | 0.74 mg | 1.2 mg | 0.16 mg | 2.10 |
| 0.002 lb | | 0.06 mg | 0.06 mg | 0.87 mg | 0.11 mg | 2.11 |
| 0.002 lb | | 0.63 mg | 0.63 mg | 0.87 mg | 0.11 mg | 2.11 |
| 0.001 lb | | 0.00 mg | 0.00 mg | 0.70 mg | 0.10 mg | 2.10 |



 Ron Peterson, Metrologist

10/30/2014
Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|--|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 081910A | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake | Temperature (c): | 21.7 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44 |
| Equipment Used: | Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301 | Pressure (mm/Hg): | 713.6 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.
 Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.
 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.

| Nominal | Identifier | Correction As Found | Correction As Left | Tolerance Class F | Uncertainty | k |
|----------|------------|------------------------|-----------------------|----------------------|-------------|------|
| 10 lb | | 124 mg | 124 mg | 450 mg | 55 mg | 2.10 |
| 10 lb | | 132 mg | 132 mg | 450 mg | 55 mg | 2.10 |
| 5 lb | | 81 mg | 81 mg | 230 mg | 28 mg | 2.08 |
| 2 lb | | 32 mg | 32 mg | 91 mg | 11 mg | 2.10 |
| 2 lb | | 27 mg | 27 mg | 91 mg | 11 mg | 2.10 |
| 1 lb | | 9.2 mg | 9.2 mg | 70 mg | 8.5 mg | 2.08 |
| 8 oz | | 10.8 mg | 10.8 mg | 45 mg | 5.5 mg | 2.08 |
| 0.2 lb | | 0.5 mg | 0.5 mg | 18 mg | 2.2 mg | 2.10 |
| 0.2 lb | | 3.2 mg | 3.2 mg | 18 mg | 2.2 mg | 2.10 |
| 0.1 lb | | 2.9 mg | 2.9 mg | 9.1 mg | 1.1 mg | 2.10 |
| 0.05 lb | | 1.39 mg | 1.39 mg | 4.5 mg | 0.55 mg | 2.10 |
| 0.02 lb | | 0.49 mg | 0.49 mg | 1.8 mg | 0.23 mg | 2.10 |
| 0.02 lb | | 0.49 mg | 0.49 mg | 1.8 mg | 0.23 mg | 2.10 |
| 0.01 lb | | 0.64 mg | 0.64 mg | 1.5 mg | 0.19 mg | 2.10 |
| 0.005 lb | | 0.47 mg | 0.47 mg | 1.2 mg | 0.16 mg | 2.10 |
| 0.002 lb | | 0.20 mg | 0.20 mg | 0.87 mg | 0.11 mg | 2.11 |
| 0.002 lb | | 0.27 mg | 0.27 mg | 0.87 mg | 0.11 mg | 2.11 |
| 0.001 lb | | 0.36 mg | 0.36 mg | 0.70 mg | 0.10 mg | 2.10 |



 Ron Peterson, Metrologist

10/30/2014
Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|--|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | O1AY | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake | Temperature (c): | 21.7 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44% |
| Equipment Used: | Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301 | Pressure (mm/Hg): | 713.6 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.
 Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.
 Standards Used: SD 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.

| Nominal | Identifier | Correction As Found | Correction As Left | Tolerance Class F | Uncertainty | k |
|---------|------------|------------------------|-----------------------|----------------------|-------------|------|
| 2 kg | | 94 mg | 94 mg | 200 mg | 24 mg | 2.11 |
| 1 kg | | 43 mg | 43 mg | 100 mg | 12 mg | 2.10 |
| 500 g | | 34.5 mg | 34.5 mg | 70 mg | 8.6 mg | 2.10 |
| 200 g | | 16.5 mg | 16.5 mg | 40 mg | 5.0 mg | 2.11 |
| 200 g | | 15.6 mg | 15.6 mg | 40 mg | 5.0 mg | 2.11 |
| 100 g | | 7.3 mg | 7.3 mg | 20 mg | 2.4 mg | 2.10 |
| 50 g | | 3.2 mg | 3.2 mg | 10 mg | 1.2 mg | 2.10 |
| 20 g | | 1.12 mg | 1.12 mg | 4.0 mg | 0.49 mg | 2.09 |
| 20 g | | 1.01 mg | 1.01 mg | 4.0 mg | 0.49 mg | 2.09 |
| 5 g | | 0.42 mg | 0.42 mg | 1.5 mg | 0.39 mg | 2.10 |
| 2 g | | 0.32 mg | 0.32 mg | 1.1 mg | 0.14 mg | 2.10 |
| 2 g | | 0.19 mg | 0.19 mg | 1.1 mg | 0.14 mg | 2.10 |
| 1 g | | -0.52 mg | -0.52 mg | 0.90 mg | 0.12 mg | 2.10 |



 Ron Peterson, Metrologist

10/30/2014

 Date of Report

SOUTH DAKOTA 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

| | | | |
|----------------------------|--|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 20BD | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake | Temperature (c): | 21.7 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 44% |
| Equipment Used: | Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301 | Pressure (mm/Hg): | 713.6 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.
 Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.
 Standards Used: SD 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.

| Nominal | Identifier | Correction As Found | Correction As Left | Tolerance Class F | Uncertainty | k |
|---------|------------|------------------------|-----------------------|----------------------|-------------|------|
| 5 kg | | 130 mg | 130 mg | 500 mg | 62 mg | 2.14 |
| 2 kg | | 82 mg | 82 mg | 200 mg | 24 mg | 2.11 |
| 2 kg | | 89 mg | 89 mg | 200 mg | 24 mg | 2.11 |
| 1 kg | | 52 mg | 52 mg | 100 mg | 12 mg | 2.10 |
| 500 g | | 26.5 mg | 26.5 mg | 70 mg | 8.6 mg | 2.10 |
| 200 g | | 17.5 mg | 17.5 mg | 40 mg | 5.0 mg | 2.11 |
| 200 g | | 16.7 mg | 16.7 mg | 40 mg | 5.0 mg | 2.11 |
| 100 g | | 9.0 mg | 9.0 mg | 20 mg | 2.4 mg | 2.10 |
| 50 g | | 2.7 mg | 2.7 mg | 10 mg | 1.2 mg | 2.10 |
| 20 g | | 0.97 mg | 0.97 mg | 4 mg | 0.49 mg | 2.09 |
| 20 g | | 0.70 mg | 0.70 mg | 4 mg | 0.49 mg | 2.09 |
| 10 g | | 0.67 mg | 0.67 mg | 2 mg | 0.25 mg | 2.09 |
| 5 g | | 0.16 mg | 0.16 mg | 1.5 mg | 0.39 mg | 2.10 |
| 2 g | | 0.47 mg | 0.47 mg | 1.1 mg | 0.14 mg | 2.10 |
| 2 g | | 0.37 mg | 0.37 mg | 1.1 mg | 0.14 mg | 2.10 |



 Ron Peterson, Metrologist

10/30/2014

 Date of Report


SOUTH DAKOTA 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

| | | | |
|----------------------------|--|------------------------------|----------|
| Submitted by: | K-Scale | Report Number: | MP3338 |
| Mailing Address: | 1701 W Madison | Date Received: | 10/27/14 |
| City, State, Zip: | Sioux Falls, SD 57104 | Date tested: | 10/29/14 |
| Artifacts Submitted | 080602B | Condition of Weights: | GOOD |
| Manufacturer: | Rice Lake | Temperature (c): | 20.3 |
| Test Method Used: | SOP 8/ MODIFIED SUB | Humidity: | 48% |
| Equipment Used: | Mettler AX 205 DR/ Mettler PR503/ Vaisala PTU301 | Pressure (mm/Hg): | 713.7 |

Treatment of artifacts prior to testing: Thermal equilibrium time/conditions were obtained by placing the artifacts in the lab overnight.
 Compliance Statement: These weights and associated uncertainties were evaluated against NIST Handbook 105-1 NIST Class F tolerances and the weights were within tolerance at the time of calibration.
 Standards Used: SD 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.

| Nominal | Identifier | Correction As Found | Correction As Left | Tolerance Class F | Uncertainty | k |
|---------|------------|------------------------|-----------------------|----------------------|-------------|------|
| 2 kg | | 86 mg | 86 mg | 200 mg | 24 mg | 2.11 |
| 2 kg | | 87 mg | 87 mg | 200 mg | 24 mg | 2.11 |
| 2 kg | | 77 mg | 77 mg | 200 mg | 24 mg | 2.11 |
| 2 kg | | 86 mg | 86 mg | 200 mg | 24 mg | 2.11 |
| 2 kg | | 70 mg | 70 mg | 200 mg | 24 mg | 2.11 |
| 1 kg | | 40 mg | 40 mg | 100 mg | 12 mg | 2.10 |
| 500 g | | 32.5 mg | 32.5 mg | 70 mg | 8.6 mg | 2.10 |
| 500 g | | 29.5 mg | 29.5 mg | 70 mg | 8.6 mg | 2.10 |
| 500 g | | 14.5 mg | 14.5 mg | 70 mg | 8.6 mg | 2.10 |
| 500 g | | 28.5 mg | 28.5 mg | 70 mg | 8.6 mg | 2.10 |
| 500 g | | 29.5 mg | 29.5 mg | 70 mg | 8.6 mg | 2.10 |
| 200 g | | 12.6 mg | 12.6 mg | 40 mg | 5.0 mg | 2.11 |
| 200 g | | 10.6 mg | 10.6 mg | 40 mg | 5.0 mg | 2.11 |
| 100 g | | 1.9 mg | 1.9 mg | 20 mg | 2.4 mg | 2.10 |
| 50 g | | 4.1 mg | 4.1 mg | 10 mg | 1.2 mg | 2.10 |
| 20 g | | 1.19 mg | 1.19 mg | 4 mg | 0.49 mg | 2.09 |
| 20 g | | 1.82 mg | 1.82 mg | 4 mg | 0.49 mg | 2.09 |
| 10 g | | 0.89 mg | 0.89 mg | 2 mg | 0.25 mg | 2.09 |
| 5 g | | 0.89 mg | 0.89 mg | 1.5 mg | 0.39 mg | 2.10 |
| 2 g | | 0.51 mg | 0.51 mg | 1.1 mg | 0.14 mg | 2.10 |
| 2 g | | 0.03 mg | 0.03 mg | 1.1 mg | 0.14 mg | 2.10 |
| 1 g | | -0.44 mg | -0.44 mg | 0.9 mg | 0.12 mg | 2.10 |


 End of Report
 Ron Peterson, Metrologist

10/30/2014
 Date of Report