



APPLICATION FOR REGISTRATION AS A REGISTERED SERVICE COMPANY
 Public Service Commission
 SFN 51277 (2/2014)



TYPE OR PRINT - AN INCOMPLETE OR ILLEGIBLE APPLICATION WILL BE REJECTED

Name of Company Seneca Companies	Email Address khankins@senecaco.com	Application Date 11-23-14	
Mailing Address 4140 E. 14 th St.	City Des Moines	State IA	Zip Code 50313
Telephone Number 515-262-5000	Cell Phone Number	Fax Number 816-761-8351	

Select below all device types your company will certify:

Scales (include maximum capacity, if applicable)	Liquid (include maximum flow rate, if applicable)
<input type="checkbox"/> 1. Rail <input type="checkbox"/> 2. Truck <input type="checkbox"/> 3. Livestock <input type="checkbox"/> 4. Hopper: Max. Capacity: _____ <input type="checkbox"/> 5. Belt <input type="checkbox"/> 6. Over 30 lbs.: Max. Capacity: _____ <input type="checkbox"/> 7. 30 lbs. or less <input type="checkbox"/> 8. Class II (indicate on your calibration report which weight kit is Class II certified) <input type="checkbox"/> 9. Other: Please List:	<input checked="" type="checkbox"/> 1. Retail Fuel (less than 20 gal. per minute) <input checked="" type="checkbox"/> 2. High Flow Retail Fuel (20 gal. per minute or greater) <input type="checkbox"/> 3. Vehicle Tank: Max. Flow Rate: _____ <input type="checkbox"/> 4. Stationary Bulk (fuel or oil): Max. Flow Rate: _____ <input type="checkbox"/> 5. LPG <input type="checkbox"/> 6. Stationary LPG <input type="checkbox"/> 7. Fertilizer: Max. Flow Rate: _____ <input type="checkbox"/> 8. Chemical <input type="checkbox"/> 9. Anhydrous <input type="checkbox"/> 10. Loading Rack <input type="checkbox"/> 11. Other: Please List:

List below all persons employed by your company as a North Dakota Registered Service Person and the device types they are registered to certify (attach a separate sheet to list additional employees):

Permit No.	Employee	Device Types Registered to Certify (list using device type numbers from above)
e.g. 1001	e.g. John Doe	e.g. Scales - 2, 3, 6, 8; e.g. Liquid - 1, 2, 6
1747	William Rogers	Liquid - 1, 2

Continued on Page 2



List below all field standards (attach current calibration reports):

5 gal Seraphin # 12-90054	
100 gal prover # 11-53949-01	

Additional Application Items (initial where appropriate):

Standardized Test Report	<input type="checkbox"/> Copy enclosed
	<input checked="" type="checkbox"/> No change in report filed previously
Tested and Approved Sticker	<input type="checkbox"/> Copy enclosed
	<input checked="" type="checkbox"/> No change in sticker filed previously
Photocopy of Crimped Lead Wire Seal	<input type="checkbox"/> Copy enclosed
	<input checked="" type="checkbox"/> No change in crimped lead wire seal filed previously

Public Company Listing:

Include my company information on your registered service company list for public contact.

Yes No

I am Keri Hankins, and have authority to represent this company. By signing this application, I declare that I have examined this form and accompanying documentation, and to the best of my knowledge and belief, the facts stated and documentation provided is true, correct, and complete.

Keri Hankins
Signature

Send Completed Application and Related Documents To:

Public Service Commission
600 E Boulevard Ave Dept 408
Bismarck ND 58505-0480
Telephone: (701) 328-2400
Fax: (701) 328-2410

North Dakota

nd.gov Official Portal for
North Dakota State GovernmentNorth Dakota
LEGISLATURE

SECRETARY OF STATE NORTH DAKOTA

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SENECA COMPANIES, INC.

Corporation Details

System ID: 26034400**Phone:** (515) 264-4330**Type:** FOREIGN BUSINESS CORPORATION**Status:** Active & Good Standing**Original File Date:** 01/17/2012**Effective Date:** 01/17/2012**State of Origin:** Iowa

Nature of Business

GENERAL CONTRACTING SERVICES, PETROLEUM EQUIPMENT SALES

Principal Office

4140 E 14TH ST DES MOINES, IA 50313-3804

Registered Agent

C T CORPORATION SYSTEM

314 E THAYER AVE

BISMARCK, ND 58501-4018

Established Date: Jan 17, 2012

Generate an Annual Report To File

To Generate a Annual Report form to be filed with the Secretary of State, select the appropriate year of the report you intend to file. This report does not contain details of a report previously filed with the Secretary of State. The annual report years reflected are an indication of the various report forms available in this site and is not an indication that an entity needs to file reports for all years. Missing years indicate that the forms for the missing year have not yet been deployed to the website, or have already been removed, and can be obtained by contacting the Secretary of State.

[2016](#) (generates a forms-fillable pdf in a new pop-up window)[Return to Search Results](#)[Contact Us](#)[Disclaimer](#)[Privacy Policy](#)

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Receipt Date: September 20, 2016
Cal. Date: September 21, 2016
Report Date: September 21, 2016

Report No.: 336519
Serial No.: 12-90054
Barcode: 202392

Calibration Certificate

SENECA COMPANIES
4140 E 14TH ST
DES MOINES, IA 50313
Contact: Chris Cummings
Phone: 800-369-5500
PO Number: None
SOP: 19
Technician ID: 19

Item(s) Submitted: 5 Gallon Measure
Manufacturer: Seraphin
Material: Stainless Steel
Type: Measure
Condition: Good
Temperature: 23.5 °C
Pressure: 738.1 mmHg
Relative Humidity: 61.7 %
Standard H₂O Temp.: 22.6 °C
Artifact H₂O Temp.: 22.6 °C

Nominal Volume (gal)	Calibrated			k	U (in ³)	CCE (°F)
	As Found	Volume (gal)	Error (in ³)			
5	As Found	5.0000	-0.01	2.06	0.24	0.0000265
	As Left	5.0000	-0.01			

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

This measure has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds followed by a drain time of 10 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

Erik Alfvin

Metrologist

Reviewed by:
Mark Nicollet

Quality Manager

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

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



2016 to 2017

A handwritten signature in black ink, appearing to read "Carol T. Hockett".

Carol T. Hockett, Chief
NIST Office of Weights and Measures

Effective Dates: 2016-01-01 to 2017-12-31

DSM 100 gal prover



Refined Fuel Prover Calibration Certificate 14675

Missouri Department of Agriculture
Weights, Measures & Consumer Protection Division, Metrology Laboratory
Location: 1616 Missouri Blvd., Jefferson City, MO 65109
Mailing Address: PO Box 630 Jefferson City, MO 65102
Email: tom.hughes@mda.mo.gov kevin.hanson@mda.mo.gov

Certificate Expires

March 2018



Seneca Companies Inc, 4140 E 14th St, Des Moines, IA 50313
Customer Number: 335 Submission Date: 3/28/16 Calibration Date: 3/28/16

Volumetric Prover Information

100 gal, stainless steel, Manufacturer Seraphin, Serial 11-53949-01, NIST HB105-3:2010 conformance: yes
Left Gauge ±175 x 5 in³ No Right Gauge

Method and Traceability

The SI unit for volume is the cubic meter (m³) 1 m³ = 1000 L and 1 L = 0.264172 gal

The National Institute of Standards and Technology (NIST) IR 7383 Standard Operating Procedure (SOP) 19: Calibration of Graduated Neck-Type Metal Provers Volume transfer Method. The laboratory standards are traceable to the international system of units (SI) through NIST. The laboratory has demonstrated measurement proficiency through training and interlaboratory comparisons compliant to *NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories (ISO/IEC 17025:2010).*

Uncertainty Information

[Link Kragten EURACHEM / CITAC Guide CG 4](#)

[Link to NIST SOPs](#)

The *Kragten* uncertainty method calculates the impact of each variable in the measurement equation by changing each variable by its associated uncertainty quantity. These impact estimates are combined by root sum square to calculate the measurement uncertainty which is then expanded by multiplying the result by a coverage factor¹ (k) from the *Student's t distribution table* according to the measurement degrees of freedom² (df) associated with a 95.45 % confidence interval.

Range of the Environmental Conditions During Test

Temperature 8.9 (°C) Barometric Pressure 750.7 (mmHg) Relative Humidity 60.0 (%)

Prover was adjusted "to deliver" 100 gallons at 60 °F and nominal gauge (to deliver means the prover is used in a wetted down condition).

Prover Test Information

Tolerance: NIST Handbook 105-3. Specifications and Tolerances for Graduated Neck Type Volumetric Field Standards
City tap water was the test medium used and the water temperature range during test was 54.1 to 54.4 (°F)

Prover volume at 60 °F (as found 100.032 gal) (after adjustment 100.000 gal) (Prover CCE: 0.0000265/°F)

¹Uncertainty k factor is 2.035 (calculated using the Excel TINV function) [two tailed probability 0.0455; TINV(0.0455,df)]

²Degrees of freedom associated with this calibration are 73 (number of 100 gal provers calibrated to date)

Measurement uncertainty is ± 0.012 gal, 2.8 in³, or 0.045 L

Metrology Laboratory Standard(s) Used For The Calibration

Seraphin graduated neck prover: serial number 05-40128; volume at 60 °F = 100 gal; CCE = 0.0000265/°F

Calibrated by: Tom Hughes

Lab Manager

Kevin Hanson

Remarks

The results in this report only apply to the prover calibrated (Seraphin 100 gal Serial number 11-53949-01). This document shall not be reproduced except in full or used to claim product endorsement by this laboratory without written approval from the Missouri Metrology



3.2 Multiple Deliveries

3.2.1 Calculate V_{x60} , the volume of the unknown prover at 60 °F, using the following equation:

Eqn. 3

$$V_{x60} = \frac{\rho_1\{(V_{S60} + \Delta_1)[1+\alpha(t_1-60^\circ\text{F})]\} + \rho_2\{(V_{S60} + \Delta_2)[1+\alpha(t_2-60^\circ\text{F})]\} + \dots + \rho_N\{(V_{S60} + \Delta_N)[1+\alpha(t_N-60^\circ\text{F})]\}}{\rho_x[1+\beta(t_x-60^\circ\text{F})]}$$

Where:

V_{x60} = Volume of the unknown vessel at 60 °F (X)

V_{S60} = Volume of the standard vessel at 60 °F (S)

$\rho_1, \rho_2, \dots, \rho_N$ = Density of the water in the standard where ρ_1 is the density of the water for the first delivery, ρ_2 is the density of the water for the second delivery, and so on until all N deliveries are completed

$\Delta_1, \Delta_2, \dots, \Delta_N$ = Volume differences between the water level and the reference mark on the standard with the subscripts as above

t_1, t_2, \dots, t_N = Temperature of water for each delivery with the subscripts as above

α = Coefficient of cubical expansion for the standard (S)

β = Coefficient of cubical expansion for the prover (X)

t_x = Temperature of water in the filled prover (X)

ρ_x = Density of water in the prover (Tanaka, Girard, Davis, Peuto, Bignell (2001))

Water Density Equation, Tanaka, Girard, Davis, Peuto, Bignell (2001)

Density ρ of de-aerated SMOW at a pressure of 101325 Pa and at a temperature t expressed in terms of the ITS-90 is given as:

$$\rho = \alpha_5 \left(\frac{1 - \frac{(t+\alpha_1)^2(t+\alpha_2)}{\alpha_3(t+\alpha_4)}}{1000 \text{ (conversion to g/cm}^3\text{)}} \right)$$

Correction for air saturated water

$$\left(\frac{-4.612 + 0.106 \times t}{1000000 \text{ (conversion to g/cm}^3\text{)}} \right)$$

Where: t = the temperature of the water in °C

$\alpha_1/^\circ\text{C} = -3.983035 \pm 0.00067$

$\alpha_2/^\circ\text{C} = 301.797$

$\alpha_3/^\circ\text{C} = 522528.9$

$\alpha_4/^\circ\text{C} = 69.34881$

$\alpha_5/(\text{kg m}^{-3}) = 999.974950 \pm 0.00084$

Excel Format	Tanaka, Girard, Davis, Peuto, Bignell (2001)	+ Correction for air saturated water
((999.97495*(1-(((t+3.983035)^2*(t+301.797))/(522528.9*(t+69.34881)))))/1000)		+((-4.612+0.106*t)/1000000)



Certificate 14675; ADJUSTED 100 gallon prover serial: 11-53949-01; CCE: 0.0000265/°F; Date: 3/28/16

Formula to Calculate the CCE Temperature Correction Prover Reference Temperature 60 °F

$$\text{CCE} \times (\text{Product Temp } ^\circ\text{F} - \text{Ref Temp } ^\circ\text{F}) \times \text{Prover Nominal}$$

$$0.0000265 \times (-20 - 60) \times 100.000 = -0.212 \text{ gal} \quad \text{Conversion gal to in}^3 \text{ (gal} \times 231)$$

CCE Temperature Correction Table. *Add the correction to the prover neck scale reading based on the product temperature*

Product Temp °F	Correction in³	Product Temp °F	Correction in³	Product Temp °F	Correction in³	Product Temp °F	Correction in³
-20	-49.0	15	-27.5	50	-6.1	85	15.3
-19	-48.4	16	-26.9	51	-5.5	86	15.9
-18	-47.7	17	-26.3	52	-4.9	87	16.5
-17	-47.1	18	-25.7	53	-4.3	88	17.1
-16	-46.5	19	-25.1	54	-3.7	89	17.8
-15	-45.9	20	-24.5	55	-3.1	90	18.4
-14	-45.3	21	-23.9	56	-2.4	91	19.0
-13	-44.7	22	-23.3	57	-1.8	92	19.6
-12	-44.1	23	-22.6	58	-1.2	93	20.2
-11	-43.5	24	-22.0	59	-0.6	94	20.8
-10	-42.9	25	-21.4	60	0.0	95	21.4
-9	-42.2	26	-20.8	61	0.6	96	22.0
-8	-41.6	27	-20.2	62	1.2	97	22.6
-7	-41.0	28	-19.6	63	1.8	98	23.3
-6	-40.4	29	-19.0	64	2.4	99	23.9
-5	-39.8	30	-18.4	65	3.1	100	24.5
-4	-39.2	31	-17.8	66	3.7	101	25.1
-3	-38.6	32	-17.1	67	4.3	102	25.7
-2	-38.0	33	-16.5	68	4.9	103	26.3
-1	-37.3	34	-15.9	69	5.5	104	26.9
0	-36.7	35	-15.3	70	6.1	105	27.5
1	-36.1	36	-14.7	71	6.7	106	28.2
2	-35.5	37	-14.1	72	7.3	107	28.8
3	-34.9	38	-13.5	73	8.0	108	29.4
4	-34.3	39	-12.9	74	8.6	109	30.0
5	-33.7	40	-12.2	75	9.2	110	30.6
6	-33.1	41	-11.6	76	9.8	111	31.2
7	-32.4	42	-11.0	77	10.4	112	31.8
8	-31.8	43	-10.4	78	11.0	113	32.4
9	-31.2	44	-9.8	79	11.6	114	33.1
10	-30.6	45	-9.2	80	12.2	115	33.7
11	-30.0	46	-8.6	81	12.9	116	34.3
12	-29.4	47	-8.0	82	13.5	117	34.9
13	-28.8	48	-7.3	83	14.1	118	35.5
14	-28.2	49	-6.7	84	14.7	119	36.1
						120	36.7

United States Department of Commerce

National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Missouri

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.


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Scope

Mass Echelon II	Weight Carts
30 kg to 1 mg	6500 lb to 2000 lb
50 lb to 0.001 lb	Railroad Test Cars
4 oz to 0.03125 oz	110 000 lb to 80 000 lb
Mass Echelon III	Volume Transfer, II
250 kg to 1 mg	1500 gal to 5 gal
6500 lb to 0.001 lb	100 gal to 25 gal LPG
4 oz to 0.03125 oz	Grain Moisture
	19 % to 8 %



2016


Carol T. Hockett, Chief
NIST Office of Weights and Measures

Effective Dates: 2016-01-01 to 2016-12-31