

ANALYSIS FOR WATERBORNE PARTICULATES

CH Diagnostic and Consulting Service, Inc.
512 5th Street, Berthoud, CO 80513
P: (970) 532-2078 F: (970) 532-3358

Invoice 20180718

Customer 20152082
Arabian Acres Metro District
5305 Whimsical Drive
Colorado Springs, CO 80917
PWSID# 0160075

Laboratory Information

UPS; 7/23/2018; 1210 Hrs; 24.2°C; Wound
Results submitted by:



Sample Identification: Well #3, 004

Sample Information: SOURCE: Dug Well; 22' deep; Unchlorinated; 10.1°C → 11.02°C

Sample Date & Time: 7/19/2018 08:05 PM → 7/20/2018 09:03 AM

Sampler: Lynn Willow

Amount: 3633.6 L (960 gal)

Filter Color: White

Filter Type: Polypropylene wound cartridge

Date/Time Eluted: 7/23/2018 01:43 PM

Centrifugate: <0.001 mL/100 L

RESULTS OF MICROSCOPIC PARTICULATE ANALYSIS

Amount of sample assayed: 480 L

Amorphous Debris	silt (2-50 µm), inorganic precipitate, clay (1-2 µm)
Algae	ND
Diatoms	ND
Plant debris	ND
Rotifers	ND
Nematodes	ND
Pollen (pine)	ND
Ameba	ND
Ciliates	ND
Colorless Flagellates	ND
Crustaceans	ND
Other Arthropods	ND
Other	ND

Giardia and *Coccidia* are none detected (ND) by MPA unless reported under "Other".

This sample was analyzed for particulates following the Environmental Protection Agency Consensus Method for Determining Groundwaters Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA). 1992. USEPA, Port Orchard, WA, EPA 910/9-92-029. All limitations stated in the methods apply. If HV capsule or foam filter was received, method was modified by filtering sample through a Pall Envirochek™ HV capsule or IDEXX Filta-Max™ filter at the sample site. If *Giardia* and *Cryptosporidium* Analysis was also performed, particulate extraction was modified.

COMMENTS: Score: 0-Low Risk per EPA Consensus Method referenced above.

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Laboratory Information

UPS; 7/23/2018; 1210 Hrs; 25.2; Wound
Results submitted by:



Sample Identification: Well #6, 007

Sample Information: SOURCE: Drilled Well; 300' deep; 50' from surface water; Unchlorinated; 10.01°C → 11°C

Sample Date & Time: 7/19/2018 02:40 PM → 7/20/2018 08:35 AM

Sampler: Lynn Willow

Amount: 2611.271 L (689.9 gal)

Filter Color: Light rust

Filter Type: Polypropylene wound cartridge

Date/Time Eluted: 7/28/2018 01:23 PM

Centrifugate: <0.001 mL/100 L

RESULTS OF MICROSCOPIC PARTICULATE ANALYSIS

Amount of sample assayed: 520 L

Amorphous Debris	clay (1-2 µm), silt (2-50 µm)
Algae	ND
Diatoms	ND
Plant debris	ND
Rotifers	ND
Nematodes	ND
Pollen (pine)	ND
Ameba	ND
Ciliates	ND
Colorless Flagellates	ND
Crustaceans	ND
Other Arthropods	ND
Other	ND

Giardia and *Coccidia* are none detected (ND) by MPA unless reported under "Other".

This sample was analyzed for particulates following the Environmental Protection Agency Consensus Method for Determining Groundwaters Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA). 1992. USEPA, Port Orchard, WA, EPA 910/9-92-029. All limitations stated in the methods apply. If HV capsule or foam filter was received, method was modified by filtering sample through a Pall Envirochek™ HV capsule or IDEXX Filita-Max™ filter at the sample site. If *Giardia* and *Cryptosporidium* Analysis was also performed, particulate extraction was modified.

COMMENTS: Score: 0-Low Risk per EPA Consensus Method referenced above.

Ground Water Risk Factor Table

From: E.P.A. Consensus Method for Determining Groundwaters Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA)

Table 1. Numerical range of each primary bio-indicator (Particulate) counted per 100 gallons water.

Indicators of surface water ¹	EH ³	H	M	R	NS
Giardia ²	>30	16-30	6-15	1-5	<1
Coccidia ²	>30	16-30	6-15	1-5	<1
Diatoms ⁴	>150	41-149	11-40	1-10	<1
Other Algae ⁴	>300	96-299	21-95	1-20	<1
Insects/Larvae	>100	31-99	16-30	1-15	<1
Rotifers	>150	61-149	21-60	1-20	<1
Plant Debris ⁴	>200	71-200	26-70	1-25	<1

1. According to EPA "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources", March, 1991 ed.
2. If Giardia cysts or coccidian are found in any sample, irrespective of volume, score as above.
3. Key= EH – extremely heavy M – moderate NS – not significant
 H – heavy R – rare
4. Chlorophyll containing

Table 2. Relative surface water risk factors associated with scoring of primary bio-indicators (particulate) present during MPA of subsurface water sources.

Indicators of surface water ¹	Relative Risk Factor ³				
	EH ²	H	M	R	NS
Giardia	40	30	25	20	0
Coccidia	35	30	25	20	0
Diatoms	16	13	11	6	0
Other Algae	14	12	9	4	0
Insects/Larvae	9	7	5	3	0
Rotifers	4	3	2	1	0
Plant Debris	3	2	1	0	0

1. According to EPA "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources", March, 1991 ed.
2. Refer to Table 1 for range of indicators counted per 100 gallons.
 Key= EH – extremely heavy M – moderate NS – not significant
 H – heavy R – rare
3. Risk of surface water contamination
 ≥20 – high risk
 10-19 – moderate risk
 ≤9 – low risk