



Your C.O.C. #: 586569-01-01

**Attention: Greg Feser**

Village of Tahsis  
977 South Maquinna Drive  
Box 219  
Tahsis, BC  
Canada VOP 1X0

**Report Date: 2019/11/04**  
Report #: R2806274  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B991408**

**Received: 2019/10/24, 10:00**

Sample Matrix: Drinking Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Alkalinity @25C (pp, total), CO <sub>3</sub> ,HCO <sub>3</sub> ,OH	1	N/A	2019/10/25	BBY6SOP-00026	SM 23 2320 B m
Chloride/Sulphate by Auto Colourimetry	1	N/A	2019/10/25	BBY6SOP-00011 / BBY6SOP-00017	SM23-4500-Cl/SO4-E m
Colour (True) by Kone Lab	1	N/A	2019/10/25	BBY6SOP-00057	SM 23 2120 C m
Conductivity @25C	1	N/A	2019/10/25	BBY6SOP-00026	SM 22 2510 B m
Fluoride	1	N/A	2019/10/25	BBY6SOP-00048	SM 23 4500-F C m
Sulphide (as H <sub>2</sub> S) (1)	1	N/A	2019/10/28	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO <sub>3</sub> ) (3)	1	N/A	2019/10/28	BBY WI-00033	Auto Calc
Mercury (Total) by CV	1	2019/10/28	2019/10/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Heterotropic Plate Count (MF) in Water	1	N/A	2019/10/24	BBY4SOP-00003	SM 22 9215
Iron Related Bacteria (4)	1	N/A	2019/10/24	BBY4SOP-00004	SM 22 9240 D
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2019/10/28	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	N/A	2019/10/26	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Nitrogen (Total)	1	N/A	2019/10/25	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Total) (2)	1	N/A	2019/10/29	AB SOP-00007	SM 23 4500 NH <sub>3</sub> A G m
Nitrate + Nitrite (N)	1	N/A	2019/10/25	BBY6SOP-00010	SM 23 4500-NO <sub>3</sub> - 1 m
Nitrite (N) by CFA	1	N/A	2019/10/25	BBY6SOP-00010	SM 23 4500-NO <sub>3</sub> - 1 m
Nitrogen - Nitrate (as N)	1	N/A	2019/10/25	BBY WI-00033	Auto Calc
Nitrogen (Tot. Organic) Calculation	1	N/A	2019/10/30	BBY WI-00033	Auto Calc
pH @25°C (5)	1	N/A	2019/10/25	BBY6SOP-00026	SM 22 4500-H+ B m
Sat. pH and Langelier Index (@ 4.4C)	1	N/A	2019/10/28	BBY WI-00033	Auto Calc
Sat. pH and Langelier Index (@ 60C)	1	N/A	2019/10/29	BBY WI-00033	Auto Calc
Total Sulphide (1)	1	N/A	2019/10/28	AB SOP-00080	SM 23 4500 S <sub>2</sub> -A D Fm
Sulphate Reducing Bacteria (4)	1	N/A	2019/10/24	BBY4SOP-00004	SM 22 9240 D
Total Dissolved Solids (Filt. Residue)	1	2019/10/25	2019/10/29	BBY6SOP-00033	SM 23 2540 C m
Total Coliform & E.Coli by MF-Chromocult	1	N/A	2019/10/24	BBY4SOP-00143	Merck KGaA Version 1
Carbon (Total Organic) (1, 6)	1	N/A	2019/10/30	AB SOP-00087	MMCW 119 1996 m
Turbidity	1	N/A	2019/10/24	BBY6SOP-00027	SM 23 2130 B m
UV absorbance @254nm-Unfiltered (1, 7)	1	N/A	2019/10/25	CAL SOP-00274	SM 23 5910B m
UV transmittance @254nm-Unfiltered (1)	1	N/A	2019/10/25		Auto-Calc



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**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B991408**

**Received: 2019/10/24, 10:00**

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by BV Labs Calgary Environmental

(2) This test was performed by BV Labs Edmonton Environmental

(3) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(4) Presence/Absence Method. Number is an estimate.

(5) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

(6) TOC present in the sample should be considered as non-purgeable TOC.

(7) Sample(s) analyzed using methodologies that have been subjected to Bureau Veritas Laboratories' standard validation process for the submitted matrix however it is not an accredited method.



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Encryption Key



Bureau Veritas Laboratories  
04 Nov 2019 14:00:52

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Customer Solutions, Western Canada Customer Experience Team  
Email: customersolutionswest@bvlabs.com  
Phone# (604) 734 7276

=====  
This report has been generated and distributed using a secure automated process.  
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



**VIHA PKG, WELLS/SPRINGS - BURNABY (DRINKING WATER)**

BV Labs ID					WT9446		
Sampling Date					2019/10/22 08:30		
COC Number					586569-01-01		
	UNITS	MAC	AO	OG	TAHSIS WELL	RDL	QC Batch
<b>Misc. Inorganics</b>							
UV absorbance (254nm)	AU/cm	-	-	-	<0.010	0.010	9643618
<b>ANIONS</b>							
Nitrite (N)	mg/L	1	-	-	<0.0050	0.0050	9643735
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	-	-	-	41.7	0.50	9641181
Nitrate (N)	mg/L	10	-	-	0.072	0.020	9641925
Total Organic Nitrogen (N)	mg/L	-	-	-	<0.020	0.020	9642063
Sulphide (as H2S)	mg/L	-	0.05	-	<0.0020	0.0020	9641739
Transmittance at 254nm	%T/cm	-	-	-	>97.7	N/A	9642122
<b>Misc. Inorganics</b>							
Conductivity	uS/cm	-	-	-	94	2.0	9643609
pH	pH	-	-	7.0:10.5	7.48	N/A	9643608
Total Organic Carbon (C)	mg/L	-	-	-	<0.50	0.50	9647025
Total Dissolved Solids	mg/L	-	-	-	44	10	9642996
<b>Anions</b>							
Alkalinity (PP as CaCO3)	mg/L	-	-	-	<1.0	1.0	9643611
Alkalinity (Total as CaCO3)	mg/L	-	-	-	41	1.0	9643611
Bicarbonate (HCO3)	mg/L	-	-	-	50	1.0	9643611
Carbonate (CO3)	mg/L	-	-	-	<1.0	1.0	9643611
Dissolved Fluoride (F)	mg/L	1.5	-	-	<0.050	0.050	9643065
Hydroxide (OH)	mg/L	-	-	-	<1.0	1.0	9643611
Total Sulphide	mg/L	-	0.05	-	<0.0018	0.0018	9646421
Dissolved Chloride (Cl)	mg/L	-	250	-	2.0	1.0	9646424
Dissolved Sulphate (SO4)	mg/L	-	500	-	3.2	1.0	9646424
<b>MISCELLANEOUS</b>							
True Colour	Col. Unit	-	15	-	<5.0	5.0	9644381
<b>Nutrients</b>							
Total Ammonia (N)	mg/L	-	-	-	0.031	0.015	9648159
Nitrate plus Nitrite (N)	mg/L	-	-	-	0.072	0.020	9643734
Total Nitrogen (N)	mg/L	-	-	-	0.104	0.020	9643005
<b>Physical Properties</b>							
Turbidity	NTU	see remark	see remark	see remark	0.75	0.10	9642387
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
N/A = Not Applicable							



**VIHA PKG, WELLS/SPRINGS - BURNABY (DRINKING WATER)**

BV Labs ID					WT9446		
Sampling Date					2019/10/22 08:30		
COC Number					586569-01-01		
	UNITS	MAC	AO	OG	TAHSIS WELL	RDL	QC Batch
<b>Elements</b>							
Total Mercury (Hg)	ug/L	1	-	-	<0.0020	0.0020	9646306
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	ug/L	-	-	100	3.3	3.0	9643127
Total Antimony (Sb)	ug/L	6	-	-	<0.50	0.50	9643127
Total Arsenic (As)	ug/L	10	-	-	<0.10	0.10	9643127
Total Barium (Ba)	ug/L	1000	-	-	<1.0	1.0	9643127
Total Beryllium (Be)	ug/L	-	-	-	<0.10	0.10	9643127
Total Bismuth (Bi)	ug/L	-	-	-	<1.0	1.0	9643127
Total Boron (B)	ug/L	5000	-	-	<50	50	9643127
Total Cadmium (Cd)	ug/L	5	-	-	<0.010	0.010	9643127
Total Chromium (Cr)	ug/L	50	-	-	<1.0	1.0	9643127
Total Cobalt (Co)	ug/L	-	-	-	<0.20	0.20	9643127
Total Copper (Cu)	ug/L	2000	1000	-	1.73	0.20	9643127
Total Iron (Fe)	ug/L	-	300	-	7.1	5.0	9643127
Total Lead (Pb)	ug/L	5	-	-	<0.20	0.20	9643127
Total Manganese (Mn)	ug/L	120	20	-	<1.0	1.0	9643127
Total Molybdenum (Mo)	ug/L	-	-	-	<1.0	1.0	9643127
Total Nickel (Ni)	ug/L	-	-	-	<1.0	1.0	9643127
Total Selenium (Se)	ug/L	50	-	-	<0.10	0.10	9643127
Total Silicon (Si)	ug/L	-	-	-	3130	100	9643127
Total Silver (Ag)	ug/L	-	-	-	<0.020	0.020	9643127
Total Strontium (Sr)	ug/L	7000	-	-	25.6	1.0	9643127
Total Thallium (Tl)	ug/L	-	-	-	<0.010	0.010	9643127
Total Tin (Sn)	ug/L	-	-	-	<5.0	5.0	9643127
Total Titanium (Ti)	ug/L	-	-	-	<5.0	5.0	9643127
Total Uranium (U)	ug/L	20	-	-	<0.10	0.10	9643127
Total Vanadium (V)	ug/L	-	-	-	<5.0	5.0	9643127
Total Zinc (Zn)	ug/L	-	5000	-	8.4	5.0	9643127
Total Zirconium (Zr)	ug/L	-	-	-	<0.10	0.10	9643127
Total Calcium (Ca)	mg/L	-	-	-	13.4	0.050	9641182
Total Magnesium (Mg)	mg/L	-	-	-	1.96	0.050	9641182
Total Potassium (K)	mg/L	-	-	-	0.117	0.050	9641182
Total Sodium (Na)	mg/L	-	200	-	1.78	0.050	9641182
Total Sulphur (S)	mg/L	-	-	-	<3.0	3.0	9641182
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							



**VIHA PKG, WELLS/SPRINGS - BURNABY (DRINKING WATER)**

<b>BV Labs ID</b>					WT9446		
<b>Sampling Date</b>					2019/10/22 08:30		
<b>COC Number</b>					586569-01-01		
	<b>UNITS</b>	<b>MAC</b>	<b>AO</b>	<b>OG</b>	<b>TAHSIS WELL</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Microbiological Param.</b>							
Heterotrophic Plate Count	CFU/mL	-	-	-	<1	1	9642373
Iron Bacteria	CFU/mL	-	-	-	<25	25	9642376
Sulphate reducing bacteria	CFU/mL	-	-	-	<75	75	9642378
Total Coliforms	CFU/100mL	0	-	-	0	N/A	9642375
E. coli	CFU/100mL	0	-	-	0	N/A	9642375
<b>Calculated Parameters</b>							
Langelier Index (@ 4.4C)	N/A	-	-	-	-1.64	N/A	9642065
Langelier Index (@ 60C)	N/A	-	-	-	-0.600	N/A	9642066
Saturation pH (@ 4.4C)	N/A	-	-	-	9.12	N/A	9642065
Saturation pH (@ 60C)	N/A	-	-	-	8.08	N/A	9642066
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
N/A = Not Applicable							



### GENERAL COMMENTS

Sample WT9446 [TAHSIS WELL] : Sample received and analyzed past recommended hold time for Heterotropic Plate Count (MF) in Water. Sample received and analyzed past recommended hold time for Iron Related Bacteria. Sample received and analyzed past recommended hold time for Sulphate Reducing Bacteria. Sample received and analyzed past method specific hold time for Total Coliform & E.Coli by MF-Chromocult. MAC,AO,OG: The guidelines that have been included in this report have been taken from the Canadian Drinking Water Quality Summary Table, June 2019.

Criteria A = Maximum Acceptable Concentration (MAC) / Criteria B = Aesthetic Objectives (AO) / Criteria C = Operational Guidance Values (OG)  
It is recommended to consult these guidelines when interpreting your data since there are non-numerical guidelines that are not included on this report.

#### Turbidity Guidelines:

1. Chemically assisted filtration: less than or equal to 0.3 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 1.0 NTU at any time.
2. Slow sand / diatomaceous earth filtration: less than or equal to 1.0 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 3.0 NTU at any time.
3. Membrane filtration: less than or equal to 0.1 NTU in 99% of the measurements made or at least 99% of the time each calendar month. Shall not exceed 0.3 NTU at any time.
4. To ensure effectiveness of disinfection and for good operation of the distribution system, it is recommended that water entering the distribution system have turbidity levels of 1.0 NTU or less.

Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

**Results relate only to the items tested.**



BV Labs Job #: B991408  
Report Date: 2019/11/04

### QUALITY ASSURANCE REPORT

Village of Tahsis

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9642387	Turbidity	2019/10/24			96	80 - 120	<0.10	NTU	4.8	20
9642996	Total Dissolved Solids	2019/10/29	104	80 - 120	101	80 - 120	<10	mg/L	4.9	20
9643005	Total Nitrogen (N)	2019/10/25	NC	80 - 120	90	80 - 120	<0.020	mg/L	0.052	20
9643065	Dissolved Fluoride (F)	2019/10/25	109	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
9643127	Total Aluminum (Al)	2019/10/26	96	80 - 120	98	80 - 120	<3.0	ug/L	3.0	20
9643127	Total Antimony (Sb)	2019/10/26	98	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
9643127	Total Arsenic (As)	2019/10/26	99	80 - 120	100	80 - 120	<0.10	ug/L	2.7	20
9643127	Total Barium (Ba)	2019/10/26	100	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
9643127	Total Beryllium (Be)	2019/10/26	96	80 - 120	99	80 - 120	<0.10	ug/L		
9643127	Total Bismuth (Bi)	2019/10/26	98	80 - 120	102	80 - 120	<1.0	ug/L		
9643127	Total Boron (B)	2019/10/26	100	80 - 120	99	80 - 120	<50	ug/L	NC	20
9643127	Total Cadmium (Cd)	2019/10/26	99	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
9643127	Total Chromium (Cr)	2019/10/26	97	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
9643127	Total Cobalt (Co)	2019/10/26	97	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
9643127	Total Copper (Cu)	2019/10/26	95	80 - 120	100	80 - 120	<0.20	ug/L	1.4	20
9643127	Total Iron (Fe)	2019/10/26	100	80 - 120	106	80 - 120	<5.0	ug/L	0.033	20
9643127	Total Lead (Pb)	2019/10/26	105	80 - 120	107	80 - 120	<0.20	ug/L	NC	20
9643127	Total Manganese (Mn)	2019/10/26	101	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
9643127	Total Molybdenum (Mo)	2019/10/26	100	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
9643127	Total Nickel (Ni)	2019/10/26	99	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
9643127	Total Selenium (Se)	2019/10/26	101	80 - 120	104	80 - 120	<0.10	ug/L	1.3	20
9643127	Total Silicon (Si)	2019/10/26	NC	80 - 120	94	80 - 120	<100	ug/L	0.025	20
9643127	Total Silver (Ag)	2019/10/26	98	80 - 120	102	80 - 120	<0.020	ug/L	NC	20
9643127	Total Strontium (Sr)	2019/10/26	100	80 - 120	101	80 - 120	<1.0	ug/L	0.41	20
9643127	Total Thallium (Tl)	2019/10/26	100	80 - 120	103	80 - 120	<0.010	ug/L		
9643127	Total Tin (Sn)	2019/10/26	91	80 - 120	93	80 - 120	<5.0	ug/L		
9643127	Total Titanium (Ti)	2019/10/26	102	80 - 120	104	80 - 120	<5.0	ug/L		
9643127	Total Uranium (U)	2019/10/26	103	80 - 120	105	80 - 120	<0.10	ug/L	NC	20
9643127	Total Vanadium (V)	2019/10/26	97	80 - 120	99	80 - 120	<5.0	ug/L	0.35	20
9643127	Total Zinc (Zn)	2019/10/26	101	80 - 120	106	80 - 120	<5.0	ug/L	NC	20
9643127	Total Zirconium (Zr)	2019/10/26	102	80 - 120	101	80 - 120	<0.10	ug/L		
9643608	pH	2019/10/25			101	97 - 103			1.2	N/A
9643609	Conductivity	2019/10/25			99	80 - 120	<2.0	uS/cm		
9643611	Alkalinity (PP as CaCO3)	2019/10/25					<1.0	mg/L		





QUALITY ASSURANCE REPORT(CONT'D)

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9643611	Alkalinity (Total as CaCO <sub>3</sub> )	2019/10/25			96	80 - 120	<1.0	mg/L		
9643611	Bicarbonate (HCO <sub>3</sub> )	2019/10/25					<1.0	mg/L		
9643611	Carbonate (CO <sub>3</sub> )	2019/10/25					<1.0	mg/L		
9643611	Hydroxide (OH)	2019/10/25					<1.0	mg/L		
9643618	UV absorbance (254nm)	2019/10/25			93	N/A	<0.010	AU/cm	0.93	20
9643734	Nitrate plus Nitrite (N)	2019/10/25	103	80 - 120	107	80 - 120	<0.020	mg/L	0	25
9643735	Nitrite (N)	2019/10/25	97	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20
9644381	True Colour	2019/10/25			88	80 - 120	<5.0	Col. Unit	NC	20
9646306	Total Mercury (Hg)	2019/10/28	56 (1)	80 - 120	93	80 - 120	<0.0020	ug/L	NC	20
9646421	Total Sulphide	2019/10/28	93	80 - 120	88	80 - 120	<0.0018	mg/L	8.3	20
9646424	Dissolved Chloride (Cl)	2019/10/25	94	80 - 120	105	80 - 120	<1.0	mg/L	1.8	20
9646424	Dissolved Sulphate (SO <sub>4</sub> )	2019/10/25	100	80 - 120	107	80 - 120	<1.0	mg/L	1.5	20
9647025	Total Organic Carbon (C)	2019/10/30	110	80 - 120	105	80 - 120	<0.50	mg/L	NC	20
9648159	Total Ammonia (N)	2019/10/29	91	80 - 120	102	80 - 120	<0.015	mg/L	10	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Andy Lu, Ph.D., P.Chem., Scientific Specialist

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