



Receipt Date: June 22, 2017  
 Cal. Date: June 26, 2017  
 Report Date: June 26, 2017

Report No.: 337874  
 Serial No.: 00-13651-15  
 Barcode: 201325

## Calibration Certificate

**PETROLEUM CALIBRATION SERVICE**  
 203 E HWY 61  
 ESKO, MN 55733  
 Contact: GENE LEWIS  
 Phone: 218-213-6556  
 PO Number: NONE  
 Procedure: NIST SOP 19  
 Technician ID: 11

Item(s) Submitted: 5 Gallon Prover  
 Manufacturer: Seraphin  
 Material: Stainless Steel  
 Type: No Bottom Zero  
 Condition: Good  
 Temperature: 21.7 °C  
 Pressure: 741.8 mmHg  
 Relative Humidity: 44.5 %  
 Standard H<sub>2</sub>O Temp.: 17.6 °C  
 Artifact H<sub>2</sub>O Temp.: 17.6 °C

Nominal Volume (gal)		Calibrated Volume (gal)	Error (in <sup>3</sup> )	k	U (in <sup>3</sup> )	CCE (°F)
5	As Found	4.99962	-0.09	2.06	0.25	0.0000265
	As Left	4.99962	-0.09			

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

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

The vessel listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

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

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

Pete Whebbe

Metrologist

Reviewed by:

Erik Alfvin

Metrologist





Receipt Date: June 22, 2017  
 Cal. Date: June 26, 2017  
 Report Date: June 26, 2017

Report No.: 337873  
 Serial No.: 49433-A  
 Barcode: 201323

## Calibration Certificate

**PETROLEUM CALIBRATION SERVICE**  
 203 E HWY 61  
 ESKO, MN 55733  
 Contact: GENE LEWIS  
 Phone: 218-213-6556  
 PO Number: NONE  
 Procedure: NIST SOP 19  
 Technician ID: 11

Item(s) Submitted: 5 Gallon Prover  
 Manufacturer: Seraphin  
 Material: Stainless Steel  
 Type: No Bottom Zero  
 Condition: Good  
 Temperature: 21.7 °C  
 Pressure: 741.8 mmHg  
 Relative Humidity: 44.5 %  
 Standard H<sub>2</sub>O Temp.: 17.4 °C  
 Artifact H<sub>2</sub>O Temp.: 17.5 °C

Nominal		Calibrated			
Volume (gal)		Volume (gal)	Error (in <sup>3</sup> )	<i>k</i>	U (in <sup>3</sup> ) CCE (°F)
5	As Found	4.99926	-0.17	2.06	0.25 0.0000265
	As Left	4.99926	-0.17		

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

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

The vessel listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

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

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

Pete Whebbe

Metrologist

Reviewed by:

Erik Alfvén

Metrologist



Receipt Date: June 22, 2017  
Cal. Date: June 26, 2017  
Report Date: June 26, 2017

Report No.: 337872  
Serial No.: 49433-C  
Barcode: 201324

## Calibration Certificate

PETROLEUM CALIBRATION SERVICE  
203 E HWY 61  
ESKO, MN 55733  
Contact: GENE LEWIS  
Phone: 218-213-6556  
PO Number: NONE  
Procedure: NIST SOP 19  
Technician ID: 11

Item(s) Submitted: 5 Gallon Prover  
Manufacturer: Seraphin  
Material: Stainless Steel  
Type: No Bottom Zero  
Condition: Good  
Temperature: 21.7 °C  
Pressure: 741.8 mmHg  
Relative Humidity: 44.5 %  
Standard H<sub>2</sub>O Temp.: 17.5 °C  
Artifact H<sub>2</sub>O Temp.: 17.6 °C

Nominal		Calibrated				
Volume (gal)		Volume (gal)	Error (in <sup>3</sup> )	<i>k</i>	U (in <sup>3</sup> )	CCE (°F)
5	As Found	5.00056	0.13	2.06	0.25	0.0000265
	As Left	5.00056	0.13			

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

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

The vessel listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

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

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

Pete Whebbe

Metrologist

Reviewed by:

Erik Alfvin

Metrologist

United States Department of Commerce  
National Institute of Standards and Technology

Certificate of Metrological Traceability For:

# Minnesota

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


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

### Scope

<b>Mass Echelon I</b> 10 kg to 1 mg	<b>Mass Echelon III</b> 50 kg to 1 mg 5000 lb to 0.001 lb 4 oz to 0.03125 oz	<b>Volume Gravimetric, I</b> 20 L to 10 mL 100 gal to 0.25 qt
<b>Mass Echelon II</b> 50 kg to 1 mg 1000 lb to 0.001 lb 4 oz to 0.03125 oz	<b>Weight Carts</b> 10 000 lb to 2000 lb	<b>Volume Transfer, II</b> 1500 gal to 5 gal 100 gal to 25 gal LPG
	<b>Wheel Load Weighers</b> 20 000 lb to 2000 lb	
	<b>Railroad Test Cars</b> 110 000 lb to 80 000 lb	



2017

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

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

Amended: 2016-12-31

Scope modified for 2017.