Sarah Belisle
Senior Drinking Water Officer
Office of Drinking Water
Conservation and Water Stewardship
Unit B – 284 Reimer Avenue
Steinbach, MB R5G 0R5

March 1, 2023

Ms. Belisle,

Re: 2022 Kleefeld Public Water System Report

Please find attached our annual Public Water System Report for the Community of Kleefeld.

This report was posted on our website at **www.hanovermb.ca** on March 10, 2023 and hard copies were made available from our R.M.'s office at 28 Westland Drive in Mitchell, Manitoba. We notified residents that this report is available through our Facebook page.

If you have any questions or concerns, please contact Rob Driedger.

Sincerely,

Rob Driedger, C.E.T.
Manager of Engineering & Utilities
Phone: 204-346-7121
E-Mail: rob.driedger@hanovermb.ca

Kleefeld Public Water System
Annual Report

2022

Rural Municipality of Hanover
March 1, 2023

Kleefeld Public Water System Annual Report

2022

March 1, 2023

Name of Public Water System: Kleefeld Public Water System

Name of legal owner: The Rural Municipality of Hanover

Contact: Rob Driedger, C.E.T., Manager of Engineering & Utilities
Phone: (204) 346-7121
E-Mail: rob.driedger@hanovermb.ca

Website: www.hanovermb.ca

Water Systems Emergency #: (204) 326-4488

Name of Operators: Barry Broesky, Utility Operator, Class II
Phone: (204) 371-0484
E-Mail: barry.broesky@hanovermb.ca

Rob Friesen, Utility Operator, Class II
Phone: (204) 371-8236
E-Mail: rob.friesen@hanovermb.ca

Table of Contents

Introduction

The 2022 Annual Report for the Town of Kleefeld summarizes the Water utility's ability to produce safe potable water and to meet Provincial regulations.

1. Description of Water System

The Kleefeld Public Water System provides potable drinking water to approximately 2020 residents within the community. Treated water produced at the water plant meets all aesthetic objectives as set forth in the Guidelines for *Canadian Drinking Water Quality*.

1.1 Water Supply Source

The Kleefeld Public Water System receives groundwater from one main drilled well as a well as a back-up well. Both wells draw from a water source at roughly 170 feet to 180 feet below the ground surface. Then main well in use at the time produces water at approximately 15.2 L/sec and this raw water is pumped to the water treatment plant reservoir. The raw water does contain some iron and manganese that it picks up in the rock aquifer but these metals do not pose any health concerns.

1.2 Intake Structures

Not applicable.

1.3 Water Treatment Process

As the raw water enters the water treatment plant it is immediately treated with Chlorine and UV for disinfection along with HIB-5, which is an iron sequester which keeps any iron particles from settling out of the water causing staining in the piping. Once treated, the water is then stored in a 600,000 litre reservoir from where it can then be distributed throughout the watermain system.

1.4 Distribution System

Treated water from the reservoir is pumped through the mains into the distribution system via a 3hp jockey pump, 2-10hp duty pumps and a 30hp duty fire pump. The pumps distribute the water at pressures of around 55psi through 50mm, 100mm, 150mm and 250mm watermains throughout the community. The watermains currently consists of either an AC or poly high density pipe construction.

1.5 Storage Reservoirs

As indicated above the storage reservoir is 600,000 liter concrete reservoir.

1.6 Number of Connections, Population Served and Types of Water Users

There are currently has 575 water connections with an estimated population in the community of 2020 people.

1.7 Classification and Certification

The Kleefeld Water Treatment Plant is classified as a Class 1 Water Treatment Facility and is currently operated by two utility operators with certification under the Environmental Act's Water and Wasterwater Facility Operators Regulation. *(See Appendix A – Operator Certification)*

In addition the plant is regulated under license number PWS-21-655 and complies with The Drinking Water Safety Act.

2. Disinfection System in Use

2.1 Type of Disinfection System Used

The Kleefeld Public Water System disinfects by adding 12% sodium hypochlorite solution to the water via a chlorinator pump. This produces a monochloramination disinfection that is complimented by two Ultra Violet Reactors that were installed in the summer of 2020.

2.2 Equipment Redundancy and Monitoring Requirements

As required by the *Drinking Water Safety Act*, the Kleefeld Public Water System ensures continuous disinfection as maintained at the plant by keeping stock of all spare parts required for the chlorinator. In addition, a complete spare chlorinator is kept at the plant.

Disinfectant residuals are monitored daily at the water treatment plant and periodically in the distribution system and recorded on the appropriate monitoring forms. Monthly monochloramine and UV report forms are sent to the regional Drinking Water Officer at the end of each month.

2.3 Disinfectant Residual Overall Performance Results

For 2022, the Kleefeld Public Water System was compliant in the audited time period.

3. List of Water Quality Standards

The Province of Manitoba has adopted a number of water quality standards from the *Guidelines for Canadian Drinking Water Quality,* developed by Health Canada. The parameters are health-based and they express the maximum acceptable concentration for a groundwater supply source. Concentration values in excess constitute a health-related issue and require corrective actions. The results for the Kleefeld Public Water System are summarized in the following table. It should be noted that of the four Barium tests taken from the mid-point of the distribution system, and the Nitrate Nitrite sample from a dead end with in the distribution system, during 2022. The general chemistry results were taken in 2020.

Table : 1 Water Quality Results

SOURCE	PARAMETER	STANDARD	FREQUENCY	TEST RESULTS
GROUND WATER	Total Coliform	No TC	Bi-Weekly	100%
	E. Coli	No EC	Bi-Weekly	100%
	Monochloromine	A monochlormine residual of at least 1.0 mg/l in water entering the distribution system and at least 0.3 mg/l at all tunes at any point in the distribution system	Daily	100%
	Ultraviolet Disinfection	95% of water produced per month is disinfected within validated conditions	Continuous monitoring of UV dosage for each operating UV unit	100%
	Barium	2.0 mg/l	One sample taken Quarterly at the mid-point in the distribution system in the months of February, May, August, and November each year	1.81 mg/l 1.84 mg/l 1.50 mg/l 1.99 mg/l
	Nitrate	45 mg/l	One sample taken during July or August every year at a dead end sampling location in the distribution system	0.066 mg/l
	Nitrite	3 mg/l		0.019 mg/l

Table : 2 Water Quality Results General Chemistry

SOURCE	PARAMETER	STANDARD	FREQUENCY	TEST RESULTS
GROUND WATER	Arsenic	Less then or equal to 0.01 mg/L	One Raw and one treated sample done once every three years. (These results were taken Aug. 2020)	raw - 0.00331 mg/L treated - 0.00189 mg/L
	Benzene	Less then or equal to 0.005 mg/L		raw - <0.00050 mg/L
	Ethylbenzene	Less then or equal to 0.14 mg/L		raw - <0.00050 mg/L
	Flouride	Less then or equal to 1.5 mg/L		raw - 0.353 mg/L treated - 0.345 mg/L
	Lead	Less then or equal to 0.01 mg/L in the water distribution system		raw -< 0.000050 mg/L treated - 0.000070 mg/L
	Manganese	Less thenor equal to 0.12 mg/L		raw - 0.0308 mg/L treated - 0.00242 mg/L
	Trichloroethylene	Less then or equal to 0.005 mg/L		raw - <0.00050 mg/L
	Tetrachloroethylene	Less then or equal to 0.01 mg/L		raw - <0.00050 mg/L
	Toluene	Less then or equal to 0.06 mg/L		raw - <0.00050 mg/L
	Total Xylenes	Less then or equal to 0.09 mg/L		raw - <0.00064
	Uranium	Less then or equal to 0.02 mg/L		raw - <0.000010 treated - <0.000010

4. Water System Failures and Corrective Actions in 2022

None

5. Additional Records Required

Still working with Indus Automation to get the online UV reporting to work properly.

Re Assessment of the WTP is currently being done. Will be completed in 2023. As per section 2.5 of the Operating License.

6. **Drinking Water Safety Order on your System and Actions Taken in Response**

   None

7. **Warnings Issues or Charges Laid on the System in Accordance with the Drinking Water Safety Act**

   None

8. **Water Quality Advisories**

   None

9. **Major Expenses Incurred in 2022**

   None

10. **Future System Expansion and/or Increased Population**

    The community of Kleefeld continues to see rapid growth. Developments in the west and North side of town continue to expand and will grow in 2023. The R.M of Hanover with the assistance of Friesen Drillers has applied for a new Water Rights License with the province.

11. **Appendix**
    a. Operators Certification
    b. Testing Summary
    c. Analyses
    d. Operating License for Public Water System
    e. Monochloramine and UV Reports

Appendix A

Operator Certification

Water and Wastewater Facility Operators Certification Program

This is to certify

Barry A. Broesky

has qualified as a

Water Treatment	*Class II*
Water Distribution	*Class II*
Wastewater Treatment	*Class II*
Wastewater Collection	*Class II*

Operator

in accordance with the Water and Wastewater Facility Operators Regulation under *The Environment Act.*

Dated at Winnipeg, Manitoba **this** 7th **day of** April 2020.

Certificate No.: 2009-312
Expires: 2025 April 7
Operator ID: 00107

S. Koivu

Director
Manitoba Conservation and Climate

Manitoba

Water and Wastewater Facility Operators Certification Program

This is to certify

Robert J. Friesen

has qualified as a

Water Treatment	*Class II*
Water Distribution	*Class II*
Wastewater Treatment	*Class II*
Wastewater Collection	*Class II*

Operator

in accordance with the Water and Wastewater Facility Operators Regulation under *The Environment Act.*

Dated at Winnipeg, Manitoba **this** 9th **day of** December 2020.

Certificate No.: 2015-260
Expires: 2025 December 9
Operator ID: 02505

S. Kaiser

Director
Manitoba Conservation and Climate

Manitoba

Appendix B

Testing Summary

DWO Officer	Community Code	TC	EC	BA	NITRATE/ NITRITE	Collection Date	Sample Identification	Sample Number
SARAH	104.00	0	0			11-Jan-22	KLEEFELD 1 - RAW	L-2678273
SARAH	104.00	0	0			11-Jan-22	KLEEFELD 2 - TREATED	L-2678273
SARAH	104.00	0	0			11-Jan-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2678273
SARAH	104.00	0	0			25-Jan-22	KLEEFELD 1 - RAW	L-2681351
SARAH	104.00	0	0			25-Jan-22	KLEEFELD 2 - TREATED	L-2681351
SARAH	104.00	0	0			25-Jan-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2681351
SARAH	104.00	0	0			08-Feb-22	KLEEFELD 1 - RAW	L-2684490
SARAH	104.00	0	0			08-Feb-22	KLEEFELD 2 - TREATED	L-2684490
SARAH	104.00	0	0			08-Feb-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2684490
SARAH	104.00			1.81		24-Feb-21	KLEEFELD 2 - DISTRIBTION Midpoint 22 Aspen Drive	L-2684664
SARAH	104.00	0	0			22-Feb-21	KLEEFELD 1 - RAW	L-2687581
SARAH	104.00	0	0			22-Feb-21	KLEEFELD 2 - TREATED	L-2687581
SARAH	104.00	0	0			22-Feb-21	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2687581
SARAH	104.00	0	0			08-Mar-21	KLEEFELD 1 - RAW	L-2691024
SARAH	104.00	0	0			08-Mar-21	KLEEFELD 2 - TREATED	L-2691024
SARAH	104.00	0	0			08-Mar-21	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2691024
SARAH	104.00	0	0			22-Mar-22	KLEEFELD 1 - RAW	L-2694042
SARAH	104.00	0	0			22-Mar-22	KLEEFELD 1 - TREATED	L-2694042
SARAH	104.00	0	0			22-Mar-22	KLEEFELD 2 - DISTRIBTION @ MAIN ST	L-2694042
SARAH	104.00	0	0			05-Apr-22	KLEEFELD 1 - RAW	L-2697206
SARAH	104.00	0	0			05-Apr-22	KLEEFELD 2 - TREATED	L-2697206
SARAH	104.00	0	0			05-Apr-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2697206
SARAH	104.00	0	0			19-Apr-21	KLEEFELD 1 - RAW	L-2700023
SARAH	104.00	0	0			19-Apr-21	KLEEFELD 2 - TREATED	L-2700023
SARAH	104.00	0	0			19-Apr-21	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2700023
SARAH	104.00	0	0			05-Mar-22	KLEEFELD 1 - RAW	L-2703238
SARAH	104.00	0	0			05-Mar-22	KLEEFELD 2 - TREATED	L-2703238
SARAH	104.00	0	0			05-Mar-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2703238
SARAH	104.00	0	0			10-May-22	KLEEFELD - DISTRIBUTION Kleefeld Park	L-2705150
SARAH	104.00	0	0			11-May-22	KLEEFELD - DISTRIBUTION Kleefeld Park	L-2705718
SARAH	104.00	0	0			17-May-22	KLEEFELD 1 - RAW	L-2707425
SARAH	104.00	0	0			17-May-22	KLEEFELD 2 - TREATED	L-2707425
SARAH	104.00	0	0			17-May-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2707425
SARAH	104.00			1.84		17-May-22	KLEEFELD 2 - DISTRIBTION Midpoint 22 Aspen Drive	L-2707213
SARAH	104.00	0	0			31-May-22	KLEEFELD 1 - RAW	L-2711143
SARAH	104.00	0	0			31-May-22	KLEEFELD 2 - TREATED	L-2711143
SARAH	104.00	0	0			31-May-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2711143
SARAH	104.00	0	0			14-Jun-22	KLEEFELD 1 - RAW	L-2715193
SARAH	104.00	0	0			14-Jun-22	KLEEFELD 2 - TREATED	L-2715193
SARAH	104.00	0	0			14-Jun-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2715193
SARAH	104.00	0	0			28-Jun-22	KLEEFELD 1 - RAW	L-2718990
SARAH	104.00	0	0			28-Jun-22	KLEEFELD 2 - TREATED	L-2718990
SARAH	104.00	0	0			28-Jun-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2718990
SARAH	104.00	0	0			12-Jul-22	KLEEFELD 1 - RAW	L-2721974
SARAH	104.00	0	0			12-Jul-22	KLEEFELD 2 - TREATED	L-2721974
SARAH	104.00	0	0			12-Jul-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2721974
SARAH	104.00	0	0			26-Jul-22	KLEEFELD 1 - RAW	L-2725050
SARAH	104.00	0	0			26-Jul-22	KLEEFELD 2 - TREATED	L-2725050
SARAH	104.00	0	0			26-Jul-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2725050
SARAH	104.00	0	0			09-Aug-22	KLEEFELD 1 - RAW	L-2727566
SARAH	104.00	0	0			09-Aug-22	KLEEFELD 2 - TREATED	L-2727566
SARAH	104.00	0	0			09-Aug-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2727566
SARAH	104.00			1.5		09-Aug-22	KLEEFELD 3 - DISTRIBUTION @ 13 Beechwood Barlum	L-2727623
SARAH	104.00				0.085	09-Aug-22	KLEEFELD 1 - DISTRIBUTION @ 26025 Hanover Road	L-2727620
SARAH	104.00	0	0			23-Aug-22	KLEEFELD 1 - RAW	L-2729847
SARAH	104.00	0	0			23-Aug-22	KLEEFELD 2 - TREATED	L-2729847
SARAH	104.00	0	0			23-Aug-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2729847
SARAH	104.00	0	0			06-Sep-22	KLEEFELD 1 - RAW	L-2731711
SARAH	104.00	0	0			06-Sep-22	KLEEFELD 2 - TREATED	L-2731711
SARAH	104.00	0	0			06-Sep-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2731711
SARAH	104.00	0	0			20-Sep-22	KLEEFELD 1 - RAW	L-2733651
SARAH	104.00	0	0			20-Sep-22	KLEEFELD 2 - TREATED	L-2733651
SARAH	104.00	0	0			20-Sep-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2733651
SARAH	104.00	0	0			04-Oct-22	KLEEFELD 1 - RAW	L-2735583
SARAH	104.00	0	0			04-Oct-22	KLEEFELD 2 - TREATED	L-2735583
SARAH	104.00	0	0			04-Oct-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2735583
SARAH	104.00	0	0			18-Oct-22	KLEEFELD 1 - RAW	L-2737245
SARAH	104.00	0	0			18-Oct-22	KLEEFELD 2 - TREATED	L-2737245
SARAH	104.00	0	0			18-Oct-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2737245
SARAH	104.00	0	0			01-Nov-22	KLEEFELD 1 - RAW	L-2738975
SARAH	104.00	0	0			01-Nov-22	KLEEFELD 2 - TREATED	L-2738975
SARAH	104.00	0	0			01-Nov-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2738975
SARAH	104.00			1.99		01-Nov-22	KLEEFELD 1 - DISTRIBUTION @ 22 Aspen Bay	L-2738943
SARAH	104.00	0	0			15-Nov-22	KLEEFELD 1 - RAW	L-2740504
SARAH	104.00	0	0			15-Nov-22	KLEEFELD 2 - TREATED	L-2740504
SARAH	104.00	0	0			15-Nov-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2740504
SARAH	104.00	0	0			29-Nov-22	KLEEFELD 1 - RAW	L-2741978
SARAH	104.00	0	0			29-Nov-22	KLEEFELD 2 - TREATED	L-2741978
SARAH	104.00	0	0			29-Nov-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2741978
SARAH	104.00	0	0			14-Dec-22	KLEEFELD 1 - RAW	L-2743168
SARAH	104.00	0	0			14-Dec-22	KLEEFELD 2 - TREATED	L-2743168
SARAH	104.00	0	0			14-Dec-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2743168
SARAH	104.00	0	0			28-Dec-22	KLEEFELD 1 - RAW	L-2743985
SARAH	104.00	0	0			28-Dec-22	KLEEFELD 2 - TREATED	L-2743985
SARAH	104.00	0	0			28-Dec-22	KLEEFELD 3 - DISTRIBUTION @ MAIN ST	L-2743985

Appendix C

Analyses

RM of Hanover - Kleefeld PWS
ATTN: BARRY BROESKY
Kleefeld - PWS
28 Westland Drive
Mitchell MB R5G 2N9

Date Received: 10- AUG- 22
Report Date: 19- AUG- 22 11:45 (MT)
Version: FINAL

Client Phone: 204- 371- 0484

Certificate of Analysis

Lab Work Order #: L2727620

Project P.O. #: NOT SUBMITTED
Job Reference: WP104.00 - KLEEFELD - PWS
C of C Numbers:
Legal Site Desc: 7793

Oluwaseun Osasona
Project Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2727620-3 KLEEFELD 3 - DISTRIBUTION @ EAD END - 26025 HANOVER RD							
Sampled By: CLIENT on 09-AUG-22 @ 13:30							
Matrix: DRINKING WATER - DISTRIBUTION							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	0.066		0.020	mg/L		11-AUG-22	R5842177
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.085		0.070	mg/L		15-AUG-22	
Nitrite in Water by IC							
Nitrite (as N)	0.019		0.010	mg/L		11-AUG-22	R5842177

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Manitoba

Conservation and Climate
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba,
Canada R3H 0W4

L2727620-COFC

Regular Service (

Unless otherwise

Report to Operator (email PDF):		**Report to Owner (email PDF):**		**Email PDF copy to:**	
Contact:	Barry Broesky	Contact:	Rob Driedger	DWO:	Sa
Address:	28 Westland Drive, Mitchell, MB R5G 2N9	Address:	28 Westland Drive, Mitchell, MB R5G 2N9	DWO Address:	Un
Phone:	(204) 371-0484	Phone:	(204) 346-7121	DWO Phone:	(2(
Email:	barry.broesky@hanovermb.ca; rob.driedger@hanovermb.ca; rob.friesen@hanovermb.ca	Email:	rob.driedger@hanovermb.ca	DWO Email:	Sa
				Additional Email:	Jo Na

If an update in Owner or Operator contact information is required, please contact your Dr

Client / Project Information:	**Lab:**	**Account:**	Agency Code: 382	Report Type:
Operation Name:	KLEEFELD - PWS		Expected Sample Time:	
Operation Code:	104.00			
Operation ID:	7793			
Sampled by:	Rob Friesen			

Please record Free & Total Chlorine residuals for Distribution By-product Sampling

DO NOT COPY or RE-USE this form. Sample Number are unique to the Office of Drinking Water and provided by Drinking Water Officer.

Sample Number	Station Number	Sample Identification	Mono ~~Free~~ Chlorine (mg/L)	Total Chlorine (mg/L)	Sample Date dd-mmm-yyyy	Sample Time hh:mm	Sa M
2208SB5010	MB05OED033	Kleefeld 3 - Distribution Dead end @ 26025 Hanover RD	2.52	3.2	09AUG2022	13:30	

Failure to complete all portions of this form may delay analysis.		Sample Matrix:	6-Raw Water, 9-Distributed
Please fill in this form LEGIBLY.		Sample Type:	1-Grab Sample

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified by the Laboratory.
For ALL other testing, please use Laboratory specific forms.

Relinquished By:		Date & Time		Validated By (lab use only):	Dat
				Sample Condition (lab use only)	
Received By: (lab use only)	CE	Date & Time: (lab use only)	AUG 10 2022 10:30	Temperature 16.1	Samples Received in Good C

RM of Hanover - Kleefeld PWS
ATTN: BARRY BROESKY
Kleefeld - PWS
28 Westland Drive
Mitchell MB R5G 2N9

Date Received: 28- AUG- 20
Report Date: 04- SEP- 20 13:16 (MT)
Version: FINAL

Client Phone: 204- 371- 0484

Certificate of Analysis

Lab Work Order #: L2495666

Project P.O. #:	NOT SUBMITTED
Job Reference:	KLEEFELD - PWS 104.00
C of C Numbers:	
Legal Site Desc:	7793

Hua Wo
Chemistry Laboratory Manager

Physical Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2495666-1	ALS ID: L2495666-2
				Sampled Date: 27-AUG-20	Sampled Date: 27-AUG-20
				Sampled Time: 14:00	Sampled Time: 14:00
				Sample ID: KLEEFELD 1 - RAW	Sample ID: KLEEFELD 2 - TREATED
Colour, True	CU	15	-	123	<5.0
Conductivity	umhos/cm	-	-	628	656
Hardness (as CaCO3)	mg/L	-	-	317 HTC	313 HTC
Langelier Index (4 C)	No Unit	-	-	0.65	0.68
Langelier Index (60 C)	No Unit	-	-	1.4	1.4
pH	pH units	7.00-10.5	-	7.98	8.02
Total Dissolved Solids	mg/L	500	-	358	380
Transmittance, UV (254 nm)	%T/cm	-	-	67.6	77.4
Turbidity	NTU	-	-	14.6	0.65

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Anions and Nutrients (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2495666-1	ALS ID: L2495666-2	ALS ID: L2495666-3
				Sampled Date: 27-AUG-20	Sampled Date: 27-AUG-20	Sampled Date: 27-AUG-20
				Sampled Time: 14:00	Sampled Time: 14:00	Sampled Time: 14:30
				Sample ID: KLEEFELD 1 - RAW	Sample ID: KLEEFELD 2 - TREATED	Sample ID: KLEEFELD 3 - DISTRIBUTION DEAD END
Alkalinity, Total (as CaCO3)	mg/L	-	-	370	372	
Ammonia, Total (as N)	mg/L	-	-	1.13	0.73	
Bicarbonate (HCO3)	mg/L	-	-	451	454	
Bromide (Br)	mg/L	-	-	0.028	0.013	
Carbonate (CO3)	mg/L	-	-	<0.60	<0.60	
Chloride (Cl)	mg/L	250	-	4.44	11.0	
Fluoride (F)	mg/L	-	1.5	0.353	0.345	
Hydroxide (OH)	mg/L	-	-	<0.34	<0.34	
Nitrate (as N)	mg/L	-	10	<0.0050	0.0356	0.0868
Nitrite (as N)	mg/L	-	1	<0.0010	0.0108	0.0260
Sulfate (SO4)	mg/L	500	-	<0.30	<0.30	

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Organic / Inorganic Carbon (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2495666-1	ALS ID: L2495666-2
				Sampled Date: 27-AUG-20	Sampled Date: 27-AUG-20
				Sampled Time: 14:00	Sampled Time: 14:00
				Sample ID: KLEEFELD 1 - RAW	Sample ID: KLEEFELD 2 - TREATED
Dissolved Organic Carbon	mg/L	-	-	4.42	4.25
Total Organic Carbon	mg/L	-	-	4.24	4.44

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
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Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Total Metals (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	L2495666-1 27-AUG-20 14:00 KLEEFELD 1 - RAW	L2495666-2 27-AUG-20 14:00 KLEEFELD 2 - TREATED	L2495666-4 27-AUG-20 15:00 KLEEFELD 3 - DISTRIBUTION MID POINT
ALS ID						
Sampled Date				27-AUG-20	27-AUG-20	27-AUG-20
Sampled Time				14:00	14:00	15:00
Sample ID				KLEEFELD 1 - RAW	KLEEFELD 2 - TREATED	KLEEFELD 3 - DISTRIBUTION MID POINT
Aluminum (Al)-Total	mg/L	0.1	-	<0.0030	<0.0030	0.0131
Antimony (Sb)-Total	mg/L	-	0.006	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	-	0.01	0.00331	0.00189	0.00603
Barium (Ba)-Total	mg/L	-	2	1.80	1.67	3.67
Beryllium (Be)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	<0.000050	<0.000050	0.000091
Boron (B)-Total	mg/L	-	5	0.155	0.156	0.159
Cadmium (Cd)-Total	mg/L	-	0.005	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	-	-	64.1	62.8	65.0
Cesium (Cs)-Total	mg/L	-	-	0.000012	0.000012	0.000014
Chromium (Cr)-Total	mg/L	-	0.05	0.00011	<0.00010	0.00130
Cobalt (Co)-Total	mg/L	-	-	<0.00010	<0.00010	0.00012
Copper (Cu)-Total	mg/L	1	2	<0.00050	0.0780	0.197
Iron (Fe)-Total	mg/L	0.3	-	2.01	0.950	8.40
Lead (Pb)-Total	mg/L	-	0.005	<0.000050	0.000070	0.00418
Lithium (Li)-Total	mg/L	-	-	0.0185	0.0185	0.0184
Magnesium (Mg)-Total	mg/L	-	-	38.0	37.8	38.8
Manganese (Mn)-Total	mg/L	0.02	0.12	0.00308	0.00242	0.00339
Molybdenum (Mo)-Total	mg/L	-	-	0.00207	0.00198	0.00220
Nickel (Ni)-Total	mg/L	-	-	0.00052	0.00053	0.00195
Phosphorus (P)-Total	mg/L	-	-	1.82	0.578	4.60
Potassium (K)-Total	mg/L	-	-	4.42	4.50	4.60
Rubidium (Rb)-Total	mg/L	-	-	0.00305	0.00294	0.00311
Selenium (Se)-Total	mg/L	-	0.05	<0.000050	0.000051	0.000064
Silicon (Si)-Total	mg/L	-	-	8.21	8.18	8.33
Silver (Ag)-Total	mg/L	-	-	<0.000010	<0.000010	<0.00010
Sodium (Na)-Total	mg/L	200	-	25.4	29.8	30.6
Strontium (Sr)-Total	mg/L	-	7	0.458	0.454	0.498
Sulfur (S)-Total	mg/L	-	-			<0.50
Tellurium (Te)-Total	mg/L	-	-	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	-	-	<0.000010	<0.000010	<0.000010
Thorium (Th)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	-	-	<0.00010	<0.00010	0.00038

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
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Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Total Metals (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2495666-1 Sampled Date: 27-AUG-20 Sampled Time: 14:00 Sample ID: KLEEFELD 1 - RAW	ALS ID: L2495666-2 Sampled Date: 27-AUG-20 Sampled Time: 14:00 Sample ID: KLEEFELD 2 - TREATED	ALS ID: L2495666-4 Sampled Date: 27-AUG-20 Sampled Time: 15:00 Sample ID: KLEEFELD 3 - DISTRIBUTION MID POINT
Titanium (Ti)-Total	mg/L	-	-	<0.00030	<0.00030	0.00172
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	<0.000010	<0.000010	0.000023
Vanadium (V)-Total	mg/L	-	-	<0.00050	<0.00050	0.00059
Zinc (Zn)-Total	mg/L	5	-	<0.0030	0.0066 RRV	<0.030
Zirconium (Zr)-Total	mg/L	-	-	<0.00020	<0.00020	0.00059

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Volatile Organic Compounds (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2495666-1 Sampled Date: 27-AUG-20 Sampled Time: 14:00 Sample ID: KLEEFELD 1 - RAW
Benzene	mg/L	-	0.005	<0.00050
1,1-dichloroethene	mg/L	-	0.014	<0.00050
Dichloromethane	mg/L	-	0.05	<0.0050
Ethylbenzene	mg/L	0.0016	0.14	<0.00050
MTBE	mg/L	0.015	-	<0.00050
Tetrachloroethene	mg/L	-	0.01	<0.00050
Toluene	mg/L	0.024	0.06	<0.00050
Trichloroethene	mg/L	-	0.005	<0.00050
o-Xylene	mg/L	-	-	<0.00050
M+P-Xylenes	mg/L	-	-	<0.00040
Xylenes (Total)	mg/L	0.02	0.09	<0.00064
Surrogate: 4-Bromofluorobenzene (SS)	%	-	-	92.5
Surrogate: 1,4-Difluorobenzene (SS)	%	-	-	95.9

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
RRV	Reported Result Verified By Repeat Analysis
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BR-L-IC-N-WP	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)-LR
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
C-DOC-HTC-WP	Water	Dissolved Organic Carbon by Combustion	APHA 5310 B-WP
Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP
Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-L-IC-N-WP	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-WP	Water	Colour, True	APHA 2120C
True Colour is measured spectrophotometrically by comparison to platinum-cobalt standards using the single wavelength method (450 - 465 nm) after filtration of sample through a 0.45 um filter. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.			
EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-LANGELIER-4-WP	Water	Langelier Index 4C	Calculated
ETL-LANGELIER-60-WP	Water	Langelier Index 60C	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents.			

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2-L-IC-N-WP	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-WP	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)

Turbidity in aqueous matrices is determined by the nephelometric method.

UV-%TRANS-WP	Water	UV Transmittance (Calculated)	APHA 5910B

Test method is adapted from APHA Method 5910B. A sample is filtered through a 0.45 um polyethersulfone (PES) filter and its UV Absorbance is measured in a quartz cell at 254 nm. UV Transmittance is calculated from the UV Absorbance result and reported as UV Transmittance per cm. The analysis is carried out without pH adjustment.

VOC+F1-HSMS-WP	Water	VOC plus F1 by GCMS	EPA 8260C / EPA 5021A

In this method samples are analyzed using a headspace autosampler interfaced to a dual column gas chromatograph with MS and Flame Ionization detectors.

XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

ALS Environmental

Quality Control Report

Workorder: L2495666 Report Date: 04-SEP-20

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
LK-TITR-WP	Water							
Batch R5205048								
WG3394834-25 DUP		**L2495601-2**						
Alkalinity, Total (as CaCO3)		294	294		mg/L	0.1	20	28-AUG-20
WG3394834-24 LCS								
Alkalinity, Total (as CaCO3)			107.9		%		85-115	28-AUG-20
WG3394834-21 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	28-AUG-20
R-L-IC-N-WP	Water							
Batch R5208621								
WG3393905-15 DUP		**L2495655-1**						
Bromide (Br)		0.037	0.039		mg/L	7.2	20	28-AUG-20
WG3393905-19 DUP		**L2495666-1**						
Bromide (Br)		0.028	0.032		mg/L	14	20	28-AUG-20
WG3393905-14 LCS								
Bromide (Br)			99.4		%		85-115	28-AUG-20
WG3393905-18 LCS								
Bromide (Br)			101.0		%		85-115	28-AUG-20
WG3393905-13 MB								
Bromide (Br)			<0.010		mg/L		0.01	28-AUG-20
WG3393905-17 MB								
Bromide (Br)			<0.010		mg/L		0.01	28-AUG-20
WG3393905-16 MS		**L2495655-1**						
Bromide (Br)			99.8		%		75-125	28-AUG-20
WG3393905-20 MS		**L2495666-1**						
Bromide (Br)			103.6		%		75-125	28-AUG-20
-DOC-HTC-WP	Water							
Batch R5209771								
WG3397334-7 DUP		**L2495603-8**						
Dissolved Organic Carbon		1.55	1.57		mg/L	1.3	20	02-SEP-20
WG3397334-6 LCS								
Dissolved Organic Carbon			104.2		%		80-120	02-SEP-20
WG3397334-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	02-SEP-20
WG3397334-8 MS		**L2495603-8**						
Dissolved Organic Carbon			108.0		%		70-130	02-SEP-20
-TOC-HTC-WP	Water							

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
-TOC-HTC-WP	Water							
Batch R5209758								
WG3397434-7 DUP		**L2495813-5**						
Total Organic Carbon		19.9	19.7		mg/L	1.2	20	02-SEP-20
WG3397434-6 LCS								
Total Organic Carbon			104.2		%		80-120	02-SEP-20
WG3397434-5 MB								
Total Organic Carbon			<0.50		mg/L		0.5	02-SEP-20
WG3397434-8 MS		**L2495813-5**						
Total Organic Carbon			N/A	MS-B	%		-	02-SEP-20
L-L-IC-N-WP	Water							
Batch R5208621								
WG3393905-15 DUP		**L2495655-1**						
Chloride (Cl)		22.0	22.0		mg/L	0.0	20	28-AUG-20
WG3393905-19 DUP		**L2495666-1**						
Chloride (Cl)		4.44	4.42		mg/L	0.4	20	28-AUG-20
WG3393905-14 LCS								
Chloride (Cl)			99.6		%		90-110	28-AUG-20
WG3393905-18 LCS								
Chloride (Cl)			99.7		%		90-110	28-AUG-20
WG3393905-13 MB								
Chloride (Cl)			<0.10		mg/L		0.1	28-AUG-20
WG3393905-17 MB								
Chloride (Cl)			<0.10		mg/L		0.1	28-AUG-20
WG3393905-16 MS		**L2495655-1**						
Chloride (Cl)			106.3		%		75-125	28-AUG-20
WG3393905-20 MS		**L2495666-1**						
Chloride (Cl)			106.8		%		75-125	28-AUG-20
OLOUR-TRUE-WP	Water							
Batch R5204661								
WG3393567-6 DUP		**L2495655-2**						
Colour, True		<5.0	<5.0	RPD-NA	CU	N/A	20	28-AUG-20
WG3393567-5 LCS								
Colour, True			100.3		%		85-115	28-AUG-20
WG3393567-4 MB								
Colour, True			<5.0		CU		5	29-AUG-20
C-WP	Water							

Quality Control Report

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-WP	Water							
Batch R5205048								
WG3394834-25 DUP		**L2495601-2**						
Conductivity		3250	3240		umhos/cm	0.3	10	28-AUG-20
WG3394834-23 LCS								
Conductivity			99.4		%		90-110	28-AUG-20
WG3394834-21 MB								
Conductivity			<1.0		umhos/cm		1	28-AUG-20
-IC-N-WP	Water							
Batch R5208621								
WG3393905-15 DUP		**L2495655-1**						
Fluoride (F)		0.194	0.189		mg/L	2.7	20	28-AUG-20
WG3393905-19 DUP		**L2495666-1**						
Fluoride (F)		0.353	0.349		mg/L	1.1	20	28-AUG-20
WG3393905-14 LCS								
Fluoride (F)			102.6		%		90-110	28-AUG-20
WG3393905-18 LCS								
Fluoride (F)			104.2		%		90-110	28-AUG-20
WG3393905-13 MB								
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-20
WG3393905-17 MB								
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-20
WG3393905-16 MS		**L2495655-1**						
Fluoride (F)			105.6		%		75-125	28-AUG-20
WG3393905-20 MS		**L2495666-1**						
Fluoride (F)			106.7		%		75-125	28-AUG-20
IET-T-CCMS-WP	Water							
Batch R5208572								
WG3394876-4 DUP		**WG3394876-3**						
Aluminum (Al)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	01-SEP-20
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-SEP-20
Arsenic (As)-Total		0.00277	0.00280		mg/L	1.2	20	01-SEP-20
Barium (Ba)-Total		0.145	0.144		mg/L	1.0	20	01-SEP-20
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-SEP-20
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	01-SEP-20
Boron (B)-Total		0.137	0.146		mg/L	6.2	20	01-SEP-20
Cadmium (Cd)-Total		<0.0000050	<0.000005(	RPD-NA	mg/L	N/A	20	01-SEP-20
Calcium (Ca)-Total		67.8	71.3		mg/L	5.0	20	01-SEP-20

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
IET-T-CCMS-WP	Water							
Batch R5208572								
WG3394876-4 DUP		**WG3394876-3**						
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	01-SEP-20
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-SEP-20
Cobalt (Co)-Total		0.00053	0.00051		mg/L	3.0	20	01-SEP-20
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-SEP-20
Iron (Fe)-Total		1.24	1.25		mg/L	0.9	20	01-SEP-20
Lead (Pb)-Total		0.000052	0.000050		mg/L	4.0	20	01-SEP-20
Lithium (Li)-Total		0.0299	0.0303		mg/L	1.3	20	01-SEP-20
Magnesium (Mg)-Total		51.0	51.9		mg/L	1.8	20	01-SEP-20
Manganese (Mn)-Total		0.0141	0.0142		mg/L	0.6	20	01-SEP-20
Molybdenum (Mo)-Total		0.000584	0.000583		mg/L	0.1	20	01-SEP-20
Nickel (Ni)-Total		0.00154	0.00153		mg/L	0.4	20	01-SEP-20
Potassium (K)-Total		5.17	5.25		mg/L	1.4	20	01-SEP-20
Phosphorus (P)-Total		<0.050	<0.030	RPD-NA	mg/L	N/A	20	01-SEP-20
Rubidium (Rb)-Total		0.00273	0.00279		mg/L	2.0	20	01-SEP-20
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	01-SEP-20
Silicon (Si)-Total		5.55	5.65		mg/L	1.8	20	01-SEP-20
Silver (Ag)-Total		0.000013	<0.000010	RPD-NA	mg/L	N/A	20	01-SEP-20
Sodium (Na)-Total		18.6	19.1		mg/L	2.8	20	01-SEP-20
Strontium (Sr)-Total		0.590	0.602		mg/L	2.1	20	01-SEP-20
Sulfur (S)-Total		2.82	2.90		mg/L	3.0	20	01-SEP-20
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	01-SEP-20
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	01-SEP-20
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-SEP-20
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-SEP-20
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	01-SEP-20
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	01-SEP-20
Uranium (U)-Total		0.000913	0.000923		mg/L	1.1	20	01-SEP-20
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-SEP-20
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	01-SEP-20
Zirconium (Zr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	01-SEP-20
WG3394876-2 LCS								
Aluminum (Al)-Total			101.4		%		80-120	01-SEP-20
Antimony (Sb)-Total			97.5		%		80-120	01-SEP-20

Client: RM of Hanover - Kleefeld PWS
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Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
IET-T-CCMS-WP	Water							
Batch R5208572								
WG3394876-2 LCS								
Arsenic (As)-Total			98.8		%		80-120	01-SEP-20
Barium (Ba)-Total			97.8		%		80-120	01-SEP-20
Beryllium (Be)-Total			98.7		%		80-120	01-SEP-20
Bismuth (Bi)-Total			97.4		%		80-120	01-SEP-20
Boron (B)-Total			98.5		%		80-120	01-SEP-20
Cadmium (Cd)-Total			99.0		%		80-120	01-SEP-20
Calcium (Ca)-Total			99.1		%		80-120	01-SEP-20
Cesium (Cs)-Total			93.4		%		80-120	01-SEP-20
Chromium (Cr)-Total			99.6		%		80-120	01-SEP-20
Cobalt (Co)-Total			97.1		%		80-120	01-SEP-20
Copper (Cu)-Total			97.9		%		80-120	01-SEP-20
Iron (Fe)-Total			96.8		%		80-120	01-SEP-20
Lead (Pb)-Total			96.5		%		80-120	01-SEP-20
Lithium (Li)-Total			96.8		%		80-120	01-SEP-20
Magnesium (Mg)-Total			111.5		%		80-120	01-SEP-20
Manganese (Mn)-Total			100.5		%		80-120	01-SEP-20
Molybdenum (Mo)-Total			97.7		%		80-120	01-SEP-20
Nickel (Ni)-Total			100.2		%		80-120	01-SEP-20
Potassium (K)-Total			101.3		%		80-120	01-SEP-20
Phosphorus (P)-Total			103.1		%		80-120	01-SEP-20
Rubidium (Rb)-Total			99.96		%		80-120	01-SEP-20
Selenium (Se)-Total			100.0		%		80-120	01-SEP-20
Silicon (Si)-Total			104.3		%		80-120	01-SEP-20
Silver (Ag)-Total			95.0		%		80-120	01-SEP-20
Sodium (Na)-Total			104.0		%		80-120	01-SEP-20
Strontium (Sr)-Total			97.2		%		80-120	01-SEP-20
Sulfur (S)-Total			102.7		%		80-120	01-SEP-20
Tellurium (Te)-Total			96.0		%		80-120	01-SEP-20
Thallium (Tl)-Total			97.2		%		80-120	01-SEP-20
Thorium (Th)-Total			91.8		%		80-120	01-SEP-20
Tin (Sn)-Total			94.9		%		80-120	01-SEP-20
Titanium (Ti)-Total			96.4		%		80-120	01-SEP-20
Tungsten (W)-Total			96.6		%		80-120	01-SEP-20

Client: RM of Hanover - Kleefeld PWS
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Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R5208572								
WG3394876-2 LCS								
Uranium (U)-Total			98.7		%		80-120	01-SEP-20
Vanadium (V)-Total			100.5		%		80-120	01-SEP-20
Zinc (Zn)-Total			98.9		%		80-120	01-SEP-20
Zirconium (Zr)-Total			91.3		%		80-120	01-SEP-20
WG3394876-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	01-SEP-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	01-SEP-20
Boron (B)-Total			<0.010		mg/L		0.01	01-SEP-20
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	01-SEP-20
Calcium (Ca)-Total			0.055	B	mg/L		0.05	01-SEP-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	01-SEP-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	01-SEP-20
Iron (Fe)-Total			<0.010		mg/L		0.01	01-SEP-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	01-SEP-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	01-SEP-20
Magnesium (Mg)-Total			0.0074	B	mg/L		0.005	01-SEP-20
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	01-SEP-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	01-SEP-20
Potassium (K)-Total			<0.050		mg/L		0.05	01-SEP-20
Phosphorus (P)-Total			<0.030		mg/L		0.03	01-SEP-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	01-SEP-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	01-SEP-20
Silicon (Si)-Total			<0.10		mg/L		0.1	01-SEP-20
Silver (Ag)-Total			0.000011	B	mg/L		0.00001	01-SEP-20
Sodium (Na)-Total			<0.050		mg/L		0.05	01-SEP-20
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	01-SEP-20
Sulfur (S)-Total			<0.50		mg/L		0.5	01-SEP-20

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Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
IET-T-CCMS-WP	Water							
Batch R5208572								
WG3394876-1 MB								
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	01-SEP-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	01-SEP-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	01-SEP-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	01-SEP-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	01-SEP-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	01-SEP-20
Zinc (Zn)-Total			0.0031	B	mg/L		0.003	01-SEP-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	01-SEP-20
WG3394876-5 MS		**WG3394876-3**						
Aluminum (Al)-Total			93.0		%		70-130	01-SEP-20
Antimony (Sb)-Total			87.9		%		70-130	01-SEP-20
Arsenic (As)-Total			93.6		%		70-130	01-SEP-20
Barium (Ba)-Total			N/A	MS-B	%		-	01-SEP-20
Beryllium (Be)-Total			94.0		%		70-130	01-SEP-20
Bismuth (Bi)-Total			85.2		%		70-130	01-SEP-20
Boron (B)-Total			N/A	MS-B	%		-	01-SEP-20
Cadmium (Cd)-Total			91.3		%		70-130	01-SEP-20
Calcium (Ca)-Total			N/A	MS-B	%		-	01-SEP-20
Cesium (Cs)-Total			88.5		%		70-130	01-SEP-20
Chromium (Cr)-Total			94.1		%		70-130	01-SEP-20
Cobalt (Co)-Total			90.2		%		70-130	01-SEP-20
Copper (Cu)-Total			89.0		%		70-130	01-SEP-20
Iron (Fe)-Total			92.8		%		70-130	01-SEP-20
Lead (Pb)-Total			86.0		%		70-130	01-SEP-20
Lithium (Li)-Total			90.4		%		70-130	01-SEP-20
Magnesium (Mg)-Total			N/A	MS-B	%		-	01-SEP-20
Manganese (Mn)-Total			90.3		%		70-130	01-SEP-20
Molybdenum (Mo)-Total			94.4		%		70-130	01-SEP-20
Nickel (Ni)-Total			89.9		%		70-130	01-SEP-20
Potassium (K)-Total			N/A	MS-B	%		-	01-SEP-20
Phosphorus (P)-Total			98.8		%		70-130	01-SEP-20
Rubidium (Rb)-Total			92.9		%		70-130	01-SEP-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
IET-T-CCMS-WP	Water							
Batch R5208572								
WG3394876-5 MS		**WG3394876-3**						
Selenium (Se)-Total			94.4		%		70-130	01-SEP-20
Silicon (Si)-Total			89.4		%		70-130	01-SEP-20
Silver (Ag)-Total			88.2		%		70-130	01-SEP-20
Sodium (Na)-Total			N/A	MS-B	%		-	01-SEP-20
Strontium (Sr)-Total			N/A	MS-B	%		-	01-SEP-20
Sulfur (S)-Total			100.1		%		70-130	01-SEP-20
Tellurium (Te)-Total			84.7		%		70-130	01-SEP-20
Thallium (Tl)-Total			87.1		%		70-130	01-SEP-20
Thorium (Th)-Total			90.8		%		70-130	01-SEP-20
Tin (Sn)-Total			89.3		%		70-130	01-SEP-20
Titanium (Ti)-Total			95.2		%		70-130	01-SEP-20
Tungsten (W)-Total			92.1		%		70-130	01-SEP-20
Uranium (U)-Total			90.1		%		70-130	01-SEP-20
Vanadium (V)-Total			96.5		%		70-130	01-SEP-20
Zinc (Zn)-Total			87.0		%		70-130	01-SEP-20
Zirconium (Zr)-Total			91.1		%		70-130	01-SEP-20
H3-COL-WP	Water							
Batch R5208683								
WG3396547-7 DUP		**L2495645-1**						
Ammonia, Total (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	01-SEP-20
WG3396547-6 LCS								
Ammonia, Total (as N)			99.7		%		85-115	01-SEP-20
WG3396547-5 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	01-SEP-20
WG3396547-8 MS		**L2495645-1**						
Ammonia, Total (as N)			98.3		%		75-125	01-SEP-20
O2-L-IC-N-WP	Water							
Batch R5208621								
WG3393905-15 DUP		**L2495655-1**						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	28-AUG-20
WG3393905-19 DUP		**L2495666-1**						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	28-AUG-20
WG3393905-14 LCS								
Nitrite (as N)			99.3		%		90-110	28-AUG-20
WG3393905-18 LCS								

Quality Control Report

Client: RM of Hanover - Kleefeld PWS
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Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
O2-L-IC-N-WP	Water							
Batch R5208621								
WG3393905-18 LCS								
Nitrite (as N)			100.6		%		90-110	28-AUG-20
WG3393905-13 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-AUG-20
WG3393905-17 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-AUG-20
WG3393905-16 MS		**L2495655-1**						
Nitrite (as N)			105.6		%		75-125	28-AUG-20
WG3393905-20 MS		**L2495666-1**						
Nitrite (as N)			106.6		%		75-125	28-AUG-20
O3-L-IC-N-WP	Water							
Batch R5208621								
WG3393905-15 DUP		**L2495655-1**						
Nitrate (as N)		0.0929	0.0942		mg/L	1.3	20	28-AUG-20
WG3393905-19 DUP		**L2495666-1**						
Nitrate (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	28-AUG-20
WG3393905-14 LCS								
Nitrate (as N)			99.7		%		90-110	28-AUG-20
WG3393905-18 LCS								
Nitrate (as N)			99.5		%		90-110	28-AUG-20
WG3393905-13 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	28-AUG-20
WG3393905-17 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	28-AUG-20
WG3393905-16 MS		**L2495655-1**						
Nitrate (as N)			106.3		%		75-125	28-AUG-20
WG3393905-20 MS		**L2495666-1**						
Nitrate (as N)			106.0		%		75-125	28-AUG-20
H-WP	Water							
Batch R5205048								
WG3394834-25 DUP		**L2495601-2**						
pH		7.49	7.51	J	pH units	0.02	0.2	28-AUG-20
WG3394834-22 LCS								
pH			7.35		pH units		7.3-7.5	28-AUG-20
O4-IC-N-WP	Water							

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Quality Control Report

Workorder: L2495666 Report Date: 04-SEP-20

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
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Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
O4-IC-N-WP	Water							
Batch R5208621								
WG3393905-15 DUP		**L2495655-1**						
Sulfate (SO4)		40.8	40.8		mg/L	0.1	20	28-AUG-20
WG3393905-19 DUP		**L2495666-1**						
Sulfate (SO4)		<0.30	<0.30	RPD-NA	mg/L	N/A	20	28-AUG-20
WG3393905-14 LCS								
Sulfate (SO4)			100.6		%		90-110	28-AUG-20
WG3393905-18 LCS								
Sulfate (SO4)			100.5		%		90-110	28-AUG-20
WG3393905-13 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	28-AUG-20
WG3393905-17 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	28-AUG-20
WG3393905-16 MS		**L2495655-1**						
Sulfate (SO4)			104.4		%		75-125	28-AUG-20
WG3393905-20 MS		**L2495666-1**						
Sulfate (SO4)			104.2		%		75-125	28-AUG-20
DS-WP	Water							
Batch R5207782								
WG3392901-6 DUP		**L2495130-13**						
Total Dissolved Solids		2330	2300		mg/L	1.3	20	28-AUG-20
WG3392901-5 LCS								
Total Dissolved Solids			91.6		%		85-115	28-AUG-20
WG3392901-4 MB								
Total Dissolved Solids			<4.0		mg/L		4	28-AUG-20
Batch R5209595								
WG3395986-3 DUP		**L2495584-1**						
Total Dissolved Solids		336	340		mg/L	1.2	20	02-SEP-20
WG3395986-2 LCS								
Total Dissolved Solids			97.2		%		85-115	02-SEP-20
WG3395986-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	02-SEP-20
URBIDITY-WP	Water							
Batch R5208596								
WG3396454-3 DUP		**L2495603-8**						
Turbidity		0.16	0.15		NTU	3.9	15	01-SEP-20
WG3396454-2 LCS								
Turbidity			100.5		%		85-115	01-SEP-20
WG3396454-1 MB								

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Quality Control Report

Client: RM of Hanover - Kleefeld PWS
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Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
URBIDITY-WP	Water							
Batch R5208596								
WG3396454-1 MB								
Turbidity			<0.10		NTU		0.1	01-SEP-20
V-%TRANS-WP	Water							
Batch R5204493								
WG3393568-6 DUP		**L2495655-2**						
Transmittance, UV (254 nm)		90.8	91.6		%T/cm	0.9	20	28-AUG-20
WG3393568-4 IRM		**BLANK**						
Transmittance, UV (254 nm)			100.0		%		99.5-100.5	28-AUG-20
WG3393568-5 LCS								
Transmittance, UV (254 nm)			103.0		%		85-115	28-AUG-20
OC+F1-HSMS-WP	Water							
Batch R5208746								
WG3394914-3 DUP		**L2495584-1**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
1,1-dichloroethene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
Dichloromethane		<0.0050	<0.0050	RPD-NA	mg/L	N/A	30	31-AUG-20
Ethylbenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
MTBE		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
Tetrachloroethene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
Trichloroethene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
M+P-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	31-AUG-20
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	31-AUG-20
WG3394914-2 LCS								
Benzene			87.5		%		70-130	31-AUG-20
1,1-dichloroethene			87.0		%		70-130	31-AUG-20
Dichloromethane			88.7		%		70-130	31-AUG-20
Ethylbenzene			86.4		%		70-130	31-AUG-20
MTBE			101.1		%		70-130	31-AUG-20
Tetrachloroethene			98.6		%		70-130	31-AUG-20
Toluene			89.0		%		70-130	31-AUG-20
Trichloroethene			87.5		%		70-130	31-AUG-20
M+P-Xylenes			92.4		%		70-130	31-AUG-20
o-Xylene			93.1		%		70-130	31-AUG-20
WG3394914-1 MB								

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9

Contact: BARRY BROESKY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	Water							
Batch R5208746								
WG3394914-1 MB								
Benzene			<0.00050		mg/L		0.0005	31-AUG-20
1,1-dichloroethene			<0.00050		mg/L		0.0005	31-AUG-20
Dichloromethane			<0.0050		mg/L		0.005	31-AUG-20
Ethylbenzene			<0.00050		mg/L		0.0005	31-AUG-20
MTBE			<0.00050		mg/L		0.0005	31-AUG-20
Tetrachloroethene			<0.00050		mg/L		0.0005	31-AUG-20
Toluene			<0.00050		mg/L		0.0005	31-AUG-20
Trichloroethene			<0.00050		mg/L		0.0005	31-AUG-20
M+P-Xylenes			<0.00040		mg/L		0.0004	31-AUG-20
o-Xylene			<0.00050		mg/L		0.0005	31-AUG-20
Surrogate: 4-Bromofluorobenzene (SS)			92.1		%		70-130	31-AUG-20
Surrogate: 1,4-Difluorobenzene (SS)			88.7		%		70-130	31-AUG-20

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9
Contact: BARRY BROESKY

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Client: RM of Hanover - Kleefeld PWS
Kleefeld - PWS 28 Westland Drive
Mitchell MB R5G 2N9
Contact: BARRY BROESKY

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Turbidity							
	1	27-AUG-20 14:00	01-SEP-20 10:00	3	5	days	EHT
	2	27-AUG-20 14:00	01-SEP-20 10:00	3	5	days	EHT
pH							
	1	27-AUG-20 14:00	28-AUG-20 12:00	0.25	22	hours	EHTR-FM
	2	27-AUG-20 14:00	28-AUG-20 12:00	0.25	22	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2495666 were received on 28-AUG-20 10:45.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

L2495666-COFC

Systems

Conservation and Climate
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba,
Canada R3H 0W4

Report to Operator (email PDF):	
Contact:	Barry Broesky
Address:	28 Westland Drive, Mitchell, MB R5G 2N9
Phone:	
Email:	barry.broesky@hanovermb.ca

Report to Owner (email PDF):	
Contact:	Luc Lahaie
Address:	28 Westland Drive, Mitchell, MB R5G 2N9
Phone:	(204) 326-4488
Email:	luc.lahaie@hanovermb.ca

If an update in Owner or Operator contact information is required, please

Client / Project Information:	**Lab:**	**Account:**	Agency Code: 38

Operation Name:	KLEEFELD - PWS
Operation Code:	104.00
Operation ID:	7793
Sampled by:	

Expected Sample Tir

Please record Free & Total Chlorine residuals for Distribution By-product Sampl

DO NOT COPY or RE-USE this form. Sample Number are unique to the Office of
and provided by Drinking Water Officer.

Sample Number	Station Number	Sample Identification	~~Free Chlorine~~ (mg/L)	Total Chlorine (mg/L)	Sampl dd-mn
2007SB5006	MB05OED031	Kleefeld 1 - Raw			27-0
2007SB5007	MB05OED032	Kleefeld 2 - Treated	2.64	3.9	27-0
2007SB5008	MB05OED033	Kleefeld 3 - Distribution Dead end	2.61	3.7	27-0
2007SB5009	MB05OED033	Kleefeld 3 - Distribution Mid-point	0.57	1.6	27-0

Failure to complete all portions of this form may delay analysis.		Sample Matrix:	6-Ra
Please fill in this form LEGIBLY.		Sample Type:	1-Gr

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified by the Laboratc
For ALL other testing, please use Laboratory specific forms.

Relinquished By:		Date & Time		Validated By (lab use only)	
				Sample Condition (lab use	
Received By: (lab use only)	GE	Date & Time: (lab use only)	Aug 28/20 10:45 AM	Temperature	Samp
				10.0	

Manitoba
Conservation and Climate
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba R3H 0W4

OPERATING LICENCE FOR A PUBLIC WATER SYSTEM

LICENCE NUMBER: PWS-21-655

THE DRINKING WATER SAFETY ACT CHAPTER D101, C.C.S.M.

WATER SYSTEM CODE:	**104.00**
OPERATION ID:	**7793**
EFFECTIVE DATE:	**JULY 1, 2021**
EXPIRY DATE:	**MAY 31, 2023**

IN ACCORDANCE WITH *THE DRINKING WATER SAFETY ACT*, THIS OPERATING LICENCE IS ISSUED PURSUANT TO SUBSECTION 8(1) TO:

RURAL MUNICIPALITY OF HANOVER: "THE LICENSEE"

FOR THE OPERATION OF THE **KLEEFELD PUBLIC WATER SYSTEM**, WHICH INCLUDES SECURE WELL(S), TREATMENT FACILITIES, WATER STORAGE RESERVOIRS, AND DISTRIBUTION LINES, SUBJECT TO THE ATTACHED TERMS AND CONDITIONS.

THIS LICENCE DOES NOT AFFECT THE LICENSEE'S OBLIGATIONS WITH RESPECT TO COMPLIANCE WITH ALL APPLICABLE MUNICIPAL, PROVINCIAL, AND FEDERAL LEGISLATION. THIS LICENCE SUPERSEDES ALL PREVIOUS LICENSES FOR THIS PUBLIC WATER SYSTEM.

DATE: June 28, 2021

Kim Philip, P.Eng.
Director

TERMS AND CONDITIONS

1. GENERAL

1.1. The Licensee shall operate the public water system in accordance with all applicable requirements of *The Drinking Water Safety Act* and its regulations, and the requirements of this Licence. In the event that specific terms and conditions of this Licence imposed under the authority of subsection 8(3) of the Act exceed the general requirements of the Act and regulations, the specific requirements of this Licence shall apply.

1.2. The Licensee shall obtain approval from the Office of Drinking Water prior to making any significant alterations to the water source, the water treatment process, the water storage facilities, or the water distribution system.

1.3. This Licence may be amended by the Director where, in the opinion of the Director, an amendment is necessary and the amendment will not negatively impact the safety of water obtained from the water system, or effective environmental management.

1.4. The Licensee may request an amendment to this licence by submitting an amendment application to the Office of Drinking Water.

1.5. This Licence may be suspended or cancelled by the Director for any of the reasons identified in Section 11 of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation* or due to a failure to comply with any term or condition of this Licence.

1.6. The Licensee shall provide written notice to the Office of Drinking Water of any change in ownership of the water system within seven days of the transfer of ownership.

1.7. The Licensee shall provide written notice to the Office of Drinking Water of any changes in the operational status of the water system, such as a permanent cessation of service, or changing the length of service from year-round to seasonal or the opposite.

1.8. The Director of the Office of Drinking Water, Medical Officer of Health or Drinking Water Officer may enter any water system facility as necessary to carry out the provisions of *The Drinking Water Safety Act* and its regulations.

1.9. The Licensee shall post a copy of the first page of this Licence at the water treatment facility.

1.10. The Licensee shall keep a copy of this Licence in its entirety at a location established by the Drinking Water Officer and ensure all operators are familiar with its terms and conditions.

1.11. The Licensee shall apply for renewal of this Licence at least 60 days prior to its expiry.

2. OPERATION - GENERAL

2.1. The Licensee shall operate all water system facilities, control systems and equipment as efficiently as possible, inspect them on a regular basis, maintain them in good working order, and ensure that the water system is protected from the risks associated with cross-contamination.

2.2. The Licensee shall ensure that all chemicals and components that may come into contact with potable water are certified safe for potable water use through AWWA Standards, ANSI/NSF Standard 60 or 61, Health Canada, or other standards acceptable to the Director.

2.3. No alternate water source shall be brought into service without the consent of the Drinking Water Officer and the maintenance of adequate cross connection control between the alternate source and the primary source.

2.4. The Licensee shall follow the requirements as specified in Operational Guideline ODW-OG-02 Seasonal Water Systems Start-up Shut-down Procedures for any portion(s) of the distribution system that operate on a seasonal basis.

2.5. The Licensee shall have re-assessments of the water system infrastructure and water supply sources completed by a qualified person, who is not an employee of the water system, in accordance with assessment checklist GW by March 1, 2021, and every five years thereafter. The Licensee may instead have the assessment completed by a qualified professional engineer, who is not an employee of the water system, in accordance with terms of reference for engineering assessments.

2.6. The Licensee shall, upon request from the Office of Drinking Water, submit or re-submit a compliance plan, in a form satisfactory to the Director, to address any non-compliance issues identified at the time.

3. OPERATION – EMERGENCIES

3.1. The Licensee shall ensure that disinfection is undertaken following construction, repair or maintenance activities on the water system, in accordance with applicable AWWA standards, or Manitoba Water Services Board specifications, or any other standards approved by the Director. A copy of all associated test results must be kept available for review by the Office of Drinking Water for a minimum of 24 months.

3.2. The Licensee shall ensure that all equipment used for disinfection is maintained in effective working order and keep available for immediate use all spare parts and chemical supplies as may be necessary to ensure continuous disinfection.

3.3. The Licensee shall immediately notify the Drinking Water Officer of any condition that may affect the ability of the water system to produce or deliver safe drinking water including but not limited to treatment upsets or bypass conditions, contamination of the source water or treated water, a disinfection system failure, or a distribution system failure.

3.4. If a Medical Officer of Health, the Director of the Office of Drinking Water, or a Drinking Water Officer issues a water advisory on the water system, the Licensee shall provide notice of the advisory to all water users in accordance with the Advisory Notification Plan.

4. WATER QUALITY/TREATMENT STANDARDS

4.1. The Licensee shall operate the water system in a manner that achieves the water quality/treatment standards specified in Table 1, as determined through the monitoring requirements specified in Table 2:

Table 1: Water Quality/Treatment Standards

Parameter	Quality Standard
Total coliform	Less than one total coliform bacteria detectable per 100 mL in all treated and distributed water
E. coli	Less than one *E. coli* bacteria detectable per 100 mL in all treated and distributed water
Ultraviolet Disinfection	95% of water produced per month is disinfected within validated conditions
Monochloramine	A monochloramine residual of at least 0.3 mg/L at all times at any point in the water distribution system
Arsenic	Less than or equal to 0.01 mg/L
Barium	Less than or equal to 2.0 mg/L
Benzene	Less than or equal to 0.005 mg/L
Ethylbenzene	Less than or equal to 0.14 mg/L
Fluoride	Less than or equal to 1.5 mg/L
Lead	Less than or equal to 0.01 mg/L in the water distribution system
Manganese	Less than or equal to 0.12 mg/L
Nitrate	Less than or equal to 45 mg/L measured as nitrate (10 mg/L measured as nitrogen)
Nitrite	Less than or equal to 3 mg/L measured as nitrite (1 mg/L measured as nitrogen)
Trichloroethylene	Less than or equal to 0.005 mg/L
Tetrachloroethylene	Less than or equal to 0.01 mg/L
Toluene	Less than or equal to 0.06 mg/L
Total Xylenes	Less than or equal to 0.09 mg/L
Uranium	Less than or equal to 0.02 mg/L

4.2. If a bacteriological standard is not met, the Licensee shall immediately undertake the applicable corrective actions as listed in "Schedule A" of Manitoba Regulation 41/2007, *Drinking Water Quality Standards Regulation*.

4.3. If a microbial, chemical, radiological, or physical standard is not met, the Licensee shall immediately undertake the applicable corrective actions specified in "Schedule C" of Manitoba Regulation 41/2007, the *Drinking Water Quality Standards Regulation*.

4.4. The Licensee shall have in place and maintain in effective working order a method or combination of methods designed to achieve primary disinfection at a level acceptable to the Director prior to water entering the distribution system.

4.5. The Licensee shall maintain in effective working order ultraviolet (UV) light disinfection equipment and controls for primary disinfection that result in greater than or equal to 95% of the water produced per month undergoing UV light disinfection within validated conditions and at a minimum dose of 40 mJ/cm^2.

5. WATER QUALITY MONITORING

5.1. The Licensee shall ensure monitoring is completed as set out in Table 2.

Table 2: Monitoring Schedule

Parameter	Monitoring Requirement
Bacteriological (total coliform and *E. coli*)	Biweekly sampling program with each set of samples consisting of one raw, one treated, and a minimum of one distribution sample Consecutive sample sets to be separated by at least 12 days
Ultraviolet Disinfection	Continuous monitoring of UV dosage for each operating UV unit
UV Transmittance (UVT)	One sample per week of water entering the UV disinfection units
Monochloramine (treated water)	One sample per day of water entering the distribution system
Monochloramine (distribution system)	At the same times and location(s) as bacteriological distribution system sampling
Total Chlorine (treated water)	One sample per week of water entering the distribution system
Total Chlorine (distribution system)	At the same times and location(s) as bacteriological distribution system sampling
Free Ammonia (treated water)	One sample per week of water entering the distribution system
Free Ammonia (distribution system)	At the same times and location(s) as bacteriological distribution system sampling
Nitrite and Nitrate (distribution system)	One sample taken during July or August every year at a dead end sampling location in the distribution system
General Chemistry (parameter list provided by Office of Drinking Water)	One raw and one treated water sample once every three years
Total Metals (distribution system)	One sample taken at the same time(s) as General Chemistry sampling at a mid-point in the distribution system
Barium	One sample taken quarterly at a mid-point in the distribution system in the months of February, May, August and November each year
Lead	As per the instructions of the Drinking Water Officer
Other Parameters	As per the instructions of the Drinking Water Officer

5.2. The Licensee shall ensure that an accredited laboratory, as specified in section 35 of Manitoba Regulation 40/2007 the *Drinking Water Safety Regulation*, undertake the following analysis required in Table 2:

a) bacteriological (total coliform and *E. coli*)
b) barium
c) nitrate / nitrite
d) general chemistry
e) total metals
f) any other parameter required by the Drinking Water Officer

and that all samples are collected, handled, and submitted in a manner that is satisfactory to the accredited laboratory.

5.3. The Licensee shall ensure that parameters listed in Table 2 but not specified in clause 5.2 are measured utilizing certified water quality monitoring equipment and methods approved by the latest edition of Standard Methods for the Examination of Water and

Wastewater published jointly by the American Public Health Association, the American Water Works Association and the Water Environment Federation.

5.4. The Licensee shall ensure that all water quality monitoring equipment is properly maintained and calibrated by a qualified person according to manufacturer recommendations and that records are maintained to that effect.

5.5. The Licensee shall operate equipment capable of continuously monitoring the validated UV conditions at no more than five-minute intervals in water entering the distribution system.

5.6. In instances where continuous UV monitoring equipment is offline, the Licensee shall ensure that at a minimum of four times per day, UV operating conditions including the calculated dosage and alarm status, are observed at each operating UV unit and that the results are recorded in a form satisfactory to the Director.

5.7. The Licensee shall operate equipment capable of continuously monitoring the UV dosage to ensure compliance with the primary disinfection standard specified in Clause 4.5.

5.8. The Licensee shall ensure that sampling within the distribution system takes place at varied locations acceptable to the Drinking Water Officer.

6. RECORD-KEEPING AND REPORTING

6.1. The Licensee shall maintain in a secure location all construction drawings for the life of the water system components.

6.2. The Licensee shall retain in chronological order for a minimum of 24 months all information specified in subsection 34(2) of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation.*

6.3. The Licensee shall ensure the information identified in clause 6.2 is available for inspection by any member of the public during normal business hours at the office of the water supplier or at a location convenient to the users of the system.

6.4. The Licensee shall record disinfectant residual measurements on the monthly disinfection report or other forms satisfactory to the Director.

6.5. The Licensee shall record other measurements as specified in *Table 2: Monitoring Schedule* on the monthly report forms or other forms satisfactory to the Director.

6.6. The Licensee shall record UV alarms and maintenance procedures performed on the water system and its supporting equipment on the monthly UV report forms or other forms satisfactory to the Director.

6.7. The Licensee shall record validated UV condition verifications on the monthly report forms or other forms satisfactory to the Director.

6.8. The Licensee shall keep one copy of all monthly report forms required in this licence, and forward the original copy to the Drinking Water Officer within seven days after the end of each calendar month.

6.9. The Licensee shall record all distribution system measurements specified in *Table 2: Monitoring Schedule* on the chain of custody form (laboratory submission form) which accompanies the bacteriological sample bottles to the laboratory.

6.10. The Licensee shall ensure that water metering devices at the water treatment plant or storage reservoir are maintained in good working order and that flow meter readings are recorded on a daily basis and such records are made available for inspection by a Drinking Water Officer.

6.11. The Licensee shall submit an annual report to the Director by March 31st of each year on the operation of the water system in the immediately preceding calendar year. The report shall include the information as set out in subsection 32(2) of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation*.

6.12. The Licensee shall inform the public, in a form satisfactory to the Director, when an annual report has been prepared and identify how a free copy can be obtained.

6.13. The Licensee shall make a copy of each annual report available to the public at no charge on an internet website within two weeks of the issuance of the report, unless otherwise approved by the Director. The annual report shall remain available to the public for at least one year.

6.14. The Licensee shall maintain and submit an Advisory Notification Plan to the Drinking Water Officer by May 1st of each year. The plan must include a detailed description of communication tools and methods to be used to notify the public of a drinking water emergency, considering key contacts, fan-outs, critical customers, susceptible or difficult-to-reach sub-groups, and template notices where applicable.

Appendix E

Monochloramine and UV Reports

Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: January 2022
Plant Code: 104.0
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	9:00	B.B.	1.45			252,000	660,081,000	244,000	667,987,000
2	9:00	B.B.	1.36			206,000	660,287,000	176,000	668,163,000
3	7:45	B.B.	1.26			197,000	660,484,000	213,000	668,376,000
4	7:00	B.B.	1.40			215,000	660,699,000	197,000	668,573,000
5	5:45	B.B.	1.49			199,000	660,898,000	221,000	668,794,000
6	7:00	B.B.	1.70			208,000	661,106,000	174,000	668,968,000
7	7:00	B.B.	1.66	0.01	2.70	207,000	661,313,000	236,000	669,204,000
8	7:15	B.B.	1.54			192,000	661,505,000	190,000	669,394,000
9	10:00	B.B.	1.43			242,000	661,747,000	287,000	669,681,000
10	7:00	B.B.	1.40			197,000	661,944,000	135,000	669,816,000
11	7:00	B.B.	1.40			228,000	662,172,000	244,000	670,060,000
12	6:00	B.B.	1.48			210,000	662,382,000	215,000	670,275,000
13	7:00	B.B.	1.35			219,000	662,601,000	195,000	670,470,000
14	7:00	B.B.	1.34	0.03	2.10	241,000	662,842,000	271,000	670,741,000
15	9:30	R.F.	0.64			215,000	663,057,000	189,000	670,930,000
16	6:00	R.F.	0.48			191,000	663,248,000	236,000	671,166,000
17	7:00	B.B.	0.64			218,000	663,466,000	217,000	671,383,000
18	7:00	B.B.	1.04			216,000	663,682,000	172,000	671,555,000
19	6:00	B.B.	1.69			199,000	663,881,000	232,000	671,787,000
20	7:00	B.B.	2.25			208,000	664,089,000	220,000	672,007,000
21	6:30	B.B.	2.52	0.00	3.40	189,000	664,278,000	162,000	672,169,000
22	7:00	B.B.	3.13			542,000	664,820,000	591,000	672,760,000
23	9:00	B.B.	2.30			229,000	665,049,000	208,000	672,968,000
24	7:00	B.B.	2.30			201,000	665,250,000	183,000	673,151,000
25	7:00	B.B.	1.96			218,000	665,468,000	216,000	673,367,000
26	6:45	R.F.	2.40			194,000	665,662,000	215,000	673,582,000
27	6:45	R.F.	2.78			200,000	665,862,000	219,000	673,801,000
28	8:30	R.F.	2.55	0.01	4.50	216,000	666,078,000	183,000	673,984,000
29	9:45	R.F.	2.54			202,000	666,280,000	202,000	674,186,000
30	9:00	R.F.	2.60			194,000	666,474,000	211,000	674,397,000
31	8:00	B.B.	2.45			208,000	666,682,000	179,000	674,576,000
						6,853,000		6,833,000	

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Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: Feburary 2022

Plant Code: 104.0
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	ree Amoni	Total	Daily	Cumulative	Daily	Cumulative
1	7:00	B.B.	2.44			194,000	666,876,000	218,000	674,794,000
2	6:30	B.B.	1.88			199,000	667,075,000	172,000	674,966,000
3	7:15	B.B.	2.01			209,000	667,284,000	225,000	675,191,000
4	7:00	B.B.	1.98	0.01	2.50	195,000	667,479,000	201,000	675,392,000
5	6:15	B.B.	1.65			203,000	667,682,000	189,000	675,581,000
6	8:00	B.B.	2.43			231,000	667,913,000	276,000	675,857,000
7	7:00	B.B.	2.72			216,000	668,129,000	200,000	676,057,000
8	7:00	B.B.	2.82			218,000	668,347,000	184,000	676,241,000
9	6:30	B.B.	2.77			199,000	668,546,000	228,000	676,469,000
10	7:00	B.B.	2.75			201,000	668,747,000	190,000	676,659,000
11	7:00	B.B.	2.61	0.04	3.80	197,000	668,944,000	197,000	676,856,000
12	9:15	R.F.	2.63			238,000	669,182,000	238,000	677,094,000
13	6:30	R.F.	3.00			190,000	669,372,000	203,000	677,297,000
14	7:45	B.B.	1.57			228,000	669,600,000	228,000	677,525,000
15	7:00	B.B.	2.70			205,000	669,805,000	194,000	677,719,000
16	6:15	B.B.	2.74			197,000	670,002,000	209,000	677,928,000
17	7:00	B.B.	1.75			213,000	670,215,000	180,000	678,108,000
18	7:00	B.B.	2.57	0.01	3.60	210,000	670,425,000	232,000	678,340,000
19	6:30	B.B.	2.44			206,000	670,631,000	197,000	678,537,000
20	8:15	B.B.	2.40			216,000	670,847,000	203,000	678,740,000
21	7:00	B.B.	2.06			196,000	671,043,000	230,000	678,970,000
22	7:45	B.B.	1.74			235,000	671,278,000	254,000	679,224,000
23	6:30	B.B.	1.82			189,000	671,467,000	175,000	679,399,000
24	7:00	B.B.	2.67			204,000	671,671,000	179,000	679,578,000
25	7:00	B.B.	2.35	0.03	3.30	204,000	671,875,000	218,000	679,796,000
26	9:00	R.F.	2.49			226,000	672,101,000	201,000	679,997,000
27	7:00	R.F.	2.78			195,000	672,296,000	236,000	680,233,000
28	8:00	B.B.	2.62			220,000	672,516,000	213,000	680,446,000
29									
30									
31									
						5,834,000		5,870,000	

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Monthly Water Chlorination Report

Community: Kleefeld
Plant Code: 104.0
Month/Year: March 2022
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	7:00	B.B.	1.92			253,000	672,769,000	243,000	680,689,000
2	6:15	B.B.	2.35			207,000	672,976,000	219,000	680,908,000
3	7:00	B.B.	2.06			233,000	673,209,000	218,000	681,126,000
4	7:00	B.B.	2.47	0.02	3.20	211,000	673,420,000	227,000	681,353,000
5	8:00	B.B.	2.42			271,000	673,691,000	257,000	681,610,000
6	9:30	B.B.	2.08			234,000	673,925,000	220,000	681,830,000
7	7:00	B.B.	2.22			184,000	674,109,000	221,000	682,051,000
8	7:00	B.B.	2.01			235,000	674,344,000	196,000	682,247,000
9	6:30	B.B.	1.95			206,000	674,550,000	249,000	682,496,000
10	7:00	B.B.	2.07			230,000	674,780,000	237,000	682,733,000
11	7:45	B.B.	1.87	0.03	3.20	216,000	674,996,000	177,000	682,910,000
12	9:30	R.F.	2.19			237,000	675,233,000	240,000	683,150,000
13	7:00	R.F.	2.29			193,000	675,426,000	251,000	683,401,000
14	7:00	B.B.	1.97			225,000	675,651,000	207,000	683,608,000
15	7:30	B.B.	2.25			230,000	675,881,000	217,000	683,825,000
16	6:15	B.B.	2.18			208,000	676,089,000	199,000	684,024,000
17	7:00	B.B.	2.09			235,000	676,324,000	221,000	684,245,000
18	7:00	B.B.	2.09	0.01	3.60	208,000	676,532,000	230,000	684,475,000
19	7:30	B.B.	2.02			201,000	676,733,000	194,000	684,669,000
20	10:30	B.B.	2.24			249,000	676,982,000	249,000	684,918,000
21	7:00	B.B.	2.11			182,000	677,164,000	195,000	685,113,000
22	7:00	B.B.	2.17			228,000	677,392,000	215,000	685,328,000
23	6:30	B.B.	2.06			212,000	677,604,000	228,000	685,556,000
24	7:00	B.B.	2.14			230,000	677,834,000	226,000	685,782,000
25	7:00	B.B.	1.86	0.02	3.60	208,000	678,042,000	201,000	685,983,000
26	9:30	R.F.	1.91			223,000	678,265,000	201,000	686,184,000
27	5:30	R.F.	2.15			189,000	678,454,000	236,000	686,420,000
28	8:00	B.B.	1.92			230,000	678,684,000	212,000	686,632,000
29	7:00	B.B.	2.08			206,000	678,890,000	201,000	686,833,000
30	6:30	B.B.	2.22			188,000	679,078,000	199,000	687,032,000
31	7:00	B.B.	2.21			206,000	679,284,000	171,000	687,203,000
						6,768,000		6,757,000	

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Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: April 2022
Plant Code: 104.0
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	7:00	B.B.	2.22	0.02	3.70	189,000	679,473,000	225,000	687,428,000
2	8:45	B.B.	2.30			200,000	679,673,000	171,000	687,599,000
3	10:30	B.B.	2.29			234,000	679,907,000	235,000	687,834,000
4	7:00	B.B.	2.41			193,000	680,100,000	226,000	688,060,000
5	7:00	B.B.	2.33			221,000	680,321,000	192,000	688,252,000
6	6:45	B.B.	2.48			209,000	680,530,000	239,000	688,491,000
7	7:00	B.B.	2.66			244,000	680,774,000	272,000	688,763,000
8	8:00	B.B.	2.28	0.00	4.10	224,000	680,998,000	183,000	688,946,000
9	9:30	R.F.	2.69			219,000	681,217,000	196,000	689,142,000
10	6:30	R.F.	2.43			208,000	681,425,000	249,000	689,391,000
11	7:00	B.B.	2.64			252,000	681,677,000	246,000	689,637,000
12	7:30	B.B.	2.39			220,000	681,897,000	59,000	689,696,000
13	6:15	B.B.	2.13			192,000	682,089,000	385,000	690,081,000
14	8:00	B.B.	2.32	0.00	3.30	222,000	682,311,000	195,000	690,276,000
15	8:45	B.B.	2.41			212,000	682,523,000	179,000	690,455,000
16	8:30	B.B.	2.65			208,000	682,731,000	227,000	690,682,000
17	10:00	B.B.	2.74			238,000	682,969,000	215,000	690,897,000
18	6:30	B.B.	2.63			162,000	683,131,000	209,000	691,106,000
19	6:30	B.B.	2.45			210,000	683,341,000	190,000	691,296,000
20	6:30	B.B.	2.05			200,000	683,541,000	207,000	691,503,000
21	6:15	B.B.	1.84			200,000	683,741,000	203,000	691,706,000
22	6:15	B.B.	2.22	0.00	3.60	210,000	683,951,000	194,000	691,900,000
23	5:30	R.F.	2.71			196,000	684,147,000	200,000	692,100,000
24	12:00	S.D.	2.76			269,000	684,416,000	252,000	692,352,000
25	6:30	B.B.	2.78			158,000	684,574,000	200,000	692,552,000
26	6:30	B.B.	2.89			221,000	684,795,000	192,000	692,744,000
27	6:30	B.B.	2.79			201,000	684,996,000	230,000	692,974,000
28	6:30	B.B.	2.32			196,000	685,192,000	179,000	693,153,000
29	6:45	B.B.	2.44	0.00	3.60	216,000	685,408,000	209,000	693,362,000
30	6:00	B.B.	2.54			199,000	685,607,000	201,000	693,563,000
31									
						6,323,000		6,360,000	

Monthly Water Chlorination Report

Community: Kleefeld Plant Code: 104.0

Month/Year: May 2022 Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	9:30	B.B.	2.77			246,000	685,853,000	260,000	693,823,000
2	7:30	B.B.	2.75			200,000	686,053,000	195,000	694,018,000
3	6:45	B.B.	2.82			202,000	686,255,000	208,000	694,226,000
4	7:15	B.B.	2.80			207,000	686,462,000	203,000	694,429,000
5	6:30	B.B.	2.79			205,000	686,667,000	208,000	694,637,000
6	6:30	B.B.	2.83	0.00	4.00	210,000	686,877,000	216,000	694,853,000
7	6:30	R.F.	2.33			196,000	687,073,000	175,000	695,028,000
8	6:30	R.F.	2.33			232,000	687,305,000	258,000	695,286,000
9	6:45	B.B.	2.67			225,000	687,530,000	228,000	695,514,000
10	7:00	B.B.	2.40			219,000	687,749,000	174,000	695,688,000
11	6:30	B.B.	2.47			225,000	687,974,000	253,000	695,941,000
12	6:30	B.B.	3.07			571,000	688,545,000	591,000	696,532,000
13	7:00	B.B.	1.95	0.00	3.60	223,000	688,768,000	190,000	696,722,000
14	6:30	B.B.	2.14			201,000	688,969,000	210,000	696,932,000
15	10:00	B.B.	2.56			270,000	689,239,000	278,000	697,210,000
16	7:00	B.B.	2.74			202,000	689,441,000	205,000	697,415,000
17	7:00	B.B.	2.65			208,000	689,649,000	197,000	697,612,000
18	6:15	B.B.	2.70			199,000	689,848,000	220,000	697,832,000
19	7:00	B.B.	2.55			215,000	690,063,000	179,000	698,011,000
20	7:30	B.B.	2.57	0.00	4.20	226,000	690,289,000	239,000	698,250,000
21	9:00	R.F.	2.20			237,000	690,526,000	219,000	698,469,000
22	6:00	R.F.	2.26			221,000	690,747,000	255,000	698,724,000
23	9:00	R.F.	2.27			241,000	690,988,000	230,000	698,954,000
24	7:00	B.B.	2.82			247,000	691,235,000	265,000	699,219,000
25	7:00	B.B.	2.29			233,000	691,468,000	235,000	699,454,000
26	7:00	B.B.	2.01			230,000	691,698,000	197,000	699,651,000
27	8:00	B.B.	2.28	0.00	3.60	243,000	691,941,000	258,000	699,909,000
28	5:30	B.B.	2.56			223,000	692,164,000	228,000	700,137,000
29	10:45	B.B.	2.93			320,000	692,484,000	310,000	700,447,000
30	7:00	B.B.	2.90			207,000	692,691,000	224,000	700,671,000
31	7:00	B.B.	2.85			231,000	692,922,000	202,000	700,873,000
						7,315,000		7,310,000	

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Monthly Water Chlorination Report

Community: Kleefeld
Plant Code: 104.0
Month/Year: June 2022
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	6:45	B.B.	2.82			215,000	693,137,000	245,000	701,118,000
2	7:00	B.B.	2.91			213,000	693,350,000	206,000	701,324,000
3	7:00	B.B.	2.71	0.00	4.30	218,000	693,568,000	206,000	701,530,000
4	9:30	R.F.	2.65			259,000	693,827,000	244,000	701,774,000
5	6:30	R.F.	2.21			247,000	694,074,000	294,000	702,068,000
6	7:15	B.B.	3.10			293,000	694,367,000	283,000	702,351,000
7	7:00	B.B.	2.93			292,000	694,659,000	345,000	702,696,000
8	6:30	B.B.	1.95			289,000	694,948,000	298,000	702,994,000
9	7:00	B.B.	2.36			289,000	695,237,000	336,000	703,330,000
10	8:00	B.B.	2.90	0.00	3.90	337,000	695,574,000	301,000	703,631,000
11	6:30	B.B.	3.03			265,000	695,839,000	303,000	703,934,000
12	8:30	B.B.	3.09			347,000	696,186,000	350,000	704,284,000
13	7:00	B.B.	3.05			262,000	696,448,000	251,000	704,535,000
14	7:00	B.B.	2.11			259,000	696,707,000	237,000	704,772,000
15	5:45	B.B.	2.03			240,000	696,947,000	64,000	704,836,000
16	6:30	R.F.	3.04			230,000	697,177,000	458,000	705,294,000
17	7:00	R.F.	3.22	0.00	4.80	269,000	697,446,000	252,000	705,546,000
18	9:30	R.F.	3.05			279,000	697,725,000	254,000	705,800,000
19	6:00	R.F.	3.18			203,000	697,928,000	237,000	706,037,000
20	7:00	B.B.	3.12			325,000	698,253,000	317,000	706,354,000
21	7:00	B.B.	1.92			261,000	698,514,000	269,000	706,623,000
22	6:30	B.B.	2.40			226,000	698,740,000	183,000	706,806,000
23	7:00	B.B.	3.10			307,000	699,047,000	346,000	707,152,000
24	7:45	B.B.	3.27	0.00	5.30	374,000	699,421,000	369,000	707,521,000
25	7:30	B.B.	3.09			220,000	699,641,000	203,000	707,724,000
26	9:00	B.B.	3.00			261,000	699,902,000	259,000	707,983,000
27	7:45	B.B.	3.02			248,000	700,150,000	264,000	708,247,000
28	7:30	B.B.	2.93			262,000	700,412,000	259,000	708,506,000
29	6:15	B.B.	2.83			252,000	700,664,000	273,000	708,779,000
30	7:30	B.B.	2.86	0.00	4.10	282,000	700,946,000	245,000	709,024,000
31									
						8,024,000		**8,151,000**	

Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: July 2022
Plant Code: 104.0
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	9:00	R.F.	2.88			284,000	701,230,000	292,000	709,316,000
2	9:30	R.F.	2.81			297,000	701,527,000	297,000	709,613,000
3	6:00	R.F.	3.21			319,000	701,846,000	339,000	709,952,000
4	7:00	B.B.	3.30			371,000	702,217,000	359,000	710,311,000
5	6:45	B.B.	3.04			219,000	702,436,000	212,000	710,523,000
6	6:30	B.B.	3.19			272,000	702,708,000	291,000	710,814,000
7	7:00	B.B.	3.11			254,000	702,962,000	222,000	711,036,000
8	7:00	B.B.	3.23	0.00	4.40	300,000	703,262,000	326,000	711,362,000
9	7:15	B.B.	3.13			355,000	703,617,000	346,000	711,708,000
10	10:45	B.B.	2.98			382,000	703,999,000	357,000	712,065,000
11	7:15	B.B.	2.81			312,000	704,311,000	331,000	712,396,000
12	7:15	B.B.	2.91			306,000	704,617,000	310,000	712,706,000
13	6:15	B.B.	3.09			261,000	704,878,000	237,000	712,943,000
14	7:00	B.B.	3.16			672,000	705,550,000	711,000	713,654,000
15	8:00	B.B.	2.34	0.00	3.70	315,000	705,865,000	296,000	713,950,000
16	9:15	R.F.	3.01			437,000	706,302,000	466,000	714,416,000
17	6:00	R.F.	2.78			268,000	706,570,000	265,000	714,681,000
18	7:00	B.B.	2.88			415,000	706,985,000	388,000	715,069,000
19	7:30	B.B.	2.84			329,000	707,314,000	339,000	715,408,000
20	6:00	B.B.	2.76			192,000	707,506,000	206,000	715,614,000
21	7:00	B.B.	2.78			253,000	707,759,000	272,000	715,886,000
22	7:45	B.B.	2.74	0.00	3.90	313,000	708,072,000	310,000	716,196,000
23	8:30	B.B.	1.87			297,000	708,369,000	274,000	716,470,000
24	9:30	B.B.	2.86			318,000	708,687,000	294,000	716,764,000
25	6:45	B.B.	2.82			279,000	708,966,000	298,000	717,062,000
26	6:45	B.B.	2.89			280,000	709,246,000	284,000	717,346,000
27	7:45	B.B.	2.34			241,000	709,487,000	543,000	717,889,000
28	7:00	R.F.	2.51			208,000	709,695,000	177,000	718,066,000
29	6:30	R.F.	2.09	0.12	3.10	228,000	709,923,000	234,000	718,300,000
30	9:30	R.F.	2.15			305,000	710,228,000	328,000	718,628,000
31	5:30	R.F.	2.79			240,000	710,468,000	229,000	718,857,000
						9,522,000		9,833,000	

Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: August 2022
Plant Code: 104.0
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	9:30	R.F.	2..31			267,000	710,735,000	274,000	719,131,000
2	7:00	B.B.	2.94			286,000	711,021,000	274,000	719,405,000
3	6:15	B.B.	2.55			277,000	711,298,000	265,000	719,670,000
4	7:15	B.B.	2.37			285,000	711,583,000	13,000	719,683,000
5	7:45	B.B.	3.29	0.00	4.30	314,000	711,897,000	642,000	720,325,000
6	8:30	B.B.	3.01			298,000	712,195,000	301,000	720,626,000
7	9:30	B.B.	2.43			327,000	712,522,000	286,000	720,912,000
8	8:00	R.F.	3.36			297,000	712,819,000	278,000	721,190,000
9	6:30	R.F.	3.25			342,000	713,161,000	454,000	721,644,000
10	6:30	R.F.	1.16			368,000	713,529,000	372,000	722,016,000
11	7:00	R.F.	1.16			377,000	713,906,000	364,000	722,380,000
12	6:30	R.F.	1.87	0.30	1.90	395,000	714,301,000	352,000	722,732,000
13	9:30	R.F.	2.40			423,000	714,724,000	426,000	723,158,000
14	6:30	R.F.	2.57			365,000	715,089,000	393,000	723,551,000
15	9:30	R.F.	2.76			463,000	715,552,000	427,000	723,978,000
16	6:30	R.F.	3.12			286,000	715,838,000	298,000	724,276,000
17	7:00	R.F.	3.08			253,000	716,091,000	289,000	724,565,000
18	6:30	R.F.	3.11			259,000	716,350,000	280,000	724,845,000
19	6:30	R.F.	2.95	0.00	3.20	212,000	716,562,000	215,000	725,060,000
20	8:30	B.B.	2.95			263,000	716,825,000	220,000	725,280,000
21	10:00	B.B.	2.96			292,000	717,117,000	276,000	725,556,000
22	7:00	B.B.	3.02			244,000	717,361,000	290,000	725,846,000
23	7:00	B.B.	3.14			295,000	717,656,000	280,000	726,126,000
24	6:15	B.B.	2.80			251,000	717,907,000	276,000	726,402,000
25	7:00	B.B.	1.53			267,000	718,174,000	257,000	726,659,000
26	6:30	B.B.	2.19	0.10	3.20	272,000	718,446,000	267,000	726,926,000
27	7:30	R.F.	2.33			295,000	718,741,000	300,000	727,226,000
28	7:00	R.F.	2.27			280,000	719,021,000	318,000	727,544,000
29	7:00	B.B.	2.98			315,000	719,336,000	274,000	727,818,000
30	7:00	B.B.	3.06			226,000	719,562,000	351,000	728,169,000
31	6:15	B.B.	3.02			222,000	719,784,000	235,000	728,404,000
						9,316,000		**9,547,000**	

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Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: September 2022

Plant Code: 104.0
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	7:00	B.B.	2.88			263,000	720,047,000	303,000	728,707,000
2	7:00	B.B.	2.71	0.00	3.80	267,000	720,314,000	240,000	728,947,000
3	6:45	B.B.	2.73			247,000	720,561,000	270,000	729,217,000
4	8:00	B.B.	2.67			282,000	720,843,000	255,000	729,472,000
5	8:00	B.B.	2.64			272,000	721,115,000	269,000	729,741,000
6	8:15	R.F.	2.52			386,000	721,501,000	369,000	730,110,000
7	6:30	R.F.	2.80			361,000	721,862,000	392,000	730,502,000
8	9:00	R.F.	2.88			361,000	722,223,000	342,000	730,844,000
9	7:00	R.F.	1.51	0.04	2.30	263,000	722,486,000	304,000	731,148,000
10	6:00	R.F.	2.10			280,000	722,766,000	229,000	731,377,000
11	9:00	R.F.	2.68			344,000	723,110,000	366,000	731,743,000
12	6:30	B.B.	2.54			272,000	723,382,000	306,000	732,049,000
13	6:30	B.B.	2.01			348,000	723,730,000	330,000	732,379,000
14	6:00	B.B.	2.11			277,000	724,007,000	299,000	732,678,000
15	6:30	B.B.	2.00			573,000	724,580,000	582,000	733,260,000
16	7:15	B.B.	2.78	0.00	3.00	363,000	724,943,000	374,000	733,634,000
17	6:30	B.B.	2.67			209,000	725,152,000	165,000	733,799,000
18	7:45	B.B.	2.70			234,000	725,386,000	216,000	734,015,000
19	7:15	B.B.	2.91			255,000	725,641,000	278,000	734,293,000
20	7:00	B.B.	2.83			234,000	725,875,000	239,000	734,532,000
21	6:15	B.B.	2.98			241,000	726,116,000	243,000	734,775,000
22	6:45	B.B.	2.66			233,000	726,349,000	230,000	735,005,000
23	6:30	B.B.	2.99	0.00	3.50	226,000	726,575,000	227,000	735,232,000
24	9:30	R.F.	2.42			249,000	726,824,000	218,000	735,450,000
25	6:30	R.F.	2.32			198,000	727,022,000	254,000	735,704,000
26	7:00	B.B.	2.88			249,000	727,271,000	255,000	735,959,000
27	7:00	B.B.	2.91			253,000	727,524,000	243,000	736,202,000
28	6:00	B.B.	2.85			231,000	727,755,000	206,000	736,408,000
29	6:45	B.B.	2.86	0.00	2.50	270,000	728,025,000	245,000	736,653,000
30	6:30	B.B.	2.99			251,000	728,276,000	283,000	736,936,000
31									
						8,492,000		8,532,000	

Monthly Water Chlorination Report

Community: Kleefeld
Plant Code: 104.0
Month/Year: October 2022
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	6:45	B.B.	2.90			253,000	728,529,000	220,000	737,156,000
2	10:45	B.B.	2.92			289,000	728,818,000	269,000	737,425,000
3	6:45	B.B.	2.93			212,000	729,030,000	271,000	737,696,000
4	6:30	B.B.	2.84			217,000	729,247,000	212,000	737,908,000
5	6:00	B.B.	2.78			215,000	729,462,000	224,000	738,132,000
6	7:00	B.B.	2.65			228,000	729,690,000	223,000	738,355,000
7	6:45	B.B.	2.43	0.15	3.70	216,000	729,906,000	217,000	738,572,000
8	9:00	R.F.	2.26			256,000	730,162,000	212,000	738,784,000
9	6:30	R.F.	2.27			215,000	730,377,000	271,000	739,055,000
10	6:30	R.F.	2.16			217,000	730,594,000	214,000	739,269,000
11	7:00	B.B.	2.07			272,000	730,866,000	290,000	739,559,000
12	6:00	B.B.	1.97			227,000	731,093,000	183,000	739,742,000
13	6:30	B.B.	2.10			505,000	731,598,000	533,000	740,275,000
14	6:45	B.B.	2.46	0.20	3.80	318,000	731,916,000	312,000	740,587,000
15	6:45	B.B.	2.31			229,000	732,145,000	212,000	740,799,000
16	9:30	B.B.	2.30			265,000	732,410,000	236,000	741,035,000
17	6:45	B.B.	2.31			197,000	732,607,000	242,000	741,277,000
18	6:15	B.B.	1.83			239,000	732,846,000	237,000	741,514,000
19	6:15	B.B.	2.41			216,000	733,062,000	213,000	741,727,000
20	6:45	R.F.	2.65			235,000	733,297,000	222,000	741,949,000
21	6:45	R.F.	2.28	0.02	4.20	218,000	733,515,000	241,000	742,190,000
22	9:00	R.F.	2.20			241,000	733,756,000	187,000	742,377,000
23	5:30	R.F.	2.12			224,000	733,980,000	284,000	742,661,000
24	6:45	B.B.	2.31			248,000	734,228,000	260,000	742,921,000
25	6:45	B.B.	1.89			241,000	734,469,000	173,000	743,094,000
26	6:15	B.B.	1.95			226,000	734,695,000	271,000	743,365,000
27	6:30	B.B.	1.87			228,000	734,923,000	220,000	743,585,000
28	7:30	B.B.	1.93	0.46	2.30	220,000	735,143,000	212,000	743,797,000
29	6:15	B.B.	2.08			204,000	735,347,000	227,000	744,024,000
30	9:00	B.B.	1.98			259,000	735,606,000	224,000	744,248,000
31	7:00	B.B.	2.12			224,000	735,830,000	247,000	744,495,000
						7,554,000		7,559,000	

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Monthly Water Chlorination Report

Community: Kleefeld
Plant Code: 104.0
Month/Year: November 2022
Operators: Barry Broesky;Rob Friesen

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (Litres)	
			Mono	Free Amonia	Total	Daily	Cumulative	Daily	Cumulative
1	7:00	B.B.	1.87			222,000	736,052,000	212,000	744,707,000
2	6:00	B.B.	2.24			227,000	736,279,000	240,000	744,947,000
3	6:30	B.B.	2.59			232,000	736,511,000	221,000	745,168,000
4	7:30	B.B.	2.79	0.00	3.70	231,000	736,742,000	229,000	745,397,000
5	9:30	R.F.	2.56			247,000	736,989,000	235,000	745,632,000
6	7:30	R.F.	3.33			438,000	737,427,000	408,000	746,040,000
7	7:00	B.B.	3.05			240,000	737,667,000	297,000	746,337,000
8	7:00	B.B.	2.98			211,000	737,878,000	206,000	746,543,000
9	6:00	B.B.	2.94			212,000	738,090,000	213,000	746,756,000
10	7:45	B.B.	2.80	0.00	4.00	234,000	738,324,000	222,000	746,978,000
11	7:00	B.B.	2.76			186,000	738,510,000	200,000	747,178,000
12	6:45	B.B.	2.96			222,000	738,732,000	185,000	747,363,000
13	9:00	B.B.	2.43			287,000	739,019,000	271,000	747,634,000
14	7:00	R.F.	2.13			197,000	739,216,000	254,000	747,888,000
15	7:00	B.B.	2.52			214,000	739,430,000	167,000	748,055,000
16	6:30	B.B.	2.76			208,000	739,638,000	253,000	748,308,000
17	7:00	B.B.	2.76			218,000	739,856,000	216,000	748,524,000
18	7:00	B.B.	2.76	0.00	3.50	204,000	740,060,000	188,000	748,712,000
19	9:30	R.F.	2.25			224,000	740,284,000	212,000	748,924,000
20	6:00	R.F.	2.63			215,000	740,499,000	254,000	749,178,000
21	7:00	B.B.	2.78			252,000	740,751,000	236,000	749,414,000
22	7:00	B.B.	2.80			262,000	741,013,000	261,000	749,675,000
23	6:30	B.B.	2.83			228,000	741,241,000	236,000	749,911,000
24	7:00	B.B.	2.98			220,000	741,461,000	207,000	750,118,000
25	7:00	B.B.	2.90	0.00	4.10	210,000	741,671,000	212,000	750,330,000
26	7:15	B.B.	2.78			193,000	741,864,000	222,000	750,552,000
27	9:45	B.B.	2.69			260,000	742,124,000	233,000	750,785,000
28	7:30	B.B.	2.60			188,000	742,312,000	184,000	750,969,000
29	7:00	B.B.	2.63			249,000	742,561,000	278,000	751,247,000
30	5:45	B.B.	2.30			244,000	742,805,000	235,000	751,482,000
31									
						6,975,000		6,987,000	

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Monthly Water Chlorination Report

Community: Kleefeld
Month/Year: December 2022

Plant Code: 104.0
Operators: Barry Broesky;Rob Friese

Date	Time	Operator's Initial	Chlorine Residual (mg/L)			Distribution (Litres)		Raw (
			Mono	Free Amonia	Total	Daily	Cumulative	Daily
1	7:00	B.B.	2.26			258,000	743,063,000	242,000
2	6:45	B.B.	2.53	0.00	4.00	242,000	743,305,000	235,000
3	9:30	R.F.	2.21			239,000	743,544,000	241,000
4	6:00	R.F.	2.29			239,000	743,783,000	237,000
5	6:00	B.B.	2.48			244,000	744,027,000	259,000
6	7:00	B.B.	2.19			259,000	744,286,000	253,000
7	7:00	B.B.	2.41			208,000	744,494,000	212,000
8	7:00	B.B.	1.88			207,000	744,701,000	220,000
9	7:00	B.B.	2.05	0.37	2.80	211,000	744,912,000	211,000
10	6:30	B.B.	2.12			198,000	745,110,000	206,000
11	9:45	B.B.	1.86			247,000	745,357,000	225,000
12	7:15	B.B.	2.16			195,000	745,552,000	185,000
13	6:30	B.B.	2.02			207,000	745,759,000	221,000
14	6:30	B.B.	2.17			205,000	745,964,000	223,000
15	6:45	B.B.	2.13			212,000	746,176,000	205,000
16	8:00	B.B.	2.18	0.04	3.20	220,000	746,396,000	211,000
17	8:45	R.F.	1.97			221,000	746,617,000	219,000
18	6:00	R.F.	2.21			209,000	746,826,000	214,000
19	7:00	B.B.	2.06			235,000	747,061,000	215,000
20	7:00	B.B.	1.86			222,000	747,283,000	257,000
21	6:45	B.B.	1.84			201,000	747,484,000	175,000
22	7:00	B.B.	1.77			217,000	747,701,000	232,000
23	7:00	B.B.	1.96	0.06	3.20	221,000	747,922,000	219,000
24	8:00	B.B.	1.76			243,000	748,165,000	229,000
25	6:00	B.B.	2.05			234,000	748,399,000	257,000
26	7:00	B.B.	1.57			208,000	748,607,000	192,000
27	9:00	B.B.	1.65			241,000	748,848,000	222,000
28	7:00	B.B.	2.04			218,000	749,066,000	220,000
29	7:00	B.B.	1.92			201,000	749,267,000	235,000
30	8:00	B.B.	1.84	0.15	3.00	218,000	749,485,000	195,000
31	9:30	R.F.	2.08			224,000	749,709,000	218,000
						6,904,000		6,885,000

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Litres)
Cumulative
751,724,000
751,959,000
752,200,000
752,437,000
752,696,000
752,949,000
753,161,000
753,381,000
753,592,000
753,798,000
754,023,000
754,208,000
754,429,000
754,652,000
754,857,000
755,068,000
755,287,000
755,501,000
755,716,000
755,973,000
756,148,000
756,380,000
756,599,000
756,828,000
757,085,000
757,277,000
757,499,000
757,719,000
757,954,000
758,149,000
758,367,000

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD **Water System Code:** 104.0

Month: DECEMBER **Year:** 2022 **Type of Measurement Device:** ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY **Other Operators (Print):** ROB FRIESEN, STEPH DUVAL

Daily Consumption Units: m^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	7:00	B.B.	2.26		258
2	6:45	B.B.	2.53	4.0	242
3	9:30	R.F.	2.21		239
4	6:00	R.F.	2.29		239
5	6:00	B.B.	2.48		244
6	7:00	B.B.	2.19		259
7	7:00	B.B.	2.41		208
8	7:00	B.B.	1.88		207
9	7:00	B.B.	2.05	2.8	211
10	6:30	B.B.	2.12		198
11	9:45	B.B.	1.86		247
12	7:15	B.B.	2.16		195
13	6:30	B.B.	2.02		207
14	6:30	B.B.	2.17		205
15	6:45	B.B.	2.13		212
16	8:00	B.B.	2.18	3.2	220

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	8:45	R.F.	1.97		221
18	6:00	R.F.	2.21		209
19	7:00	B.B.	2.06		235
20	7:00	B.B.	1.86		222
21	6:45	B.B.	1.84		201
22	7:00	B.B.	1.77		217
23	7:00	B.B.	1.96	3.2	221
24	8:00	B.B.	1.76		243
25	6:00	B.B.	2.05		234
26	7:00	B.B.	1.57		208
27	9:00	B.B.	1.65		241
28	7:00	B.B.	2.04		218
29	7:00	B.B.	1.92		201
30	8:00	B.B.	1.84	3.0	218
31	9:30	R.F.	2.08		224
				Total Monthly Consumption	6,964

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
2	6:45	B.B.	0.00
9	7:00	B.B.	0.37

Date	Time	Initials	Ammonia (mg/L)
16	8:00	B.B.	0.04
23	7:15	B.B.	0.06

Date	Time	Initials	Ammonia (mg/L)
30	8:00	B.B.	0.15

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
13	9:15	B.B.	Main St.	2.22	2.7	0.34
28	11:45	B.B.	Main St.	1.74	2.8	0.28

Submitted by (Print): BARRY BROESKY **Signature:**

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: DECEMBER Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:15	B.B.	59.83	-
2	7:00	B.B.	59.83	-
3	9:30	R.F.	59.87	-
4	6:00	R.F.	59.87	-
5	6:15	B.B.	59.87	-
6	7:00	B.B.	59.87	-
7	7:00	B.B.	59.87	-
8	7:15	B.B.	59.87	-
9	7:30	B.B.	59.87	-
10	6:45	B.B.	59.79	-
11	9:45	B.B.	59.79	-
12	~~7:30~~	B.B.	59.79	-
13	6:45	B.B.	59.79	-
14	6:45	B.B.	59.79	-
15	7:00	B.B.	59.79	-
16	8:30	B.B.	59.79	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	8:45	R.F.	59.63	-
18	6:00	R.F.	59.63	-
19	7:15	B.B.	59.63	-
20	7:15	B.B.	59.63	-
21	6:45	B.B.	59.63	-
22	7:15	B.B.	59.63	-
23	7:15	B.B.	59.63	-
24	8:30	B.B.	59.65	-
25	19:00	B.B.	59.65	1
26	7:15	B.B.	59.65	-
27	9:30	B.B.	59.65	-
28	7:15	B.B.	59.65	-
29	7:00	B.B.	59.65	-
30	8:00	B.B.	59.65	-
31	9:30	R.F.	59.63	-

Date	UVT readings and Alarm or Warning History and actions taken to resolve
2	UVT TEST: 81.8
9	UVT TEST: 81.4
16	UVT TEST: 80.1
23	UVT TEST: 80.4
25	LOSS OF SCADA COMMUNICATION → RESET NETWORK SWITCHES
30	UVT TEST: 80.0

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 1040

Month: NOVEMBER Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	7:00	B.B.	1.87		222
2	6:00	B.B.	2.24		227
3	6:30	B.B.	2.59		232
4	7:30	B.B.	2.79	3.7	231
5	9:30	R.F.	2.56		247
6	7:30	R.F.	3.33		438
7	7:00	B.B.	3.05		240
8	7:00	B.B	2.98		211
9	6:00	B.B.	2.94		212
10	7:45	B.B.	2.80	4.0	234
11	7:00	B.B	2.76		186
12	6:45	B.B.	2.96		222
13	9:00	B.B.	2.43		287
14	7:00	R.F.	2.13		197
15	7:00	B.B.	2.52		214
16	6:30	B.B.	2.76		208

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	7:00	B.B.	2.76		218
18	7:00	B.B	2.76	3.5	204
19	9:30	R.F.	2.25		224
20	6:00	R.F.	2.63		215
21	7:00	B.B.	2.78		252
22	7:00	B.B.	2.80		262
23	6:30	B.B.	2.83		228
24	7:00	B.B	2.98		220
25	7:00	B.B.	2.90	4.1	212
26	7:15	B.B.	2.78		193
27	9:45	B.B.	2.69		260
28	7:30	B.B.	2.60		188
29	7:00	B.B	2.63		249
30	5:45	B.B.	2.30		244
31					
				Total Monthly Consumption	6,975

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
4	7:30	B.B.	0.00
10	7:45	B.B.	0.00

Date	Time	Initials	Ammonia (mg/L)
18	7:00	B.B.	0.00
25	7:00	B.B.	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
1	9:45	B.B.	MAIN ST.	1.46	1.7	>0.55
15	11:15	B.B.	49 FOX RUN	0.86	1.5	>0.55
29	11:15	B.B.	MAIN ST.	2.41	4.2	0.00

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: NOVEMBER Year: 2022

Operator-in-charge (Print): BARRY BROESLEY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:00	B.B	59.74	-
2	6:30	B.B.	59.74	-
3	6:45	B.B	60.51	-
4	8:00	B.B.	59.74	-
5	9:30	R.F	59.75	-
6	7:30	R.F.	59.75	-
7	7:00	B.B.	59.75	-
8	7:15	B.B.	59.75	-
9	6:30	B.B.	59.75	-
10	8:00	B.B.	59.75	-
11	7:15	B.B.	59.83	-
12	7:00	B.B.	59.83	-
13	9:30	B.B.	59.83	-
14	7:00	R.F.	59.83	-
15	7:30	B.B.	59.83	-
16	7:15	B.B.	59.83	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:15	B.B.	59.83	-
18	7:15	B.B.	59.83	-
19	9:30	R.F.	59.81	-
20	6:00	R.F.	60.35	-
21	7:15	B.B.	60.59	-
22	7:00	B.B.	59.81	-
23	6:45	B.B.	59.81	-
24	7:15	B.B.	59.81	-
25	7:15	B.B.	59.81	-
26	7:30	B.B.	59.83	-
27	9:45	B.B.	59.83	-
28	7:45	B.B.	59.83	-
29	7:15	B.B.	59.83	-
30	5:45	B.B.	59.83	-
31				

Date	UVT readings and Alarm or Warning History and actions taken to resolve
4	UVT TEST: 81.2
10	UVT TEST: 81.6
18	UVT TEST: 81.5
25	UVT TEST: 81.6

Submitted by (Print): BARRY BROESLEY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: OCTOBER Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	6:45	B.B.	2.90		253
2	10:45	B.B.	2.92		289
3	6:45	B.B.	2.93		212
4	6:30	B.B	2.84		217
5	6:00	B.B.	2.78		215
6	7:00	B.B.	2.65		228
7	6:45	B.B	2.43	3.7	216
8	9:00	R.F.	2.26		256
9	6:30	R.F.	2.27		215
10	6:30	R.F.	2.16		217
11	7:00	B.B.	2.07		272
12	6:00	B.B.	1.97		227
13	6:30	B.B	2.10		505
14	6:45	B.B.	2.46	3.8	318
15	6:45	B.B.	2.31		229
16	9:30	B.B.	2.30		265

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	6:45	B.B.	2.31		197
18	6:15	B.B.	1.83		239
19	6:15	B.B.	2.41		216
20	6:45	R.F.	2.65		235
21	6:45	R.F.	2.28	4.2	218
22	9:00	R.F	2.20		241
23	5:30	R.F.	2.12		224
24	6:45	B.B.	2.31		248
25	6:45	B.B.	1.89		241
26	6:15	B.B.	1.95		226
27	6:30	B.B.	1.87		228
28	7:30	B.B.	1.93	2.8	220
29	6:15	B.B.	2.08		204
30	9:00	B.B.	1.98		259
31	7:00	B.B	2.12		224
				Total Monthly Consumption	7,554

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
7	6:45	B.B.	0.15
14	6:45	B.B.	0.20

Date	Time	Initials	Ammonia (mg/L)
21	6:45	R.F.	0.02
28	7:30	B.B.	0.46

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
4	9:15	B.B.	MAIN ST.	2.54	4.2	0.07
18	10:45	B.B.	MAIN ST.	2.09	2.6	0.30

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: OCTOBER Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:00	B.B.	59.71	-
2	11:00	B.B.	59.71	-
3	7:00	B.B.	59.71	-
4	6:45	B.B.	59.71	-
5	6:30	B.B.	59.71	-
6	7:00	B.B.	58.13	-
7	7:00	B.B.	59.71	-
8	9:00	R.F.	59.72	-
9	6:30	R.F.	59.72	-
10	6:30	R.F.	59.72	-
11	7:15	B.B.	59.72	-
12	6:30	B.B.	59.72	-
13	6:45	B.B.	59.72	-
14	7:00	B.B.	59.72	-
15	7:00	B.B.	59.64	-
16	9:45	B.B.	59.64	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:00	B.B.	59.64	-
18	6:30	B.B.	56.64	-
19	6:30	B.B.	59.64	-
20	6:45	R.F.	59.64	-
21	6:45	R.F.	59.64	-
22	9:00	R.F.	59.64	-
23	5:30	R.F.	59.64	-
24	7:00	B.B.	59.64	-
25	7:00	B.B.	59.64	-
26	6:30	B.B.	59.64	-
27	6:45	B.B.	59.64	-
28	8:00	B.B.	59.64	-
29	6:30	B.B.	59.74	-
30	9:15	B.B.	60.28	-
31	7:30	B.B.	59.74	-

Date	UVT readings and Alarm or Warning History and actions taken to resolve
7	UVT TEST: 81.0
14	UVT TEST: 80.2
21	UVT TEST: 80.2
24	Power Outage Reset UV
28	UVT TEST: 81.1

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: SEPTEMBER Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

STEPH DUVAL

Daily Consumption Units: m^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	7:00	B.B.	2.88		263
2	7:00	B.B.	2.71	3.8	267
3	6:45	B.B.	2.73		247
4	8:00	B.B.	2.67		282
5	8:00	B.B.	2.64		272
6	8:15	R.F.	2.52		~~361~~
7	6:30	R.F.	2.80		361
8	9:00	R.F.	2.88		361
9	7:00	R.F.	1.51	2.3	263
10	8:00	R.F.	2.10		280
11	9:00	R.F.	2.68		366
12	6:30	B.B.	2.54		272
13	6:30	B.B.	2.01		348
14	6:00	B.B.	2.11		277
15	6:30	B.B.	2.00		573
16	7:15	B.B.	2.78	3.0	363

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	6:30	B.B.	2.67		209
18	7:45	B.B.	2.70		234
19	7:15	B.B.	2.91		255
20	7:00	B.B.	2.83		234
21	6:15	B.B.	2.98		241
22	6:45	B.B.	2.66		233
23	6:30	B.B.	2.99	3.5	226
24	9:30	R.F.	2.42		249
25	6:30	R.F.	2.32		198
26	7:00	B.B.	2.88		249
27	7:00	B.B.	2.91		253
28	6:00	B.B.	2.85		231
29	6:45	B.B.	2.86	2.5	270
30	6:30	B.B.	2.99		251
31					
				Total Monthly Consumption	8,492

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
2	7:00	B.B.	0.00
9	7:00	R.F.	0.04

Date	Time	Initials	Ammonia (mg/L)
16	7:15	B.B.	0.00
23	6:30	B.B.	0.00

Date	Time	Initials	Ammonia (mg/L)
29	6:45	B.B.	0.00

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
~~10:30~~ 6th		~~RF~~				
6	10:30	R.F.	Fire hall	2.22	3.0	0.04
20	11:00	B.B.	MAIN ST.	2.75	3.2	0.02

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 1040

Month: SEPTEMBER Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:15	B.B.	60.39	-
2	7:15	B.B.	60.39	-
3	7:00	B.B.	60.41	-
4	8:15	B.B.	60.41	-
5	8:30	B.B.	60.41	-
6	9:30	R.F.	60.41	-
7	6:30	R.F.	60.41	-
8	9:00	R.F.	56.46	-
9	7:00	R.F.	60.96	-
10	6:00	R.F.	59.63	-
11	9:00	R.F.	59.63	-
12	6:45	B.B.	59.63	-
13	7:00	B.B.	59.63	-
14	6:15	B.B.	59.63	-
15	6:45	B.B.	59.63	-
16	7:45	B.B.	60.41	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:00	B.B.	59.62	-
18	8:00	B.B.	59.62	-
19	7:45	B.B.	59.62	-
20	7:15	B.B.	59.62	-
21	6:30	B.B.	59.62	-
22	7:15	B.B.	59.62	-
23	7:00	B.B.	59.62	-
24	9:30	R.F.	59.62	-
25	6:30	R.F.	59.62	-
26	7:00	B.B.	59.62	-
27	7:00	B.B.	59.62	-
28	6:30	B.B.	59.62	-
29	7:00	B.B.	59.62	-
30	6:30	B.B.	59.71	-
31				

Date	UVT readings and Alarm or Warning History and actions taken to resolve
2	UVT TEST: 80.1
9	UVT TEST: 74.0
16	UVT TEST: 79.9
23	UVT TEST: 79.5
29	UVT TEST: 80.9

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: AUG. Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mj/cm² STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	9:30	R.F.	64.01	–
2	7:30	B.B.	64.01	–
3	6:45	B.B	64.01	–
4	7:45	B.B.	63.25	–
5	8:00	B.B.	62.48	–
6	8:30	B.B.	63.50	–
7	9:30	B.B.	63.50	–
8	8:00	R.F.	64.25	–
9	6:30	R.F.	63.50	–
10	2:00	R.F.	63.50	–
11	7:00	R.F.	63.50	–
12	6:30	R.F.	65.43	–
13	9:30	R.F.	64.25	–
14	6:30	R.F.	64.25	–
15	9:30	R.F.	64.25	–
16	6:30	R.F.	64.25	–

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:00	R.F.	64.25	–
18	6:30	R.F.	63.50	–
19	6:30	R.F.	63.50	–
20	8:30	B.B.	63.50	–
21	10:00	B.B.	63.50	–
22	7:15	B.B.	63.50	–
23	7:30	B.B.	63.50	–
24	6:30	B.B.	61.99	–
25	7:15	B.B.	61.99	–
26	7:00	B.B.	61.99	–
27	7:30	R.F.	61.16	–
28	7:00	R.F.	60.39	–
29	7:00	B.B.	60.39	–
30	7:15	B.B.	60.39	–
31	6:30	B.B.	60.39	–

Date	UVT readings and Alarm or Warning History and actions taken to resolve
12	UVT - 79.3
19	UVT - 78.9
26	UVT TEST: 79.7

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 1040

Month: AUG. Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	9:30	R.F.	2.31		267
2	7:00	B.B.	2.94		286
3	6:15	B.B.	2.55		277
4	7:15	B.B.	2.87		285
5	7:45	B.B.	3.29	4.3	314
6	8:30	B.B.	3.01		298
7	9:30	B.B.	2.48		327
8	8:00	R.F.	3.36		
9	6:30	R.F.	3.25		342
10	6:30	R.F.	1.16		368
11	7:00	R.F.	1.16		377
12	6:30	R.F.	1.87	1.9	395
13	9:30	R.F.	2.40		423
14	6:30	R.F.	2.57		365
15	9:30	R.F.	2.76		463
16	6:30	R.F.	3.12		286

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	7:00	R.F.	3.08		253
18	6:30	R.F.	3.11		259
19	6:30	R.F.	2.95	3.2	212
20	8:30	B.B.	2.95		
21	10:00	B.B.	2.96		292
22	7:00	B.B.	3.02		244
23	7:00	B.B.	3.14		295
24	6:15	B.B.	2.80		251
25	7:00	B.B.	1.53		267
26	6:30	B.B.	2.19	3.2	272
27	7:30	R.F.	2.33		295
28	7:00	R.F.	2.27		280
29	7:00	B.B.	2.98		315
30	7:00	B.B.	3.06		226
31	6:15	B.B.	3.02		222
				Total Monthly Consumption	9,316

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
5	7:45	B.B.	0.00
12	6:30	R.F.	0.30

Date	Time	Initials	Ammonia (mg/L)
19	6:30	R.F.	0.00
26	6:30	B.B.	0.10

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
9	R.F.	9:30	Fire Hall	2.69	3.7	0.00
23	B.B.	11:15	Main St.	2.83	3.3	0.00

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: JULY Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm^2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	9:00	R.F.	61.93	—
2	9:30	R.F.	62.69	—
3	6:30	R.F.	63.44	—
4	7:15	B.B.	63.44	—
5	7:15	B.B.	62.69	—
6	6:45	B.B.	63.44	—
7	7:15	B.B.	63.44	—
8	7:30	B.B.	63.44	—
9	7:30	B.B.	64.19	—
10	11:15	B.B.	63.44	—
11	7:30	B.B.	63.44	—
12	7:30	B.B.	63.44	—
13	6:30	B.B	64.19	—
14	7:30	B.B.	63.44	—
15	8:30	B.B.	63.06	—
16	9:15	R.F.	63.54	—

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	6:00	R.F.	63.54	—
18	7:45	B.B.	63.54	—
19	7:30	B.B.	64.29	—
20	6:30	B.B.	63.54	—
21	7:15	B.B.	63.54	—
22	7:45	B.B.	63.54	—
23	8:30	B.B.	64.01	—
24	9:30	B.B.	64.01	—
25	7:00	B.B.	64.19	—
26	7:00	B.B	64.76	—
27	8:00	B.B.	64.01	—
28	7:00	R.F.	64.01	—
29	6:30	R.F.	65.18	—
30	9:30	R.F.	64.01	—
31	5:30	R.F.	64.76	—

Date	UVT readings and Alarm or Warning History and actions taken to resolve
8	UVT TEST : 79.5
15	UVT TEST : 78.2
22	UVT TEST : 76.3
29	UVT TEST : 79.4

Submitted by (Print): Rob Friesen Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: JULY Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BRIGLEY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	9:00	R.F.	2.88	~~2.88~~	284
2	9:30	R.F.	2.81		297
3	6:30	R.F.	3.21		319
4	7:00	B.B.	3.30		371
5	6:45	B.B.	3.04		219
6	6:30	B.B.	3.19		272
7	7:00	B.B.	3.11		254
8	7:00	B.B.	3.23	4.4	300
9	7:15	B.B.	3.13		355
10	10:45	B.B.	2.98		382
11	7:15	B.B.	2.81		312
12	7:15	B.B.	2.91		306
13	6:15	B.B.	3.09		261
14	7:00	B.B.	3.16		672
15	8:00	B.B.	2.34	3.7	315
16	9:15	R.F.	3.01	[illegible]	437

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	6:00	R.F.	2.78		268
18	7:00	B.B.	2.88		415
19	7:30	B.B.	2.84		329
20	6:00	B.B.	2.76		192
21	7:00	B.B.	2.78		253
22	7:45	B.B.	2.74	3.9	313
23	8:30	B.B.	1.87		297
24	9:30	B.B.	2.86		318
25	6:45	B.B.	2.82		279
26	6:45	B.B.	2.89		280
27	7:45	B.B.	2.54		241
28	7:00	R.F.	2.51		208
29	6:30	R.F.	2.09	[illegible]	228
30	9:30	R.F.	2.15		305
31	5:30	R.F.	2.79		240
				Total Monthly Consumption	9522

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
8	7:00	B.B.	0.00
15	8:00	B.B.	0.00

Date	Time	Initials	Ammonia (mg/L)
22	7:45	B.B.	0.00
29	6:30	R.F.	0.12

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
12		B.B.	Main St.	2.90	3.3	0.00
26	9:45	B.B.	Main St.	2.82	3.6	0.00
2						

Submitted by (Print): Rob Friesen Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: JUNE Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm^2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:00	B.B.	62.80	-
2	7:15	B.B.	62.24	-
3	7:15	B.B.	62.99	-
4	9:30	R.F.	63.47	-
5	6:30	R.F.	62.91	-
6	7:30	B.B.	62.91	-
7	7:15	B.B.	62.91	-
8	6:45	B.B.	63.47	-
9	7:30	B.B.	62.91	-
10	8:30	B.B.	62.91	-
11	6:45	B.B.	62.88	-
12	8:30	B.B.	63.44	-
13	7:30	B.B.	63.44	-
14	7:15	B.B.	63.44	-
15	6:15	B.B.	61.93	-
16	6:30	R.F.	63.44	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:00	R.F.	61.93	-
18	9:30	R.F	61.38	-
19	6:00	R.F.	61.16	-
20	7:15	B.B.	61.38	-
21	7:15	B.B.	61.38	-
22	6:45	B.B.	62.69	-
23	7:15	B.B.	61.93	-
24	8:00	B.B.	63.06	-
25	7:45	B.B.	62.89	-
26	9:00	B.B.	61.94	-
27	8:15	B.B.	61.39	-
28	7:45	B.B.	63.46	-
29	6:45	B.B.	61.94	-
30	7:45	B.B.	61.94	-
31				

Date	UVT readings and Alarm or Warning History and actions taken to resolve
3	UVT TEST : 80.3
10	UVT TEST : 79.6
17	UVT TEST : 77.0
24	UVT TEST: 79.0
30	UVT TEST : 79.5

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: MAY Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mj/cm^2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	9:45	B.B.	62.90	-
2	7:45	B.B.	63.46	-
3	7:00	B.B.	63.46	-
4	7:45	B.B.	63.46	-
5	7:00	B.B.	62.90	-
6	7:00	B.B.	64.63	-
7	6:30	R.F.	63.66	-
8	6:30	R.F.	63.48	-
9	7:10	B.B.	62.92	-
10	7:30	B.B.	63.48	-
11	6:45	B.B.	63.48	-
12	6:45	B.B.	62.92	-
13	7:15	B.B.	63.48	-
14	6:45	B.B.	63.85	-
15	10:05	B.B.	63.85	-
16	7:30	B.B.	63.28	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:15	B.B.	62.32	-
18	6:30	B.B.	63.85	-
19	7:30	B.B.	63.28	-
20	8:00	B.B.	63.28	-
21	9:00	R.F.	63.59	-
22	6:00	R.F.	63.59	-
23	9:00	R.F.	63.59	-
24	7:15	B.B.	63.59	-
25	7:15	B.B.	63.59	-
26	7:15	B.B.	63.59	-
27	8:30	B.B.	64.75	-
28	6:00	B.B.	62.99	-
29	11:00	B.B.	63.55	-
30	7:30	B.B.	62.99	-
31	7:15	B.B.	62.99	-

Date	UVT readings and Alarm or Warning History and actions taken to resolve
6	UVT TEST: 80.4
13	UVT TEST: 76.8
20	UVT TEST: 81.2
27	UVT TEST: 81.0

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: MAY Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	9:30	B.B.	2.77		246
2	7:30	B.B.	2.75		200
3	6:45	B.B.	2.82		202
4	7:15	B.B.	2.80		207
5	6:30	B.B.	2.79		205
6	6:30	B.B.	2.83	4.0	210
7	6:30	R.F.	2.33		196
8	6:30	R.F.	2.33		232
9	6:45	B.B.	2.67		225
10	7:00	B.B.	2.40		219
11	6:30	B.B.	2.47		225
12	6:30	B.B.	3.07		571
13	7:00	B.B.	1.95	3.6	223
14	6:30	B.B.	2.14		201
15	10:00	B.B.	2.56		270
16	7:00	B.B.	2.74		202

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	7:00	B.B.	2.65		208
18	6:15	B.B.	2.70		199
19	7:00	B.B.	2.55		215
20	7:30	B.B	2.57	4.2	226
21	9:00	R.F.	2.20		237
22	6:00	R.F.	2.26		221
23	9:00	R.F.	2.27		241
24	7:00	B.B	2.82		247
25	7:00	B.B.	2.29		233
26	7:00	B.B.	2.01		230
27	8:00	B.B.	2.28	3.6	243
28	5:30	B.B.	2.56		223
29	10:45	B.B.	2.93		320
30	7:00	B.B.	2.90		207
31	7:00	B.B.	2.85		231
				Total Monthly Consumption	7,315

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
6	6:30	B.B.	0.00
13	7:00	B.B.	0.00

Date	Time	Initials	Ammonia (mg/L)
20	7:30	B.B.	0.00
27	8:00	B.B.	0.00

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
3	9:15	B.B.	MAIN ST.	2.81	4.2	0.00
17	11:15	B.B.	MAIN ST.	2.67	4.4	0.00
31	11:30	B.B.	MAIN ST.	2.37	4.0	0.00

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: APRIL Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mJ/cm^2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:30	B.B.	63.46	-
2	9:00	B.B.	63.48	-
3	10:30	B.B.	64.23	-
4	7:15	B.B.	63.48	-
5	7:30	B.B.	63.48	-
6	7:00	B.B.	64.23	-
7	10:15	B.B.	64.23	-
8	8:15	B.B.	63.48	-
9	9:30	R.F.	63.47	-
10	6:30	R.F.	63.47	-
11	7:15	B.B.	63.47	-
12	8:00	B.B.	63.47	-
13	6:30	B.B.	63.47	-
14	8:30	B.B.	63.47	-
15	9:00	B.B.	63.54	-
16	9:00	B.B.	63.54	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	10:15	B.B.	63.54	-
18	6:45	B.B.	63.54	-
19	6:30	B.B.	63.54	-
20	6:45	B.B.	62.97	-
21	6:30	B.B.	63.54	-
22	6:45	B.B.	64.70	-
23	5:30	R.F.	63.48	-
24	12:00	S.D.	63.48	-
25	6:45	B.B.	63.48	-
26	7:00	B.B.	63.48	-
27	6:45	B.B.	63.48	-
28	7:00	B.B.	63.48	-
29	7:15	B.B.	64.64	-
30	6:15	B.B.	63.46	-
31				

Date	UVT readings and Alarm or Warning History and actions taken to resolve
1	UVT TEST: 80.4
8	UVT TEST: 80.3
14	UVT TEST: 80.9
22	UVT TEST: 80.4
29	UVT TEST: 80.2

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: APRIL Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

STEPH DUVAL

Daily Consumption Units: m^3

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	7:00	B.B.	2.22	3.7	189
2	8:45	B.B.	2.30		200
3	10:30	B.B.	2.29		234
4	7:00	B.B.	2.41		193
5	7:00	B.B.	2.33		221
6	6:45	B.B.	2.48		209
7	7:00	B.B.	2.66		244
8	8:00	B.B.	2.28	4.1	224
9	9:30	R.F.	2.69		219
10	6:30	R.F.	2.43		208
11	7:00	B.B.	2.64		252
12	7:30	B.B.	2.39		220
13	6:15	B.B.	2.13		192
14	8:00	B.B.	2.32	3.3	222
15	8:45	B.B.	2.41		212
16	8:30	B.B.	2.65		208

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	10:00	B.B	2.74		238
18	6:30	B.B.	2.63		162
19	6:30	B.B.	2.45		210
20	6:30	B.B.	2.05		200
21	6:15	B.B.	1.84		200
22	6:15	B.B.	2.22	3.6	210
23	5:30	R.F.	2.71		196
24	12:00	S.D.	2.76		269
25	6:30	B.B.	2.78		158
26	6:30	B.B.	2.89		221
27	6:30	B.B.	2.79		201
28	6:30	B.B.	2.32		196
29	6:45	B.B.	2.44	3.6	216
30	6:00	B.B.	2.54		199
31					
				Total Monthly Consumption	6,323

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
1	7:00	B.B.	0.02
8	8:00	B.B.	0.00
14	8:00	B.B.	0.00
22	6:15	B.B.	0.00
29	6:45	B.B.	0.00

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
5	13:30	B.B.	MAIN ST.	2.35	3.5	0.00
19	8:15	B.B.	MAIN ST.	2.68	3.9	0.00

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: MARCH Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mj/cm^2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:45	B.B	63.51	-
2	6:30	B.B.	63.51	-
3	7:15	B.B	64.26	-
4	7:15	B.B.	63.51	-
5	8:15	B.B.	63.46	-
6	10:00	B.B.	63.46	-
7	7:30	B.B.	63.46	-
8	7:15	B.B.	63.46	-
9	7:00	B.B.	63.46	-
10	7:00	B.B.	63.46	-
11	8:00	B.B.	63.46	-
12	9:30	R.F.	63.52	-
13	7:00	R.F.	63.52	-
14	7:15	B.B.	63.52	-
15	7:30	B.B.	63.52	-
16	7:00	B.B.	63.52	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:45	B.B.	63.52	-
18	7:30	B.B.	63.52	-
19	8:00	B.B	63.46	-
20	10:45	B.B.	63.46	-
21	7:30	B.B.	68.46	-
22	7:30	B.B	63.46	-
23	6:45	B.B.	63.46	-
24	7:30	B.B.	63.46	-
25	7:30	B.B.	63.46	-
26	9:30	R.F.	63.46	-
27	5:30	R.F.	63.46	-
28	8:30	B.B.	63.46	-
29	7:15	B.B.	63.46	-
30	6:45	B.B.	63.46	-
31	7:45	B.B.	63.46	-

Date	UVT readings and Alarm or Warning History and actions taken to resolve
4	UVT TEST: 80.1
11	UVT TEST: 80.8
18	UVT TEST: 80.2
25	UVT TEST: 80.2

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: MARCH Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	7:00	B.B.	1.92		253
2	6:15	B.B.	2.35		207
3	7:00	B.B.	2.06		233
4	7:00	B.B.	2.47	3.2	211
5	8:00	B.B.	2.42		271
6	9:30	B.B.	2.08		234
7	7:00	B.B.	2.22		184
8	7:00	B.B.	2.01		235
9	6:30	B.B.	1.95		206
10	7:00	B.B.	2.07		230
11	7:45	B.B.	1.87	3.2	216
12	9:30	R.F.	2.19		237
13	7:00	R.F.	2.29		193
14	7:00	B.B.	1.97		225
15	7:30	B.B.	2.25		230
16	6:15	B.B.	2.18		208

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	7:00	B.B.	2.09		235
18	7:00	B.B.	2.09	3.6	208
19	7:30	B.B.	2.02		201
20	10:30	B.B.	2.24		249
21	7:00	B.B.	2.11		182
22	7:00	B.B.	2.17		228
23	6:30	B.B.	2.06		212
24	7:00	B.B.	2.14		230
25	7:00	B.B.	1.86	3.6	208
26	9:30	R.F.	1.91		223
27	5:30	R.F.	2.15		189
28	8:00	B.B.	1.92		230
29	7:00	B.B.	2.08		206
30	6:30	B.B.	2.22		188
31	7:00	B.B.	2.21		206
				Total Monthly Consumption	6,768

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
4	7:00	B.B.	0.02
11	7:45	B.B.	0.03

Date	Time	Initials	Ammonia (mg/L)
18	7:00	B.B.	0.01
25	7:00	B.B.	0.02

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
8	11:30	B.B.	MAIN ST.	1.88	3.8	0.01
22	13:30	B.B.	MAIN ST.	2.05	4.2	0.01

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: FEBRUARY Year: 2022

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Unit: mj/cm^2 STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	7:30	B.B.	63.51	-
2	6:45	B.B.	63.51	-
3	7:30	B.B.	63.51	-
4	7:15	B.B.	63.51	-
5	6:30	B.B.	63.52	-
6	14:00	B.B.	63.51	-
7	7:15	B.B.	63.52	-
8	7:15	B.B.	63.52	-
9	7:00	B.B.	63.52	-
10	7:15	B.B.	63.52	-
11	7:15	B.B.	63.52	-
12	9:15	R.F.	63.62	-
13	6:30	R.F.	64.37	-
14	7:15	B.B.	63.62	-
15	7:30	B.B.	63.62	-
16	6:30	B.B.	63.62	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:15	B.B.	63.62	-
18	7:15	B.B.	63.62	-
19	6:45	B.B.	63.51	-
20	8:30	B.B.	63.51	-
21	7:30	B.B.	63.51	-
22	8:00	B.B.	63.51	-
23	6:45	B.B.	63.51	-
24	7:30	B.B.	63.51	-
25	7:30	B.B.	64.26	-
26	9:00	R.F.	63.51	-
27	7:00	R.F.	64.26	-
28	8:00	B.B.	64.26	-
29				
30				
31				

Date	UVT readings and Alarm or Warning History and actions taken to resolve
4	UVT TEST: 80.8
11	UVT TEST: 81.4
18	UVT TEST: 80.7
25	UVT TEST: 80.7

Submitted by (Print): BARRY BROESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: FEBRUARY Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	7:00	B.B.	2.44		194
2	6:30	B.B.	1.88		199
3	7:15	B.B.	2.01		209
4	7:00	B.B.	1.98	2.5	195
5	6:15	B.B.	1.65		203
6	8:00	B.B.	2.43		231
7	7:00	B.B.	2.72		216
8	7:00	B.B.	2.82		218
9	6:30	B.B.	2.77		199
10	7:00	B.B.	2.75		201
11	7:00	B.B.	2.61	3.8	197
12	9:45	R.F.	2.63		238
13	6:30	R.F.	3.00		190
14	7:45	B.B.	1.57		228
15	7:00	B.B.	2.70		205
16	6:15	B.B.	2.74		197

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	7:00	B.B.	1.75		213
18	7:00	B.B.	2.57	3.6	210
19	6:30	B.B.	2.44		206
20	8:15	B.B.	2.40		216
21	7:00	B.B.	2.06		196
22	7:45	B.B.	1.74		235
23	6:30	B.B.	1.82		189
24	7:00	B.B.	2.67		204
25	7:00	B.B.	2.35	3.3	204
26	9:00	R.F.	2.49		226
27	7:00	R.F.	2.78		195
28	8:00	B.B.	2.62		220
29					
30					
31					
				Total Monthly Consumption	5,834

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
4	7:00	B.B.	0.01
11	7:00	B.B.	0.04

Date	Time	Initials	Ammonia (mg/L)
18	7:00	B.B.	0.01
25	7:00	B.B.	0.03

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
8	9:45	B.B.	MAIN ST.	2.55	3.9	0.01
22	14:30	B.B.	MAIN ST.	2.21	2.5	0.02

Submitted by (Print): BARRY BROESKY Signature: [signature]

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Manitoba

Monthly Ultraviolet (UV) Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: JANUARY Year: 2022

Operator-in-charge (Print): BARRY BRUESKY Other Operators (Print): ROB FRIESEN

Unit: mj/cm² STEPH DUVAL

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
1	9:30	B.B.	64.20	-
2	9:00	B.B.	64.20	-
3	8:00	B.B.	63.45	-
4	7:00	B.B.	63.45	-
5	6:05	B.B.	63.45	-
6	7:15	B.B.	63.45	-
7	7:50	B.B.	63.45	-
8	7:30	B.B.	64.20	-
9	10:00	B.B.	64.20	-
10	7:15	B.B.	63.45	-
11	7:10	B.B.	63.45	-
12	6:30	B.B.	63.45	-
13	7:15	B.B.	63.45	-
14	7:15	B.B.	63.45	-
15	9:30	R.F.	63.54	-
16	6:00	R.F.	63.54	-

Date	Time	Operator Initials	UV Dose mJ/cm2	Number of Alarms (A) or Warnings (W)
17	7:15	B.B.	64.29	-
18	7:15	B.B.	63.54	-
19	6:15	B.B.	63.54	-
20	7:15	B.B	64.29	-
21	6:45	B.B.	63.54	-
22	15:50	B.B.	63.54	-
23	9:05	B.B.	63.51	-
24	7:15	B.B.	63.51	-
25	7:15	B.B.	63.51	-
26	6:45	R.F.	65.74	-
27	6:45	R.F.	64.26	-
28	8:30	R.F.	63.51	-
29	9:45	R.F.	64.26	-
30	9:00	R.F.	63.51	-
31	8:30	B.B.	63.51	-

Date	UVT readings and Alarm or Warning History and actions taken to resolve
7	UVT TEST: 80.1
14	UVT TEST: 80.9
21	UVT TEST: 80.7
28	UVT TEST: 81.5

Submitted by (Print): BARRY BRUESKY Signature:

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
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Manitoba

Monthly Chloramination Report

Water System Name: KLEEFELD Water System Code: 104.0

Month: JANUARY Year: 2022 Type of Measurement Device: ELECTRONIC

Operator-in-charge (Print): BARRY BROESKY Other Operators (Print): ROB FRIESEN

Daily Consumption Units: m^3 STEPH DUVAL

Flow Meter for Daily Consumption: (circle choice) Raw (Treated) No Metering

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
1	9:00	B.B.	1.45		252
2	9:00	B.B.	1.36		206
3	7:45	B.B.	1.26		197
4	7:00	B.B.	1.40		215
5	5:45	B.B.	1.49		199
6	7:00	B.B	1.70		208
7	7:00	B.B	1.66	2.7	207
8	7:15	B.B.	1.54		192
9	10:00	B.B	1.43		242
10	7:00	B.B.	1.40		197
11	7:00	B.B.	1.40		228
12	6:00	B.B.	1.48		210
13	7:00	B.B.	1.35		219
14	7:00	B.B.	1.34	2.1	241
15	9:30	R.F.	0.64		~~241~~ 215
16	6:00	R.F.	0.48		191

Date	Time	Initials	Residuals (mg/L)		Daily Consumption
			Mono	Total	
17	7:00	B.B.	0.64		218
18	7:00	B.B.	1.04		216
19	6:00	B.B.	1.69		199
20	7:00	B.B.	2.25		208
21	6:30	B.B.	2.52	3.4	189
22	7:00	B.B	3.13		542
23	9:00	B.B.	2.30		229
24	7:00	B.B.	2.30		201
25	7:00	B.B.	1.96		218
26	6:45	R.F.	2.40		194
27	6:45	R.F.	2.78		200
28	8:30	R.F.	2.55	4.5	216
29	9:45	R.F.	2.54		202
30	9:00	R.F.	2.60		194
31	8:00	B.B.	2.45		208
				Total Monthly Consumption	6,853

Ammonia in Treated Water

Date	Time	Initials	Ammonia (mg/L)
7	7:00	B.B.	0.01
14	7:00	B.B.	0.03

Date	Time	Initials	Ammonia (mg/L)
21	6:30	B.B.	0.00
28	8:30	R.F.	0.01

Date	Time	Initials	Ammonia (mg/L)

Residuals at Distribution Sample Locations

Date	Time	Initials	Location	Residuals (mg/L)		
				Mono	Total	Ammonia
11	9:15	B.B.	MAIN ST.	1.29	2.3	0.02
25	11:30	B.B.	MAIN ST.	2.46	3.6	0.03

Submitted by (Print): BARRY BROESKY Signature: [signature]

PLEASE REFER TO OPERATING LICENCE FOR APPLICABLE TREATMENT STANDARDS AND MONITORING REQUIREMENTS.
PLEASE CONTACT YOUR DRINKING WATER OFFICER WITH ANY COMMENTS, QUESTIONS OR CONCERNS.

Date	Comments
15	LOW MONOCHLORAMINE RESIDUAL - TURNED UP THE CHLORINATOR PUMP
16	LOW MONOCHLORAMINE RESIDUAL - TURNED UP THE CHLORINATOR PUMP
17	LOW MONOCHLORAMINE RESIDUAL - FLUSHED OUT THE FLOW CONTROLLERS