



**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-43	Official's Locker Room, Northeast Corner of Gym, Bathroom Sink, Faucet	10:42 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	40.0
Groves NP-43	Official's Locker Room, Northeast Corner of Gym, Bathroom Sink, Faucet	10:46 AM	1 Liter	0.00	19.9	7.44	ND	16.0	16.0	1.6
Groves NP-46	East Visitor's Locker Room, Southeast of Gym, Right Bathroom Sink, Faucet	10:09 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-46	East Visitor's Locker Room, Southeast of Gym, Right Bathroom Sink, Faucet	10:14 AM	1 Liter	0.42	18.4	7.42	ND	3.0	3.0	0.3
Groves NP-49	Women's Locker Room, South of Gym, Left Bathroom Sink, Faucet	9:40 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-49	Women's Locker Room, South of Gym, Left Bathroom Sink, Faucet	9:44 AM	1 Liter	0.04	20.4	7.52	ND	ND	ND	<0.1
Groves NP-64	Men's Locker Room, South of Gym, Left Bathroom Sink, Faucet	8:30 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

1) <0.1 is the detection limit for Legionella in bulk water samples
 2) <20 is the detection limit for Legionella in bioswab samples
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Groves NP-64	Men's Locker Room, South of Gym, Left Bathroom Sink, Faucet	8:35 AM	1 Liter	0.00	31.6	7.79	ND	6.0	6.0	0.6
Groves NP-65	Men's Locker Room, South of Gym, Second from Left Bathroom Sink, Faucet	8:43 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-65	Men's Locker Room, South of Gym, Second from Left Bathroom Sink, Faucet	8:47 AM	1 Liter	0.00	33.7	7.76	ND	22.0	22.0	2.2
Groves NP-66	Men's Locker Room, South of Gym, Second from Right Bathroom Sink, Faucet	8:52 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-66	Men's Locker Room, South of Gym, Second from Right Bathroom Sink, Faucet	8:56 AM	2 Liter	0.00	33.6	7.74	ND	1.0	1.0	0.1
Groves NP-67	Men's Locker Room, South of Gym, Right Bathroom Sink, Faucet	9:04 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-67	Men's Locker Room, South of Gym, Right Bathroom Sink, Faucet	9:07 AM	1 Liter	0.00	24.3	7.50	ND	ND	ND	<.01

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Groves-HWH-01	Northwest Hot Water Heater in Receiving Area Boiler Room	12:35 PM	1 Liter	0.02	43.9	8.20	ND	ND	ND	<.01
Groves-HWH-02	Southwest Hot Water Heater in Receiving Area Boiler Room	1:30 PM	1 Liter	0.00	43.9	8.05	ND	ND	ND	<.01
Groves-HWH-03	Northeast Hot Water Heater in Receiving Area Boiler Room	12:36 PM	1 Liter	0.00	46.1	8.12	ND	ND	ND	<.01
Groves NP-69	Men's Locker Room, South of Gym, East Wall, Second from Left Shower	9:14 AM	Swab	N/A	N/A	N/A	ND	176.0	176.0	7000.0
Groves NP-69	Men's Locker Room, South of Gym, East Wall, Second from Left Shower	9:18 AM	1 Liter	0.00	23.9	7.91	ND	20.0	20.0	2.0
Groves NP-54	Women's Locker Room, South of Gym, West Wall, Second from Left Shower	9:55 AM	Swab	N/A	N/A	N/A	ND	300.0	300.0	12000.0
Groves NP-54	Women's Locker Room, South of Gym, West Wall, Second from Left Shower	10:00 AM	1 Liter	0.05	20.7	7.79	ND	ND	ND	<.01

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Groves-HWH-04	Southeast Hot Water Heater in Receiving Area Boiler Room	1:35 PM	1 Liter	0.04	50.0	8.09	ND	ND	ND	<.01
Groves-HWH-05	Hot Water Heater in Custodial Closet, Outside Auditorium, Adjacent to Women's Bathroom	1:04 PM	1 Liter	0.00	37.1	8.85	5.0	0.0	0.5	0.5
Groves-03	Trainer's Room, Single Sink, Faucet	2:25 PM	Swab	N/A	N/A	N/A	ND	32.0	32.0	1300.0
Groves-03	Trainer's Room, Single Sink, Faucet	NA	1 Liter	NA	NA	NA	Faucet Not Currently Functioning-Recommend Corrective Actions			
Groves-50	Kitchen, South Kitchen Sink, Faucet	12:07 PM	Swab	N/A	N/A	N/A	ND	1.0	1.0	40.0
Groves-50	Kitchen, South Kitchen Sink, Faucet	12:07 PM	1 Liter	0.00	44.9	7.75	ND	ND	ND	<0.1
Groves-51	Kitchen, Kitchen Kettle, Faucet	12:17 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-51	Kitchen, Kitchen Kettle, Faucet	12:21 PM	1 Liter	0.00	49.7	7.81	ND	1.0	1.0	0.1
Groves NP-41	Staff Locker Rooms, East of Pool, Bathroom Sink, Faucet	9:52 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-41	Staff Locker Rooms, East of Pool, Bathroom Sink, Faucet	9:55 AM	1 Liter	0.00	21.2	8.00	ND	1.0	1.0	0.1

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Groves-NP-358	Men's Bathroom, North East of Cafeteria, Left Bathroom Sink, Faucet	2:15 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-NP-358	Men's Bathroom, North East of Cafeteria, Left Bathroom Sink, Faucet	10:54 AM	1 Liter	0.00	39.1	7.99	ND	ND	ND	<0.1
Groves-NP-359	Men's Bathroom, North East of Cafeteria, Center Bathroom Sink, Faucet	2:17 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-NP-359	Men's Bathroom, North East of Cafeteria, Center Bathroom Sink, Faucet	1:50 PM	1 Liter	0.00	42.2	7.89	ND	7.0	7.0	0.7
Groves-NP-360	Men's Bathroom, North East of Cafeteria, Right Bathroom Sink, Faucet	12:17 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-NP-360	Men's Bathroom, North East of Cafeteria, Right Bathroom Sink, Faucet	12:21 PM	1 Liter	0.00	40.4	7.80	ND	ND	ND	<0.1

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Groves-NP-361	Women's Bathroom, North East of Cafeteria, Right Bathroom Sink, Faucet	9:52 AM	Swab	N/A	N/A	N/A	ND	21.0	21.0	840.0
Groves-NP-361	Women's Bathroom, North East of Cafeteria, Right Bathroom Sink, Faucet	9:55 AM	1 Liter	0.00	44.1	7.84	ND	ND	ND	<0.1
Groves-NP-362	Women's Bathroom, North East of Cafeteria, Center Bathroom Sink, Faucet	2:15 PM	Swab	N/A	N/A	N/A	ND	4.0	4.0	80.0
Groves-NP-362	Women's Bathroom, North East of Cafeteria, Center Bathroom Sink, Faucet	10:54 AM	1 Liter	0.00	38.0	7.76	ND	ND	ND	<0.1
Groves-NP-363	Women's Bathroom, North East of Cafeteria, Left Bathroom Sink, Faucet	10:25 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-NP-363	Women's Bathroom, North East of Cafeteria, Left Bathroom Sink, Faucet	10:28 AM	1 Liter	0.18	39.2	7.80	ND	ND	ND	<0.1

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Groves NP-377	Kitchen, Serving Area, North Hand Wash Sink, Faucet	11:50 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-377	Kitchen, Serving Area, North Hand Wash Sink, Faucet	11:55 AM	1 Liter	0.00	50.0	7.76	ND	ND	ND	<0.1
Groves NP-385	Kitchen, South Hand Washing Sink, Faucet	11:25 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-385	Kitchen, South Hand Washing Sink, Faucet	11:30 AM	1 Liter	0.00	43.6	7.77	ND	ND	ND	<0.1
Groves NP-386	Kitchen, North Hand Washing Sink, Faucet	11:39 AM	Swab	N/A	N/A	N/A	ND	12.0	12.0	480.0
Groves NP-386	Kitchen, North Hand Washing Sink, Faucet	11:43 AM	1 Liter	0.00	45.5	7.87	ND	2.0	2.0	0.2
Groves NP-04	Men's Locker Room, East of Pool, West Wall, Left Shower	3:07 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-04	Men's Locker Room, East of Pool, West Wall, Left Shower	3:12 PM	1 Liter	0.00	22.1	7.76	ND	ND	ND	<0.1
Groves NP-32	Women's Locker Room, East of Pool, East Wall, Left Shower	2:43 PM	Swab	N/A	N/A	N/A	ND	1.0	1.0	40.0
Groves NP-32	Women's Locker Room, East of Pool, East Wall, Left Shower	2:47 PM	1 Liter	0.05	20.1	7.72	ND	2.0	2.0	0.20

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Groves-19	Auditorium, Storage Room, North of Stage, Hydration Station, Bottle Fill	8:10 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-19	Auditorium, Storage Room, North of Stage, Hydration Station, Bottle Fill	8:13 AM	1 Liter	0.04	17.3	7.74	ND	ND	ND	<0.1
Groves NP-111	Men's Bathroom, Across from Room D1, Left Bathroom Sink, Faucet	11:50 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-111	Men's Bathroom, Across from Room D1, Left Bathroom Sink, Faucet	11:55 AM	1 Liter	0.42	30.4	7.70	ND	2.0	2.0	0.2
Groves NP-113	Women's Bathroom, Across from Room D1, Left Bathroom Sink, Faucet	11:18 AM	Swab	N/A	N/A	N/A	ND	79.0	79.0	3200.0
Groves NP-113	Women's Bathroom, Across from Room D1, Left Bathroom Sink, Faucet	11:25 AM	1 Liter	0.37	31.4	7.77	ND	12.0	12.0	1.2

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Groves NP-114	Women's Bathroom, Across from Room D1, Center Bathroom Sink, Faucet	11:19 AM	Swab	N/A	N/A	N/A	ND	41.0	41.0	1600.0
Groves NP-114	Women's Bathroom, Across from Room D1, Center Bathroom Sink, Faucet	11:27 AM	1 Liter	0.52	31.8	7.75	ND	21.0	21.0	2.1
Groves NP-115	Women's Bathroom, Across from Room D1, Right Bathroom Sink, Faucet	11:20 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-115	Women's Bathroom, Across from Room D1, Right Bathroom Sink, Faucet	11:31 AM	1 Liter	0.47	29.8	7.79	ND	2.0	2.0	0.2
Groves NP-117	Storage Room, Connected to Room B10, Two Compartment Sink, Faucet	12:36 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-117	Storage Room, Connected to Room B10, Two Compartment Sink, Faucet	1:13 PM	1 Liter	0.19	18.3	7.56	ND	10.0	10.0	1.0

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Groves NP-119	Storage Room, Connected to Room B15, Single Sink, Right Faucet	9:00 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-119	Storage Room, Connected to Room B15, Single Sink, Right Faucet	9:05 AM	1 Liter	0.02	26.8	7.77	ND	60.0	60.0	6.0
Groves NP-122	Men's Dressing Room, South Wall, Left Hand Washing Sink, Faucet	9:24 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-122	Men's Dressing Room, South Wall, Left Hand Washing Sink, Faucet	9:29 AM	1 Liter	0.25	25.4	7.64	ND	ND	ND	<0.1
Groves NP-123	Men's Dressing Room, South Wall, Right Hand Washing Sink, Faucet	9:26 AM	Swab	N/A	N/A	N/A	ND	169.0	169.0	3400.0
Groves NP-123	Men's Dressing Room, South Wall, Right Hand Washing Sink, Faucet	9:32 AM	1 Liter	0.55	22.7	7.56	ND	8.0	8.0	0.8
Groves NP-124	Men's Dressing Room, Bathroom Sink, Faucet	9:17 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-124	Men's Dressing Room, Bathroom Sink, Faucet	9:22 AM	1 Liter	0.02	30.0	7.78	ND	ND	ND	<0.1

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Groves NP-126	Women's Dressing Room, North Wall, Left Hand Washing Sink, Faucet	9:51 AM	Swab	N/A	N/A	N/A	ND	104.0	104.0	4200.0
Groves NP-126	Women's Dressing Room, North Wall, Left Hand Washing Sink, Faucet	9:59 AM	1 Liter	0.80	19.1	7.58	ND	ND	ND	<0.1
Groves NP-128	Women's Dressing Room, Bathroom Sink, Faucet	9:53 AM	Swab	N/A	N/A	N/A	ND	9.0	9.0	360.0
Groves NP-128	Women's Dressing Room, Bathroom Sink, Faucet	10:06 AM	1 Liter	0.82	19.4	7.56	ND	ND	ND	<0.1
Groves NP-136	Staff Lounge, East of Room B11, Men's Bathroom, Left Bathroom Sink, Faucet	10:36 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	40.0
Groves NP-136	Staff Lounge, East of Room B11, Men's Bathroom, Left Bathroom Sink, Faucet	10:45 AM	1 Liter	0.00	24.3	7.84	N/A	N/A	N/A	N/A
Groves NP-137	Staff Lounge, East of Room B11, Men's Bathroom, Right Bathroom Sink, Faucet	10:38 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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Groves NP-137	Staff Lounge, East of Room B11, Men's Bathroom, Right Bathroom Sink, Faucet	10:50 AM	1 Liter	0.02	26.7	7.82	ND	5.0	5.0	0.5
Groves NP-139	Staff Lounge, East of Room B11, Women's Bathroom, Right Bathroom Sink, Faucet	11:00 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-139	Staff Lounge, East of Room B11, Women's Bathroom, Right Bathroom Sink, Faucet	11:03 AM	1 Liter	0.02	28.3	7.78	ND	1.0	1.0	0.1
Groves-31	Media Storage, Southwest of Media Center, Single Sink, Faucet	9:22 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	40.0
Groves-31	Media Storage, Southwest of Media Center, Single Sink, Faucet	9:26 AM	1 Liter	0.00	17.7	8.11	4.0	12.0	16.0	1.6
Groves-34	Room D11, South Wall, Single Sink, Faucet	9:40 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-34	Room D11, South Wall, Single Sink, Faucet	9:43 AM	1 Liter	0.32	20.3	7.61	ND	ND	ND	<0.1

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Groves NP-141	Women's Bathroom, South Wall, Bathroom Sink, Left Faucet	10:52 AM	1 Liter	0.32	20.3	7.61	ND	47.0	47.0	4.7
Groves NP-142	Women's Bathroom, South Wall, Bathroom Sink, Right Faucet	10:59 AM	1 Liter	0.00	19.4	7.69	ND	41.0	41.0	4.1
Groves NP-143	Women's Bathroom, North Wall, Bathroom Sink, Faucet	10:39 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	20.0
Groves NP-143	Women's Bathroom, North Wall, Bathroom Sink, Faucet	10:42 AM	1 Liter	0.00	19.1	7.61	ND	57.0	57.0	5.7
Groves NP-144	Men's Bathroom, North of Media Center, Bathroom Sink, Left Faucet	11:21 AM	1 Liter	0.00	21.8	7.68	ND	5.0	5.0	0.5

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Groves NP-145	Men's Bathroom, North of Media Center, Bathroom Sink, Center Faucet	11:25 AM	1 Liter	0.00	23.6	7.67	ND	ND	ND	<0.1
Groves NP-146	Men's Bathroom, North of Media Center, Bathroom Sink, Right Faucet	11:28 AM	1 Liter	0.00	23.9	7.66	ND	24.0	24.0	2.4
Groves NP-148	Men's Bathroom, North of Room E4, Left Bathroom Sink, Faucet	11:49 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-148	Men's Bathroom, North of Room E4, Left Bathroom Sink, Faucet	11:59 AM	1 Liter	0.97	16.5	7.50	ND	4.0	4.0	0.4

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**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-150	Women's Bathroom, North of Room E4, Left Bathroom Sink, Faucet	12:16 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-150	Women's Bathroom, North of Room E4, Left Bathroom Sink, Faucet	12:20 PM	1 Liter	0.25	18.6	7.78	ND	2.0	2.0	0.2
Groves NP-151	Women's Bathroom, North of Room E4, Center Bathroom Sink, Faucet	12:16 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-151	Women's Bathroom, North of Room E4, Center Bathroom Sink, Faucet	12:27 PM	1 Liter	1.02	17.4	7.70	ND	1.0	1.0	0.1
Groves NP-152	Women's Bathroom, North of Room E4, Right Bathroom Sink, Faucet	12:17 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-152	Women's Bathroom, North of Room E4, Right Bathroom Sink, Faucet	12:35 PM	1 Liter	0.81	17.8	7.69	ND	1.0	1.0	0.1

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Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-309	Unisex Bathroom, South of Media Center, Right of Custodial Closet, Bathroom Sink, Faucet	10:12 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-309	Unisex Bathroom, South of Media Center, Right of Custodial Closet, Bathroom Sink, Faucet	10:16 AM	1 Liter	0.00	19.3	7.74	ND	ND	ND	<0.1
Groves NP-310	Unisex Bathroom, South of Media Center, Left of Hallway, Bathroom Sink, Faucet	9:58 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-310	Unisex Bathroom, South of Media Center, Left of Hallway, Bathroom Sink, Faucet	10:01 AM	1 Liter	0.00	19.2	7.74	ND	ND	ND	<0.1
Groves-07	Hallway, East of Concessions, Hydration Station, Water Cooler	10:53 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	20.0

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves-07	Hallway, East of Concessions, Hydration Station, Water Cooler	10:55 AM	1 Liter	0.01	14.1	7.10	ND	64.0	64.0	6.4
Groves-08	Hallway, East of Concessions, Hydration Station, Bottle Fill	10:41 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-08	Hallway, East of Concessions, Hydration Station, Bottle Fill	10:43 AM	1 Liter	0.04	13.2	7.20	ND	16.0	16.0	1.6
Groves-09	Custodial Break Room, South of Gym, Single Sink, Faucet	10:28 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-09	Custodial Break Room, South of Gym, Single Sink, Faucet	10:30 AM	1 Liter	0.01	24.4	7.67	ND	ND	ND	<0.1
Groves-40	Main Office, Break Room, Single Sink, Faucet	9:26 AM	Swab	N/A	N/A	N/A	ND	2.0	2.0	80.0
Groves-40	Main Office, Break Room, Single Sink, Faucet	9:28 AM	1 Liter	0.04	22.1	7.93	ND	12.0	12.0	1.2

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Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-89	Women's Bathroom, Southwest of Gym, South Wall of North Area, Left Bathroom Sink, Faucet	11:18 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	40.0
Groves NP-89	Women's Bathroom, Southwest of Gym, South Wall of North Area, Left Bathroom Sink, Faucet	11:20 AM	1 Liter	1.66	15.7	7.23	ND	4.0	4.0	0.4
Groves NP-90	Women's Bathroom, Southwest of Gym, South Wall of North Area, Second from Left Bathroom Sink, Faucet	11:25 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-90	Women's Bathroom, Southwest of Gym, South Wall of North Area, Second from Left Bathroom Sink, Faucet	11:27 AM	1 Liter	3.00	15.3	7.22	ND	1.0	1.0	0.1
Groves NP-91	Women's Bathroom, Southwest of Gym, South Wall of North Area, Second from Right Bathroom Sink, Faucet	11:33 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-91	Women's Bathroom, Southwest of Gym, South Wall of North Area, Second from Right Bathroom Sink, Faucet	11:35 AM	1 Liter	1.69	15.4	7.22	ND	2.0	2.0	0.2
Groves NP-92	Women's Bathroom, Southwest of Gym, South Wall of North Area, Right Bathroom Sink, Faucet	11:42 AM	Swab	N/A	N/A	N/A	ND	1.0	1.0	20.0
Groves NP-92	Women's Bathroom, Southwest of Gym, South Wall of North Area, Right Bathroom Sink, Faucet	11:44 AM	1 Liter	1.82	15.1	7.20	ND	1.0	1.0	0.1
Groves NP-93	Women's Bathroom, Southwest of Gym, North Wall of South Area, Left Bathroom Sink, Faucet	11:56 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-93	Women's Bathroom, Southwest of Gym, North Wall of South Area, Left Bathroom Sink, Faucet	11:58 AM	1 Liter	1.84	15.0	7.31	ND	ND	ND	<0.1

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-94	Women's Bathroom, Southwest of Gym, North Wall of South Area, Second from Left Bathroom Sink, Faucet	12:11 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-94	Women's Bathroom, Southwest of Gym, North Wall of South Area, Second from Left Bathroom Sink, Faucet	12:13 PM	1 Liter	1.91	15.4	7.30	ND	ND	ND	<0.1
Groves NP-95	Women's Bathroom, Southwest of Gym, North Wall of South Area, Third from Left Bathroom Sink, Faucet	12:15 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-95	Women's Bathroom, Southwest of Gym, North Wall of South Area, Third from Left Bathroom Sink, Faucet	12:17 PM	1 Liter	1.99	14.7	7.27	ND	6.0	6.0	0.6
Groves NP-96	Women's Bathroom, Southwest of Gym, North Wall of South Area, Third from Right Bathroom Sink, Faucet	1:35 PM	Swab	N/A	N/A	N/A	ND	1.0	1.0	20.0

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-96	Women's Bathroom, Southwest of Gym, North Wall of South Area, Third from Right Bathroom Sink, Faucet	1:37 PM	1 Liter	1.95	14.1	7.41	ND	ND	ND	<0.1
Groves NP-97	Women's Bathroom, Southwest of Gym, North Wall of South Area, Second from Right Bathroom Sink, Faucet	1:42 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-97	Women's Bathroom, Southwest of Gym, North Wall of South Area, Second from Right Bathroom Sink, Faucet	1:44 PM	1 Liter	1.95	15.6	7.30	ND	ND	ND	<0.1
Groves NP-98	Women's Bathroom, Southwest of Gym, North Wall of South Area, Right Bathroom Sink, Faucet	1:50 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-98	Women's Bathroom, Southwest of Gym, North Wall of South Area, Right Bathroom Sink, Faucet	1:52 PM	1 Liter	1.79	15.5	7.22	ND	3.0	3.0	0.3
Groves NP-99	Men's Bathroom Southwest of Gym, South Wall of North Area, Left Bathroom Sink, Faucet	2:06 PM	Swab	N/A	N/A	N/A	ND	5.0	5.0	200.0
Groves NP-99	Men's Bathroom Southwest of Gym, South Wall of North Area, Left Bathroom Sink, Faucet	2:08 PM	1 Liter	1.84	16.5	7.30	ND	1.0	1.0	0.1
Groves NP-100	Men's Bathroom Southwest of Gym, South Wall of North Area, Second from Left Bathroom Sink, Faucet	2:25 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-100	Men's Bathroom Southwest of Gym, South Wall of North Area, Second from Left Bathroom Sink, Faucet	2:27 PM	1 Liter	1.78	16.0	7.24	ND	1.0	1.0	0.1

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Groves NP-101	Men's Bathroom Southwest of Gym, South Wall of North Area, Center Bathroom Sink, Faucet	2:28 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-101	Men's Bathroom Southwest of Gym, South Wall of North Area, Center Bathroom Sink, Faucet	2:30 PM	1 Liter	1.94	16.4	7.22	ND	ND	ND	<0.1
Groves NP-102	Men's Bathroom Southwest of Gym, South Wall of North Area, Second from Right Bathroom Sink, Faucet	2:37 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-102	Men's Bathroom Southwest of Gym, South Wall of North Area, Second from Right Bathroom Sink, Faucet	2:39 PM	1 Liter	1.56	16.3	7.27	ND	ND	ND	<0.1

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Groves NP-103	Men's Bathroom Southwest of Gym, South Wall of North Area, Right Bathroom Sink, Faucet	2:45 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-103	Men's Bathroom Southwest of Gym, South Wall of North Area, Right Bathroom Sink, Faucet	2:47 PM	1 Liter	0.29	22.7	7.50	ND	4.0	4.0	0.4
Groves NP-104	Men's Bathroom Southwest of Gym, North Wall of South Area, Left Bathroom Sink, Faucet	2:32 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-104	Men's Bathroom Southwest of Gym, North Wall of South Area, Left Bathroom Sink, Faucet	2:50 PM	1 Liter	1.08	16.8	7.46	ND	ND	ND	<0.1
Groves NP-105	Men's Bathroom Southwest of Gym, North Wall of South Area, Second from Left Bathroom Sink, Faucet	2:33 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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Groves NP-105	Men's Bathroom Southwest of Gym, North Wall of South Area, Second from Left Bathroom Sink, Faucet	2:59 PM	1 Liter	1.00	17.2	7.41	ND	1.0	1.0	0.1
Groves NP-106	Men's Bathroom Southwest of Gym, North Wall of South Area, Center Bathroom Sink, Faucet	2:34 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-106	Men's Bathroom Southwest of Gym, North Wall of South Area, Center Bathroom Sink, Faucet	2:46 PM	1 Liter	0.72	16.4	7.49	ND	ND	ND	<0.1
Groves NP-107	Men's Bathroom Southwest of Gym, North Wall of South Area, Second from Right Bathroom Sink, Faucet	2:35 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-107	Men's Bathroom Southwest of Gym, North Wall of South Area, Second from Right Bathroom Sink, Faucet	2:55 PM	1 Liter	1.27	15.4	7.45	ND	ND	ND	<0.1
Groves NP-108	Men's Bathroom Southwest of Gym, North Wall of South Area, Right Bathroom Sink, Faucet	2:36 PM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-108	Men's Bathroom Southwest of Gym, North Wall of South Area, Right Bathroom Sink, Faucet	2:42 PM	1 Liter	1.24	18.1	7.49	ND	ND	ND	<0.1
Groves NP-320	North Unisex Bathroom, Main Office, Bathroom Sink, Faucet	10:01 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-320	North Unisex Bathroom, Main Office, Bathroom Sink, Faucet	10:03 AM	1 Liter	0.00	26.8	7.77	ND	ND	ND	<0.1

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-321	South Unisex Bathroom, Main Office, Bathroom Sink, Faucet	9:48 AM	Swab	N/A	N/A	N/A	ND	6.0	6.0	120.0
Groves NP-321	South Unisex Bathroom, Main Office, Bathroom Sink, Faucet	9:50 AM	1 Liter	0.00	24.8	7.86	ND	14.0	14.0	1.4
Groves NP-323	Room C7, South Wall, Art Room Sink, Faucet	8:07 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-323	Room C7, South Wall, Art Room Sink, Faucet	8:09 AM	1 Liter	0.07	20.0	7.76	1.0	ND	1.0	0.1
Groves NP-324	Room C7, East Wall, Right Art Room Sink, Faucet	8:18 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-324	Room C7, East Wall, Right Art Room Sink, Faucet	8:20 AM	1 Liter	0.02	23.2	7.70	ND	7.0	7.0	0.7
Groves NP-325	Room C7, East Wall, Left Art Room Sink, Faucet	8:25 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-325	Room C7, East Wall, Left Art Room Sink, Faucet	8:27 AM	1 Liter	0.00	24.4	7.69	ND	ND	ND	<0.1
Groves NP-338	Room C8, Left Art Room Sink, Faucet	8:41 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-338	Room C8, Left Art Room Sink, Faucet	8:43 AM	1 Liter	0.01	24.8	7.69	ND	ND	ND	<0.1
Groves NP-339	Room C8, Second from Left Art Room Sink, Faucet	8:44 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-339	Room C8, Second from Left Art Room Sink, Faucet	8:46 AM	1 Liter	0.00	25.9	7.66	ND	1.0	1.0	0.1
Groves NP-340	Room C8, Second from Right Art Room Sink, Faucet	8:51 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-340	Room C8, Second from Right Art Room Sink, Faucet	8:54 AM	1 Liter	0.00	30.0	7.64	ND	3.0	3.0	0.3
Groves NP-341	Room C8, Right Art Room Sink, Faucet	8:58 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-341	Room C8, Right Art Room Sink, Faucet	9:00 AM	1 Liter	0.00	33.0	7.63	ND	1.0	1.0	0.1
Groves NP-342	Room C5, Left Art Room Sink, Faucet	9:13 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-342	Room C5, Left Art Room Sink, Faucet	9:15 AM	1 Liter	0.00	34.8	7.60	ND	24.0	24.0	2.4
Groves NP-343	Room C5, Center Art Room Sink, Faucet	9:18 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-343	Room C5, Center Art Room Sink, Faucet	9:22 AM	1 Liter	0.00	36.4	7.63	ND	22.0	22.0	2.2

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Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-344	Room C5, Right Art Room Sink, Faucet	9:24 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-344	Room C5, Right Art Room Sink, Faucet	8:46 AM	1 Liter	0.00	37.6	7.63	1.0	83.0	84.0	8.4
Groves NP-345	Room C6, Left Art Room Sink, Faucet	9:41 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-345	Room C6, Left Art Room Sink, Faucet	9:43 AM	1 Liter	0.00	35.9	7.69	ND	3.0	3.0	0.3
Groves NP-346	Room C6, Center Art Room Sink, Faucet	9:45 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-346	Room C6, Center Art Room Sink, Faucet	9:47 AM	1 Liter	0.00	38.7	7.66	ND	ND	ND	<0.1
Groves NP-347	Room C6, Right Art Room Sink, Faucet	9:50 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-347	Room C6, Right Art Room Sink, Faucet	9:52 AM	1 Liter	0.01	39.3	7.63	ND	4.0	4.0	0.4
Groves NP-348	Men's Bathroom, South of Room C9, Left Bathroom Sink, Faucet	10:42 AM	1 Liter	0.91	26.0	7.70	ND	2.0	2.0	0.2

1) <0.1 is the detection limit for Legionella in bulk water samples
 2) <20 is the detection limit for Legionella in bioswab samples
 3) See attached analytical results for full list of other Legionella species



**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-349	Men's Bathroom, South of Room C9, Second from Left Bathroom Sink, Faucet	10:33 AM	1 Liter	0.33	29.9	7.72	ND	25.0	25.0	2.5
Groves NP-350	Men's Bathroom, South of Room C9, Second from Right Bathroom Sink, Faucet	10:24 AM	1 Liter	0.15	27.9	7.80	ND	16.0	16.0	1.6
Groves NP-329	Room C4, Wet Lab, East Wall, Art Room Sink, Right Faucet	11:08 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-329	Room C4, Wet Lab, East Wall, Art Room Sink, Right Faucet	11:10 AM	1 Liter	0.00	32.9	7.62	ND	ND	ND	<0.1
Groves NP-330	Room C4, Wet Lab, East Wall, Art Room Sink, Center Faucet	11:11 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

1) <0.1 is the detection limit for Legionella in bulk water samples
 2) <20 is the detection limit for Legionella in bioswab samples
 3) See attached analytical results for full list of other Legionella species



**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-330	Room C4, Wet Lab, East Wall, Art Room Sink, Center Faucet	11:13 AM	1 Liter	0.91	26.0	7.70	ND	3.0	3.0	0.3
Groves NP-331	Room C4, Wet Lab, East Wall, Art Room Sink, Left Faucet	11:14 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-331	Room C4, Wet Lab, East Wall, Art Room Sink, Left Faucet	11:02 AM	1 Liter	0.03	39.8	7.68	ND	32.0	32.0	3.2
Groves NP-332	Room C4, Wet Lab, West Wall, Art Room Sink, Right Faucet	11:27 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-332	Room C4, Wet Lab, West Wall, Art Room Sink, Right Faucet	11:29 AM	1 Liter	0.04	40.7	7.66	ND	4.0	4.0	0.4
Groves NP-333	Room C4, Wet Lab, West Wall, Art Room Sink, Center Faucet	11:31 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-333	Room C4, Wet Lab, West Wall, Art Room Sink, Center Faucet	11:33 AM	1 Liter	0.05	40.9	7.65	ND	ND	ND	<0.1
Groves NP-334	Room C4, Wet Lab, West Wall, Art Room Sink, Left Faucet	11:34 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

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**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-334	Room C4, Wet Lab, West Wall, Art Room Sink, Left Faucet	11:36 AM	1 Liter	0.02	40.8	7.66	ND	ND	ND	<0.1
Groves-41	Room C2, Single Sink, Faucet	8:50 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-41	Room C2, Single Sink, Faucet	8:55 AM	1 Liter	0.00	20.9	7.52	ND	ND	ND	<0.1
Groves-55	Room C3, North Wall, Single Sink, Faucet	9:10 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-55	Room C3, North Wall, Single Sink, Faucet	9:15 AM	1 Liter	0.00	25.6	7.65	ND	ND	ND	<0.1
Groves-56	Room C3, East Wall, Left Single Sink, Faucet	9:25 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-56	Room C3, East Wall, Left Single Sink, Faucet	9:30 AM	1 Liter	0.00	30.1	7.66	ND	3.0	3.0	0.3
Groves-57	Room C3, East Wall, Right Single Sink, Faucet	9:35 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-57	Room C3, East Wall, Right Single Sink, Faucet	9:40 AM	1 Liter	0.00	30.2	7.66	ND	ND	ND	<0.1
Groves-58	Room C3, South Wall, Left Single Sink, Faucet	9:50 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves-58	Room C3, South Wall, Left Single Sink, Faucet	9:55 AM	1 Liter	0.00	33.7	7.68	ND	3.0	3.0	0.3

1) <0.1 is the detection limit for Legionella in bulk water samples
 2) <20 is the detection limit for Legionella in bioswab samples
 3) See attached analytical results for full list of other Legionella species



**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves-59	Room C3, South Wall, Second from Left Single Sink, Faucet	10:05 AM	Swab	N/A	N/A	N/A	ND	25.0	25.0	1000.0
Groves-59	Room C3, South Wall, Second from Left Single Sink, Faucet	10:10 AM	1 Liter	0.00	27.9	7.21	ND	ND	ND	<0.1
Groves-60	Room C3, South Wall, Single Sink, Second from Right Faucet	10:20 AM	Swab	N/A	N/A	N/A	ND	4.0	4.0	160.0
Groves-60	Room C3, South Wall, Single Sink, Second from Right Faucet	10:25 AM	1 Liter	0.00	33.0	7.70	ND	ND	ND	<0.1
Groves-61	Room C3, South Wall, Right Single Sink, Faucet	10:30 AM	Swab	N/A	N/A	N/A	ND	14.0	14.0	560.0
Groves-61	Room C3, South Wall, Right Single Sink, Faucet	10:35 AM	1 Liter	0.00	31.6	7.63	ND	ND	ND	<0.1
Groves NP-352	Women's Bathroom, Across from C1, Right Bathroom Sink, Faucet	10:55 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-352	Women's Bathroom, Across from C1, Right Bathroom Sink, Faucet	11:00 AM	1 Liter	0.00	26.9	7.58	ND	1.0	1.0	0.1

1) <0.1 is the detection limit for Legionella in bulk water samples
 2) <20 is the detection limit for Legionella in bioswab samples
 3) See attached analytical results for full list of other Legionella species



**Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893**

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-353	Women's Bathroom, Across from C1, Second from Right Bathroom Sink, Faucet	11:10 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-353	Women's Bathroom, Across from C1, Second from Right Bathroom Sink, Faucet	11:15 AM	1 Liter	0.12	27.4	7.58	ND	10.0	10.0	1.0
Groves NP-354	Women's Bathroom, Across from C1, Second from Left Bathroom Sink, Faucet	11:30 AM	Swab	N/A	N/A	N/A	ND	89.0	89.0	3600.0
Groves NP-354	Women's Bathroom, Across from C1, Second from Left Bathroom Sink, Faucet	11:35 AM	1 Liter	0.22	29.1	7.58	ND	83.0	83.0	8.3
Groves NP-356	Little Theater, West Dressing Room, Hand Washing Sink, Faucet	8:10 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20
Groves NP-356	Little Theater, West Dressing Room, Hand Washing Sink, Faucet	8:15 AM	1 Liter	0.00	20.6	7.92	ND	16.0	16.0	1.6
Groves NP-357	Little Theater, East Dressing Room, Hand Washing Sink, Faucet	8:30 AM	Swab	N/A	N/A	N/A	ND	ND	ND	<20

1) <0.1 is the detection limit for Legionella in bulk water samples
 2) <20 is the detection limit for Legionella in bioswab samples
 3) See attached analytical results for full list of other Legionella species



Birmingham Public Schools
Legionella Sampling Analysis
Project Number: AE200893

Groves High School										
Date of Sampling: December 28, 2020 & December 29, 2020										
Sampler: Brendan Koziol, Jackie Keeler, Sabrina Fouche, and Victoria Vo										
Sample #	Location	Time Collected	Bottle Type	Chlorine (ppm)	Temp °C	pH	Legionella Pneumophila Lab Result	Other Legionella Species ³ Lab Results	Total Legionella raw ct.	Total Legionella (cfu (colony forming units)/ml)
Groves NP-357	Little Theater, East Dressing Room, Hand Washing Sink, Faucet	8:35 AM	1 Liter	0.00	29.5	7.83	ND	ND	ND	<0.1

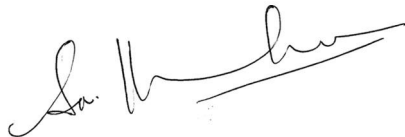
1) <0.1 is the detection limit for Legionella in bulk water samples
2) <20 is the detection limit for Legionella in bioswab samples
3) See attached analytical results for full list of other Legionella species

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2548324

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-07-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	1: Groves-03 Swab		2: Groves-50 Swab		3: Groves-50 Bulk		4: Groves-51 Swab		5: Groves-51 Bulk	
Comments (see below)	None		None		None		None		None	
Lab ID-Version‡:	12148824-1		12148825-1		12148826-1		12148827-1		12148828-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		N/A		200		N/A		200	
Reporting Units	1 swab		1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1										
L. pneumophila serotype 2-15										
Other Legionella species	32	1,300	1	40					1	0.1
§TOTAL Legionella	32	1,300	1	40	ND	< 0.1	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	6: Groves-NP-41 Swab		7: Groves-NP-41 Bulk		8: Groves-NP-358 Swab		9: Groves-NP-358 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148829-1		12148830-1		12148831-1		12148832-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			1	0.1				
§TOTAL Legionella	ND	< 20	1	0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	10: Groves-NP-359 Swab		11: Groves-NP-359 Bulk		12: Groves-NP-360 Swab		13: Groves-NP-360 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148833-1		12148834-1		12148835-1		12148836-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			7	0.7				
§TOTAL Legionella	ND	< 20	7	0.7	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	14: Groves-NP-361 Swab		15: Groves-NP-361 Bulk		16: Groves-NP-362 Swab		17: Groves-NP-362 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148837-1		12148838-1		12148839-1		12148840-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	21	840			4	80		
§TOTAL Legionella	21	840	ND	< 0.1	4	80	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	18: Groves-NP-363 Swab		19: Groves-NP-363 Bulk		20: Groves-NP-377 Swab		21: Groves-NP-377 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148841-1		12148842-1		12148843-1		12148844-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	22: Groves-NP-385 Swab		23: Groves-NP-385 Bulk		24: Groves-NP-386 Swab		25: Groves-NP-386 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148845-1		12148846-1		12148847-1		12148848-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species					12	480	2	0.2
§TOTAL Legionella	ND	< 20	ND	< 0.1	12	480	2	0.2

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	26: Groves-NP-04 Swab		27: Groves-NP-04 Bulk		28: Groves-NP-32 Swab		29: Groves-NP-32 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148849-1		12148850-1		12148851-1		12148852-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species					1	40	2	0.2
§TOTAL Legionella	ND	< 20	ND	< 0.1	1	40	2	0.2

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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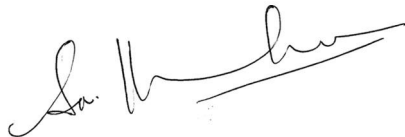
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200983; Groves High School
EML ID: 2548341

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-07-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves-31 Swab		2: Groves-31 Bulk		3: Groves-34 Swab		4: Groves-34 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148770-1		12148771-1		12148772-1		12148773-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1			4	0.4				
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	1	40	12	1.2				
§TOTAL Legionella	1	40	16	1.6	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves NP-141 Bulk		6: Groves NP-142 Bulk		7: Groves NP-143 Swab		8: Groves NP-143 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148774-1		12148775-1		12148776-1		12148777-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Water sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	200		200		N/A		200	
Reporting Units	1 ml		1 ml		1 swab		1 ml	
Detection Limit†	< 0.1		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 0.1		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	47	4.7	41	4.1	1	20	57	5.7
§TOTAL Legionella	47	4.7	41	4.1	1	20	57	5.7

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200983; Groves High SchoolDate of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	9: Groves NP-144 Bulk		10: Groves NP-145 Bulk		11: Groves NP-146 Bulk		12: Groves NP-148 Swab	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148778-1		12148779-1		12148780-1		12148781-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Water sample		Water sample		Water sample		Swab sample	
Volume filtered (ml)	200		200		200		N/A	
Reporting Units	1 ml		1 ml		1 ml		1 swab	
Detection Limit†	< 0.1		< 0.1		< 0.1		< 20	
Analytical Sensitivity†	< 0.1		< 0.1		< 0.1		< 20	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	5	0.5			24	2.4		
§TOTAL Legionella	5	0.5	ND	< 0.1	24	2.4	ND	< 20

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Comments:

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200983; Groves High SchoolDate of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	13: Groves NP-148 Bulk		14: Groves NP-150 Swab		15: Groves NP-150 Bulk		16: Groves NP-151 Swab	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148782-1		12148783-1		12148784-1		12148785-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021		01/07/2021	
Sample type	Water sample		Swab sample		Water sample		Swab sample	
Volume filtered (ml)	200		N/A		200		N/A	
Reporting Units	1 ml		1 swab		1 ml		1 swab	
Detection Limit†	< 0.1		< 20		< 0.1		< 20	
Analytical Sensitivity†	< 0.1		< 20		< 0.1		< 20	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	4	0.4			2	0.2		
§TOTAL Legionella	4	0.4	ND	< 20	2	0.2	ND	< 20

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Comments:

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200983; Groves High SchoolDate of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	17: Groves NP-151 Bulk	18: Groves NP-152 Swab	19: Groves NP-152 Bulk	20: Groves NP-309 Swab				
Comments (see below)	None	None	None	None				
Lab ID-Version‡:	12148786-1	12148787-1	12148788-1	12148789-1				
Analysis Date:	01/07/2021	01/07/2021	01/07/2021	01/07/2021				
Sample type	Water sample	Swab sample	Water sample	Swab sample				
Volume filtered (ml)	200	N/A	200	N/A				
Reporting Units	1 ml	1 swab	1 ml	1 swab				
Detection Limit†	< 0.1	< 20	< 0.1	< 20				
Analytical Sensitivity†	< 0.1	< 20	< 0.1	< 20				
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	0.1			1	0.1		
§TOTAL Legionella	1	0.1	ND	< 20	1	0.1	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	21: Groves NP-309 Bulk		22: Groves NP-310 Swab		23: Groves NP-310 Bulk	
Comments (see below)	None		None		None	
Lab ID-Version‡:	12148790-1		12148791-1		12148792-1	
Analysis Date:	01/07/2021		01/07/2021		01/07/2021	
Sample type	Water sample		Swab sample		Water sample	
Volume filtered (ml)	200		N/A		200	
Reporting Units	1 ml		1 swab		1 ml	
Detection Limit†	< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1						
L. pneumophila serotype 2-15						
Other Legionella species						
§TOTAL Legionella	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

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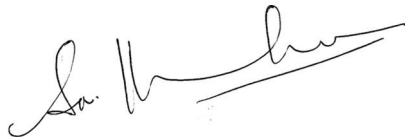
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2548328

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves-07 Swab		2: Groves-07 Bulk		3: Groves-08 Swab		4: Groves-08 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148798-1		12148799-1		12148800-1		12148801-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	20	64	6.4			16	1.6
§TOTAL Legionella	1	20	64	6.4	ND	< 20	16	1.6

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves-09 Swab		6: Groves-09 Bulk		7: Groves-NP-40 Swab		8: Groves-NP-40 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148802-1		12148803-1		12148804-1		12148805-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species					2	80	12	1.2
§TOTAL Legionella	ND	< 20	ND	< 0.1	2	80	12	1.2

*cfu = colony forming units ND = none detected

Comments:

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C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	9: Groves-NP-89 Swab		10: Groves-NP-89 Bulk		11: Groves-NP-90 Swab		12: Groves-NP-90 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148806-1		12148807-1		12148808-1		12148809-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	1	40	4	0.4			1	0.1
§TOTAL Legionella	1	40	4	0.4	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	13: Groves-NP-91 Swab		14: Groves-NP-91 Bulk		15: Groves-NP-92 Swab		16: Groves-NP-92 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148810-1		12148811-1		12148812-1		12148813-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			2	0.2	1	20	1	0.1
§TOTAL Legionella	ND	< 20	2	0.2	1	20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	17: Groves-NP-93 Swab		18: Groves-NP-93 Bulk		19: Groves-NP-94 Swab		20: Groves-NP-94 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148814-1		12148815-1		12148816-1		12148817-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	21: Groves-NP-95 Swab		22: Groves-NP-95 Bulk	
Comments (see below)	None		None	
Lab ID-Version‡:	12148818-1		12148819-1	
Analysis Date:	01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample	
Volume filtered (ml)	N/A		200	
Reporting Units	1 swab		1 ml	
Detection Limit†	< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1				
L. pneumophila serotype 2-15				
Other Legionella species			6	0.6
§TOTAL Legionella	ND	< 20	6	0.6

*cfu = colony forming units ND = none detected

Comments:

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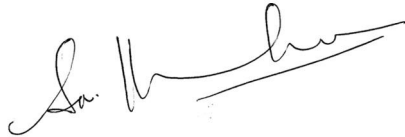
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Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2548320

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves NP-96 Swab		2: Groves NP-96 Bulk		3: Groves NP-97 Swab		4: Groves NP-97 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148854-1		12148855-1		12148856-1		12148857-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	20						
§TOTAL Legionella	1	20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

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Date of Sampling: 12-28-2020
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Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves NP-98 Swab		6: Groves NP-98 Bulk		7: Groves NP-99 Swab		8: Groves NP-99 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148858-1		12148859-1		12148860-1		12148861-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			3	0.3	5	200	1	0.1
§TOTAL Legionella	ND	< 20	3	0.3	5	200	1	0.1

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Comments:

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Date of Sampling: 12-28-2020
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 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	9: Groves NP-100 Swab		10: Groves NP-100 Bulk		11: Groves NP-101 Swab		12: Groves NP-101 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148862-1		12148863-1		12148864-1		12148865-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			1	0.1				
§TOTAL Legionella	ND	< 20	1	0.1	ND	< 20	ND	< 0.1

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Comments:

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C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	13: Groves NP-102 Swab		14: Groves NP-102 Bulk		15: Groves NP-103 Swab		16: Groves NP-103 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148866-1		12148867-1		12148868-1		12148869-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species							4	0.4
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	4	0.4

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Comments:

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Date of Sampling: 12-28-2020
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 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	17: Groves NP-104 Swab		18: Groves NP-104 Bulk		19: Groves NP-105 Swab		20: Groves NP-105 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148870-1		12148871-1		12148872-1		12148873-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species							1	0.1
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	21: Groves NP-106 Swab		22: Groves NP-106 Bulk		23: Groves NP-107 Swab		24: Groves NP-107 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148874-1		12148875-1		12148876-1		12148877-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
Date of Receipt: 12-29-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	25: Groves NP-108 Swab		26: Groves NP-108 Bulk		27: Groves NP-320 Swab		28: Groves NP-320 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12148878-1		12148879-1		12148880-1		12148881-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-29-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	29: Groves NP-321 Swab		30: Groves NP-321 Bulk	
Comments (see below)	None		None	
Lab ID-Version‡:	12148882-1		12148883-1	
Analysis Date:	01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample	
Volume filtered (ml)	N/A		200	
Reporting Units	1 swab		1 ml	
Detection Limit†	< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1				
L. pneumophila serotype 2-15				
Other Legionella species	6	120	14	1.4
§TOTAL Legionella	6	120	14	1.4

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

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§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

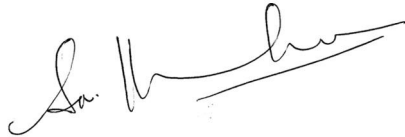
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2549230

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves - NP-54 Swab		2: Groves - NP-54 Bulk		3: Groves - NP-69 Swab	
Comments (see below)	A		None		None	
Lab ID-Version‡:	12153204-1		12153205-1		12153206-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample	
Volume filtered (ml)	N/A		200		N/A	
Reporting Units	1 swab		1 ml		1 swab	
Detection Limit†	< 20		< 0.1		< 20	
Analytical Sensitivity†	< 40		< 0.1		< 40	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1						
L. pneumophila serotype 2-15						
Other Legionella species	300	12,000			176	7,000
§TOTAL Legionella	300	12,000	ND	< 0.1	176	7,000

*cfu = colony forming units ND = none detected

Comments: A) Enumeration greater than 300 cfu/plate was observed but cannot be accurately reported.

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/ reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/ reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	4: Groves - NP-69 Bulk		5: Groves - HWH - 01		6: Groves - HWH - 02	
Comments (see below)	None		None		None	
Lab ID-Version‡:	12153207-1		12153208-1		12153209-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021	
Sample type	Water sample		Water sample		Water sample	
Volume filtered (ml)	200		200		200	
Reporting Units	1 ml		1 ml		1 ml	
Detection Limit†	< 0.1		< 0.1		< 0.1	
Analytical Sensitivity†	< 0.1		< 0.1		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1						
L. pneumophila serotype 2-15						
Other Legionella species	20	2				
§TOTAL Legionella	20	2	ND	< 0.1	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	7: Groves - HWH - 03		8: Groves - HWH - 04		9: Groves - HWH - 05	
Comments (see below)	None		None		None	
Lab ID-Version‡:	12153210-1		12153211-1		12153212-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021	
Sample type	Water sample		Water sample		Water sample	
Volume filtered (ml)	200		200		200	
Reporting Units	1 ml		1 ml		1 ml	
Detection Limit†	< 0.1		< 0.1		< 0.1	
Analytical Sensitivity†	< 0.1		< 0.1		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1					5	0.5
L. pneumophila serotype 2-15						
Other Legionella species						
§TOTAL Legionella	ND	< 0.1	ND	< 0.1	5	0.5

*cfu = colony forming units ND = none detected

Comments:

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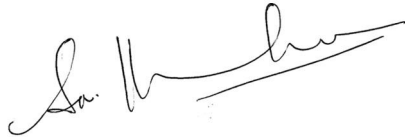
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Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2549348

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 01-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves NP -329 - Swab		2: Groves NP -329 - Bulk		3: Groves NP -330 - Swab		4: Groves NP -330 - Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153571-1		12153572-1		12153573-1		12153574-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 ml		1 ml		1 ml		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species							3	0.3
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	3	0.3

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 01-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves NP -331 - Swab		6: Groves NP -331 - Bulk		7: Groves NP -332 - Swab		8: Groves NP -332 - Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153575-1		12153576-1		12153577-1		12153578-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 ml		1 ml		1 ml		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			32	3.2			4	0.4
§TOTAL Legionella	ND	< 20	32	3.2	ND	< 20	4	0.4

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 01-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	9: Groves NP -333 - Swab		10: Groves NP -333 - Bulk		11: Groves NP -334 - Swab		12: Groves NP -334 - Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153579-1		12153580-1		12153581-1		12153582-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 ml		1 ml		1 ml		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

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§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

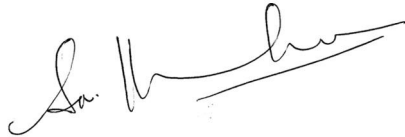
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200983; Groves High School
EML ID: 2549224

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

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Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves - 43 Swab		2: Groves - 43 Bulk		3: Groves - NP -46 Swab		4: Groves - NP -46 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153160-1		12153161-1		12153162-1		12153163-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	40	16	1.6			3	0.3
§TOTAL Legionella	1	40	16	1.6	ND	< 20	3	0.3

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves - NP -49 Swab		6: Groves - NP -49 Bulk		7: Groves - NP -64 Swab		8: Groves - NP -64 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153164-1		12153165-1		12153166-1		12153167-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species							6	0.6
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	6	0.6

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200983; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-08-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	9: Groves - NP -65 Swab		10: Groves - NP -65 Bulk		11: Groves - NP -66 Swab		12: Groves - NP -66 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153168-1		12153169-1		12153170-1		12153171-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species			22	2.2			1	0.1
§TOTAL Legionella	ND	< 20	22	2.2	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	13: Groves - NP -67 Swab		14: Groves - NP -67 Bulk	
Comments (see below)	None		None	
Lab ID-Version‡:	12153172-1		12153173-1	
Analysis Date:	01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample	
Volume filtered (ml)	N/A		200	
Reporting Units	1 swab		1 ml	
Detection Limit†	< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1				
L. pneumophila serotype 2-15				
Other Legionella species				
§TOTAL Legionella	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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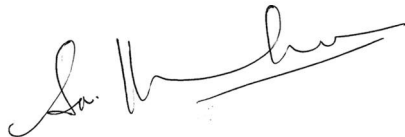
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200983; Groves High School
EML ID: 2549220

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves - 61 Swab		2: Groves - 61 Bulk		3: Groves NP - 352 Swab		4: Groves NP - 352 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153083-1		12153084-1		12153085-1		12153086-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	14	560					1	0.1
§TOTAL Legionella	14	560	ND	< 0.1	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves NP - 353 Swab		6: Groves NP - 353 Bulk		7: Groves NP - 354 Swab		8: Groves NP - 354 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153087-1		12153088-1		12153089-1		12153090-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			10	1	89	3,600	83	8.3
§TOTAL Legionella	ND	< 20	10	1	89	3,600	83	8.3

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	9: Groves NP - 356 Swab		10: Groves NP - 356 Bulk		11: Groves NP - 357 Swab		12: Groves NP - 357 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153091-1		12153092-1		12153093-1		12153094-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			16	1.6				
§TOTAL Legionella	ND	< 20	16	1.6	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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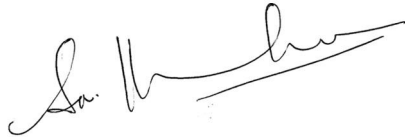
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2549239

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves NP-122 Swab		2: Groves NP-122 Bulk		3: Groves NP-124 Swab		4: Groves NP-124 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153473-1		12153474-1		12153475-1		12153476-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves NP-126 Swab		6: Groves NP-125 Bulk		7: Groves NP-128 Swab		8: Groves NP-128 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153477-1		12153478-1		12153479-1		12153480-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	104	4,200			9	360		
§TOTAL Legionella	104	4,200	ND	< 0.1	9	360	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	9: Groves NP-136 Swab		10: Groves NP-137 Bulk		11: Groves NP-137 Swab		12: Groves NP-139 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153481-1		12153482-1		12153483-1		12153484-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	40	5	0.5			1	0.1
§TOTAL Legionella	1	40	5	0.5	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-30-2020 and 12-31-2020
 Date of Report: 01-08-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	13: Groves NP-139 Swab		14: Groves NP-123 Swab		15: Groves NP-123 Bulk	
Comments (see below)	None		None		None	
Lab ID-Version‡:	12153510-1		12156184-1		12156185-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		N/A		200	
Reporting Units	1 swab		1 swab		1 ml	
Detection Limit†	< 20		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1						
L. pneumophila serotype 2-15						
Other Legionella species			169	3,400	8	0.8
§TOTAL Legionella	ND	< 20	169	3,400	8	0.8

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/ reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/ reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

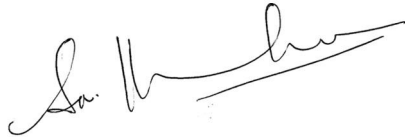
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2549235

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-11-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High School

Date of Sampling: 01-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves -19 Swab		2: Groves -19 Bulk		3: Groves NP -111 Swab		4: Groves NP -111 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153526-1		12153527-1		12153528-1		12153529-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species							2	0.2
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	2	0.2

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 01-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	5: Groves NP -113 Swab		6: Groves NP -113 Bulk		7: Groves NP -114 Swab		8: Groves NP -114 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153530-1		12153531-1		12153532-1		12153533-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	79	3,200	12	1.2	41	1,600	21	2.1
§TOTAL Legionella	79	3,200	12	1.2	41	1,600	21	2.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 01-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	9: Groves NP -115 Swab		10: Groves NP -115 Bulk		11: Groves NP -117 Swab		12: Groves NP -117 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153534-1		12153535-1		12153536-1		12153537-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species			2	0.2			10	1
§TOTAL Legionella	ND	< 20	2	0.2	ND	< 20	10	1

*cfu = colony forming units ND = none detected

Comments:

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Receipt: 12-30-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	13: Groves NP -119 Swab		14: Groves NP -119 Bulk	
Comments (see below)	None		None	
Lab ID-Version‡:	12153545-1		12153546-1	
Analysis Date:	01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample	
Volume filtered (ml)	N/A		200	
Reporting Units	1 swab		1 ml	
Detection Limit†	< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1				
L. pneumophila serotype 2-15				
Other Legionella species			60	6
§TOTAL Legionella	ND	< 20	60	6

*cfu = colony forming units ND = none detected

Comments:

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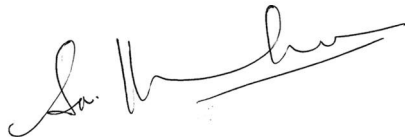
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200983; Groves High School
EML ID: 2549748

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-11-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-31-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves-41 Swab		2: Groves-41 Bulk		3: Groves-55 Swab		4: Groves-55 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12156144-1		12156145-1		12156146-1		12156147-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-31-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	5: Groves-56 Swab		6: Groves-56 Bulk		7: Groves-57 Swab		8: Groves-57 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12156148-1		12156149-1		12156150-1		12156151-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species			3	0.3				
§TOTAL Legionella	ND	< 20	3	0.3	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-31-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	9: Groves-58 Swab		10: Groves-58 Bulk		11: Groves-59 Swab		12: Groves-59 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12156152-1		12156153-1		12156154-1		12156155-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species			3	0.3	25	1,000		
§TOTAL Legionella	ND	< 20	3	0.3	25	1,000	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200983; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-31-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	13: Groves-60 Swab		14: Groves-60 Bulk	
Comments (see below)	None		None	
Lab ID-Version‡:	12156156-1		12156157-1	
Analysis Date:	01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample	
Volume filtered (ml)	N/A		200	
Reporting Units	1 swab		1 ml	
Detection Limit†	< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1				
L. pneumophila serotype 2-15				
Other Legionella species	4	160		
§TOTAL Legionella	4	160	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

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† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

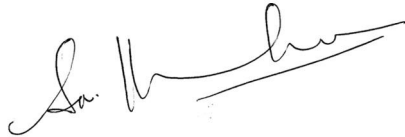
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2549243

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-11-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves NP-323 Swab		2: Groves NP-323 Bulk		3: Groves NP-324 Swab		4: Groves NP-324 Bulk		5: Groves NP-325 Swab	
Comments (see below)	None		None		None		None		None	
Lab ID-Version‡:	12153009-1		12153010-1		12153011-1		12153012-1		12153013-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample		Swab sample	
Volume filtered (ml)	N/A		200		N/A		200		N/A	
Reporting Units	1 swab		1 ml		1 swab		1 ml		1 swab	
Detection Limit†	< 20		< 0.1		< 20		< 0.1		< 20	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1		< 20	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1			1	0.1						
<i>L. pneumophila</i> serotype 2-15										
Other Legionella species							7	0.7		
§TOTAL Legionella	ND	< 20	1	0.1	ND	< 20	7	0.7	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/ reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/ reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	6: Groves NP-325 Bulk		7: Groves NP-338 Swab		8: Groves NP-338 Bulk		9: Groves NP-339 Swab	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153014-1		12153015-1		12153016-1		12153017-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Water sample		Swab sample		Water sample		Swab sample	
Volume filtered (ml)	200		N/A		200		N/A	
Reporting Units	1 ml		1 swab		1 ml		1 swab	
Detection Limit†	< 0.1		< 20		< 0.1		< 20	
Analytical Sensitivity†	< 0.1		< 20		< 0.1		< 20	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 0.1	ND	< 20	ND	< 0.1	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	10: Groves NP-339 Bulk		11: Groves NP-340 Swab		12: Groves NP-340 Bulk		13: Groves NP-341 Swab	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153018-1		12153019-1		12153020-1		12153021-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Water sample		Swab sample		Water sample		Swab sample	
Volume filtered (ml)	200		N/A		200		N/A	
Reporting Units	1 ml		1 swab		1 ml		1 swab	
Detection Limit†	< 0.1		< 20		< 0.1		< 20	
Analytical Sensitivity†	< 0.1		< 20		< 0.1		< 20	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	0.1			3	0.3		
§TOTAL Legionella	1	0.1	ND	< 20	3	0.3	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	14: Groves NP-341 Bulk	15: Groves NP-342 Swab	16: Groves NP-342 Bulk	17: Groves NP-343 Swab				
Comments (see below)	None	None	None	None				
Lab ID-Version‡:	12153022-1	12153023-1	12153024-1	12153025-1				
Analysis Date:	01/11/2021	01/11/2021	01/11/2021	01/11/2021				
Sample type	Water sample	Swab sample	Water sample	Swab sample				
Volume filtered (ml)	200	N/A	200	N/A				
Reporting Units	1 ml	1 swab	1 ml	1 swab				
Detection Limit†	< 0.1	< 20	< 0.1	< 20				
Analytical Sensitivity†	< 0.1	< 20	< 0.1	< 20				
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	1	0.1			24	2.4		
§TOTAL Legionella	1	0.1	ND	< 20	24	2.4	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	18: Groves NP-343 Bulk	19: Groves NP-344 Swab	20: Groves NP-344 Bulk	21: Groves NP-345 Swab				
Comments (see below)	None	None	None	None				
Lab ID-Version‡:	12153026-1	12153027-1	12153028-1	12153029-1				
Analysis Date:	01/11/2021	01/11/2021	01/11/2021	01/11/2021				
Sample type	Water sample	Swab sample	Water sample	Swab sample				
Volume filtered (ml)	200	N/A	200	N/A				
Reporting Units	1 ml	1 swab	1 ml	1 swab				
Detection Limit†	< 0.1	< 20	< 0.1	< 20				
Analytical Sensitivity†	< 0.1	< 20	< 0.1	< 20				
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1					1	0.1		
L. pneumophila serotype 2-15								
Other Legionella species	22	2.2			83	8.3		
§TOTAL Legionella	22	2.2	ND	< 20	84	8.4	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-11-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	22: Groves NP-345 Bulk		23: Groves NP-346 Swab		24: Groves NP-346 Bulk		25: Groves NP-347 Swab	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153030-1		12153031-1		12153032-1		12153033-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Water sample		Swab sample		Water sample		Swab sample	
Volume filtered (ml)	200		N/A		200		N/A	
Reporting Units	1 ml		1 swab		1 ml		1 swab	
Detection Limit†	< 0.1		< 20		< 0.1		< 20	
Analytical Sensitivity†	< 0.1		< 20		< 0.1		< 20	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	3	0.3						
§TOTAL Legionella	3	0.3	ND	< 20	ND	< 0.1	ND	< 20

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-11-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	26: Groves NP-347 Bulk		27: Groves NP-348 Bulk		28: Groves NP-349 Bulk		29: Groves NP-350 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153034-1		12153035-1		12153036-1		12153037-1	
Analysis Date:	01/11/2021		01/11/2021		01/11/2021		01/11/2021	
Sample type	Water sample		Water sample		Water sample		Water sample	
Volume filtered (ml)	200		200		200		200	
Reporting Units	1 ml		1 ml		1 ml		1 ml	
Detection Limit†	< 0.1		< 0.1		< 0.1		< 0.1	
Analytical Sensitivity†	< 0.1		< 0.1		< 0.1		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	4	0.4	2	0.2	25	2.5	16	1.6
§TOTAL Legionella	4	0.4	2	0.2	25	2.5	16	1.6

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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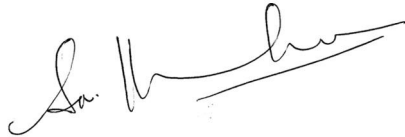
‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Report for:

Lindsey Evelith
Arch Environmental - healthAIR
37720 Interchange Drive
Farmington Hills, MI 48335

Regarding: Project: AE200893; Groves High School
EML ID: 2549239

Approved by:



Cluster Leader
Dr. Kamash Pillai

Dates of Analysis:

Legionella-CDC method: 01-08-2021

Service SOPs: Legionella-CDC method (EM-BT-S-1687)
AIHA-LAP, LLC accredited service, Lab ID #176641

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-29-2020
 Date of Receipt: 12-30-2020
 Date of Report: 01-14-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	1: Groves NP-122 Swab		2: Groves NP-122 Bulk		3: Groves NP-124 Swab		4: Groves NP-124 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153473-1		12153474-1		12153475-1		12153476-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species								
§TOTAL Legionella	ND	< 20	ND	< 0.1	ND	< 20	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae 1 and 2*, and *Legionella micdadei*.

† The limit of detection is a raw count of 1 at the lowest dilution plated, represented here as a theoretical detection limit of 1 raw count/reporting unit x the dilution factor on the lowest dilution plated. The analytical sensitivity is represented as being equal to 1 raw count/reporting unit x the dilution factor, but on the on the lowest reportable (or countable) dilution plated.

§ Total CFU/unit has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-14-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	5: Groves NP-126 Swab		6: Groves NP-126 Bulk		7: Groves NP-128 Swab		8: Groves NP-128 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153477-1		12153478-1		12153479-1		12153480-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 40		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1								
L. pneumophila serotype 2-15								
Other Legionella species	104	4,200			9	360		
§TOTAL Legionella	104	4,200	ND	< 0.1	9	360	ND	< 0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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Client: Arch Environmental - healthAIR
C/O: Lindsey Evelith
Re: AE200893; Groves High SchoolDate of Sampling: 12-29-2020
Date of Receipt: 12-30-2020
Date of Report: 01-14-2021**QUANTITATIVE LEGIONELLA REPORT**

Location:	9: Groves NP-136 Swab		10: Groves NP-137 Bulk		11: Groves NP-137 Swab		12: Groves NP-139 Bulk	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	12153481-1		12153482-1		12153483-1		12153484-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Water sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		200		N/A		200	
Reporting Units	1 swab		1 ml		1 swab		1 ml	
Detection Limit†	< 20		< 0.1		< 20		< 0.1	
Analytical Sensitivity†	< 40		< 0.1		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
<i>L. pneumophila</i> serotype 1								
<i>L. pneumophila</i> serotype 2-15								
Other Legionella species	1	40	5	0.5			1	0.1
§TOTAL Legionella	1	40	5	0.5	ND	< 20	1	0.1

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

Identifiers listed without a count or data entry were not detected during the course of the analysis for the respective sample.

"Other Legionella species" include, but are not limited to, the following organisms: *Legionella anisa*, *Legionella bozemanii*, *Legionella dumoffii*, *Legionella gormanii*, *Legionella jordanis*, *Legionella longbeachae* 1 and 2, and *Legionella micdadei*.

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Client: Arch Environmental - healthAIR
 C/O: Lindsey Evelith
 Re: AE200893; Groves High School

Date of Sampling: 12-28-2020
 Date of Receipt: 12-30-2020 and 12-31-2020
 Date of Report: 01-14-2021

QUANTITATIVE LEGIONELLA REPORT

Location:	13: Groves NP-139 Swab		14: Groves NP-123 Swab		15: Groves NP-123 Bulk	
Comments (see below)	None		None		None	
Lab ID-Version‡:	12153510-1		12156184-1		12156185-1	
Analysis Date:	01/08/2021		01/08/2021		01/08/2021	
Sample type	Swab sample		Swab sample		Water sample	
Volume filtered (ml)	N/A		N/A		200	
Reporting Units	1 swab		1 swab		1 ml	
Detection Limit†	< 20		< 20		< 0.1	
Analytical Sensitivity†	< 20		< 20		< 0.1	
	raw ct.	cfu*/unit	raw ct.	cfu*/unit	raw ct.	cfu*/unit
L. pneumophila serotype 1						
L. pneumophila serotype 2-15						
Other Legionella species			169	3,400	8	0.8
§TOTAL Legionella	ND	< 20	169	3,400	8	0.8

*cfu = colony forming units ND = none detected

Comments:

For water samples, the submitted volume affects dilution factor and limit of detection. A sample volume of at least 200ml is recommended for potable water samples for environments with high-risk populations and some other applications. Guidance on sampling, action thresholds and other relevant information can be found at (<https://www.osha.gov>) as well as other international, national and local agencies.

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