

Receipt Date: November 4, 2014  
Test Date: November 5, 2014  
Report Date: November 5, 2014

State Test No.: 333355  
Serial No.: 7312 B  
Bar Code: 200758

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: None  
SOP: 32  
Technician ID: 18

Item(s) Submitted: 5 Gallon Measure  
Manufacturer: Seraphin  
Material: Mild Steel  
Equipment Number: None  
Condition: Good  
Temperature: 19. °C  
Pressure: 734.9 mmHg  
Relative Humidity: 37. %

Nominal Volume	Error (in <sup>3</sup> )	Volume Contained		Uncertainty (in <sup>3</sup> )	Coefficient of Expansion (°F)
		At Zero Line	(gallons)		
5 gal	As Found	-0.42	4.9982	0.62	0.0000186
	As Left	-0.01	4.9999	0.62	

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

This measure or prover has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds, a drain time of 10 seconds after cessation of full flow and at a reference temperature of 60 °F.

The measure or prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

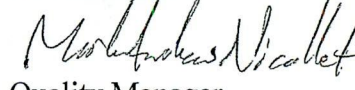
Benjamin FitzPatrick



Deputy Director

Reviewed by:

Mark Nicollet



Quality Manager

Receipt Date: November 4, 2014  
Test Date: November 5, 2014  
Report Date: November 5, 2014

State Test No.: 333354  
Serial No.: 46801  
Bar Code: 200668

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: None  
SOP: 32  
Technician ID: 18

Item(s) Submitted: 5 Gallon Measure  
Manufacturer: Seraphin  
Material: Mild Steel  
Equipment Number: None  
Condition: Fair  
Temperature: 19. °C  
Pressure: 734.9 mmHg  
Relative Humidity: 37. %

Nominal Volume		Error (in <sup>3</sup> )	Volume Contained At Zero Line (gallons)	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion (°F)
5 gal	As Found	-0.54	4.9977	0.62	0.0000186
	As Left	-0.11	4.9995	0.62	

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

This measure or prover has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds, a drain time of 10 seconds after cessation of full flow and at a reference temperature of 60 °F.

The measure or prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Benjamin FitzPatrick  
*Benjamin FitzPatrick*  
Deputy Director

Reviewed by:  
Mark Nicollet  
*Mark Nicollet*  
Quality Manager

Receipt Date: November 4, 2014  
Test Date: November 5, 2014  
Report Date: November 5, 2014

State Test No.: 333353  
Serial No.: 07-05341  
Bar Code: 200667

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: None  
SOP: 32  
Technician ID: 18

Item(s) Submitted: 5 Gallon Measure  
Manufacturer: Seraphin  
Material: Stainless Steel  
Equipment Number: None  
Condition: Excellent  
Temperature: 19. °C  
Pressure: 734.9 mmHg  
Relative Humidity: 37. %

Nominal Volume		Error (in <sup>3</sup> )	Volume Contained At Zero Line (gallons)	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion (1/°F)
5 gal	As Found	-0.18	4.9992	0.62	0.0000265
	As Left	-0.18	4.9992	0.62	

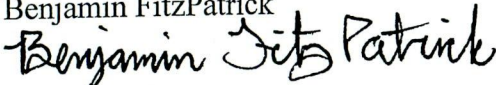
Neck Calibration: No neck calibration was done at this time.


This measure or prover has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds, a drain time of 10 seconds after cessation of full flow and at a reference temperature of 60 °F.

The measure or prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Benjamin FitzPatrick  
  
Deputy Director

Reviewed by:  
Mark Nicollet  
  
Quality Manager



Receipt Date: May 5, 2014  
 Test Date: May 6, 2014  
 Report Date: May 6, 2014

State Test No.: 332500  
 Serial No.: 10903211-8  
 Bar Code: 017845

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Brownie  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 19.6°C  
 Pressure: 735.1 mmHg  
 Relative Humidity: 41. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
100 gal	As Found	99.996	-0.8	3.0	0.0000265
	As Left	99.996	-0.8	3.0	

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

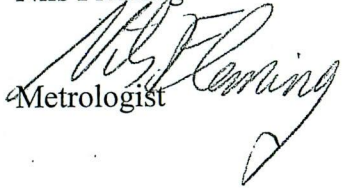
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming



Metrologist

Reviewed by:

Heidi Jones



Approved Signatory



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: November 26, 2013  
 Test Date: December 2, 2013  
 Report Date: December 2, 2013

State Test No.: 331839  
 Serial No.: 051271555-0103

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Determan Brownie Inc  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 17.°C  
 Pressure: 730.2 mmHg  
 Relative Humidity: 35. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
100 gal	As Found	99.989	-2.6	3.0	0.0000288
	As Left	99.989	-2.6	3.0	

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

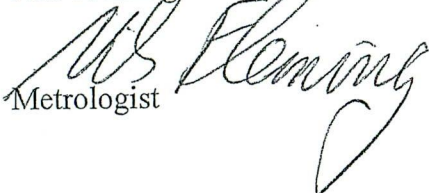
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. The standards are traceable through the MN Weights & Measures Division mass standards to National Institute of Standards & Technology (NIST) mass standards. 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.

Nils Fleming

  
 Metrologist

Reviewed by:

Mark Nicollet

  
 Approved Signatory





Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: May 5, 2014  
 Test Date: May 6, 2014  
 Report Date: May 6, 2014

State Test No.: 332501  
 Serial No.: 060810915-0201  
 Bar Code: 200748

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Determan Brownie Inc  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 19.6°C  
 Pressure: 736.5 mmHg  
 Relative Humidity: 39. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
100 gal	As Found	100.034	7.8	3.0	0.0000288
	As Left	100.000	0.0	3.0	

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

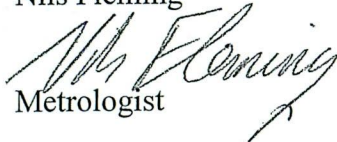
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming



Metrologist

Reviewed by:

Heidi Jones



Approved Signatory

Receipt Date: July 28, 2014  
 Test Date: July 31, 2014  
 Report Date: July 31, 2014

State Test No.: 332865  
 Serial No.: 051320997-0102  
 Bar Code: 202342

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 14044 W. FREEWAY DRIVE  
 COLUMBUS, MN 55038  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: NONE  
 SOP: 33  
 Technician ID: 07

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Determan Brownie Inc  
 Material: SS  
 Description: Dry Bottom  
 Condition: Excellent  
 Temperature: 26.9°C  
 Pressure: 737.1 mmHg  
 Relative Humidity: 40. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
100 gal	As Found	99.993	-1.6	3.0	0.0000265
	As Left	99.993	-1.6	3.0	

Neck Calibration: No neck calibration was done 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 flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Mark Nicollet

  
 Quality Manager

Reviewed by:

Kari Anderson

  
 Metrologist

Receipt Date: October 6, 2014  
Test Date: October 6, 2014  
Report Date: October 7, 2014

State Test No.: 333205  
Serial No.: 031111168-0103  
Bar Code: 201898

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: None  
SOP: 33  
Technician ID: 18

Item(s) Submitted: 100 Gallon Prover  
Manufacturer: DETERMAN BROWNIE INC  
Material: Stainless Steel  
Description: Dry Bottom  
Condition: Good  
Temperature: 18.4 °C  
Pressure: 723.6 mm Hg  
Relative Humidity: 40. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(1/°F)
100 gal	As Found	99.974	-5.9	3.0	0.0000265
	As Left	99.996	-0.9	3.0	

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

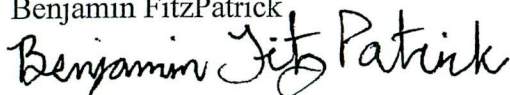
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of full flow and at a reference temperature of 60 °F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.


Benjamin FitzPatrick



Deputy Director

Reviewed by:

Kari Anderson



Metrologist

Receipt Date: November 4, 2014  
Test Date: November 4, 2014  
Report Date: November 4, 2014

State Test No.: 333356  
Serial No.: 3978131-4  
Bar Code: 018636

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: None  
SOP: 33  
Technician ID: 18

Item(s) Submitted: 100 Gallon Prover  
Manufacturer: Brownie  
Material: Mild Steel  
Description: Dry Bottom  
Condition: Good  
Temperature: 20.4°C  
Pressure: 735. mmHg  
Relative Humidity: 41. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
100 gal	As Found	99.988	-2.9	3.0	0.0000186
	As Left	99.988	-2.9	3.0	

Neck Calibration: No neck calibration was done 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 and at a reference temperature of 60 °F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Benjamin FitzPatrick



Deputy Director

Reviewed by:

Kari Anderson



Metrologist



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: May 15, 2014  
 Test Date: May 19, 2014  
 Report Date: May 19, 2014

State Test No.: 332537  
 Serial No.: 3610-02  
 Bar Code: 200685

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Brownie  
 Material: ms  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 19.7°C  
 Pressure: 734.1 mmHg  
 Relative Humidity: 46. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
100 gal	As Found	100.006	1.4	3.0	0.0000186
	As Left	100.006	1.4	3.0	

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

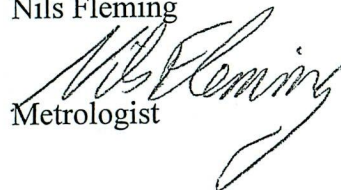
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming



Metrologist

Reviewed by:

Heidi Jones



Laboratory Administrator



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: May 12, 2014  
 Test Date: May 13, 2014  
 Report Date: May 13, 2014

State Test No.: 332529  
 Serial No.: 0314542120  
 Bar Code: 202504

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Westmor Fluid Solutions  
 Material: ss  
 Description: Dry Bottom  
 Condition: New  
 Temperature: 20.1°C  
 Pressure: 739.4 mmHg  
 Relative Humidity: 44. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
100 gal	As Found	100.050	11.7	3.0	0.0000288
	As Left	100.003	0.7	3.0	

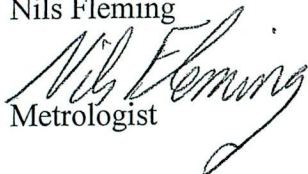
Neck Calibration: No neck calibration was done at this time.

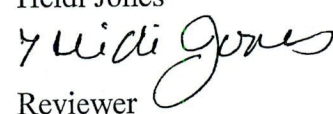
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming  
  
 Metrologist

Reviewed by:  
 Heidi Jones  
  
 Reviewer



Receipt Date: January 7, 2014  
 Test Date: January 14, 2014  
 Report Date: January 14, 2014

State Test No.: 331957  
 Serial No.: 888231104

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 100 Gallon Prover  
 Manufacturer: Brownie  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 18.5°C  
 Pressure: 731.9 mmHg  
 Relative Humidity: 32. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
100 gal	As Found	99.996	-0.9	3.0	0.0000265
	As Left	99.996	-0.9	3.0	

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

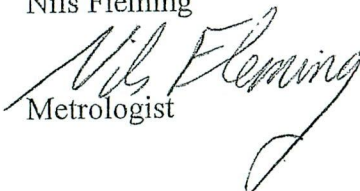
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming



Metrologist

Reviewed by:

Mark Nicolet



Approved Signatory



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: May 19, 2014  
 Test Date: May 21, 2014  
 Report Date: May 21, 2014

State Test No.: 332553  
 Serial No.: 100110260-0101  
 Bar Code: 200071

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 500 Gallon Prover  
 Manufacturer: Determan Brownie Inc.  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 21.2°C  
 Pressure: 737.4 mmHg  
 Relative Humidity: 53. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
500 gal	As Found	500.045	10	14	0.0000265
	As Left	500.002	0	14	

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

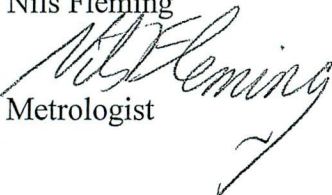
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

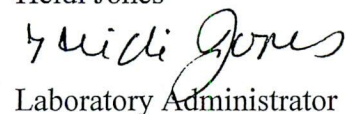
Nils Fleming



Metrologist

Reviewed by:

Heidi Jones



Laboratory Administrator



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: November 26, 2013  
 Test Date: December 2, 2013  
 Report Date: December 2, 2013

State Test No.: 331840  
 Serial No.: 031271251-0101

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 500 Gallon Prover  
 Manufacturer: Determan Brownie Inc  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 16.5°C  
 Pressure: 729.1 mmHg  
 Relative Humidity: 38. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
500 gal	As Found	499.988	-3	14	0.0000288
	As Left	499.988	-3	14	

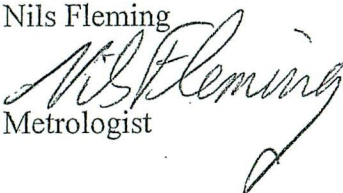
Neck Calibration: No neck calibration was done at this time.

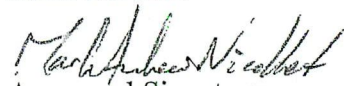
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. The standards are traceable through the MN Weights & Measures Division mass standards to National Institute of Standards & Technology (NIST) mass standards. 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.

Nils Fleming  
  
 Metrologist

Reviewed by:  
 Mark Nicollet  
  
 Approved Signatory

Receipt Date: November 3, 2014  
Test Date: November 4, 2014  
Report Date: November 4, 2014

State Test No.: 333346  
Serial No.: 5956670-01  
Bar Code: 019278

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: None  
SOP: 33  
Technician ID: 18

Item(s) Submitted: 500 Gallon Prover  
Manufacturer: Brownie  
Material: Mild Steel  
Description: Dry Bottom  
Condition: Good  
Temperature: 20.°C  
Pressure: 737.2 mmHg  
Relative Humidity: 41. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(1/°F)
500 gal	As Found	499.560	-101.6	3.0	0.0000186
	As Left	500.007	1.7	3.0	

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

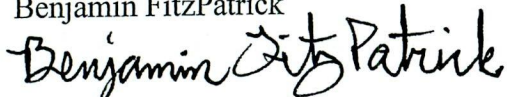
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of full flow and at a reference temperature of 60 °F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Benjamin FitzPatrick



Deputy Director

Reviewed by:

Mark Nicollet



Quality Manager

Receipt Date: October 6, 2014  
Test Date: October 7, 2014  
Report Date: October 7, 2014

State Test No.: 333206  
Serial No.: 090610694-0101  
Bar Code: 201203

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: NONE  
SOP: 33  
Technician ID: 13

Item(s) Submitted: 1000 Gallon Prover  
Manufacturer: Determan Brownie  
Material: Stainless Steel  
Description: Dry Bottom  
Condition: Good  
Temperature: 21.1°C  
Pressure: 729.1 mmHg  
Relative Humidity: 43. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
1000 gal	As Found	999.954	-10.7	28.0	0.0000265
	As Left	999.954	-10.7	28.0	

Neck Calibration: No neck calibration was done 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 and at a reference temperature of 60 °F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Kari Anderson

  
Metrologist

Reviewed by:

Mark Nicollet

  
Quality Manager



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: May 5, 2014  
 Test Date: May 5, 2014  
 Report Date: May 5, 2014

State Test No.: 332498  
 Serial No.: 060810915-0101  
 Bar Code: 200749

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 1000 Gallon Prover  
 Manufacturer: Determan Brownie Inc  
 Material: ss  
 Description: Dry Bottom  
 Condition: Good  
 Temperature: 19.°C  
 Pressure: 736.4 mmHg  
 Relative Humidity: 38. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
1000 gal	As Found	999.900	-23	28	0.0000288
	As Left	1000.011	3	28	

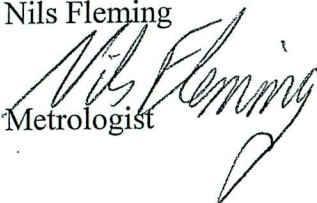
Neck Calibration: No neck calibration was done at this time.


This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming  
  
 Metrologist

Reviewed by:  
 Heidi Jones  
  
 Approved Signatory



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: May 23, 2014  
 Test Date: May 27 & 28, 2014  
 Report Date: May 28, 2014

State Test No.: 332573  
 Serial No.: 090610694-0201  
 Bar Code: 200498

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: NONE  
 SOP: 33  
 Technician ID: 07

Item(s) Submitted: 1500 Gallon Prover  
 Manufacturer: Determan Brownie  
 Material: SS  
 Description: Dry Bottom  
 Condition: Excellent  
 Temperature: 23.3°C  
 Pressure: 735.4 mmHg  
 Relative Humidity: 63. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
1500 gal	As Found	1499.942	-13	45	0.0000265
	As Left	1499.942	-13	45	

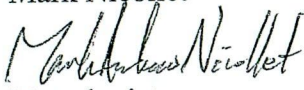
Neck Calibration: No neck calibration was done at this time.

This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Mark Nicollet  
  
 Metrologist

Reviewed by:  
 Nils Fleming  
  
 Technical Manager



Receipt Date: July 28, 2014  
Test Date: July 31, 2014  
Report Date: July 31, 2014

State Test No.: 332866  
Serial No.: 11978368-1  
Bar Code: 202358

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
14044 W. FREEWAY DRIVE  
COLUMBUS, MN 55038  
Contact: Ryan Hartin  
Phone: 763-502-9613  
PO Number: NONE  
SOP: 33  
Technician ID: 13

Item(s) Submitted: 1000 Gallon Prover  
Manufacturer: Determan Brownie Inc  
Material: SS  
Description: Dry Bottom  
Condition: Excellent  
Temperature: 24.9°C  
Pressure: 738.1 mmHg  
Relative Humidity: 54. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
1000 gal	As Found	999.970	-7	28	0.0000265
	As Left	999.970	-7	28	

Neck Calibration: No neck calibration was done 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 flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Kari Anderson

  
Metrologist

Reviewed by:

Mark Nicollet

  
Quality Manager



Receipt Date: May 12, 2014  
 Test Date: May 14, 2014  
 Report Date: May 14, 2014

State Test No.: 332530  
 Serial No.: 0114527708  
 Bar Code: 202505

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 33  
 Technician ID: 08

Item(s) Submitted: 1000 Gallon Prover  
 Manufacturer: Westmor Fluid Solutions  
 Material: ss  
 Description: Dry Bottom  
 Condition: New  
 Temperature: 19.9°C  
 Pressure: 742.5 mmHg  
 Relative Humidity: 45. %

Nominal Volume		Volume (gallons)	Error (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
1000 gal	As Found	1000.023	5	28	0.0000288
	As Left	1000.023	5	28	

Neck Calibration: Approved.

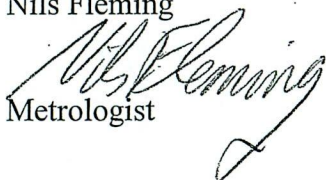
This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of flow and at a reference temperature of 60°F.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming



Metrologist

Reviewed by:

Heidi Jones



Reviewer



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: June 16, 2014  
 Test Date: June 19, 2014  
 Report Date: June 19, 2014

State Test No.: 332687  
 Serial No.: 24360  
 Bar Code: 201188

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 34  
 Technician ID: 08

Item(s) Submitted: 25 Gallon LPG Prover  
 Manufacturer: Arrow  
 Material: ms  
 Description: Wet Bottom  
 Condition: Good  
 Temperature: 25.4°C  
 Pressure: 737.5 mmHg  
 Relative Humidity: 58. %

Nominal Volume	Error As Found (in <sup>3</sup> )	Error As Left (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(°F)
25 gal	-2	-2	4	0.0000186

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

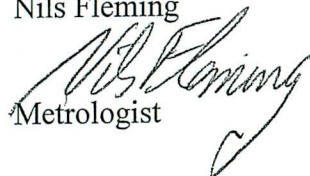
This prover has been calibrated as a "to contain after wet down" vessel at a reference temperature of 60°F and a reference pressure of 100 psig.

The prover listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota. 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.

Nils Fleming



Metrologist

Reviewed by:

Mark Nicollet



Quality Manager



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: June 16, 2014  
 Test Date: June 19, 2014  
 Report Date: June 19, 2014

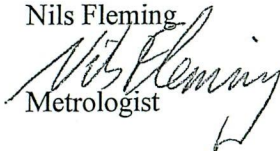
State Test No.: 332687  
 Serial No.: 24360

## Pressure Correction Chart

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 34  
 Technician ID: 08

Item(s) Submitted: 25 Gallon LPG Prover  
 Manufacturer: Arrow  
 Material: ms  
 Description: Wet Bottom  
 Condition: Good  
 Temperature: 25.4°C  
 Pressure: 737.5 mmHg  
 Relative Humidity: 58. %

Pressure Gauge Reading (PSIG)	Volume Correction (gal)
0	-0.061
10	-0.053
20	-0.045
30	-0.037
40	-0.029
50	-0.021
60	-0.019
70	-0.017
80	-0.015
90	-0.013
100	-0.011
110	-0.009
120	-0.007
130	-0.005
140	-0.003
150	-0.001
160	0.001
170	0.003
180	0.005
190	0.007
200	0.009

Nils Fleming  
  
 Metrologist



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: June 16, 2014  
 Test Date: June 17, 2014  
 Report Date: June 17, 2014

State Test No.: 332688  
 Serial No.: 28816  
 Barcode: 019785

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 34  
 Technician ID: 07

Item(s) Submitted: 100 gallon LPG Prover  
 Manufacturer: ARROW  
 Material: MS  
 Description: Wet Bottom  
 Condition: Good  
 Temperature: 25.7°C  
 Pressure: 732.5 mmHg  
 Relative Humidity: 51. %

Nominal Volume	Error As Found (in <sup>3</sup> )	Error As Left (in <sup>3</sup> )	Uncertainty (in <sup>3</sup> )	Coefficient of Expansion(/°F)
100 gal	9	9	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. 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.

Mark Nicollet

Metrologist

Reviewed by:

Nils Fleming

Technical Manager



Weights & Measures Metrology Laboratory  
 14305 Southcross Drive #150  
 Burnsville, MN 55306-7008  
 651.539.1555 FAX 651.539.1553

Receipt Date: June 16, 2014  
 Test Date: June 17, 2014  
 Report Date: June 17, 2014

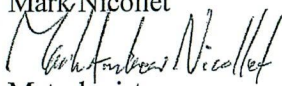
State Test No.: 332688  
 Serial No.: 28816

## Pressure Correction Chart

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 34  
 Technician ID: 07

Item(s) Submitted: 100 gallon LPG Prover  
 Manufacturer: ARROW  
 Material: MS  
 Description: Wet Bottom  
 Condition: Good  
 Temperature: 25.7°C  
 Pressure: 732.5 mmHg  
 Relative Humidity: 51. %

Pressure Gauge Reading (PSIG)	Volume Correction (gal)
0	-0.159
10	-0.125
20	-0.091
30	-0.056
40	-0.022
50	0.012
60	0.017
70	0.023
80	0.028
90	0.034
100	0.039
110	0.049
120	0.059
130	0.069
140	0.079
150	0.089
160	0.095
170	0.102
180	0.109
190	0.116
200	0.122

Mark Nicollet  
  
 Metrologist



NVLAP LAB CODE 105003-0

Page 1 of 1

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SVP-01  
waterdraw



NVLAP Lab Code 2000408-0

940 Venture Lane  
Williamston, Michigan 48895  
517/655-8202  
517/655-8303 (Fax)

**MICHIGAN DEPARTMENT OF AGRICULTURE  
& RURAL DEVELOPMENT**

**LABORATORY DIVISION**

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## Calibration Report

TEST NO: MI-05-14-11842

TEST DATE: 5/2/2014

Page 1 of 2

**CALIBRATED FOR:**

Westmor Fluid Solutions  
1241 72<sup>nd</sup> Avenue NE  
Minneapolis, MN 55432

**CALIBRATED BY:**

Michigan Dept. of Agriculture  
E.C. Heffron Metrology Laboratory  
940 Venture Lane  
Williamston, MI 48895

CONTACT: Scott Fish

PHONE: (763) 571-8110

FAX: (763) 502-9862

S/N: 000045

MODEL NO: H44025  
(LR)IA251AAWWE

MFG: Flow MD

TEST ITEM: One 20-Gallon Small Volume Prover.

DATE OF ARRIVAL: 5/1/2014

TEST ITEM CONDITION ON ARRIVAL: Good

TEST METHOD: MI-14SVP, a gravimetric calibration procedure for use with small volume provers

This prover has been compared to the Standards of the State of Michigan which are traceable to the National Institute of Standards and Technology. NIST test numbers are on file.

The prover was calibrated to determine the volume of water delivered at 60° F from one run of the piston between two optical switches.

The volume for the item in this report is as found or as left at the time of calibration. The result applies only to the item calibrated.

The process used for calibrating this item meets the requirements of ANSI/NC SL Z540-1.

The prover was not adjusted.

Calibration processes were monitored and found to be in control. Uncertainty calculations conform to NIST Technical Note 1297. Components attributed to the effects of viscosity of the water were not included in the uncertainties. The combined standard uncertainty is multiplied by a coverage factor of  $k=2$  to report the expanded uncertainty, which defines an interval with a confidence level of approximately 95%.

The environmental conditions in the laboratory are maintained at:  
Temperature: 18°C - 27°C ± 2°C; maximum change 1°C/h.  
Relative Humidity (maximum per 4 hours): 40% to 60% ± 10%.

**CALIBRATED FOR:**  
Westmor Fluid Solutions  
1241 72<sup>nd</sup> Avenue NE  
Minneapolis, MN 55432

TEST NO: MI-05-14-11842

S/N: 000045

TEST DATE: 5/2/2014

This report shall not be used to claim endorsement by NIST, WMD, NVLAP, or any agency of the U.S. Government or the State of Michigan.

Prover Constants:

Area Thermal Expansion Coef. (Ga)	$1.92 \times 10^{-5} / ^\circ\text{F}$
Detector Thermal Expansion Coef. (GI)	$9.60 \times 10^{-6} / ^\circ\text{F}$
Modulus of Elasticity (E)	$2.8 \times 10^7$ psi
Inside Diameter (ID)	17 in
Wall Thickness (WT)	0.582 in

The following volume was determined:

NOMINAL VALUE	VOLUME	UNCERTAINTY $\pm$ K = 2
20 gal	20.0096 gal	0.0019 gal

Signed:

*Nicholas A. Santos*

5/6/2014

*[Signature]*

5/6/2014

Calibrating Metrologist

Date Approved Signatory

Date



Receipt Date: June 16, 2014  
 Test Date: June 19, 2014  
 Report Date: June 23, 2014

State Test No.: 332705  
 Set Serial No.: None  
 Bar Code: 201189

## Calibration Report

WESTMOR FLUID SOLUTIONS LLC  
 7220 CENTRAL AVE NE  
 MINNEAPOLIS, MN 55432  
 Contact: Ryan Hartin  
 Phone: 763-502-9613  
 PO Number: None  
 SOP: 12  
 Technician ID: 08

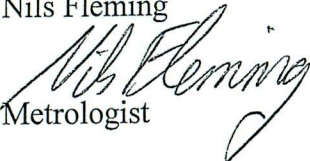
Item(s) Submitted: 25 lb Cast Weights  
 Manufacturer: Rice Lake  
 ASTM E617 Type: II  
 Equipment ID#: None  
 Condition: Good  
 Temperature: 21.8°C  
 Pressure: 735.2 mmHg  
 Relative Humidity: 55. %


Kit contents:

Nominal Value	Quantity
25 lb	20

When used as a set, these weights meet NIST Class F.

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 calculation methods conform to NIST Technical Note 1297. Actual uncertainties will be provided upon request. Results apply to items identified in this report only.

Nils Fleming  
  
 Metrologist

Reviewed by:  
 Mark Nicollet  
  
 Quality Manager