



DATE: June 9, 2023; Amended June 15, 2023

FROM: Massiel Lucca-Amador, Manager, Energy, Environmental, & Sustainability Branch

TO: Sylvia Hermann, Service Center Director, Michigan Service Center

CC: Kim Ribich, Manager, Customer Engagement and Workplace Solutions Branch
Bill Renner, Director, Facilities Management and Services Programs Division
Michele Sharples, Director, Northern Service Center Operations Division

SUBJECT: Additional Information Regarding Water Testing for the Federal Building at
985 Michigan Avenue, Detroit, MI

On April 26, GSA had Benkari, a consultant through the prospectus building modernization project, sample a limited number of locations in the Federal Building at 985 Michigan Ave to evaluate the performance of the domestic hot water system due to concerns about performance of recently installed equipment. There were also tenant concerns about the water in the building being cloudy. The consultant sampled the six locations listed below at the cold water braided supply line below each sink (samples were not taken from the faucets).

1. Lower level Men's Room Sink
2. Lower level 16 Print Shop Break Room Sink
3. 1st Floor 119-02 Kitchenette Sink
4. 507-26 Kitchenette Break Room Sink
5. 810-09 Kitchenette Break Room Sink
6. 10th Floor West Men's Room Sink

Why and How GSA Samples Drinking Water

Typically, when GSA samples water to address drinking water concerns, we prepare a scope of work that requires testing that analyzes U.S. EPA primary drinking water standard constituents of concern. The primary drinking water standards include the levels the U.S. EPA has established as safe or actionable for the water we drink. Because the consultant was addressing equipment performance, we did not conduct testing following typical drinking water sampling standards. As part of our drinking water management program, when conducting drinking water testing we require: a complete report with clear identification of where and when samples were obtained; analysis completed by an EPA-approved laboratory; copies of the analytic report and chain of custody forms; and a summary that explains and interprets the results and provides recommendations for corrective action. Normally, that summary provides key information for tenants without the need to review the entire document, although the entire document is made available.

Because the work did not meet our drinking water sampling standards, we have not issued the report widely. Although we have concerns with the information and how it is presented, there was sufficient information in the report to warrant discontinuing the use of the water for drinking purposes as soon as possible. Following discussion of other water use scenarios in the building and potential risks, GSA closed the building on June 5.

Report Results

Sampling of process water typically involves analysis of key dissolved inorganic minerals or metals in the water that can impact the piping or equipment. For this effort, the consultant tested for: copper, lead, manganese, zinc, iron, calcium, and magnesium. These are all elements that can naturally occur in water.



As part of the Primary Drinking Water Standards, the U.S. EPA has established action levels for lead and copper. These action levels are legally enforceable standards that apply to public water systems and are intended to protect the public against consumption of drinking water contaminants that present a risk to human health. GSA refers to these action levels when analyzing drinking water samples. Two sample locations, Lower level Men's Room Sink and 507-26 Kitchenette Break Room Sink, exceeded the EPA's action level for copper of 1.3 mg/l at 2.0 and 1.4 mg/l, respectively. While these exceedances are of concern, they are at levels that are still safe for handwashing.

As part of the Secondary Drinking Water Standards, the U.S. EPA has established recommended maximum contaminant levels for iron, manganese, and zinc. These secondary maximum contaminant levels are non-enforceable guidelines that are recommended, but not mandatory. One sample location, Lower level Men's Room Sink, exceeded the EPA's recommended maximum contaminant level for iron of 0.3 mg/L at 0.69 mg/l.

The U.S. EPA does not have established maximum contaminant levels for calcium and magnesium.

The consultant also tested for corrosive bacteria conditions. Specifically, they tested for: iron-related bacteria, slime-forming bacteria, sulfate reducing bacteria, and acid producing bacteria. There are no U.S. EPA drinking water standards established for these parameters, as they are related to process performance. All six sample locations had iron-related bacteria and slime-forming bacteria present. The consultant described the presence of bacteria to be at medium to high concentrations. This was the item of greatest concern that required action on GSA's part.

Corrective Action Plan

GSA is currently reviewing operations, maintenance, and custodial practices related to the drinking water system to make sure the system is being properly maintained, cleaned, and flushed. An example of this is confirming that hot water temperatures are adequate to reduce the potential for bacteria growth. We are also working to execute a scope to perform a remedial flush of the building's water system, running high volumes of water through the system to eliminate stagnant water.

Following flushing, we will sample and analyze a representative number of locations for key drinking water standard parameters such as lead, copper, and microorganisms, including bacteria. This sampling and analysis will meet our drinking water sampling standards and be shared with tenants. Once this testing and analysis is complete and demonstrates acceptable drinking water quality, we will reopen the building.

In the meantime, we will work with tenants with immediate needs in the building such as critical functions or construction projects to see if we can safely accommodate their access to the building without using the building's drinking water system. The system is still available to be used for sanitary and fire protection purposes.

Communication

Property managers regularly communicate the status of the building to the tenants. As we begin to execute our corrective action plan, we will provide regular updates until the building is reopened.



June 15, 2023 Amendment

Summary of Testing Results and Analytical Reports

Appendix A includes a table summarizing the locations tested at the building and the corresponding results. The table was prepared by GSA to organize and summarize the information in the analytical reports. Analytical reports are included in Appendix B.

Concentrations of copper and iron identified to be above U.S. EPA primary and secondary drinking water standards can be addressed through operations and maintenance procedures, such as routine flushing. The bacterial parameters identified (slime forming bacteria and iron related bacteria) are of concern and prompted the closure of the building.

Clarifications

Secondary maximum contaminant levels established by the U.S. EPA as part of the Secondary Drinking Water Standards are not considered to present a risk to human health.

The U.S. EPA does not have established primary or secondary drinking water standards for calcium and magnesium.

Additional Details on Corrective Action

GSA's corrective action plan consists of the following:

- *Full building flushing.* A qualified contractor will develop a Drinking Water System Flushing Plan specific to the building's drinking water system. Immediately upon flushing, the contractor will test for chlorine and take temperature measurements to corroborate the presence of fresh drinking water in the system.
- *Flushing oversight and post-flush testing.* An environmental consultant (industrial hygienist) will provide feedback on the proposed Drinking Water System Flushing Plan to ensure its adequacy; provide oversight of all flushing activities; and conduct post-flush, representative testing for metals and bacteria, specifically lead, copper, total coliform, e.coli, and legionella. The consultant will provide a report outlining their activities and listing testing results, which will be shared with building tenants.

Appendix A
Summary of Testing Results

Sample Location	Iron Related Bacteria Results	Slime Forming Bacteria Results	Sulfate Reducing Bacteria Results	Acid Producing Bacteria Results	Copper Results	Calcium Results	Lead Results	Manganese Results	Magnesium Results	Zinc Results	Iron Results
	No threshold ‡	No threshold ‡	No threshold ‡	No threshold ‡	Action Level: 1.3 mg/L*	No threshold ‡	Action Level: 0.015 mg/L*	0.05 mg/L †	No threshold ‡	5 mg/L †	0.3 mg/L †
Lower level Men's Room Sink	2200 CFU/mL	440000 CFU/mL	Absent	Absent	2.00 mg/L	29.00 mg/L	0.0034 mg/L	0.0074 mg/L	7.80 mg/L	0.300 mg/L	0.69 mg/L
Lower level 16 Print Shop Break Room Sink	140000 CFU/mL	13000 CFU/mL	Absent	Absent	0.75 mg/L	28.60 mg/L	0.0091 mg/L	<0.0050 mg/L	7.50 mg/L	0.450 mg/L	0.09 mg/L
1st Floor 119-02 Kitchenette Sink	2200 CFU/mL	440000 CFU/mL	Not listed in report	Absent	0.12 mg/L	28.30 mg/L	0.0019 mg/L	<0.0050 mg/L	7.40 mg/L	0.140 mg/L	0.05 mg/L
507-26 Kitchenette Break Room Sink	2200 CFU/mL	1750000 CFU/mL	Absent	Absent	1.40 mg/L	25.00 mg/L	<0.0010 mg/L	0.0160 mg/L	6.80 mg/L	0.110 mg/L	0.13 mg/L
810-09 Kitchenette Break Room Sink	9000 CFU/mL	1750000 CFU/mL	Absent	Absent	0.23 mg/L	28.60 mg/L	<0.0010 mg/L	<0.0050 mg/L	7.50 mg/L	0.086 mg/L	0.06 mg/L
10th Floor West Men's Room Sink	500 CFU/mL	1750000 CFU/mL	Absent	Absent	0.88 mg/L	26.90 mg/L	<0.0010 mg/L	<0.0050 mg/L	7.20 mg/L	0.240 mg/L	<0.04 mg/L

* U.S. EPA Primary Drinking Water Standards establish action levels for lead and copper.

† U.S. EPA Secondary Drinking Water Standards establish non-enforceable, recommended secondary maximum contaminant levels (SMCLs) for iron, manganese, and zinc.

‡ U.S. EPA has not established either Primary or Secondary Drinking Water Standards for calcium, magnesium, iron-related bacteria, slime-forming bacteria, sulfate reducing bacteria, and acid producing bacteria.

Appendix B
Analytical Reports

FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Summary

This summary is provided for your convenience. Complete report on the following pages.

Iron-Related Bacteria (IRB)

Location	Result	Concentration
109 Iron Related Bacteria LL 16	Present	140000 CFU/mL
109 Iron Related	Present	2200 CFU/mL
109 Iron Related 810-09	Present	9000 CFU/mL
109 Iron Related 10 West Mens RR	Present	500 CFU/mL

Slime-Forming Bacteria (Slym)

Location	Result	Concentration
111 Slime Forming 10 West Mens RR	Present	1750000 CFU/mL
111 Slime Forming 810-09	Present	1750000 CFU/mL
111 Slime Forming LL 16	Present	13000 CFU/mL
111 Slime Forming LL Mens	Present	440000 CFU/mL

Sulfate Reducing Bacteria (SRB)

Location	Result	Concentration
110 Sulfate Reducing LL Mens	Absent	
110 Sulfate Reducing Bacteria LL-16	Absent	
110 Sulfate Reducing 10 West Mens RR	Absent	
110 Sulfate Reducing 810-09-3	Absent	



**SPECIAL
PATHOGENS
LABORATORY**

THE LEGIONELLA EXPERTS®
 1401 Forbes Ave., Suite 401 Pittsburgh, PA 15219
 P: 412-281-5335 F: 412-281-7445
www.SpecialPathogensLab.com



FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Acid Producing Bacteria (APB)

Location	Result	Concentration
113 Acid Producing	Absent	
113 Acid Producing LL16	Absent	
113 Acid Produ. Bac. 810-09	Absent	

Chem Panel

Location	Result	Concentration
241 Analytical WC LL Mens	Complete	
241 Analytical WC	Complete	
241 Analytical WC 810-09	Complete	

Approved By: Brian Verdi

Janet E. Stout, Ph.D.
 Laboratory Director, Special Pathogens Laboratory

FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Location:	111 Slime Forming 10 West Mens RR	Date Collected:	04/26/2023
Sample ID:	2304-01577.001	Sample Type:	Water
		Time Collected:	9:55 am
Client Notes:	Sample number is 10 West Mens RR-4		
Test Requested:	Slime-Forming Bacteria (Slym)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	1750000 CFU/mL		
Report Comments:	High Aggressivity		
Location:	109 Iron Related Bacteria LL 16	Date Collected:	04/26/2023
Sample ID:	2304-01577.002	Sample Type:	Water
		Time Collected:	9:15 am
Client Notes:	sample number listed is LL16-2		
Test Requested:	Iron-Related Bacteria (IRB)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	140000 CFU/mL		
Report Comments:	High Aggressivity		
Location:	241 Analytical WC LL Mens	Date Collected:	04/26/2023
Sample ID:	2304-01577.003	Sample Type:	Water
		Time Collected:	8:50 am
Client Notes:	Sample number listed is LL Mens-1		
Test Requested:	Chem Panel	Status:	Complete 05/16/2023
Date Analyzed:	5/10/23		
Result:	Complete		
Copper:	2.00 mg/L		
Calcium:	29.00 mg/L		
Lead:	0.0034 mg/L		
Manganese:	0.0074 mg/L		
Magnesium:	7.80 mg/L		
Zinc:	0.300 mg/L		
Iron:	0.69 mg/L		
Location:	113 Acid Producing	Date Collected:	04/26/2023
Sample ID:	2304-01577.004	Sample Type:	Water
		Time Collected:	8:50 am
Client Notes:	Sample number listed is LL Mens-5		
Test Requested:	Acid Producing Bacteria (APB)	Status:	Complete 05/08/2023
Result:	Absent		

FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Location:	109 Iron Related	Date Collected:	04/26/2023
Sample ID:	2304-01577.005	Sample Type:	Water
		Time Collected:	8:40 am
Client Notes:	Sample number listed is LL Mens-2		
Test Requested:	Iron-Related Bacteria (IRB)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	2200 CFU/mL		
Report Comments:	Medium Aggressivity		
Location:	111 Slime Forming 810-09	Date Collected:	04/26/2023
Sample ID:	2304-01577.006	Sample Type:	Water
		Time Collected:	9:30 am
Client Notes:	Sample number listed is 810-09-4		
Test Requested:	Slime-Forming Bacteria (Slym)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	1750000 CFU/mL		
Report Comments:	High Aggressivity		
Location:	111 Slime Forming LL 16	Date Collected:	04/26/2023
Sample ID:	2304-01577.007	Sample Type:	Water
		Time Collected:	9:15 am
Client Notes:	Sample number listed is LL16-4		
Test Requested:	Slime-Forming Bacteria (Slym)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	13000 CFU/mL		
Report Comments:	Medium Aggressivity		
Location:	110 Sulfate Reducing LL Mens	Date Collected:	04/26/2023
Sample ID:	2304-01577.008	Sample Type:	Water
		Time Collected:	8:45 am
Client Notes:	Sample number listed is LL Mens-3		
Test Requested:	Sulfate Reducing Bacteria (SRB)	Status:	Complete 05/08/2023
Result:	Absent		



FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Location:	241 Analytical WC	Date Collected:	04/26/2023
Sample ID:	2304-01577.009	Sample Type:	Water
		Time Collected:	9:00 am
Client Notes:	Sample number listed is LL16-1		

Test Requested:	Chem Panel	Status:	Complete 05/16/2023
Date Analyzed:	5/10/23		
Result:	Complete		
Copper:	0.75 mg/L		
Calcium:	28.60 mg/L		
Lead:	0.0091 mg/L		
Manganese:	<0.0050 mg/L		
Magnesium:	7.50 mg/L		
Zinc:	0.450 mg/L		
Iron:	0.09 mg/L		

Location:	111 Slime Forming LL Mens	Date Collected:	04/26/2023
Sample ID:	2304-01577.010	Sample Type:	Water
		Time Collected:	8:50 am
Client Notes:	Sample number listed is LL Mens-4		

Test Requested:	Slime-Forming Bacteria (Slym)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	440000 CFU/mL		
Report Comments:	High Aggressivity		

Location:	110 Sulfate Reducing Bacteria LL-16	Date Collected:	04/26/2023
Sample ID:	2304-01577.011	Sample Type:	Water
		Time Collected:	9:15 am
Client Notes:	Sample number listed is LL16-3		

Test Requested:	Sulfate Reducing Bacteria (SRB)	Status:	Complete 05/08/2023
Result:	Absent		

Location:	110 Sulfate Reducing 10 West Mens RR	Date Collected:	04/26/2023
Sample ID:	2304-01577.012	Sample Type:	Water
		Time Collected:	9:55 am
Client Notes:	Sample number listed is 10 West Mens RR-3		

Test Requested:	Sulfate Reducing Bacteria (SRB)	Status:	Complete 05/08/2023
Result:	Absent		



FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Location:	113 Acid Producing LL16	Date Collected:	04/26/2023
Sample ID:	2304-01577.013	Sample Type:	Water
		Time Collected:	9:15 am
Client Notes:	Sample number listed is LL16-5		

Test Requested:	Acid Producing Bacteria (APB)	Status:	Complete 05/08/2023
Result:	Absent		

Location:	241 Analytical WC 810-09	Date Collected:	04/26/2023
Sample ID:	2304-01577.014	Sample Type:	Water
		Time Collected:	9:30 am
Client Notes:	Sample number listed is 810-09-1		

Test Requested:	Chem Panel	Status:	Complete 05/16/2023
Date Analyzed:	5/10/23		
Result:	Complete		
Copper:	0.23 mg/L		
Calcium:	28.60 mg/L		
Lead:	<0.0010 mg/L		
Manganese:	<0.0050 mg/L		
Magnesium:	7.50 mg/L		
Zinc:	0.086 mg/L		
Iron:	0.06 mg/L		

Location:	109 Iron Related 810-09	Date Collected:	04/26/2023
Sample ID:	2304-01577.015	Sample Type:	Water
		Time Collected:	9:30 am
Client Notes:	Sample number listed is 810-09-2		

Test Requested:	Iron-Related Bacteria (IRB)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	9000 CFU/mL		
Report Comments:	High Aggressivity		

Location:	109 Iron Related 10 West Mens RR	Date Collected:	04/26/2023
Sample ID:	2304-01577.016	Sample Type:	Water
		Time Collected:	9:55 am
Client Notes:	Sample number listed is 10 West Mens RR-2		

Test Requested:	Iron-Related Bacteria (IRB)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	500 CFU/mL		
Report Comments:	Medium Aggressivity		



FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

Location:	113 Acid Produ. Bac. 810-09	Date Collected:	04/26/2023
Sample ID:	2304-01577.017	Sample Type:	Water
		Time Collected:	9:30 am
Client Notes:	Sample number listed is 810-09-5		

Test Requested: Acid Producing Bacteria (APB) Status: Complete 05/08/2023
 Result: **Absent**

Location:	110 Sulfate Reducing 810-09-3	Date Collected:	04/26/2023
Sample ID:	2304-01577.018	Sample Type:	Water
		Time Collected:	9:30 am
Client Notes:	Sample number listed is 810-09-3		

Test Requested: Sulfate Reducing Bacteria (SRB) Status: Complete 05/08/2023
 Result: **Absent**

Approved By: Brian Verdi

Janet E. Stout, Ph.D.
 Laboratory Director, Special Pathogens Laboratory



FINAL REPORT

Benkari LLC
Administration
18427 W. McNichols
Detroit, MI 48219
P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01577
Project Name: 985 Michigan
PO Number: 21-001 PCO 149
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/16/2023

NOTES

Acid Producing Bacteria (APB)

- APB Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

Chem Panel

Testing Performed by Pace Analytical Services LLC. Sub-contractor report available upon request.

Iron-Related Bacteria (IRB)

- Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

Slime-Forming Bacteria (Slym)

- Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

Sulfate Reducing Bacteria (SRB)

- Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed. This report is not to be reproduced in whole or in part without the expressed consent of SPL. Results apply to the sample as received.

FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01593
Project Name: 985 Michigan
PO Number: 21-001
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/17/2023

Summary

This summary is provided for your convenience. Complete report on the following pages.

Iron-Related Bacteria (IRB)

Location	Result	Concentration
109 Iron Related. Sample Number 119-2-02	Present	2200 CFU/mL
109 Iron Related 507-26-2	Present	2200 CFU/mL

Slime-Forming Bacteria (Slym)

Location	Result	Concentration
111 Slime Forming 507-26-4	Present	1750000 CFU/mL
111 Slime Forming 119-02-4	Present	440000 CFU/mL

Sulfate Reducing Bacteria (SRB)

Location	Result	Concentration
110 Sulfate Reducing 507-26-3	Absent	

Acid Producing Bacteria (APB)

Location	Result	Concentration
113 Acid Producing 507-26-5	Absent	
113 Acid Producing	Absent	
113 Acid Producing 10 West Mens RR	Absent	

Chem Panel

Location	Result	Concentration
241 Analytical WC 10 W Mens RR	Complete	
241 Analytical WC 507-26-1	Complete	



FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01593
Project Name: 985 Michigan
PO Number: 21-001
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/17/2023

Chem Panel

Location	Result	Concentration
241 Analytical WC 119-02-1	Complete	

Approved By: Brian Verdi

Janet E. Stout, Ph.D.
 Laboratory Director, Special Pathogens Laboratory

FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01593
Project Name: 985 Michigan
PO Number: 21-001
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/17/2023

Location:	109 Iron Related. Sample Number 119-2-02	Date Collected:	04/26/2023
Sample ID:	2304-01593.001	Sample Type:	Water
		Time Collected:	10:55 am
Client Notes:	Sample Number listed as 109-02-2		

Test Requested:	Iron-Related Bacteria (IRB)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	2200 CFU/mL		
Report Comments:	Medium Aggressivity		

Location:	241 Analytical WC 10 W Mens RR	Date Collected:	04/26/2023
Sample ID:	2304-01593.002	Sample Type:	Water
		Time Collected:	10:00 am
Client Notes:	Sample number listed 10 West Mens RR-1		

Test Requested:	Chem Panel	Status:	Complete 05/17/2023
Date Analyzed:	5/10/23		
Result:	Complete		
Copper:	0.88 mg/L		
Calcium:	26.90 mg/L		
Lead:	<0.0010 mg/L		
Manganese:	<0.0050 mg/L		
Magnesium:	7.20 mg/L		
Zinc:	0.240 mg/L		
Iron:	<0.04 mg/L		

Location:	241 Analytical WC 507-26-1	Date Collected:	04/26/2023
Sample ID:	2304-01593.003	Sample Type:	Water
		Time Collected:	10:45 am
Client Notes:	Sample number listed 507-26-1		

Test Requested:	Chem Panel	Status:	Complete 05/17/2023
Date Analyzed:	5/10/23		
Result:	Complete		
Copper:	1.40 mg/L		
Calcium:	25.00 mg/L		
Lead:	<0.0010 mg/L		
Manganese:	0.0160 mg/L		
Magnesium:	6.80 mg/L		
Zinc:	0.110 mg/L		
Iron:	0.13 mg/L		



FINAL REPORT

Benkari LLC
Administration
18427 W. McNichols
Detroit, MI 48219
P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01593
Project Name: 985 Michigan
PO Number: 21-001
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/17/2023

Location:	241 Analytical WC 119-02-1	Date Collected:	04/26/2023
Sample ID:	2304-01593.004	Sample Type:	Water
		Time Collected:	10:50 am
Client Notes:	Sample number listed 119-02-1		

Test Requested:	Chem Panel	Status:	Complete 05/17/2023
Date Analyzed:	5/10/23		
Result:	Complete		
Copper:	0.12 mg/L		
Calcium:	28.30 mg/L		
Lead:	0.0019 mg/L		
Manganese:	<0.0050 mg/L		
Magnesium:	7.40 mg/L		
Zinc:	0.140 mg/L		
Iron:	0.05 mg/L		

Location:	111 Slime Forming 507-26-4	Date Collected:	04/26/2023
Sample ID:	2304-01593.005	Sample Type:	Water
		Time Collected:	10:40 am
Client Notes:	Sample number listed 507-26-4		

Test Requested:	Slime-Forming Bacteria (Slym)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	1750000 CFU/mL		
Report Comments:	High Aggressivity		

Location:	111 Slime Forming 119-02-4	Date Collected:	04/26/2023
Sample ID:	2304-01593.006	Sample Type:	Water
		Time Collected:	10:50 am
Client Notes:	Sample number listed is 119-02-4		

Test Requested:	Slime-Forming Bacteria (Slym)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	440000 CFU/mL		
Report Comments:	High Aggressivity		

Location:	110 Sulfate Reducing 507-26-3	Date Collected:	04/26/2023
Sample ID:	2304-01593.007	Sample Type:	Water
		Time Collected:	10:40 am
Client Notes:	Sample number listed is 507-26-3 (has a different number scratched out next to it)		

Test Requested:	Sulfate Reducing Bacteria (SRB)	Status:	Complete 05/08/2023
Result:	Absent		

FINAL REPORT

Benkari LLC
 Administration
 18427 W. McNichols
 Detroit, MI 48219
 P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01593
Project Name: 985 Michigan
PO Number: 21-001
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/17/2023

Location:	109 Iron Related 507-26-2	Date Collected:	04/26/2023
Sample ID:	2304-01593.008	Sample Type:	Water
		Time Collected:	10:35 am
Client Notes:	Sample number listed is 507-26-2		
Test Requested:	Iron-Related Bacteria (IRB)	Status:	Complete 05/08/2023
Result:	Present		
Concentration:	2200 CFU/mL		
Report Comments:	Medium Aggressivity		
Location:	113 Acid Producing 507-26-5	Date Collected:	04/26/2023
Sample ID:	2304-01593.009	Sample Type:	Water
		Time Collected:	10:40 am
Client Notes:	Sample number listed is 507-26-5		
Test Requested:	Acid Producing Bacteria (APB)	Status:	Complete 05/08/2023
Result:	Absent		
Location:	113 Acid Producing	Date Collected:	04/26/2023
Sample ID:	2304-01593.010	Sample Type:	Water
		Time Collected:	10:55 am
Client Notes:	Sample number listed is 119-02-5		
Test Requested:	Acid Producing Bacteria (APB)	Status:	Complete 05/08/2023
Result:	Absent		
Location:	113 Acid Producing 10 West Mens RR	Date Collected:	04/26/2023
Sample ID:	2304-01593.011	Sample Type:	Water
		Time Collected:	9:55 am
Client Notes:	Sample number listed is 10 West Mens RR-5		
Test Requested:	Acid Producing Bacteria (APB)	Status:	Complete 05/08/2023
Result:	Absent		

Approved By: Brian Verdi



Janet E. Stout, Ph.D.
 Laboratory Director, Special Pathogens Laboratory



FINAL REPORT

Benkari LLC
Administration
18427 W. McNichols
Detroit, MI 48219
P: (313) 399-2447

Account #: 5803
SPL Project ID: 2304-01593
Project Name: 985 Michigan
PO Number: 21-001
Sampled By: William Johnson
Date Received: 04/27/2023
Date Final: 05/17/2023

NOTES

Acid Producing Bacteria (APB)

- APB Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

Chem Panel

Testing Performed by Pace Analytical Services LLC. Sub-contractor report available upon request.

Iron-Related Bacteria (IRB)

- Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

Slime-Forming Bacteria (Slym)

- Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

Sulfate Reducing Bacteria (SRB)

- Method: Lab-BART™. Incubation up to 10 days at room temperature (21-26°C)
- CFU/mL units are approximate

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed. This report is not to be reproduced in whole or in part without the expressed consent of SPL. Results apply to the sample as received.