RK Occupational & Environmental Analysis Inc.

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July 06, 2017

Mr. John Seripiglia
Board Secretary / Business Administrator
Manchester Regional Board of Education
70 Church Street
Haledon, NJ 07508

re: **Water Sampling for Compliance with N.J.A.C. 6A:26-12.4**
**Lead in Drinking Water**

Dear Mr. Seripiglia,

We enclose our project report along with the following documents and related information package for compliance with the new NJ Department of Education Regulation related to Lead in Drinking Water in school buildings:

| | |
|---|---|
| Sampling Report Narrative | 3 pages |
| Water Sampling Log and Results | 3 pages |
| Laboratory Analytical Report | |
| May 25, 2016 - Sampling Results | 40 pages |
| May 20, 2017 - Sampling Results | 13 pages |
| Quality Assurance Project Plan (QAPP – please sign 1st page) | 11 pages |
| Sampling Plan for each building, including: | |
| Plumbing Profile Questionnaire | |
| Water Outlet Inventory | |
| Floor Plan Drawings | |

If you have any questions, please don't hesitate to call us.

Sincerely,

Patrick D. McGuinness, MS, P.E.
Vice President

PDM/

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**Sampling Report - Lead in Drinking Water**
**Manchester Regional High School**

## 1. Sampling Results Summary

| | May 25, 2016 | May 20, 2017 |
|---|---|---|
| Sample Collection Date | | |
| Number of Buildings Sampled | 1 | 1 |
| Total Number of Samples Collected | 36 | 6 |
| Number of Samples with No Detectible Lead | 24 | 6 |
| Number of Samples Exceeding 15 PPB (0.015 mg/L) Standard | 0 | 0 |
| Highest Measured Lead Content (mg/L) | 0.013 | -- |

## 2. Water Sampling Procedures

Sampling protocols and procedures follow the EPA "3-T's Program" that was developed for schools and Child Care centers. They recognize that the typical school building is actually a conglomeration of an original building with one or more additions, each of which typically having different plumbing system materials.

In addition, building sections constructed before 1986 likely have plumbing systems that used leaded solders on Copper water lines. Very old buildings and public water supply systems may also still have lead piping. Other potential sources of Lead in drinking water systems include brass faucets, fittings, and valves that are used in the municipal and building piping distribution systems. It is important to note that "Lead-Free" plumbing components used since 1986 may actually contain up to 8% Lead by weight. In January 2014, this limit was lowered from 8% to 0.2% Lead.

The sampling protocol requires that water be collected as a "First-Draw" to ensure that the water sample has been standing for at least 8 hours. This is intended to replicate a "worst-case" situation since both the Lead and Copper levels are usually lowered significantly after running the water even for a few moments.

Drinking water samples were collected early on a weekday or Saturday morning before staff and students arrived for classes to represent water that has sat idle in the building piping system overnight.

Laboratory analysis of the water samples was performed for both Lead and Copper since both could be sourced from the building plumbing and both are indicators of system corrosion.

All samples were collected in 250 ml contaminant-free containers. Laboratory analysis of the water samples was performed by Analytical Laboratory Services, Inc. of Middletown, PA (NJ DEP Certification No. PA010). The analytical method is per EPA 600/4-79-020, Method 200.8 via atomic absorption, platform furnace technique.

## 3. Sample Results and Discussion

Sampling results are discussed below. Water sampling logs and the complete laboratory analytical report are appended to this report. All results are expressed as milligrams of Lead or Copper per liter of water (mg/L) and compared against the current Action Level. Results could also be expressed in equivalent terms of parts per billion (ppb) where the 0.015 mg/L Action level translates to 15 ppb.

Water samples were collected in the building on two occasions. A total of 36 water samples were collected on May 25, 2016. None of these samples exceeded the 0.015 mg/L Action Level. In fact, 24 of the 36 water samples had no detectible levels of lead present.

In July 2016, the State Board of Education adopted new rules regarding Lead in drinking water in school buildings that requires sampling of all water outlets.

The second sample collection was conducted on May 20, 2017 and addressed the remaining 6 water taps where samples were not collected last year during the initial sampling. These results showed no detectible level of Lead present in all 6 water samples.

Both sampling episodes showed excellent results with acceptable levels of both Lead and Copper in all drinking water samples.

## 4. Recommendations and Future Work

All water sample results showed acceptable results for Lead content. The following responses include those required by N.J.A.C. 6A:26-12.4 and our recommendations to maintain the drinking water quality as it relates to Lead contamination.

The NJDOE regulations requires that:

- These sampling results be made publically available at the school building and on the School District's website.

- The School District shall collect drinking water samples and analyze for Lead at any drinking water outlet that has been replaced or after any alterations to the plumbing or service lines to the outlet. Do not consume or cook with water from the affected outlet until acceptable Lead results are obtained.

- Repeat water sampling within 6 years or before July 2023.

In addition, we suggest that the following responses to minimize the potential for Lead contamination of drinking water:

Administrative Responses:

- There are several factors that influence the Lead corrosion potential in drinking water piping systems. These include the chemistry of the water supplied to the building, water

temperature and velocity through the piping, the age and condition of the plumbing, and the amount of time the water sits "stagnant" in contact with piping and drinking water fixtures. This last factor is the only one that a building owner has any control of.

- School building codes require a minimum of one (1) drinking water tap for every 100 students of building capacity. Wherever a larger number of water taps exists, the usage factor for each tap decreases. This, in turn, increases the "stagnation time" along with the increased potential for Lead corrosion. It is recommended that the need for all the water taps be investigated and reduced where appropriate while maintaining the minimum of 1 tap per 100 students.

- Consider implementing a program to shut-off and replace (if needed) any drinking water fixture of appliance that is more than 30 years old (was installed before the 1986 Lead Ban took effect).

Operational and Maintenance Responses:

- It is recommended that any water taps where the measured Lead content exceeded 5 parts per billion (PPB) or 0.005 mg/L be inspected and cleaned of line sediment to eliminate potential sources of Lead contamination.

- Use cold water only for drinking or cooking. As noted above, higher water temperature can increase its corrosion potential.

- As noted above, the accumulation of line sediment on aerators and screens at the water taps is frequently the cause of higher measured levels of both Lead and Copper. It is recommended that a program be established to regularly inspect for the presence of line sediment at all drinking water taps. Initially, an annual inspection is suggested. The inspection frequency should then be adjusted depending upon the amounts of sediment that is found and where it is found. Higher usage taps may accumulate sediment more quickly and need to be cleaned more often.

- It is known that flushing water through drinking water taps will reduce the levels of both Lead and Copper present in the drinking water. It is also recommended that a program be established to run water at all drinking or cooking taps for at least one minute before students and staff return to school after long breaks, especially after the Summer recess.

Report prepared by:

Patrick D. McGuinness, MS, P.E.
Vice President

# Water Sampling Log

Name of Building: Manchester Regional High School
Building Owner: Manchester Board of Education

Date Collected: see below
Sample Collected by: JS Gilbert

| Sample No. | Tap No. | Sample Type | Type of Outlet | Manufacturer | Sample Location | Time | Results (mg/L) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Cu | Pb |
| 052017-205 | 1 | 1st | Chiller | Halsey Taylor | Hallway - outside Room SG-1 | 11:33 | 0.23 | ND |
| 052017-208 | 2 | 1st | Chiller | Halsey Taylor | Weight Room SG-5 | 11:36 | 0.19 | ND |
| 052017-206 | 3 | 1st | Chiller | Halsey Taylor | Hallway - outside Room 108 | 11:31 | 0.21 | ND |
| MR-052516-31 | 4 | 1st | Bubbler | Halsey Taylor | Hallway - opposite Rm 113 (Chem Lab) | 07:00 | 0.19 | ND |
| MR-052516-29 | 5 | 1st | Bubbler | American Std. | Hallway - next to Rm 114 (right) | 06:57 | 0.23 | 0.0036 |
| MR-052516-28 | 6 | 1st | Bubbler | American Std. | Hallway - next to Rm 114 (middle - left not working) | 06:57 | 0.91 | 0.0033 |
| MR-052516-30 | 7 | 1st | Faucet | | Library Conf Rm sink | 06:59 | 0.23 | 0.0053 |
| MR-052516-34 | 8 | 1st | Chiller | Elkay | Field House Hallway | 07:12 | 0.30 | 0.0023 |
| MR-052516-35 | 9 | 1st | Faucet | | Field House Athletic Training Rm sink | 07:16 | 0.20 | ND |
| MR-052516-36 | 10 | 1st | Ice Bin | | Field House Athletic Training Rm Ice Machine | 07:17 | 0.050 | ND |
| MR-052516-32 | 11 | 1st | Bubbler | Halsey Taylor | Hallway - next to Rm 101 | 07:04 | 0.19 | ND |
| MR-052516-33 | 12 | 1st | Ice Bin | | Girls Locker Room Ice Machine | 07:06 | 0.050 | 0.0013 |
| 052017-207 | 13 | 1st | Chiller | Halsey Taylor | Boys' Locker Room | 11:28 | 0.19 | ND |
| -- | 14 | 1st | Bubbler | | Gym - NW (Girl's) side (not working) | -- | -- | -- |
| -- | 15 | 1st | Bubbler | | Gym - SW (Boy's) side (not working) | -- | -- | -- |
| 052017-202 | 16 | 1st | Chiller | Halsey Taylor | Hallway - outside Room 201 | 11:22 | 0.95 | ND |
| MR-052516-18 | 17 | 1st | Faucet | | Nurse's Office - sink next to desk | 06:42 | 0.24 | ND |
| MR-052516-19 | 18 | 1st | Faucet | | Nurse's Office - sink next to patient bed | 06:43 | 0.25 | ND |
| MR-052516-17 | 19 | 1st | Bubbler | | Hallway - opposite Main Office | 06:39 | 1.0 | 0.0042 |
| MR-052516-22 | 20 | 1st | Faucet | | Faculty Lounge Ladies Room sink | 06:47 | 0.18 | ND |

**Notes:**
Sample Type: **1st:** First Draw sample collected after water has been unused at least 8 hours but not more than 18 hours.
Results: **ND**: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0050 for Copper and 0.0020 mg/L for Lead.

# Water Sampling Log

Name of Building: Manchester Regional High School
Building Owner: Manchester Board of Education

Date Collected: see below
Sample Collected by: JS Gilbert

| Sample No. | Tap No. | Sample Type | Type of Outlet | Manufacturer | Sample Location | Time | Results (mg/L) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Cu | Pb |
| MR-052516-21 | **21** | 1st | Faucet | | Faculty Lounge Mens Room sink | 06:46 | 0.16 | ND |
| MR-052516-20 | **22** | 1st | Faucet | | Faculty Lounge kitchen sink | 06:45 | 0.13 | 0.0042 |
| MR-052516-23 | **23** | 1st | Fountain | | Hallway - opposite Rm 209 | 06:49 | 0.17 | 0.0025 |
| MR-052516-24 | **24** | 1st | Chiller | Halsey Taylor | Hallway - opposite Rm 213 | 06:51 | 0.30 | ND |
| MR-052516-25 | **25** | 1st | Bubbler | | Hallway - opposite Rm 217 (left - right not working) | 06:52 | 0.47 | 0.0057 |
| MR-052516-26 | **26** | 1st | Bubbler | American Std. | Hallway - opposite Rm 223 (left) | 06:54 | 0.35 | 0.0079 |
| MR-052516-27 | **27** | 1st | Bubbler | American Std. | Hallway - opposite Rm 223 (right) | 06:55 | 0.49 | 0.013 |
| MR-052516-15 | **28** | 1st | Chiller | Halsey Taylor | Cafeteria - along kitchen wall - left | 06:32 | 0.15 | ND |
| MR-052516-16 | **29** | 1st | Chiller | Halsey Taylor | Cafeteria - along kitchen wall - right | 06:36 | 0.16 | ND |
| MR-052516-11 | **30** | 1st | Faucet | | Home Economics Rm - sink next to teacher's desk | 06:26 | 0.23 | ND |
| MR-052516-12 | **31** | 1st | Faucet | | Home Economics Rm - sink left of oven | 06:27 | 0.25 | ND |
| MR-052516-13 | **32** | 1st | Faucet | | Home Economics Rm - sink right of oven | 06:28 | 0.19 | ND |
| MR-052516-01 | **33** | 1st | Faucet | | Kitchen - sink next to dishwasher | 06:00 | 0.14 | ND |
| MR-052516-03 | **34** | 1st | Faucet | | Kitchen - sink behind cash register | 06:03 | 0.15 | ND |
| MR-052516-03 | **35** | 1st | Faucet | | Kitchen - sink next to coffee machine - left | 06:04 | 0.18 | ND |
| MR-052516-04 | **36** | 1st | Faucet | | Kitchen - sink next to coffee machine - right | 06:05 | 0.18 | ND |
| MR-052516-05 | **37** | 1st | Hose | | Kitchen - "J" shape nozzle on hose next to stove | 06:08 | 0.13 | ND |
| MR-052516-06 | **38** | 1st | Faucet | | Kitchen - faucet nozzle for spaghetti pot | 06:09 | 0.15 | ND |
| MR-052516-07 | **39** | 1st | Faucet | | Kitchen - sink next to slicer - right | 06:11 | 0.25 | 0.0026 |
| MR-052516-08 | **40** | 1st | Faucet | | Kitchen - sink next to slicer - left | 06:12 | 0.18 | ND |

**Notes:**
Sample Type: **1st:** First Draw sample collected after water has been unused at least 8 hours but not more than 18 hours.
Results: **ND**: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0050 for Copper and 0.0020 mg/L for Lead.

# Water Sampling Log

Name of Building: Manchester Regional High School
Building Owner: Manchester Board of Education

Date Collected: see below
Sample Collected by: JS Gilbert

| Sample No. | Tap No. | Sample Type | Type of Outlet | Manufacturer | Sample Location | Time | Results (mg/L) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Cu | Pb |
| MR-052516-09 | **41** | 1st | Faucet | | Kitchen - compressor room sink | 06:14 | 0.20 | ND |
| MR-052516-10 | **42** | 1st | Faucet | | Kitchen - bathroom sink | 06:15 | 0.13 | ND |
| MR-052516-14 | **43** | 1st | Bubbler | | Hallway - opposite Attendance Office | 06:31 | 0.16 | ND |
| 052017-201 | **44** | 1st | Chiller | Halsey Taylor | Hallway - outside Band Room | 11:20 | 1.20 | ND |
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**Notes:**

Sample Type: **1st:** First Draw sample collected after water has been unused at least 8 hours but not more than 18 hours.

Results: **ND**: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0050 for Copper and 0.0020 mg/L for Lead.

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

June 9, 2016

Mr. Patrick McGuinness
RK Occ. & Env. Analysis, Inc.
401 St. James Avenue
Phillipsburg, NJ 08865

# Certificate of Analysis

| | | | |
|---|---|---|---|
| Project Name: | **Lead & Copper in DW** | Workorder: | **2147254** |
| Purchase Order: | | Workorder ID: | **16-079 Manchester BOE** |

Dear Mr. McGuinness:

Enclosed are the analytical results for samples received by the laboratory on Friday, May 27, 2016.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Shannon Butler (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.



ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*

Shannon Butler

Ms. Shannon Butler
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

## SAMPLE SUMMARY

Workorder: 2147254 16-079 Manchester BOE

| Lab ID | Sample ID | Matrix | Date Collected | Date Received | Collected By |
|---|---|---|---|---|---|
| 2147254001 | MR-052516-01 | Drinking Water | 5/25/2016 06:00 | 5/27/2016 19:00 | Collected by Client |
| 2147254002 | MR-052516-02 | Drinking Water | 5/25/2016 06:03 | 5/27/2016 19:00 | Collected by Client |
| 2147254003 | MR-052516-03 | Drinking Water | 5/25/2016 06:04 | 5/27/2016 19:00 | Collected by Client |
| 2147254004 | MR-052516-04 | Drinking Water | 5/25/2016 06:05 | 5/27/2016 19:00 | Collected by Client |
| 2147254005 | MR-052516-05 | Drinking Water | 5/25/2016 06:08 | 5/27/2016 19:00 | Collected by Client |
| 2147254006 | MR-052516-06 | Drinking Water | 5/25/2016 06:09 | 5/27/2016 19:00 | Collected by Client |
| 2147254007 | MR-052516-07 | Drinking Water | 5/25/2016 06:11 | 5/27/2016 19:00 | Collected by Client |
| 2147254008 | MR-052516-08 | Drinking Water | 5/25/2016 06:12 | 5/27/2016 19:00 | Collected by Client |
| 2147254009 | MR-052516-09 | Drinking Water | 5/25/2016 06:14 | 5/27/2016 19:00 | Collected by Client |
| 2147254010 | MR-052516-10 | Drinking Water | 5/25/2016 06:15 | 5/27/2016 19:00 | Collected by Client |
| 2147254011 | MR-052516-11 | Drinking Water | 5/25/2016 06:26 | 5/27/2016 19:00 | Collected by Client |
| 2147254012 | MR-052516-12 | Drinking Water | 5/25/2016 06:27 | 5/27/2016 19:00 | Collected by Client |
| 2147254013 | MR-052516-13 | Drinking Water | 5/25/2016 06:28 | 5/27/2016 19:00 | Collected by Client |
| 2147254014 | MR-052516-14 | Drinking Water | 5/25/2016 06:31 | 5/27/2016 19:00 | Collected by Client |
| 2147254015 | MR-052516-15 | Drinking Water | 5/25/2016 06:32 | 5/27/2016 19:00 | Collected by Client |
| 2147254016 | MR-052516-16 | Drinking Water | 5/25/2016 06:36 | 5/27/2016 19:00 | Collected by Client |
| 2147254017 | MR-052516-17 | Drinking Water | 5/25/2016 06:39 | 5/27/2016 19:00 | Collected by Client |
| 2147254018 | MR-052516-18 | Drinking Water | 5/25/2016 06:42 | 5/27/2016 19:00 | Collected by Client |
| 2147254019 | MR-052516-19 | Drinking Water | 5/25/2016 06:43 | 5/27/2016 19:00 | Collected by Client |
| 2147254020 | MR-052516-20 | Drinking Water | 5/25/2016 06:45 | 5/27/2016 19:00 | Collected by Client |
| 2147254021 | MR-052516-21 | Drinking Water | 5/25/2016 06:46 | 5/27/2016 19:00 | Collected by Client |
| 2147254022 | MR-052516-22 | Drinking Water | 5/25/2016 06:47 | 5/27/2016 19:00 | Collected by Client |
| 2147254023 | MR-052516-23 | Drinking Water | 5/25/2016 06:49 | 5/27/2016 19:00 | Collected by Client |
| 2147254024 | MR-052516-24 | Drinking Water | 5/25/2016 06:51 | 5/27/2016 19:00 | Collected by Client |
| 2147254025 | MR-052516-25 | Drinking Water | 5/25/2016 06:52 | 5/27/2016 19:00 | Collected by Client |
| 2147254026 | MR-052516-26 | Drinking Water | 5/25/2016 06:54 | 5/27/2016 19:00 | Collected by Client |
| 2147254027 | MR-052516-27 | Drinking Water | 5/25/2016 06:55 | 5/27/2016 19:00 | Collected by Client |
| 2147254028 | MR-052516-28 | Drinking Water | 5/25/2016 06:57 | 5/27/2016 19:00 | Collected by Client |
| 2147254029 | MR-052516-29 | Drinking Water | 5/25/2016 06:57 | 5/27/2016 19:00 | Collected by Client |
| 2147254030 | MR-052516-30 | Drinking Water | 5/25/2016 06:59 | 5/27/2016 19:00 | Collected by Client |
| 2147254031 | MR-052516-31 | Drinking Water | 5/25/2016 07:00 | 5/27/2016 19:00 | Collected by Client |
| 2147254032 | MR-052516-32 | Drinking Water | 5/25/2016 07:04 | 5/27/2016 19:00 | Collected by Client |
| 2147254033 | MR-052516-33 | Drinking Water | 5/25/2016 07:06 | 5/27/2016 19:00 | Collected by Client |
| 2147254034 | MR-052516-34 | Drinking Water | 5/25/2016 07:12 | 5/27/2016 19:00 | Collected by Client |

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

## SAMPLE SUMMARY

Workorder: 2147254 16-079 Manchester BOE

| Lab ID | Sample ID | Matrix | Date Collected | Date Received | Collected By |
|---|---|---|---|---|---|
| 2147254035 | MR-052516-35 | Drinking Water | 5/25/2016 07:16 | 5/27/2016 19:00 | Collected by Client |
| 2147254036 | MR-052516-36 | Drinking Water | 5/25/2016 07:01 | 5/27/2016 19:00 | Collected by Client |

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## SAMPLE SUMMARY

Workorder: 2147254 16-079 Manchester BOE

**Notes**

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

**Standard Acronyms/Flags**

| | |
|---|---|
| J | Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte |
| U | Indicates that the analyte was Not Detected (ND) |
| N | Indicates presumptive evidence of the presence of a compound |
| MDL | Method Detection Limit |
| PQL | Practical Quantitation Limit |
| RDL | Reporting Detection Limit |
| ND | Not Detected - indicates that the analyte was Not Detected at the RDL |
| Cntr | Analysis was performed using this container |
| RegLmt | Regulatory Limit |
| LCS | Laboratory Control Sample |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| DUP | Sample Duplicate |
| %Rec | Percent Recovery |
| RPD | Relative Percent Difference |
| LOD | DoD Limit of Detection |
| LOQ | DoD Limit of Quantitation |
| DL | DoD Detection Limit |
| I | Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL) |
| (S) | Surrogate Compound |
| NC | Not Calculated |
| * | Result outside of QC limits |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254001** Date Collected: 5/25/2016 06:00 Matrix: Drinking Water
Sample ID: **MR-052516-01** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.14 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:41 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:41 | MO | A1 |

Shannon Butler
Ms. Shannon Butler
Project Coordinator

ALS Environmental

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254002** Date Collected: 5/25/2016 06:03 Matrix: Drinking Water

Sample ID: **MR-052516-02** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.15 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:44 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:44 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254003** Date Collected: 5/25/2016 06:04 Matrix: Drinking Water
Sample ID: **MR-052516-03** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.18 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:46 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:46 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254004** Date Collected: 5/25/2016 06:05 Matrix: Drinking Water

Sample ID: **MR-052516-04** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.18 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:55 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:55 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254005** Date Collected: 5/25/2016 06:08 Matrix: Drinking Water

Sample ID: **MR-052516-05** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.13 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:57 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 14:57 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254006** Date Collected: 5/25/2016 06:09 Matrix: Drinking Water

Sample ID: **MR-052516-06** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.15 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:00 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:00 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254007** Date Collected: 5/25/2016 06:11 Matrix: Drinking Water

Sample ID: **MR-052516-07** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.25 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:03 | MO | A1 |
| Lead, Total | 0.0026 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:03 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254008** Date Collected: 5/25/2016 06:12 Matrix: Drinking Water

Sample ID: **MR-052516-08** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.18 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:05 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:05 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254009** Date Collected: 5/25/2016 06:14 Matrix: Drinking Water

Sample ID: **MR-052516-09** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.20 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:08 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:08 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254010** Date Collected: 5/25/2016 06:15 Matrix: Drinking Water

Sample ID: **MR-052516-10** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.13 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:16 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:16 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254011** Date Collected: 5/25/2016 06:26 Matrix: Drinking Water

Sample ID: **MR-052516-11** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.23 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:19 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 15:19 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254012** Date Collected: 5/25/2016 06:27 Matrix: Drinking Water

Sample ID: **MR-052516-12** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.25 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/9/16 03:24 | ZMC | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:43 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254013** Date Collected: 5/25/2016 06:28 Matrix: Drinking Water

Sample ID: **MR-052516-13** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.19 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:45 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:45 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254014** Date Collected: 5/25/2016 06:31 Matrix: Drinking Water

Sample ID: **MR-052516-14** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.16 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:48 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:48 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254015** Date Collected: 5/25/2016 06:32 Matrix: Drinking Water

Sample ID: **MR-052516-15** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.15 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:51 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:51 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254016** Date Collected: 5/25/2016 06:36 Matrix: Drinking Water

Sample ID: **MR-052516-16** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.16 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:54 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:54 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254017** Date Collected: 5/25/2016 06:39 Matrix: Drinking Water

Sample ID: **MR-052516-17** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 1.0 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:56 | MO | A1 |
| Lead, Total | 0.0042 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:56 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254018** Date Collected: 5/25/2016 06:42 Matrix: Drinking Water

Sample ID: **MR-052516-18** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.24 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:59 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:34 | MO | 6/8/16 16:59 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254019** Date Collected: 5/25/2016 06:43 Matrix: Drinking Water

Sample ID: **MR-052516-19** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.25 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:02 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:02 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254020** Date Collected: 5/25/2016 06:45 Matrix: Drinking Water

Sample ID: **MR-052516-20** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.13 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:15 | MO | A1 |
| Lead, Total | 0.0042 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:15 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254021** Date Collected: 5/25/2016 06:46 Matrix: Drinking Water

Sample ID: **MR-052516-21** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.16 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:18 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:18 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254022** Date Collected: 5/25/2016 06:47 Matrix: Drinking Water

Sample ID: **MR-052516-22** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.18 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:21 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:21 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254023** Date Collected: 5/25/2016 06:49 Matrix: Drinking Water

Sample ID: **MR-052516-23** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.17 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:24 | MO | A1 |
| Lead, Total | 0.0025 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:24 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254024** Date Collected: 5/25/2016 06:51 Matrix: Drinking Water

Sample ID: **MR-052516-24** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.30 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/9/16 03:32 | ZMC | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:26 | MO | A1 |

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Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254025** Date Collected: 5/25/2016 06:52 Matrix: Drinking Water

Sample ID: **MR-052516-25** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.47 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:29 | MO | A1 |
| Lead, Total | 0.0057 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:29 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254026** Date Collected: 5/25/2016 06:54 Matrix: Drinking Water

Sample ID: **MR-052516-26** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.35 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:32 | MO | A1 |
| Lead, Total | 0.0079 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:32 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254027** Date Collected: 5/25/2016 06:55 Matrix: Drinking Water

Sample ID: **MR-052516-27** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.49 | | mg/L | 0.0025 | EPA 200.8 | 6/2/16 09:00 | JPS | 6/6/16 07:12 | ZMC | A1 |
| Lead, Total | 0.013 | | mg/L | 0.0010 | EPA 200.8 | 6/2/16 09:00 | JPS | 6/6/16 07:12 | ZMC | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254028** Date Collected: 5/25/2016 06:57 Matrix: Drinking Water

Sample ID: **MR-052516-28** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.91 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:35 | MO | A1 |
| Lead, Total | 0.0033 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:35 | MO | A1 |

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254029** Date Collected: 5/25/2016 06:57 Matrix: Drinking Water

Sample ID: **MR-052516-29** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.23 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:37 | MO | A1 |
| Lead, Total | 0.0036 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:37 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254030** Date Collected: 5/25/2016 06:59 Matrix: Drinking Water

Sample ID: **MR-052516-30** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.23 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:40 | MO | A1 |
| Lead, Total | 0.0053 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:40 | MO | A1 |

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254031** Date Collected: 5/25/2016 07:00 Matrix: Drinking Water

Sample ID: **MR-052516-31** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.19 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:54 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:54 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254032** Date Collected: 5/25/2016 07:04 Matrix: Drinking Water

Sample ID: **MR-052516-32** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.19 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/9/16 03:35 | ZMC | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/9/16 03:35 | ZMC | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254033** Date Collected: 5/25/2016 07:06 Matrix: Drinking Water

Sample ID: **MR-052516-33** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.050 | | mg/L | 0.0025 | EPA 200.8 | 6/2/16 09:00 | JPS | 6/6/16 07:16 | ZMC | A1 |
| Lead, Total | 0.0013 | | mg/L | 0.0010 | EPA 200.8 | 6/2/16 09:00 | JPS | 6/6/16 07:16 | ZMC | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254034** Date Collected: 5/25/2016 07:12 Matrix: Drinking Water

Sample ID: **MR-052516-34** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.30 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:59 | MO | A1 |
| Lead, Total | 0.0023 | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 17:59 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254035** Date Collected: 5/25/2016 07:16 Matrix: Drinking Water

Sample ID: **MR-052516-35** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.20 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 18:02 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 18:02 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2147254 16-079 Manchester BOE

Lab ID: **2147254036** Date Collected: 5/25/2016 07:01 Matrix: Drinking Water

Sample ID: **MR-052516-36** Date Received: 5/27/2016 19:00

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.050 | | mg/L | 0.0050 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 18:05 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/8/16 12:36 | MO | 6/8/16 18:05 | MO | A1 |

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June 2, 2017

Mr. Patrick McGuinness
RK Occ. & Env. Analysis, Inc.
401 St. James Avenue
Phillipsburg, NJ 08865

# Certificate of Analysis

| | | | |
|---|---|---|---|
| Project Name: | **Lead & Copper in DW** | Workorder: | **2233345** |
| Purchase Order: | | Workorder ID: | **17-042 Manchester Regional HS** |

Dear Mr. McGuinness:

Enclosed are the analytical results for samples received by the laboratory on Thursday, May 25, 2017.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Shannon Butler (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.



ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*

Shannon Butler

Ms. Shannon Butler
Project Coordinator

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## SAMPLE SUMMARY

Workorder: 2233345 17-042 Manchester Regional HS

| Lab ID | Sample ID | Matrix | Date Collected | Date Received | Collected By |
|---|---|---|---|---|---|
| 2233345001 | 052017-201 | Drinking Water | 5/20/2017 11:20 | 5/25/2017 20:30 | Collected by Client |
| 2233345002 | 052017-202 | Drinking Water | 5/20/2017 11:22 | 5/25/2017 20:30 | Collected by Client |
| 2233345003 | 052017-205 | Drinking Water | 5/20/2017 11:33 | 5/25/2017 20:30 | Collected by Client |
| 2233345004 | 052017-206 | Drinking Water | 5/20/2017 11:31 | 5/25/2017 20:30 | Collected by Client |
| 2233345005 | 052017-207 | Drinking Water | 5/20/2017 11:28 | 5/25/2017 20:30 | Collected by Client |
| 2233345006 | 052017-208 | Drinking Water | 5/20/2017 11:36 | 5/25/2017 20:30 | Collected by Client |

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## SAMPLE SUMMARY

Workorder: 2233345 17-042 Manchester Regional HS

**Notes**

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

**Standard Acronyms/Flags**

| | |
|---|---|
| J | Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte |
| U | Indicates that the analyte was Not Detected (ND) |
| N | Indicates presumptive evidence of the presence of a compound |
| MDL | Method Detection Limit |
| PQL | Practical Quantitation Limit |
| RDL | Reporting Detection Limit |
| ND | Not Detected - indicates that the analyte was Not Detected at the RDL |
| Cntr | Analysis was performed using this container |
| RegLmt | Regulatory Limit |
| LCS | Laboratory Control Sample |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| DUP | Sample Duplicate |
| %Rec | Percent Recovery |
| RPD | Relative Percent Difference |
| LOD | DoD Limit of Detection |
| LOQ | DoD Limit of Quantitation |
| DL | DoD Detection Limit |
| I | Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL) |
| (S) | Surrogate Compound |
| NC | Not Calculated |
| * | Result outside of QC limits |

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## ANALYTICAL RESULTS

Workorder: 2233345 17-042 Manchester Regional HS

Lab ID: **2233345001** Date Collected: 5/20/2017 11:20 Matrix: Drinking Water

Sample ID: **052017-201** Date Received: 5/25/2017 20:30

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 1.2 | | mg/L | 0.0050 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:15 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:15 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2233345 17-042 Manchester Regional HS

Lab ID: **2233345002** Date Collected: 5/20/2017 11:22 Matrix: Drinking Water

Sample ID: **052017-202** Date Received: 5/25/2017 20:30

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.95 | | mg/L | 0.0050 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:18 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:18 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2233345 17-042 Manchester Regional HS

Lab ID: **2233345003** Date Collected: 5/20/2017 11:33 Matrix: Drinking Water

Sample ID: **052017-205** Date Received: 5/25/2017 20:30

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.23 | | mg/L | 0.0050 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:26 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:26 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2233345 17-042 Manchester Regional HS

Lab ID: **2233345004** Date Collected: 5/20/2017 11:31 Matrix: Drinking Water
Sample ID: **052017-206** Date Received: 5/25/2017 20:30

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.21 | | mg/L | 0.0050 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:29 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:29 | MO | A1 |

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## ANALYTICAL RESULTS

Workorder: 2233345 17-042 Manchester Regional HS

Lab ID: **2233345005** Date Collected: 5/20/2017 11:28 Matrix: Drinking Water

Sample ID: **052017-207** Date Received: 5/25/2017 20:30

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.19 | | mg/L | 0.0050 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:32 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:32 | MO | A1 |

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

## ANALYTICAL RESULTS

Workorder: 2233345 17-042 Manchester Regional HS

Lab ID: **2233345006** Date Collected: 5/20/2017 11:36 Matrix: Drinking Water

Sample ID: **052017-208** Date Received: 5/25/2017 20:30

| Parameters | Results | Flag | Units | RDL | Method | Prepared | By | Analyzed | By | Cntr |
|---|---|---|---|---|---|---|---|---|---|---|
| **METALS** | | | | | | | | | | |
| Copper, Total | 0.19 | | mg/L | 0.0050 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:34 | MO | A1 |
| Lead, Total | ND | | mg/L | 0.0020 | EPA 200.8 | 6/1/17 10:10 | MO | 6/1/17 11:34 | MO | A1 |

Shannon Butler

Ms. Shannon Butler
Project Coordinator

ALS Environmental

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## QUALITY CONTROL DATA

Workorder: 2233345 17-042 Manchester Regional HS

**QC Batch:** MDIG/65194 **Analysis Method:** EPA 200.8

**QC Batch Method:** EPA ACIDT

**Associated Lab Samples:** 2233345001, 2233345002, 2233345003, 2233345004, 2233345005, 2233345006

METHOD BLANK: 2548003

| Parameter | Blank Result | Units | Reporting Limit |
|---|---|---|---|
| Copper, Total | ND | mg/L | 0.0050 |
| Lead, Total | ND | mg/L | 0.0020 |

LABORATORY CONTROL SAMPLE: 2548004

| Parameter | LCS % Rec | Units | Spike Conc. | LCS Result | % Rec Limit |
|---|---|---|---|---|---|
| Copper, Total | 98.4 | mg/L | .1 | 0.098 | 85 - 115 |
| Lead, Total | 90.1 | mg/L | .005 | 0.0045 | 85 - 115 |

MATRIX SPIKE: 2548005 DUPLICATE: 2548006 ORIGINAL: 2234030001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

| Parameter | Original Result | Units | Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limit | RPD | Max RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| Lead, Total | .00045 | mg/L | .1 | .09318 | .0895 | 92.7 | 89.1 | 70 - 130 | 4.02 | 20 |

MATRIX SPIKE: 2548007 DUPLICATE: 2548008 ORIGINAL: 2233345002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

| Parameter | Original Result | Units | Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limit | RPD | Max RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| Copper, Total | .94907 | mg/L | .1 | 1.0185 | 1.00934 | NC | NC | 70 - 130 | .9 | 20 |
| Lead, Total | 0 | mg/L | .1 | .09373 | .09309 | 93.7 | 93.1 | 70 - 130 | .68 | 20 |

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## QUALITY CONTROL DATA QUALIFIERS

Workorder: 2233345 17-042 Manchester Regional HS

### QUALITY CONTROL PARAMETER QUALIFIERS

| Lab ID | # | Sample Type | Analytical Method | Analyte |
|---|---|---|---|---|
| **2548007** | 1 | Matrix Spike | EPA 200.8 | Copper, Total |

The concentration of this analyte was greater than 4 times the concentration of the spike added to the matrix spike. According to protocol, the calculation for percent recovery of the matrix spike is not valid.

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2233345 17-042 Manchester Regional HS

| Lab ID | Sample ID | Prep Method | Prep Batch | Analysis Method | Analysis Batch |
|---|---|---|---|---|---|
| 2233345001 | 052017-201 | EPA ACIDT | MDIG/65194 | EPA 200.8 | META/57552 |
| 2233345002 | 052017-202 | EPA ACIDT | MDIG/65194 | EPA 200.8 | META/57552 |
| 2233345003 | 052017-205 | EPA ACIDT | MDIG/65194 | EPA 200.8 | META/57552 |
| 2233345004 | 052017-206 | EPA ACIDT | MDIG/65194 | EPA 200.8 | META/57552 |
| 2233345005 | 052017-207 | EPA ACIDT | MDIG/65194 | EPA 200.8 | META/57552 |
| 2233345006 | 052017-208 | EPA ACIDT | MDIG/65194 | EPA 200.8 | META/57552 |

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# CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI



* 2 2 3 3 3 4 5 *

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Client Name: RK Occupational & Environmental Analysis
Address: 401 St James Avenue
Phillipsburg, NJ 08865
Contact: PD McGuinness
Phone#: 908-454-6316
Project Name/#: 17-042 Manchester Regional High School
Bill To: Same

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [X] -Y pdmcguinness@enter.net
Fax? [ ] -Y No.: _____

| Sample Description/Location (as it will appear on the lab report) | Sample Date | Time | *G or C | **Matrix | Container Type | Container Size | Preservative | Pb and Cu per Method 200.8 |
|---|---|---|---|---|---|---|---|---|
| | | | | | PL | 250 ml | $HNO_3$ | |
| 052017-201 | 05-20-17 | 11:20 | G | DW | | | | 1 |
| 052017-202 | 05-20-17 | 11:22 | G | DW | | | | 1 |
| 052017-203 | No Sample | | | | | | | |
| 052017-204 | No Sample | | | | | | | |
| 052017-205 | 05-20-17 | 11:33 | G | DW | | | | 1 |
| 052017-206 | 05-20-17 | 11:31 | G | DW | | | | 1 |
| 052017-207 | 05-20-17 | 11:28 | G | DW | | | | 1 |
| 052017-208 | 05-20-17 | 11:36 | G | DW | | | | 1 |
| | | | | | | | | |
| | | | | | | | | |

ANALYSES/METHOD REQUESTED
Enter Number of Containers Per Sample or Field Results Below.

Cooler Temp: 1°C Therm ID: 305
No. of Coolers: _____

| | Y | N | Initial |
|---|---|---|---|
| Custody Seals Present? | | ✓ | |
| (if present) Seals Intact? | | | |
| Received on Ice? | ✓ | | |
| COC/Labels Complete/Accurate? | ✓ | | |
| Cont. in Good Cond.? | ✓ | | |
| Correct Containers? | ✓ | | |
| Correct Sample Volumes? | ✓ | | |
| Correct Preservation? | ✓ | | |
| Headspace/Volatiles? | | | |

Courier/Tracking #:
Sample/COC Comments

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther: _____

Project Comments: Manchester High School - additional sampling locations

LOGGED BY(signature): _____ Date: _____ Time: _____
REVIEWED BY(signature): _____ Date: _____ Time: _____

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| 1 [signature] / RK | 5-24-17 | 1017 | 2 [signature] / ALS Direct | 5/25 | 1017 |
| 3 [signature] / ALS Direct | 5/25/17 | | 4 | 5-25 | 1700 |
| 5 [signature] | 5-25 | 2030 | 6 [signature] | 5/25 | 2030 |
| 7 | | | 8 | | |
| 9 | | | 10 | | |

Data Deliverables: [X] Standard [ ] CLP-like [ ] USACE [X] MS Excel File
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] MD [X] WV
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- MS Excel File

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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ALS

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# Quality Assurance Project Plan (QAPP)

# Drinking Water Sampling for Lead Concentrations in School Drinking Water Outlets

## Manchester Regional High School District

### Approvals

**Laboratory:** ALS Environmental of Middletown, PA
34 Dogwood lane, Middletown, PA 17057

Laboratory QA Officer:
Susan Magness
Print Name

Signature

5/22/17
Date

**Consulting Firm:** RK Occupational & Environmental Analysis
401 St James Avenue, Phillipsburg, NJ 08865

Project Manager:
PD McGuinness
Print Name

Signature

22/May/17
Date

**School District Representative:**

John Seripiglia
Print Name

Signature

Date

# Table of Contents

# 1. Objective & Goals/Background

## 1.1 Objective and Goals

A Quality Assurance Project Plan is a document that describes the planning, implementation and evaluation steps involved in the acquisition of data that will be used to arrive at a specific goal. The overall objective for this QAPP is to determine the Lead concentration at drinking water outlets within the District's schools so that corrective action may be implemented at any drinking water outlets sampled when found to exceed the US Environmental Protection Agency (USEPA) drinking water Lead action level of 15 micrograms per liter (µg/L).

For the purposes of compliance, any concentration greater than 15 µg/L (as defined as greater than or equal to 15.5 µg/L) is considered to exceed the Lead action level.

The Lead sampling program will consist of the collection of a first draw (1st-Draw) water samples according to this QAPP. The drinking water outlets can be faucets, drinking water fountains or bubblers, food preparation areas, and water coolers.

When necessary for diagnostic purposes, follow-up sampling will also be covered by this QAPP. For instances where the Lead content at any outlet exceeds the action level, follow-up sampling will include collecting another 1st-Draw sample along with a "Flushed Water" sample. Flushed samples are collected after flushing water through the outlet for at least 30 seconds.

The analytical results and field data will be used by the District to determine whether drinking water distributed from drinking water outlets such as water fountains or bubblers, faucets, food preparation areas and water coolers have concentrations of Lead that exceed 15 µg/L.

If a first draw cold water sample is found to contain Lead at a concentration greater than 15 µg/L, the Project Manager will ensure that the drinking water tap is turned off or has been provided with a barrier to the consumption of the water (tape and bag) until appropriate remediation is determined.

## 1.2 Background

Lead is a toxic metal that can be harmful to human health when ingested. Young children are particularly sensitive to the effects of Lead because their bodies are still undergoing development. Lead can get into drinking water by being present in the source water or by interaction of the water with plumbing materials containing Lead (through corrosion). Common sources of Lead in drinking water include: solder, fluxes, pipes and pipe fittings, fixtures, and sediments. It is possible that different drinking water outlets in a given building could have dissimilar concentrations of Lead.

In April 1994, USEPA prepared two guidance documents to assist municipalities in meeting the requirements of the Lead Contamination and Control Act (LCCA): *Lead in*

*Drinking Water in Schools and Non-Residential Buildings* (EPA 812-B-94-002) and *Sampling for Lead in Drinking Water in Nursery Schools and Day Care Facilities* (EPA 812-B-94-003).

In December 2005, amended October 2006, EPA issued the revised technical guidance document *3Ts for Reducing Lead in Drinking Water in Schools (EPA 816-B-05-008)* which replaced the *Lead in Drinking Water in Schools and Non-Residential Buildings* (EPA 812-B-94-002). The 3Ts Revised Technical Guidance document is meant to assist school officials in implementing programs and policies to reduce children's exposure to Lead in drinking water in schools.

## 2. Project/Task Organization

### 2.1 School District Program Manager (Program Manager)

The Program Manager is the overall authority in the execution of the School District's Lead Sampling project. They are responsible for the notification to the District of the testing program, obtaining funds for testing, approving the District's QAPP, reviewing and implementing the Final Report for each school and coordinating with other District officials to make the results of the testing available to the public.

They also serve as needed as a liaison between the School District, State agencies, local Health Departments, laboratories and public water systems. The Project Manager's responsibilities include:

- Reviewing the Sampling Plan and QAPP.
- Coordination with District schools regarding sampling schedules.
- Maintain the original signed QAPP.
- Maintain documents, reports and records listed in the QAPP:
    - Final Project Report
    - Sample Logs and Results
    - Laboratory Data and Certificates
- Maintenance of other relevant records such as:
    - Purchase orders for sampling and analytical costs
    - Sampling Plans and Drawings
    - Drinking Water Outlet Inventories
    - Records of any plumbing repairs or upgrades at any drinking water tap

### 2.2 Consulting Firm

The School District has retained the services of an Environmental Consulting Firm, RK Occupational and Environmental Analysis, Inc. of Phillipsburg, NJ, to provide technical support for compliance with Safe Drinking Water rule promulgated by the NJ Department of Education as N.J.A.C. 6A:26-12.4. The Consulting Firm's responsibilities include:

- Preparing the District's Specific QAPP.
- In conjunction with the District's Project Manager, develop the Sampling Floor Plan drawings and outlet listings. As required, participate in building for Walk-Thru inspections to prepare Sampling Floor Plan.

- If contracted by School District, review and complete the Plumbing Profile Questionnaire for assigned school(s).
- If contracted by School District, develop and the following related documents, as required:
  - Drinking Water Outlet Inventory
  - Filter Inventory Report
  - Flushing Log
- Prepare sample container labels for drinking water outlets to be sampled.
- Obtaining equipment and supplies needed for district Lead sampling.
- Coordination with New Jersey laboratories certified for Lead in drinking water.
- Coordination with Project Manager to establish sampling schedules.
- Oversight of individual samplers to ensure that they adhere to the Sampling Plan procedures and the QAPP. Ensure that Field Sampling Team has all relevant sampling supplies including sampling bottles, labels, and chains of custody prior to collection of samples.
- Responsible for collecting samples after water remains motionless for a minimum of eight hours prior to sampling event. Typically, this requires arriving at the buildings being sampled early on a Tuesday through Friday morning, before staff and students enter the buildings.
- Identify any low-use drinking water outlets.
- Prepare samples for shipment and delivery to laboratory per certified laboratory instructions. Ensure that samples are delivered to laboratory within the time period specified by the certified laboratory.
- Review of Laboratory Data and Certificates.
- Preparation of the Final Project Report. Identify recommended response actions and follow-up activity necessary based on water sampling results.

### 2.3 Laboratory Personnel

The Laboratory Manager is responsible for:

- Supervising laboratory analyses to be performed in the Laboratory. This includes oversight of all QA requirements in the laboratory, data review, and qualification of the data.
- Providing the Laboratory Data Report Package to the Project Manager and Project Officer.
- The Laboratory's Quality Assurance Officer (LQAO) is responsible for reviewing the QAPP and resolving any QA issues that may arise during the project.

## 3. Special Training Needs/Certification

Sampling will be performed by an RK Occupational and Environmental Analysis, Inc., the Environmental Consulting Firm. Staff performing the sample collection will be properly trained in sampling techniques.

Laboratory personnel designated to analyze the samples will have successfully completed required demonstrations of capability for the methods used. The Laboratory

is certified the NJ Department of Environmental Protection for drinking water analysis and reporting of Lead using USEPA drinking water methods.

Assessments of the Laboratory capability are conducted on a bi-annual basis by the NJDEP Office of Quality Assurance. The Laboratory Manager has responsibility for correction of all deficiencies in their laboratory program.

## 4. Project/Task Description

Drinking water samples will be collected from water outlets and taps including water fountains or bubblers, food preparation outlets (located in the cafeteria, kitchen, and home economics classrooms) and other outlets where there is the possibility of drinking the water such as in the special education classrooms, the medical office, the teachers' lounge, and ice machines.

Concession stands and outside water fountains may also be considered for sampling. The custodian sink faucet may also be considered for sampling if it is used for filling large water coolers to provide water at school events. Outside hose spigots are not appropriate sampling locations for the purpose of this QAPP.

The Consulting Firm will collect first draw (1st-Draw) samples at all drinking water outlet taps. Follow-up flushed samples may also be collected as part of an effort to diagnose problems at any tap that was found to exceed the 0.015 mg/L action level. The NJ Certified Laboratory specified in the QAPP will perform the analysis for Lead.

Typically, the certified laboratory is requested to analyze water samples for both Lead and Copper content. The same analytical methods are used and approved for both metal analyses. More importantly, the presence and levels of both Lead and Copper in the drinking water samples are surrogate indicators of the effects of corrosion within the potable water plumbing systems.

## 5. Lead Data Quality Objectives and Criteria for Measurement

### 5.1 Precision

The NJ Certified Laboratory will perform replicate analysis of the Laboratory Control Standard (LCS) for school samples to assess method precision. The acceptance criterion for replicate analysis is a maximum of 20 percent (%) Relative Percent Difference (RPD). In addition to the LCS data, a duplicate laboratory fortified blank (LFB) or a matrix spike and a matrix spike duplicate (MS/MSD) will also provide precision information.

### 5.2 Bias

As part of the analytical methodology, the NJ Certified Laboratory will perform analysis of laboratory fortified blanks (LFB) to assess accuracy/bias. The acceptance criterion for accuracy is for the results to be within plus or minus 15% recovery of the known value.

The collection of a field blanks is not normally performed. Field blanks are required when the sample collection method utilizes a collection tool or other device. The purpose of the field blanks is to determine whether the sampling tools themselves contribute to any lab measured contaminant in the samples. Since no sampling tools are used in the water collection process, the collection and analysis of any blank samples creates an unnecessary project expense.

Where field blanks are to be collected, laboratory-prepared reagent water will be used to prepare the blank sample. No other blank or duplicate samples are necessary since a 1st-Draw sample cannot be readily duplicated.

If any sample result(s) are qualified, this must be clearly indicated on the report and all final reports such as the field summary report. The Project Manager must be consulted to determine how to deal with the qualified results.

## 5.3 Representativeness and Completeness

The sampling effort is designed to identify all drinking water outlets, within a school, where there is a potential for water consumption such as at water fountains or bubblers that may require corrective action due to first draw and/or follow-up flushed sample results that exceed 15 µg/L of Lead.

In order to satisfy the objective of the project, samples will be collected from drinking water outlets according to the sampling plan established in this QAPP. One hundred percent (100%) of collected and verified samples will be analyzed and reported.

## 5.4 Comparability

The analytical methods for Lead analysis in drinking water are found in the federal Safe Drinking Water Regulations at 40 CFR141.86 and 40 CFR 141 Appendix A to Subpart C. Use of these methods allows for the comparison of data to USEPA's drinking water action level for Lead of greater than 15 µg/L.

Analytical results from the first draw, and when collected, the follow-up flushed samples will be compared to assist in determining the source of Lead contamination. Appropriate corrective measures must then be taken by the District.

For those school facilities with their own source (classified as a non-transient, non-community public water system), the results should be submitted to the NJDEP and used to assess compliance with the action levels in EPA's Lead and Copper Rule.

## 5.5 Sensitivity

The Laboratory's Reporting Limit (RL) for the determination of Lead in drinking water samples is no higher than 2 µg/L. This is lower than the regulatory Practical Quantitation Level for Lead of 5 µg/L as stated in the National Primary Drinking Water Contaminant Regulations 40 CFR141 Subpart I.

# 6. Field Monitoring Requirements

Sampling will be scheduled to occur early in the morning hours before schools are open or on weekdays or weekends when no school activities are expected. This will prevent the use water prior to the sampling survey. While sampling is underway the District will prohibit any persons other than the sampling team to enter the building in order to ensure that no toilets or water outlets are being used. No samples will be collected on a Monday morning since the water has sat stagnant at the outlet taps for the weekend hours.

## 6.1 Monitoring Process Design

The sampling design, described in detail in the Sampling Plan is based in part upon the 3T's Guidance for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance, December 2005; Errata to 3Ts, October 2006.

## 6.2 Monitoring Methods

Equipment and supplies that will be needed to perform the sampling survey are pre-cleaned HDPE wide-mouth 250-mL single use, rigid sample containers and indelible ink/marker. All 250 mL water sample containers are supplied by the laboratory and are pre-cleaned. Sample containers are not to be reused. The pre-cleaned sample containers are provided by the analytical laboratory and are pre-filled with Nitric Acid.

## 6.3 Field Blanks

As noted above, Field Blanks are not typically collected. However, at certain times when a Field Blank is to be obtained for project requirements, the Sampler will obtain ASTM Type I reagent-grade water from the analytical laboratory. At the school and prior to the first sample collected at a school, the ASTM Type I reagent-grade water will be transferred into a sample container which will be identified as the Field Blank sample.

# 7. Analytical Requirements

## 7.1 Analytical Methods

The School District will use the USEPA approved drinking water methods listed in the table below for the analysis of Lead. For the purposes of the School District's QAPP, the analytical performance information is as follows:

| Analyte | Analytical Method | Sample Matrix | Recommended Guidance Level | Reporting Level |
|---|---|---|---|---|
| Lead (Pb) | USEPA Method 200.8 | Drinking Water | Greater than 15.5 µg/L first draw (initial) sample | 2.0 µg/L (ppb) |

The pH of all samples must be checked at the time of receipt at the Laboratory. If the pH is not less than 2, the pH must be adjusted with the addition of nitric acid. Samples that require the addition of nitric acid must sit for 16 hours prior to digestion or analysis. The pH of each sample will be documented.

The turbidity of each sample must also be checked at the time of receipt at the Laboratory. If the turbidity of the sample is greater than 1 NTU, the sample must be digested prior to analysis. The turbidity of each sample must be documented and those samples digested must be recorded by the Laboratory.

If a sample result exceeds 90% of the linear dynamic range, the sample must be diluted and re-analyzed. The dilution factor must be included in the Laboratory report for each sample that is diluted.

### 7.2 Analytical Quality Control

The USEPA has established protocols for the analysis of Quality Control (QC) samples with each analytical batch of samples, generally defined as a maximum of twenty samples. All QC results must be assessed and evaluated on an on-going basis and QC acceptance criteria must be used to determine the validity of the data.

For analytical testing, the laboratory includes positive control Laboratory Control Samples (LCS) to evaluate the total analytical system. Negative control samples (Method Blanks) are used to assess the preparation batch for possible contamination during the preparation and processing steps. A blank is considered contaminated with any result at or above the analyte reporting limit. Specific control samples (Matrix Spikes) are used to indicate the effect of the sample matrix and replicates (matrix spike, LCS replicate) are performed to assess the precision of the results generated.

Specific information regarding acceptance criteria and corrective actions is documented in the Laboratory's SOP for any of the analytical methods listed in the table above.

## 8. Sample Handling and Custody Requirements

All samples are aqueous and will be collected and labeled by the laboratory. Standard laboratory Chains of Custody (COC), modified and completed with the specific project requirement will be used. The COC procedures meet USEPA requirements. Water samples will be transported by the Laboratory's or Samplers' representative to the Laboratory.

| Analyte | Sample Volume | Container | Preservation | Holding Time |
|---|---|---|---|---|
| Lead (Pb) | 250 mL | unused rigid plastic wide-mouth –clean | Reagent Grade Nitric Acid ($HNO_3$) pH < 2 | 6 months |

The samples received by the Laboratory for each school, including any digestates, will be eligible for disposal at a minimum 30 days unless otherwise directed by the District after the final report has been distributed. No water samples or digestates will not be archived unless a written request is provided to the Laboratory.

# 9. Instrument/Equipment Testing, Inspection, Maintenance & Calibration Requirements

## 9.1 Instrument/Equipment Testing, Inspection and Maintenance

All laboratory equipment will be tested, calibrated, and maintained in accordance with existing SOPs approved by the laboratory. No field instruments are needed for this project.

## 9.2 Instrument/Equipment Calibration and Frequency

The USEPA approved analytical methods for Lead listed in the National Primary Drinking Water Contaminant Regulations at 40 CFR 141.23 and Appendix A to Subpart C require that the instrument calibration be performed on a daily basis.

# 10. Data Management

The Laboratory will provide analytical results to the Consulting Firm who will then inform the School District's Program Manager. When any validated laboratory results that exceeds the action of 15 µg/L, the Consulting Firm will immediately notify the Project Manager and Project Officer of the results and recommend appropriate response actions at the affected school(s).

The Laboratory will provide the result in milligrams per liter (mg/L) or micrograms per liter (µg/L) and to at least three (3) significant figures. Note that 1.0 mg/l equates to 1,000 µg/L. The Laboratory will provide a final electronic copy of the Laboratory Data and Certificates for each school project. This data will consist of: 1) PDF cover sheet that identifies the school name and all qualifiers with a description for that qualifier used by the laboratory, 2) laboratory report of the analytical results in PDF format, and 3) the chain of custody in PDF format.

When requested, an MS Excel spreadsheet of the results will be prepared. The Excel spreadsheet will contain information in the Data Report, presented in separate columns the field ID, the Laboratory sample ID, the Laboratory Name and Laboratory certification number, whether the sample was flushed, the date and time of collection and analysis, the analytical method, the analytical result in µg/L, the reporting limit in µg/L, and whether the sample was diluted or digested and any qualifiers.

The Laboratory Data and Certificates will also include the analytical results, appropriate qualifiers and reporting limits for analyses of submitted samples as requested by the District. As necessary, the laboratory information will include explanations of any relevant procedural deviations or anomalies associated with the sample handling and analysis of the project.

# 11. Assessments/Oversight

Formal field audits by QA personnel may be conducted for this project. However, identification of problems related to technical performance will be the responsibility of the

staff working on this project. The Laboratory personnel will perform self-audits and institute corrective actions in accordance with their respective written procedures.

## 12. Data Review, Verification, Validation, and Usability

The Project Manager will evaluate the final analytical results to determine if any field observations may have contributed to lower or higher analytical results.

Data review of all laboratory generated data is performed by the Laboratory Quality Assurance Officer (LQAO), or another qualified second review analyst, who is not associated with the actual measurement operations for the given analytical batch but knowledgeable in the analytical processes employed. It is the responsibility of the LQAO to ensure that all data generated are correct and of known and documented quality. Once the review is completed, the LQAO will sign and date the appropriate QA/QC checklist according to the Laboratory's SOP. If there are any limitations on the use of data they will be included in the Final Project Report.

RK Occupational & Environmental Analysis Inc

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# Sampling Plan

# Drinking Water Sampling for Lead Concentrations in School Drinking Water Outlets

## Manchester Regional High School District

## Table of Contents

# Sampling Plan and Procedures

## 1. Introduction

This Lead Drinking Water Testing Sampling Plan (Sampling Plan) establishes a plan for sampling Lead at drinking water outlets used for consumption or food preparation in every school within the School District. The data collected through the execution of this Sampling Plan will determine if immediate remedial measures are necessary.

This Sampling Plan follows the USEPA publication, "The 3Ts for Reducing Lead in Drinking Water in Schools" and is incorporated into the Quality Assurance Project Plan (QAPP) for the drinking water sampling program.

## 2. Objective

The 1988 Lead Contamination Control Act intended to identify and reduce Lead in drinking water in schools and child-care facilities. In response, the USEPA prepared guidance documents to assist school districts in meeting the requirements of the Act.

For determining immediate remedial measures, the District is required to utilize the Lead action level established by the USEPA. The current Lead action level is 15 µg/L, which is more stringent than the guidance provided by USEPA in their Lead in Schools Guidance which recommends action be taken at drinking water outlets greater than 20 µg/L. Schools in New Jersey that are served by their own well, which are regulated pursuant to the Federal and New Jersey Safe Drinking Water Acts, must also adhere to the 15 µg/L value for determining compliance.

## 3. Plumbing Survey

Prior to a sampling event, documentation of various aspects of each school's water system were completed. The purpose of the Plumbing Profile is to identify and categorize plumbing and infrastructure in order to prioritize schools/outlets for testing, and to identify potential sources of Lead (i.e. Lead service lines, or Lead piping or solder).

## 4. Planning

The Environmental Consultant, in conjunction with the School District Program Manager, will prepare a listing of all water outlets that are used for drinking or cooking. A walk-through inspection will be conducted as part of the planning process. The outlet listing should consider possible drinking water taps that are located in:

- Kitchen and Food Preparation outlets
- Teacher Lounge outlets

- Nurse's Office outlets
- Home Economic Sink outlets
- Drinking Water Fountains – Bubblers and Water Coolers
- Ice Machines
- Other drinking water outlets used for consumption

Each drinking water outlet should also be identified on the school floor plan diagrams. Examples of outlets that do not need to be sampled include utility sinks, outside spigots, bathroom sinks and classroom sinks, unless any of these sinks are used routinely for consumption.

## 5. Sampling Procedures

USEPA recommends that a two-step sampling process be followed for identifying Lead contamination. Lead in a water sample can be sourced from the outlet fixture itself, plumbing upstream of the outlet fixture, or in the water that is entering the facility. The two-step sampling process helps to identify the actual source(s) of Lead and relates to the collection 1st-Draw and flushed water samples.

The School District has retained the services of an Environmental Consulting Firm, RK Occupational and Environmental Analysis, Inc. of Phillipsburg, NJ, to provide technical support for compliance with Safe Drinking Water rule promulgated by the NJ Department of Education as N.J.A.C. 6A:26-12.4. Generally, the Environmental Consultant will use the two-step procedure only for diagnosing a particular water tap if results of the 1st-Draw samples exceed the action level for Lead.

At no time should filters, aerators and screens be removed prior to or during the sampling event.

### Prior to Sampling

- The Environmental Consultant will obtain from the laboratory pre-cleaned sample collection bottles, weatherproof labels, and chain of custody forms for the sampling event.
- Every drinking water outlet to be sampled will be identified with a specific sample location code or **Tap Number**.
- Turn off all irrigation and outdoor water features.

### Day of Sampling

- All samples will be collected in a pre-cleaned HDPE 250mL wide mouth, single-use rigid sample container.
- Sampling will begin at the outlet closest to the point of entry and continue to the furthest outlet to ensure the water remains motionless in the plumbing. The first

water sample will be collected from the water outlet closest to the water service line's entry point. Sampling will continue to move away from the entry point until the outlet farthest away is sampled last. This will minimize the chance that a sampling location will be flushed by an upstream fixture.

**Sample Collection Procedures – Initial Sampling**

1. First draw (1st-Draw) samples are required and defined as samples collected from outlets where water sat undisturbed for a minimum of 8 hours. Samples will be collected from cold-water outlets only. The sample will be collected by placing the bottle under the drinking water outlet before turning the cold-water outlet on. No water will be run prior to collecting a sample.
2. Each sample collected will be properly identified on the sample bottle and chain of custody using the sample location code or Tap Number previously identified by the District on the floor diagram.
3. Upon receiving the testing results from the laboratory, the Environmental Consultant will advise the School District Program Manager of the sample results.

**Sample Collection Procedures – Follow-Up Sampling**

When initial sampling results at any water outlet that exceed the 0.015 mg/L action level, the Environmental Consultant will make recommendations for appropriate response actions by the School District to remediate the Lead levels at the affected water outlet(s). Upon receiving sample results, the District will turn off all outlets so that it cannot be used for drinking.

If these locations must remain on for non-drinking purposes, a "DO NOT DRINK – SAFE FOR HANDWASHING ONLY" sign will be posted.

Many times there are multiple water outlets located throughout the building that provide an adequate number of water taps and the water tap with the higher Lead levels can remain out of service with little impact. However, if the School District determines that water tap is needed, the outlet may be inspected and cleaned of line sediment or replaced as a complete unit.

Prior to putting the water outlets back into service, it must be re-sampled and receive an acceptable Lead sample result. In these situations, the two-step sampling method will be used as noted below:

1. Collect 1st-Draw sample in a pre-cleaned 250 mL container following procedures listed above and note on water sampling log.
2. Collect "Flushed Water" sample and note on waste sample log. The flushed sample will be collected after the drinking water outlet has been turned on and

allowed to run for 30 seconds. If the drinking water outlet is a water cooler with a chiller unit then allow the water to run for 15 minutes prior to collecting a flushed sample in a pre-cleaned 250 mL container.

3. Each sample collected will be properly identified on the sample bottle and chain of custody as a 1st-Draw or Flushed sample.

**Sampling Personnel Responsibilities**

- Preparation of pre-printed waterproof labels, water sample logs, the school name, the Tap Number, date of collection and any preservation technique used;
- Preparation of a chain of custody to include the field sample information;
- Documentation of any and all observations such as automatic sensors, odors, change in water color, low water flow, water outlet leaks (i.e. 1 second drip), irregular water spray, attached filter(s), if the screen/aerator is on/off the water outlet or if the water becomes warm/hot.
- Minimizing the potential for cross contamination of sample outlets by sampling personnel. The water will be collected from the outlet directly into each container.
- Following all of the sampling procedures outlined in the Sampling Plan and QAPP.

Within 24 hours after the District has reviewed and verified the final laboratory results, the District will make the results publically available and if any results exceed the action level provide written notification to the parents/guardians of all students as well as to the Department of Education.

# Attachment B – Plumbing Profile

***Note**: Complete for each school. For additional information see the USEPA publication, "The 3Ts for Reducing Lead in Drinking Water in Schools"*

Name of School: Manchester Regional High School  Grade Levels: 9 thru 12

Address: 70 Church Street, Haledon, NJ 07508

| Questions | Answers | |
|---|---|---|
| **Background Information** | | |
| 1. What year was the original building constructed? Were any buildings or additions added to the original facility? | **Original Construction: 1960**<br>**Addition in 1972** | |
| 2. If the building was constructed or repaired after 1986, was lead-free plumbing and solder utilized? What type of solder was used? Document all locations where lead solder was used. | **Lead-free solder was used in in all plumbing repairs performed since 1986.** | |
| 3. Where are the most recent plumbing repairs and replacements? | Location: **Not Known** | Description: |
| 4. With what materials is the service connection (the pipe that carries water to the school from the public water system's main in the street) made? Where is the Service Line located? (This is the POE location.) | Material: **There is one (1) service connection to the building; the water line to building is constructed of Galvanized Steel.**<br><br>Location: **Boiler Room** | |
| 5. Is there point of entry (POE) or point of use (POU) treatment in use? | Y / **N**<br>Type: **None** | Location: **NA** |
| 6. Are there tanks in your plumbing system (pressure tanks, gravity storage tanks)? | **No** | |
| 7. Does the school have a filter maintenance and operation program? If so, who is responsible for this program? What is the process for adding filters? | **There are no filters present.** | |

| Questions | Answers |
|---|---|
| 8. Have accessible screens or aerators on outlets that provide drinking water been cleaned?<br>Does the school have a screen or aerator maintenance program? | **No**<br><br>**No, but an aerator maintenance program is recommended.** |
| 9. Have there been any complaints about bad (metallic) taste? Note location(s). | **No.** |
| 10. Review records and consult with the public water supplier to determine whether any water samples have been taken in the building for any contaminants. If so, identify:<br>Is testing done regularly at the building? | **Testing is not performed regularly at the school building. However, on occasion, the local water utility will collect samples in the building and analyzed for bacterial content.** |
| 11. Other plumbing background questions include:<br>• Are blueprints of the building available?<br>• Are there known plumbing "dead-ends", low use areas, existing leaks or other "problem areas"?<br>Are renovations planned for any of the plumbing system? | **No blueprints were available.**<br><br>**There are no known plumbing "dead-ends".** |

| Walk-Through<br>*These questions should be addressed during the walk-through of the facility, while Attachment C- Drinking Water Outlet Inventory is being completed.* | | |
|---|---|---|
| 1. Confirm the material of Service Line visually. | **Galvanized Steel at the POE location** | |
| 2. Confirm the presence of POE or POU treatment. | **None present** | |
| 3. What are the potable water pipes made of in your facility? Note the water flow through the building and the areas that receive water first, and which areas receive water last. | **Copper. The assignment of Tap Numbers and sequencing collecting the water samples follows the water's path through the domestic water piping from POE out to furthest tap.** | |
| 4. Are electrical wires grounded to Water Pipes? Note location(s). | **Yes, the POE has an electrical ground bonded to the service line pipe.** | |
| 5. Are brass fittings, faucets, or valves used in your drinking water system? Note that most faucets are brass on the inside. Document the locations of any brass water outlet to be sampled. | **Yes, it appears that brass fittings, faucets and valves are used throughout the drinking water system.** | |
| 6. Locate all drinking water outlets in the facility. | **Please refer to Sample Plan drawings** | |
| 7. Have the brands and models of the water coolers in the school been compared to the list of recalled water coolers in the Toolkit? | **No water coolers were listed on the recall listing** | |
| 8. Have signs of corrosion, such as frequent leaks, rust-colored water, or stained fixtures, dishes, or laundry been detected? | **No** | |
| 9. Are there any outlets that are not operational and therefore out of service? Permanently? Temporarily? | **Refer to Sampling Log and Sampling Plan drawing** | |

# Attachment C – Drinking Water Outlet Inventory

Name of School: Manchester Regional High School  Address: 70 Church Street, Haledon, NJ 07508
Grade Levels: 9 thru 12  Year School Constructed: 1960  Renovated/Additions: 1972

| Tap No. | Type of Outlet | Location | Operational | Signs of Corrosion | Filter | Brass Fittings, Faucets? | Aerator/ Screen | Motion Activated | Chiller | Water Cooler | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Make | Model | |
| 01 | Chiller | Hallway - outside Room SG-1 | X | | | | | | X | Halsey Taylor | | |
| 02 | Chiller | Weight Room SG-5 | X | | | | | | X | Halsey Taylor | | |
| 03 | Chiller | Hallway - outside Room 108 | X | | | | | | X | Halsey Taylor | | |
| 04 | Bubbler | Hallway - opposite Rm 113 (Chem Lab) | X | | | X | | | | Halsey Taylor | | |
| 05 | Bubbler | Hallway - next to Rm 114 (right) | X | | | X | | | | American Std. | | |
| 06 | Bubbler | Hallway - next to Rm 114 (middle - left not working) | X | | | X | | | | American Std. | | |
| 07 | Faucet | Library Conf Rm sink | X | | | X | | | | | | |
| 08 | Chiller | Field House Hallway | X | | | | | | X | Elkay | | |
| 09 | Faucet | Field House Athletic Training Rm sink | X | | | X | | | | | | |
| 10 | Ice Bin | Field House Athletic Training Rm Ice Machine | X | | | | | | | | | |
| 11 | Bubbler | Hallway - next to Rm 101 | X | | | X | | | | Halsey Taylor | | |
| 12 | Ice Bin | Girls Locker Room Ice Machine | X | | | | | | | | | |
| 13 | Chiller | Boys' Locker Room | X | | | X | | | X | Halsey Taylor | | |
| 14 | Bubbler | Gym - NW (Girl's) side | | | | X | | | | | | |

## Attachment C – Drinking Water Outlet Inventory

Name of School: Manchester Regional High School  Address: 70 Church Street, Haledon, NJ 07508
Grade Levels: 9 thru 12  Year School Constructed: 1960  Renovated/Additions: 1972

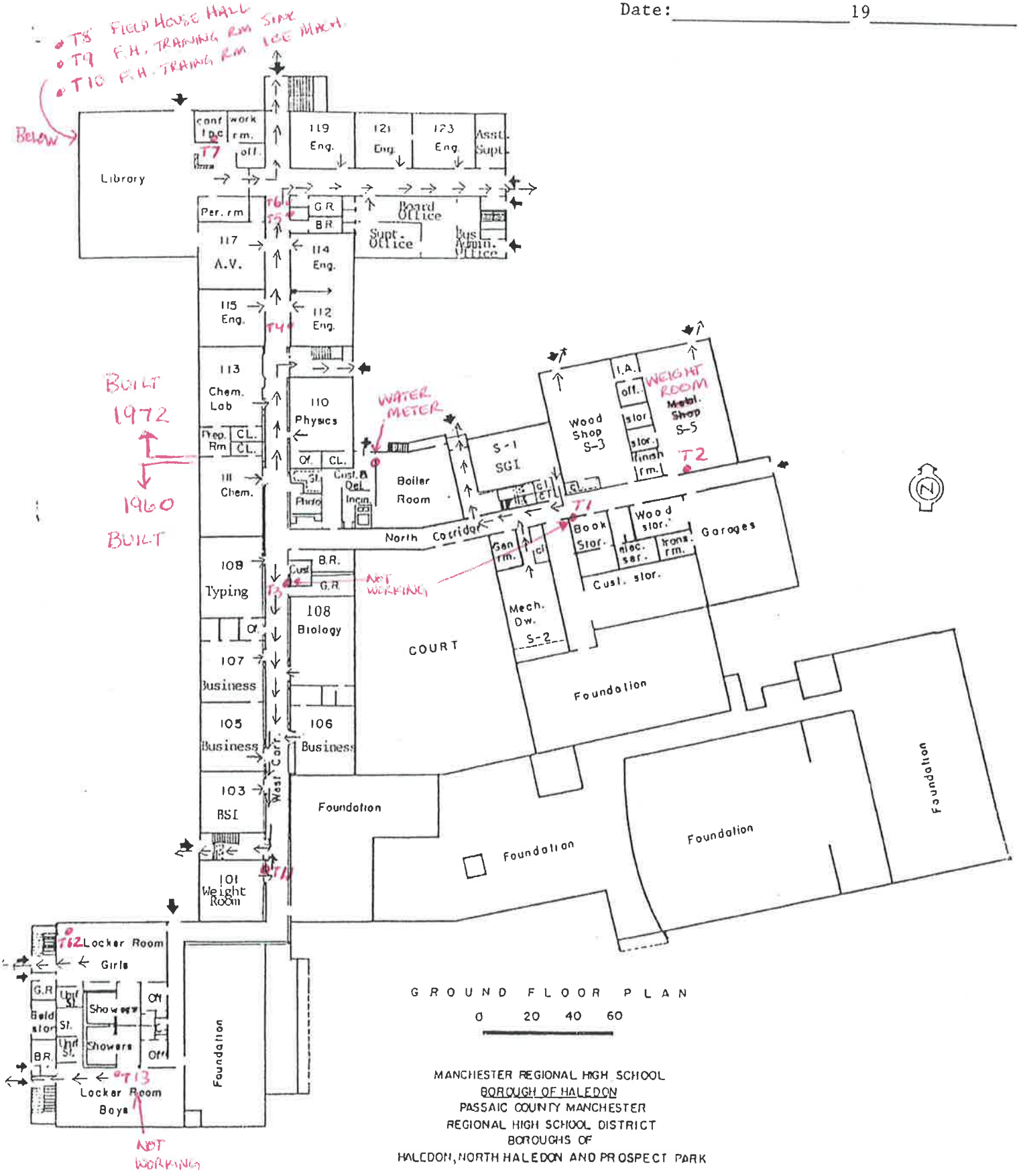
| Tap No. | Type of Outlet | Location | Operational | Signs of Corrosion | Filter | Brass Fittings, Faucets? | Aerator/ Screen | Motion Activated | Chiller | Water Cooler | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Make | Model | |
| 15 | Bubbler | Gym - SW (Boy's) side | | | | X | | | | | | |
| 16 | Chiller | Hallway - outside Room 201 | X | | | | | | X | Halsey Taylor | | |
| 17 | Faucet | Nurse's Office - sink next to desk | X | | | X | | | | | | |
| 18 | Faucet | Nurse's Office - sink next to patient bed | X | | | X | | | | | | |
| 19 | Bubbler | Hallway - opposite Main Office | X | | | X | | | | | | |
| 20 | Faucet | Faculty Lounge Ladies Room sink | X | | | X | | | | | | |
| 21 | Faucet | Faculty Lounge Mens Room sink | X | | | X | | | | | | |
| 22 | Faucet | Faculty Lounge kitchen sink | X | | | X | | | | | | |
| 23 | Fountain | Hallway - opposite Rm 209 | X | | | X | | | | | | |
| 24 | Chiller | Hallway - opposite Rm 213 | X | | | | | | X | Halsey Taylor | | |
| 25 | Bubbler | Hallway - opposite Rm 217 (left - right not working) | | | | X | | | | | | |
| 26 | Bubbler | Hallway - opposite Rm 223 (left) | X | | | X | | | | American Std. | | |
| 27 | Bubbler | Hallway - opposite Rm 223 (right) | X | | | X | | | | American Std. | | |
| 28 | Chiller | Cafeteria - along kitchen wall - left | X | | | | | | X | Halsey Taylor | | |
| 29 | Chiller | Cafeteria - along kitchen wall - right | X | | | | | | X | Halsey Taylor | | |

# Attachment C – Drinking Water Outlet Inventory

Name of School: Manchester Regional High School  Address: 70 Church Street, Haledon, NJ 07508
Grade Levels: 9 thru 12  Year School Constructed: 1960  Renovated/Additions: 1972

| Sample ID | Type of Outlet | Location | Operational | Signs of Corrosion | Filter | Brass Fittings, Faucets? | Aerator/ Screen | Motion Activated | Chiller | Water Cooler | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Make | Model | |
| 30 | Faucet | Home Economics Rm - sink next to teacher's desk | X | | | X | | | | | | |
| 31 | Faucet | Home Economics Rm - sink left of oven | X | | | X | | | | | | |
| 32 | Faucet | Home Economics Rm - sink right of oven | X | | | X | | | | | | |
| 33 | Faucet | Kitchen - sink next to dishwasher | X | | | X | | | | | | |
| 34 | Faucet | Kitchen - sink behind cash register | X | | | X | | | | | | |
| 35 | Faucet | Kitchen - sink next to coffee machine - left | X | | | X | | | | | | |
| 36 | Faucet | Kitchen - sink next to coffee machine - right | X | | | X | | | | | | |
| 37 | Hose | Kitchen - "J" shape nozzle on hose next to stove | X | | | X | | | | | | |
| 38 | Faucet | Kitchen - faucet nozzle for spaghetti pot | X | | | X | | | | | | |
| 39 | Faucet | Kitchen - sink next to slicer - right | X | | | X | | | | | | |
| 40 | Faucet | Kitchen - sink next to slicer - left | X | | | X | | | | | | |
| 41 | Faucet | Kitchen - compressor room sink | X | | | X | | | | | | |
| 42 | Faucet | Kitchen - bathroom sink | X | | | X | | | | | | |
| 43 | Bubbler | Hallway - opposite Attendance Office | X | | | X | | | | | | |
| 44 | Chiller | Hallway - outside Band Room | X | | | | | | | | | |

Date: _____ 19 _____

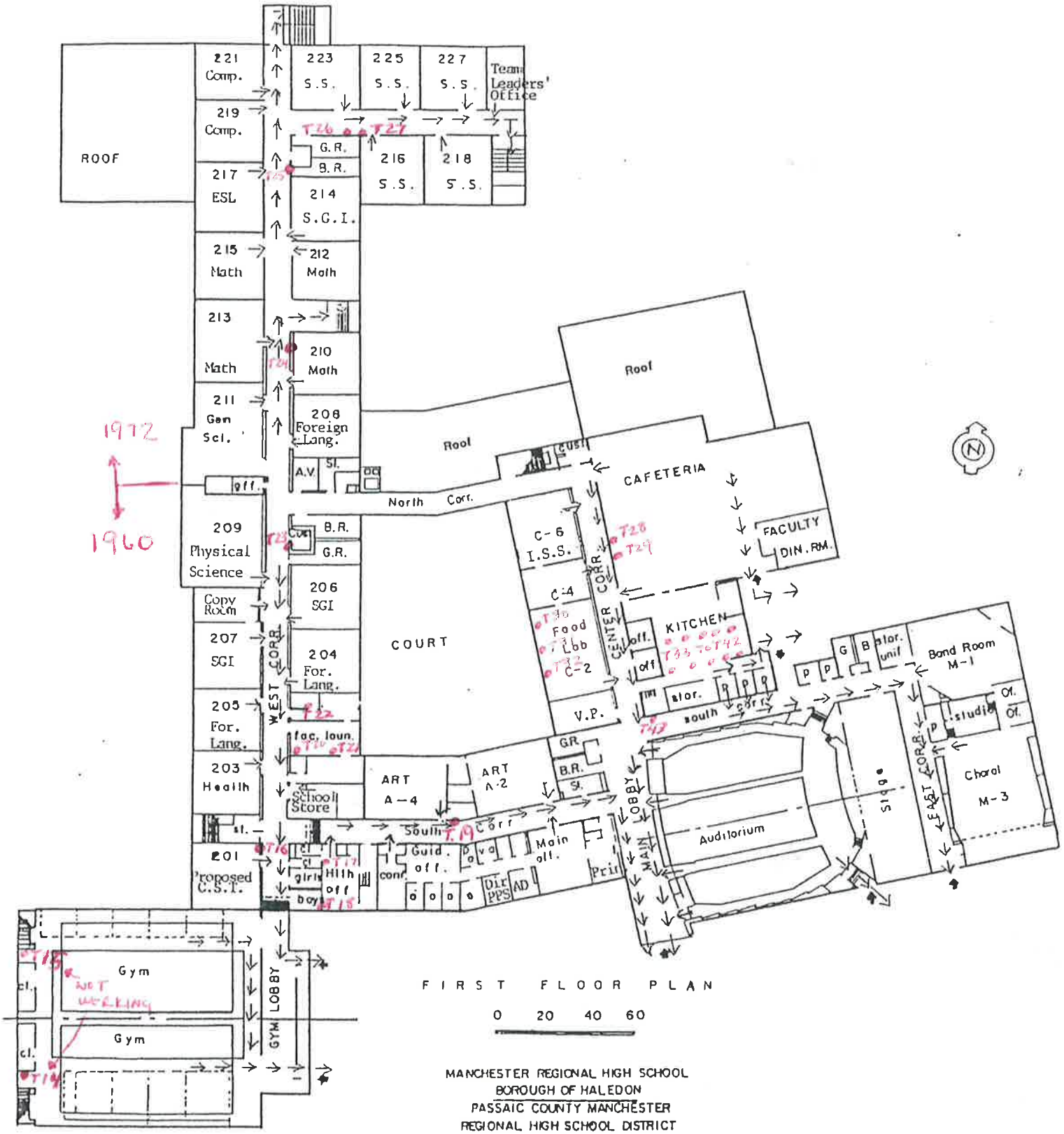



GROUND FLOOR PLAN

0 20 40 60

MANCHESTER REGIONAL HIGH SCHOOL
BOROUGH OF HALEDON
PASSAIC COUNTY MANCHESTER
REGIONAL HIGH SCHOOL DISTRICT
BOROUGHS OF
HALEDON, NORTH HALEDON AND PROSPECT PARK

Date: _____ 19 _____




FIRST FLOOR PLAN

0 20 40 60

MANCHESTER REGIONAL HIGH SCHOOL
BOROUGH OF HALEDON
PASSAIC COUNTY MANCHESTER
REGIONAL HIGH SCHOOL DISTRICT
BOROUGHS OF
HALEDON, NORTH HALEDON AND PROSPECT PARK