

WATER QUALITY MONITORING
IN THE
NESCOPECK CREEK WATERSHED

2024 SUMMARY REPORT

FRIENDS OF THE NESCOPECK

JANUARY 29, 2025

INTRODUCTION

This report reflects water quality testing done by members of the Friends of the Nescopeck during 2024 at five sites within the Nescopeck Creek Watershed. The work done by our organization provided regular testing covering critical points throughout the watershed. A primary purpose of this monitoring was to measure the impact of acid mine drainage (AMD) on streams in our watershed.

We are providing this report to you because your municipality contains some of our testing sites or you are one of our partners or a public official. The report consists of multiple sections which are listed below

Methodology
Quality Control
Test Parameters Explanation
Site Selection Criteria
Site Maps
Test Results
Test Results Comments
Summary

METHODOLOGY

Testing results were determined by using two types of monitoring equipment: chemical and electronic probes.

The chemical tests we used are part of an acid mine drainage kit manufactured by Hach and other tests manufactured by LaMotte. Results are determined by adding chemicals to water samples and visually looking for color changes or by comparing color changes using color wheels or colorimeters. This approach is used to determine pH, acidity, iron, alkalinity and dissolved oxygen.

The second method involves using electronic probes connected to a computer-like interface containing analytical software. This equipment is manufactured by Vernier, LaMotte or YSI. The probes are placed into water samples and the interface provides readings. This approach is used to determine temperature and conductivity.

Recently, DEP has joined us on a quarterly basis and we are sharing their results for aluminum, manganese and sulfate.

QUALITY CONTROL

Prior to any testing, the electronic probes are calibrated according to the manufacturer's specifications. Chemicals used with the Hach kits are replaced prior to manufacturer's expiration date.

In addition, we compare our test results with those determined by the Pennsylvania Department of Environmental Protection (DEP), the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR) and Hawk Mountain Labs.

All members who conduct testing are provided with orientation and training under the supervision of our director of testing and by experienced members. A record of this training is generated and filed. A detailed operational guide has been developed and is part of a testing support box which also contains testing kits and supporting materials and equipment. Customized forms are used to record test data as well as site characterizations.

TEST PARAMETERS EXPLANATION

Aluminum: An abundant metal in the earth's crust which can be selectively leached from rock and soil. The most common limit is currently 0.50 mg/l but may change in the near future. May precipitate at normal pH levels as white deposit.

Conductivity: The ability of a solution to conduct an electric current between two electrodes. The test can determine the total concentration of ions in a sample and to measure total dissolved solids.

Dissolved Oxygen: Good water averages about 9ppm and most organisms will not survive water below 3ppm with respect to the amount of dissolved oxygen.

Iron: A heavy magnetic malleable ductile metallic element which often coats streambanks and bottoms resulting in a negative impact on aquatic life. Criteria for aquatic life is daily average of 1,5 mg/l total iron. Secondary drinking water standard is 0.3 mg/l.

Manganese: A mineral that occurs naturally in rocks and soil and sometimes in underground pollution sources. It is frequently found in iron-bearing waters. PA Water Quality Standards maximum limit is set at 1,0 mg/l.

pH: A measure of the acidity or basicity of a solution. Uses a scale from 0 to 14 with 7 as neutral. Any solution measuring less than 7 is acidic and anything more than 7 is basic. Criteria for aquatic life is from 6.0 to 9.0. Secondary drinking water standard is 6.5 to 8.5.

TEST PARAMETERS EXPLANATION (Contd.)

Sulfate: Sulfate ions are present in virtually all natural waters and vary considerably in concentrations. EPA Secondary Drinking Water Regulations recommend a maximum concentration of 250 mg/l.

SITE SELECTION CRITERIA

Site 1: Nescopeck State Park

This location was selected to establish a baseline since it is relatively pristine.

Site 2: Little Nescopeck Creek downstream from Confluence with Jeddo Tunnel Discharge,

This location was selected to determine the impact of flow from the Jeddo Tunnel on the Little Nescopeck Creek which is a cold water fishery upstream of the tunnel.

Site 3: Nescopeck Creek at North Main Street Bridge in Sugarloaf Township.

This location was selected to determine the impact of the polluted Little Nescopeck on the main stem Nescopeck Creek downstream of their confluence.

Site 4: Black Creek upstream of the main stem Nescopeck Creek

This location was selected to monitor condition of the Black Creek, a major tributary to the main stem Nescopeck Creek.

Site 5: Nescopeck Creek slightly upstream of confluence with Susquehanna River.

This site was selected to monitor the condition of the main stem Nescopeck Creek as it enters the Susquehanna River and after it has been impacted by the Little Nescopeck Creek and the Black Creek.

JEDDO TUNNEL TESTING

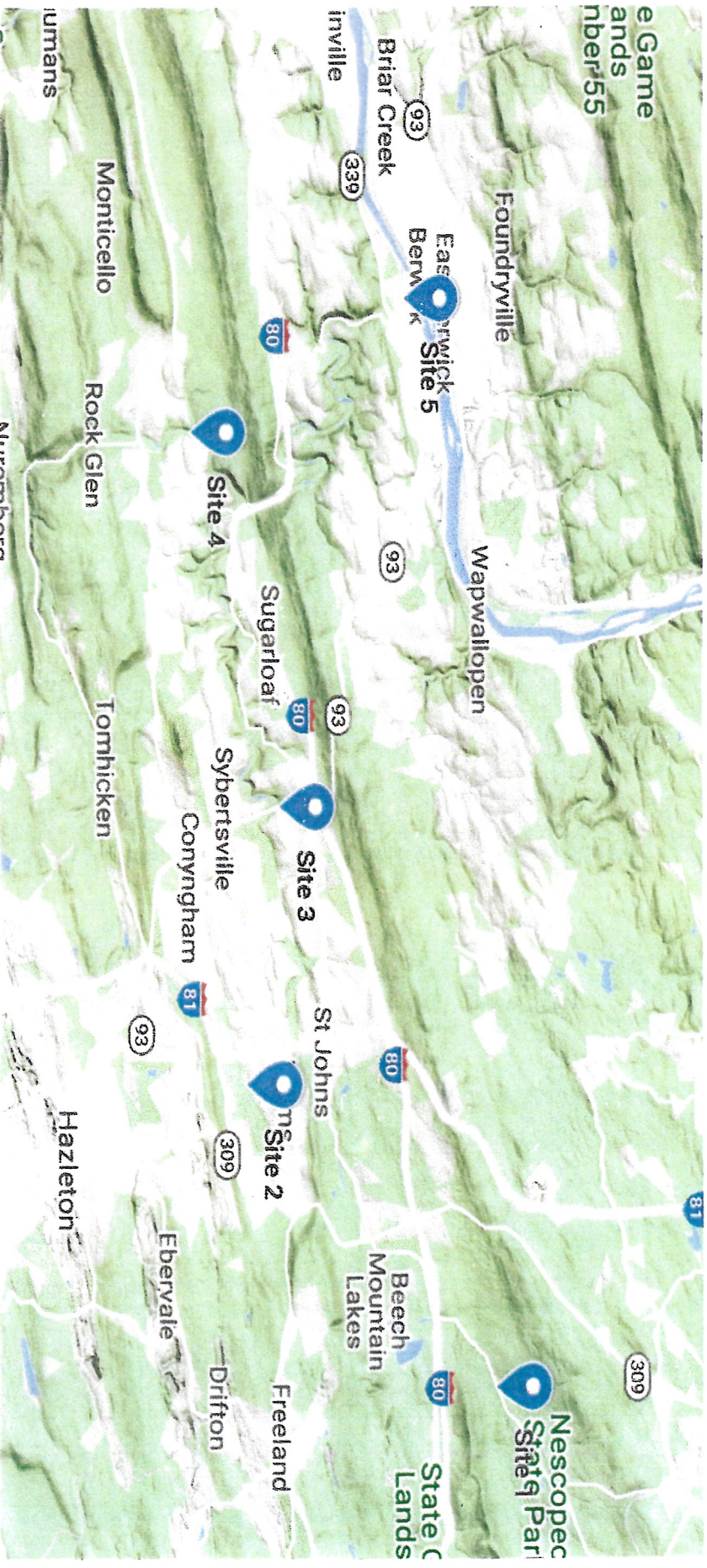
The Jeddo Tunnel drains an area of 32 square miles and was originally built to drain the underground mines in the Hazleton area. The tunnel system consists of five main tunnels and two minor tunnels all interconnected and emptying into the Little Nescopeck Creek near Fritzingertown. The polluted water, AMD (acid mine drainage), is low in pH and high in aluminum, manganese, iron and sediment See testing results at end of report.

Money may be available to treat the water, so PADEP BAMR is beginning the process of investigation the feasibility of building a treatment plant. USGS installed a new stream gage at the mouth of the tunnel in 2022 to monitor real time flow, so now we have two full years of flow data which is available to all by looking at the following USGS site; <https://waterdata.usgs.gov/monitoring-location/01538510>.

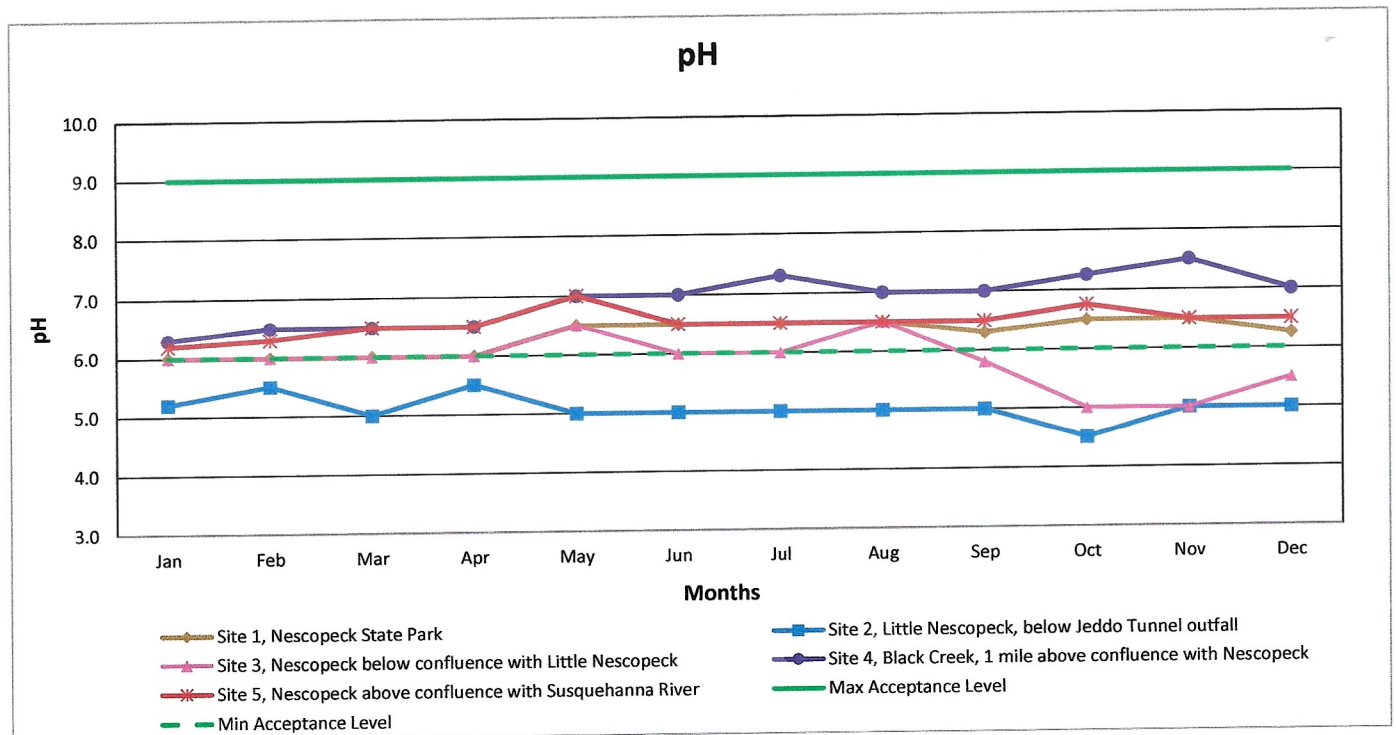
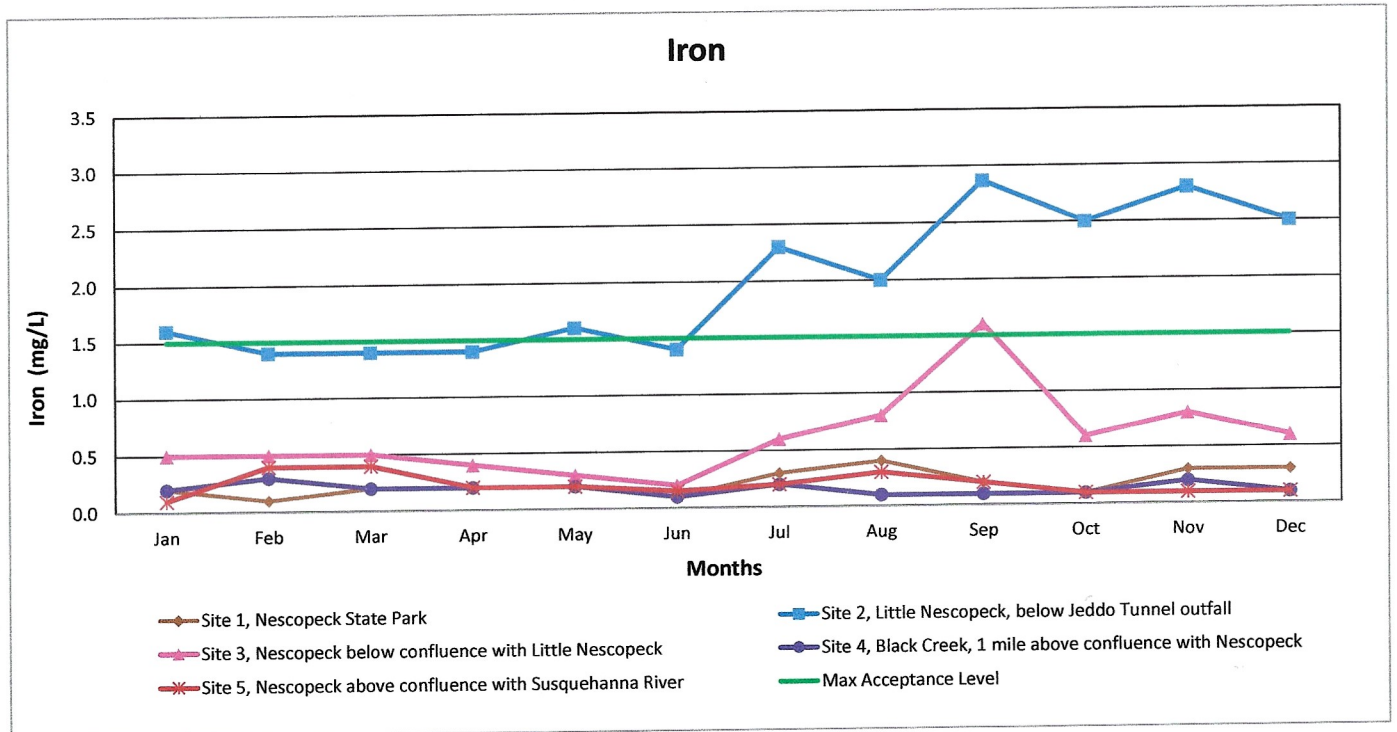
DEP has also been sampling and analyzing the chemistry at the mouth of the tunnel since 2023 and an engineering firm has been hired by BAMR to perform a Phase 1 feasibility study.

Stream Monitoring Sites

- Site 1** Nescopeck Creek – Nescopeck State Park, Woodfrog Trail bridge site
- Site 2** Little Nescopeck Creek – Old Turnpike Rd bidge (below confluence of Little Nescopeck Creek & Jeddo Tunnel discharge)
- Site 3** Nescopeck Creek – North Main St bridge in Sugarloaf Twp
- Site 4** Black Creek – Mountain Rd bridge (1½ miles upstream from confluence w/ Nescopeck creek)
- Site 5** Nescopeck Creek – near confluence with Susquehanna River



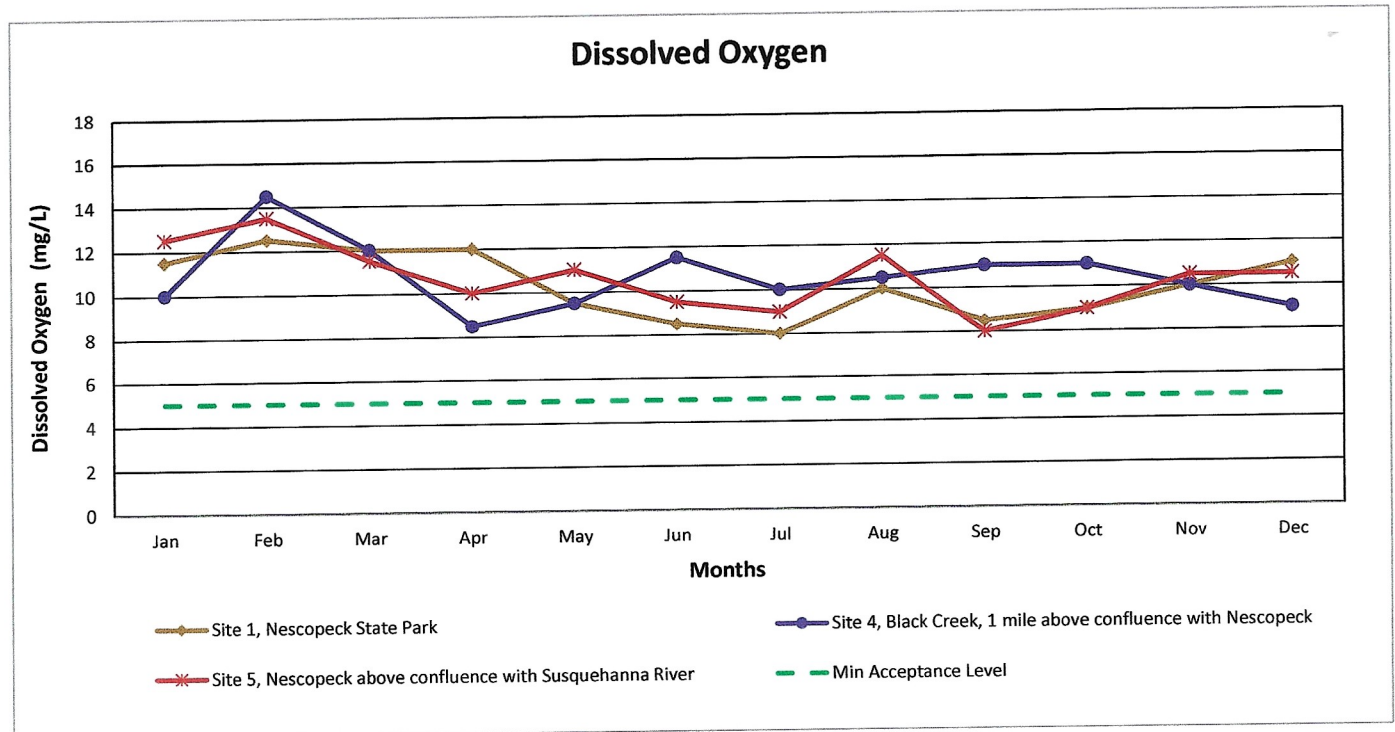
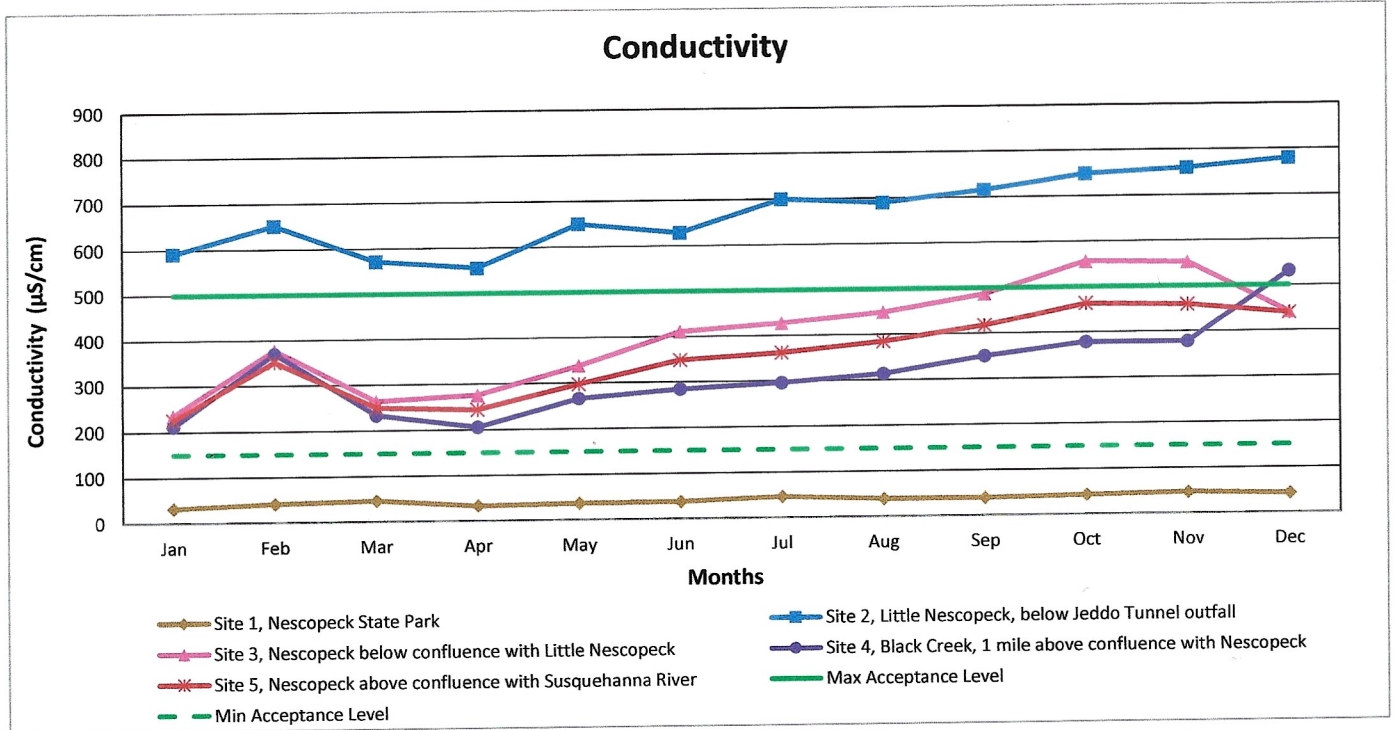
Nescopeck Creek Watershed Water Quality Testing for 2024



Samples collected and analyzed by: Gary Leander, Marty Zybura, Danielle Bellumori, Judy Samler, Tom Lincalis, Audra Mitchell and Jeff Schmidt
 Aluminum, Manganese and Sulfate results from PA DEP

Nescopeck Creek Watershed

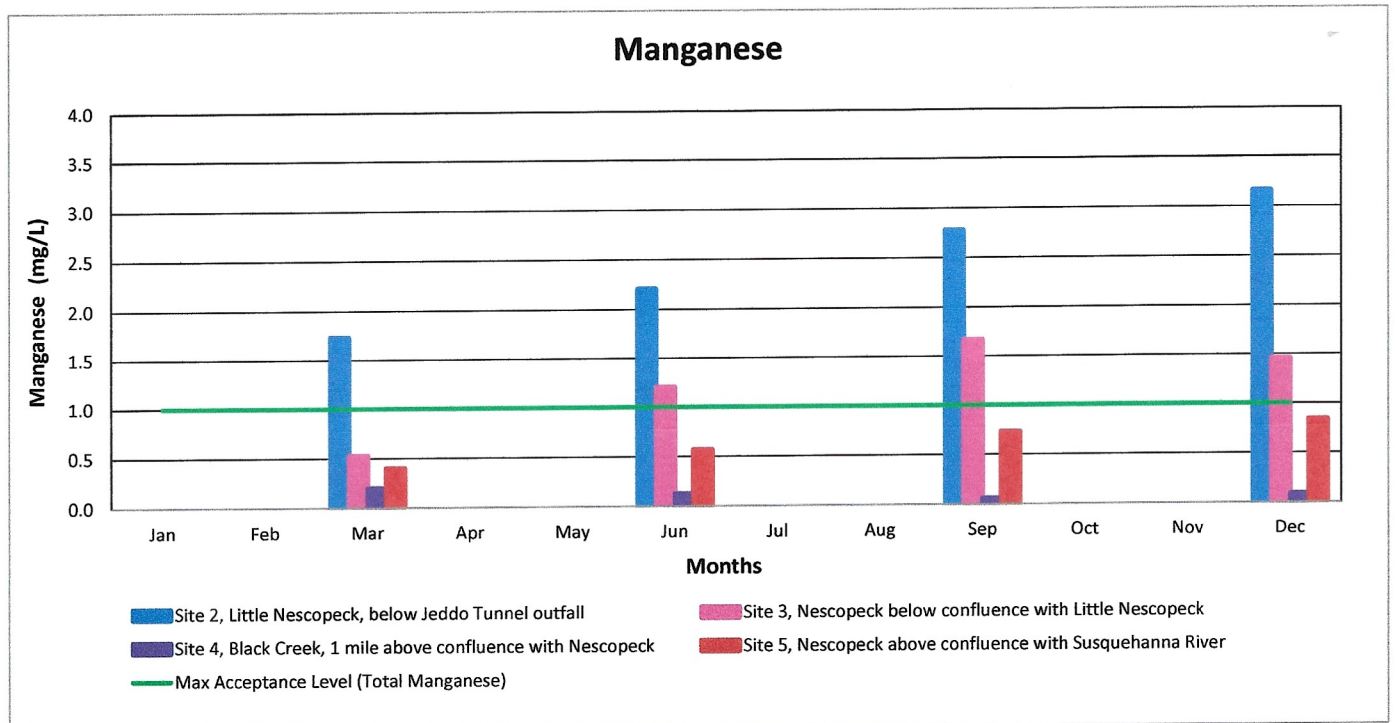
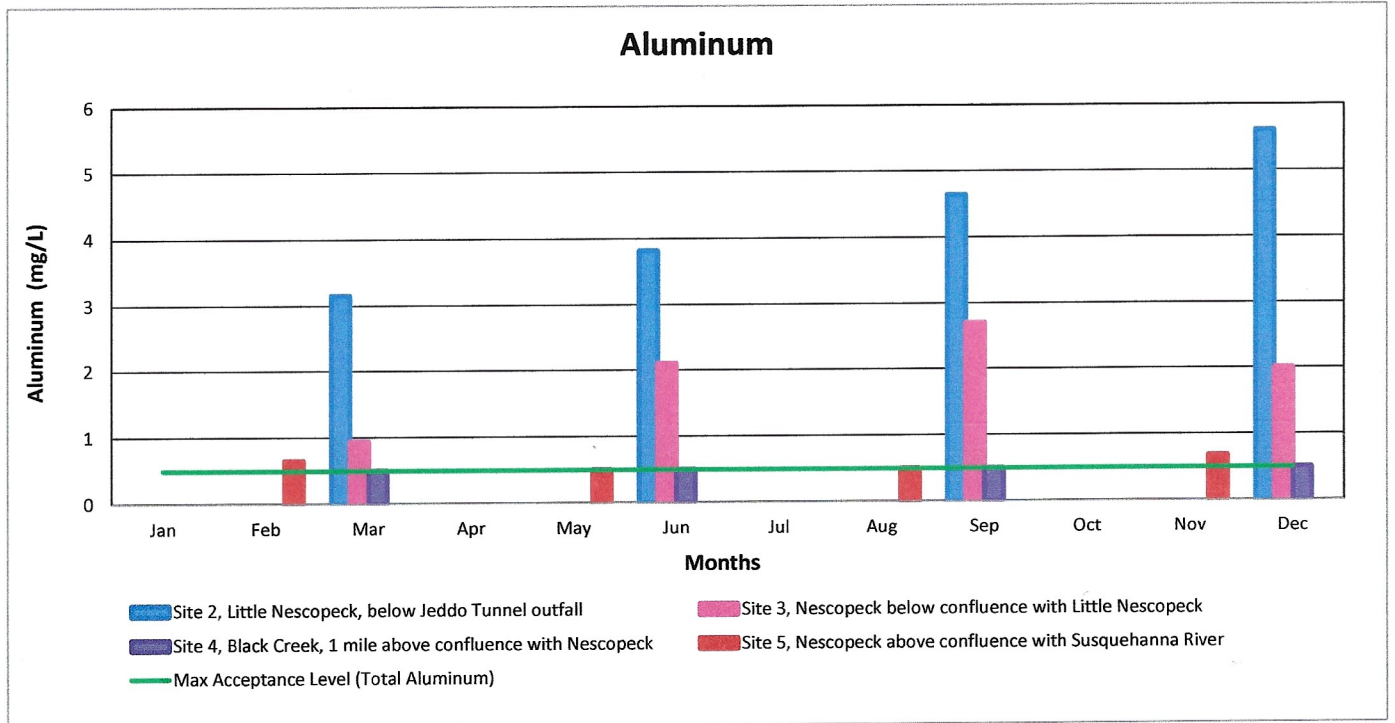
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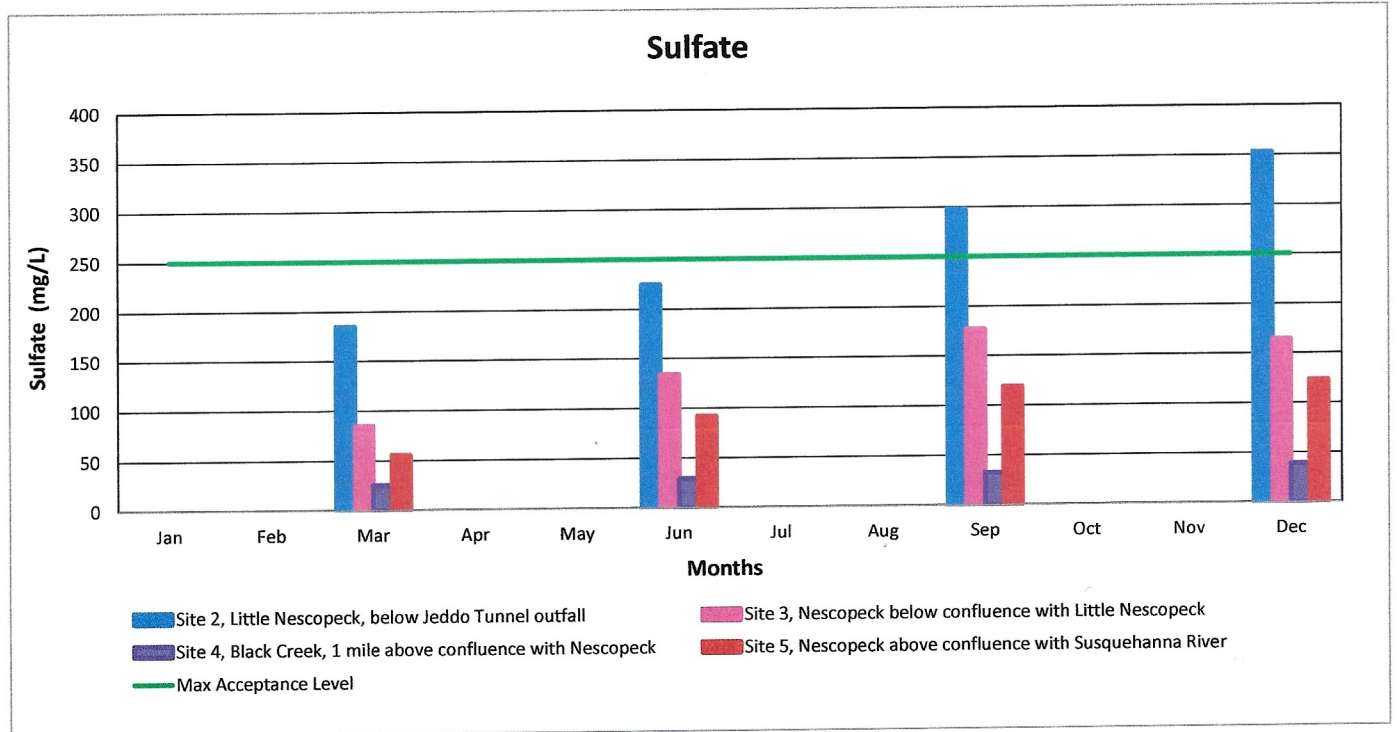
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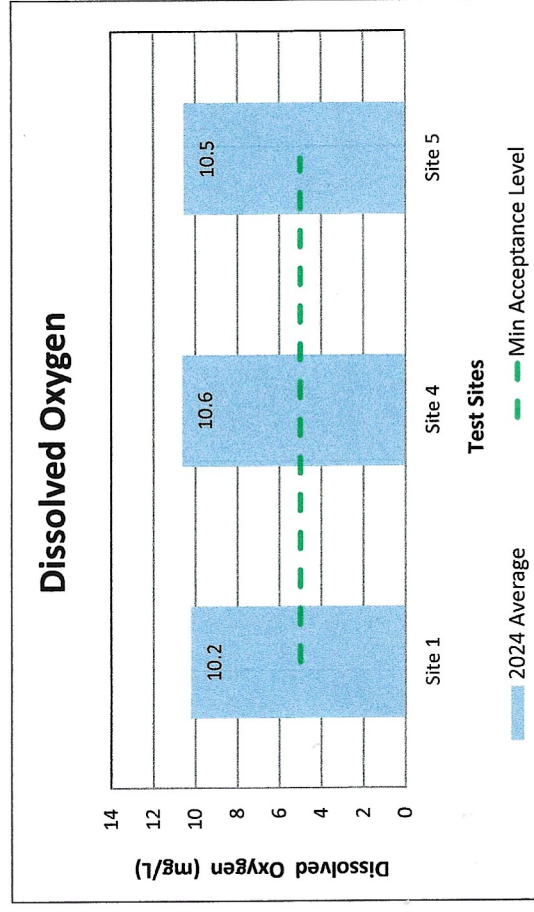
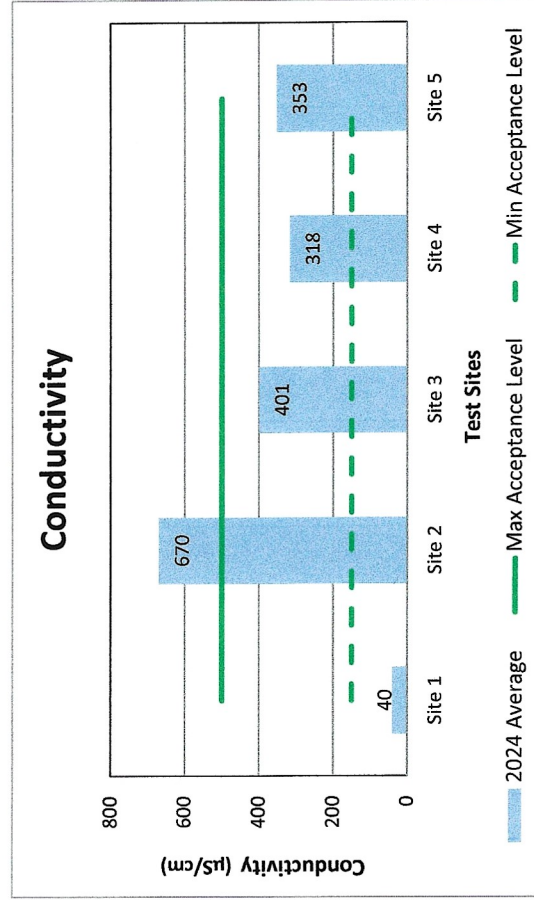
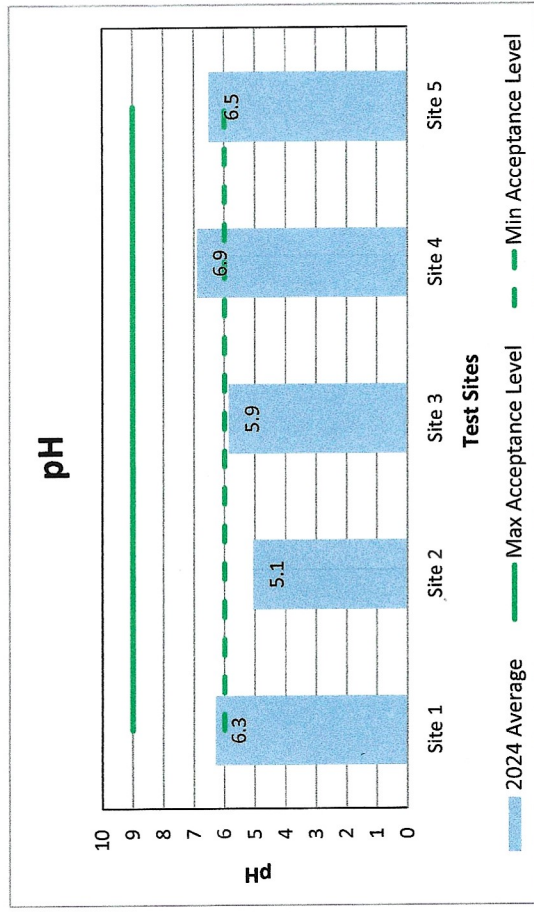
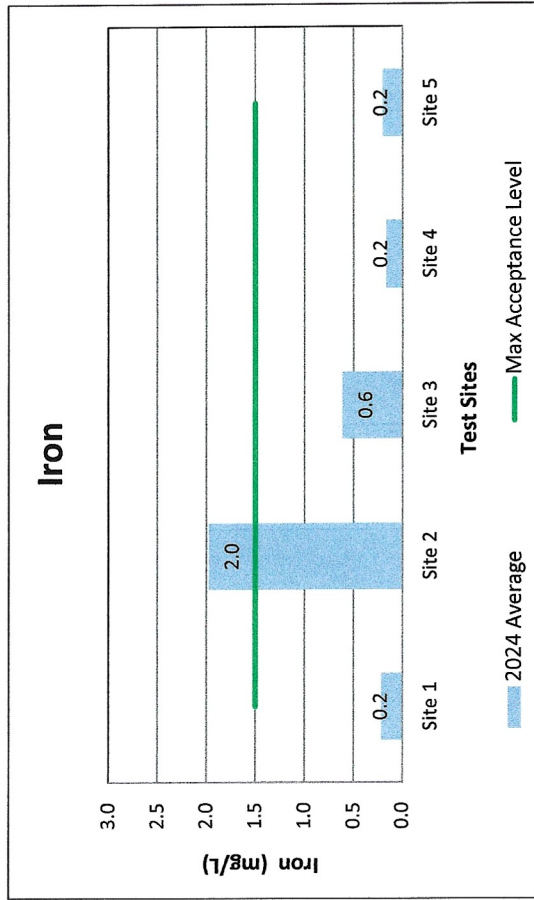
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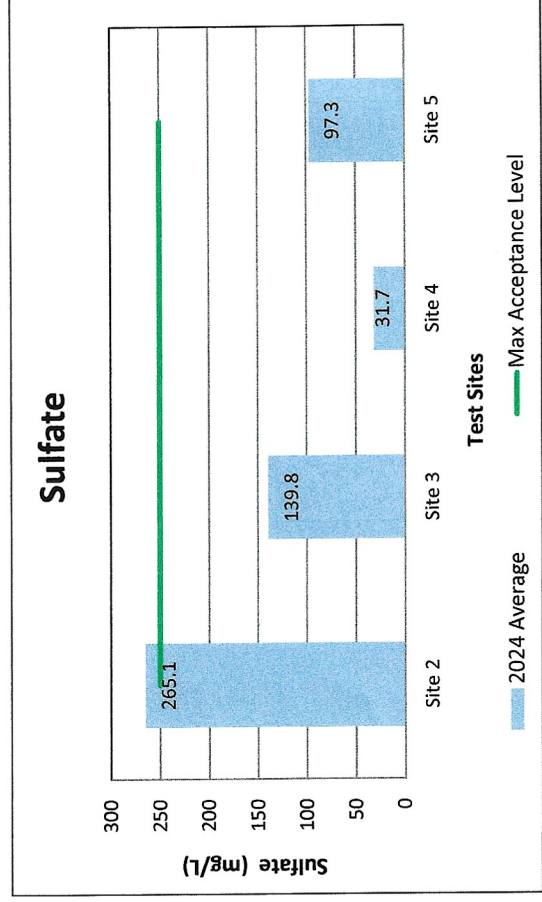
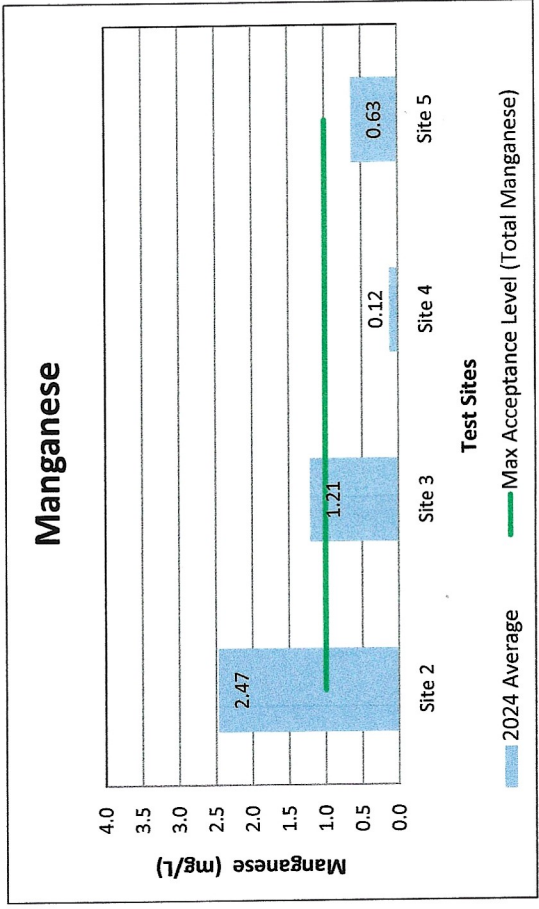
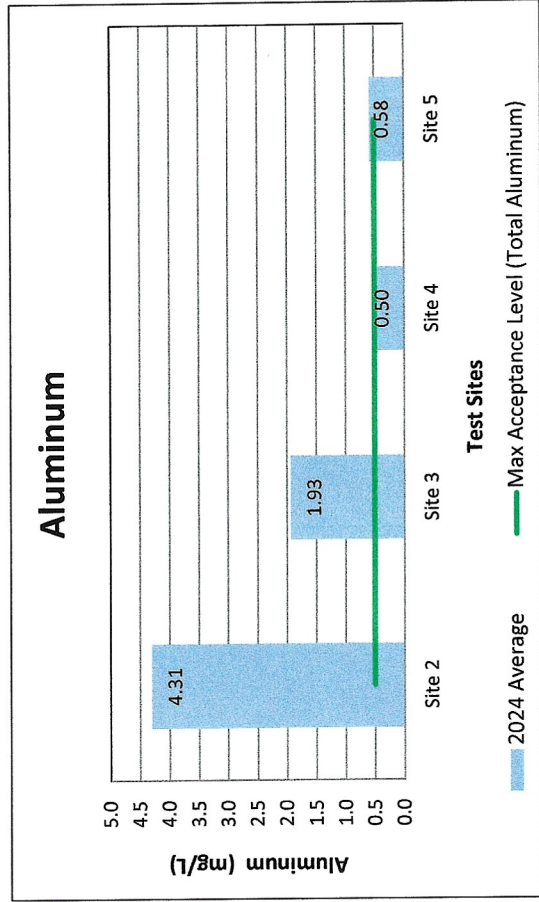
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Nescopeck Creek Watershed

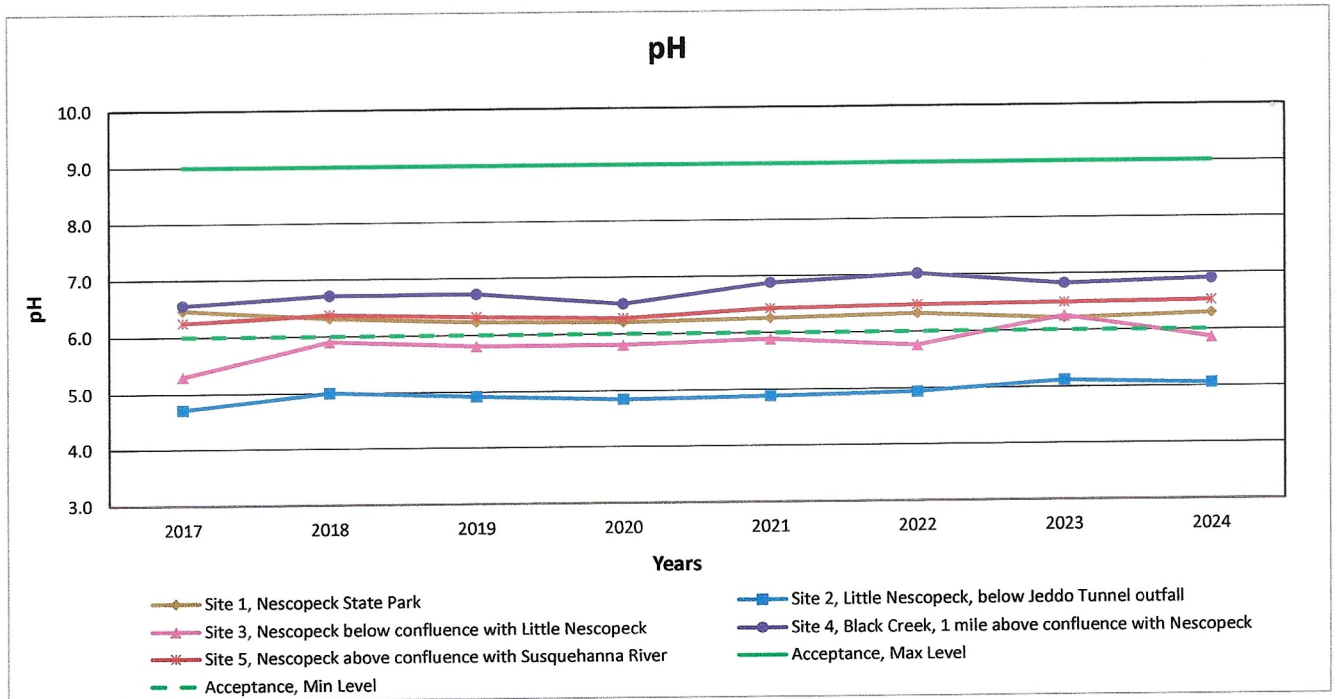
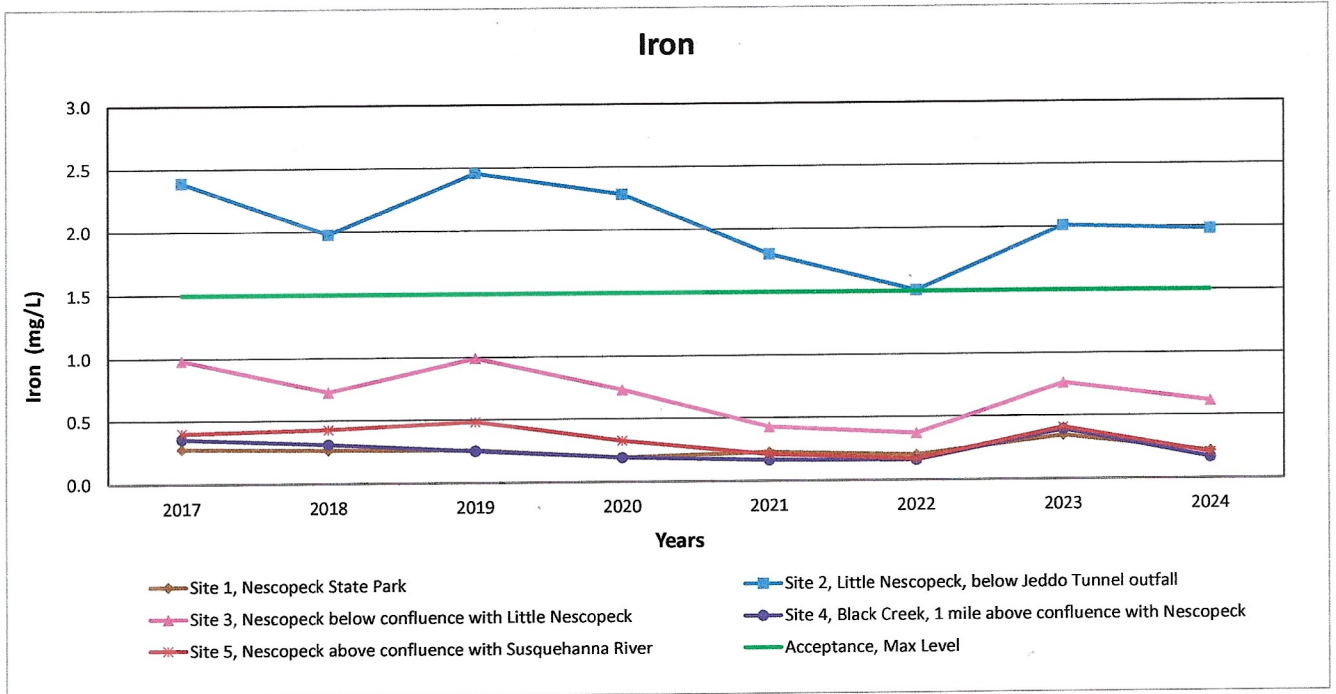
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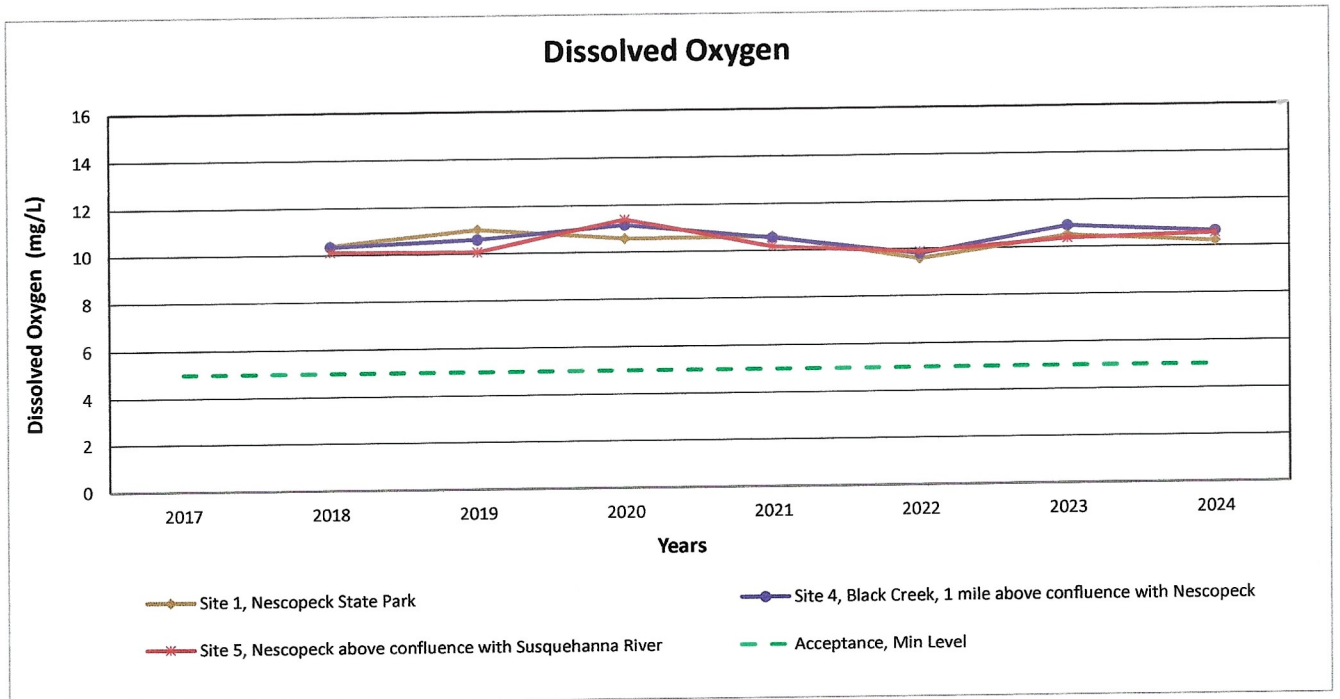
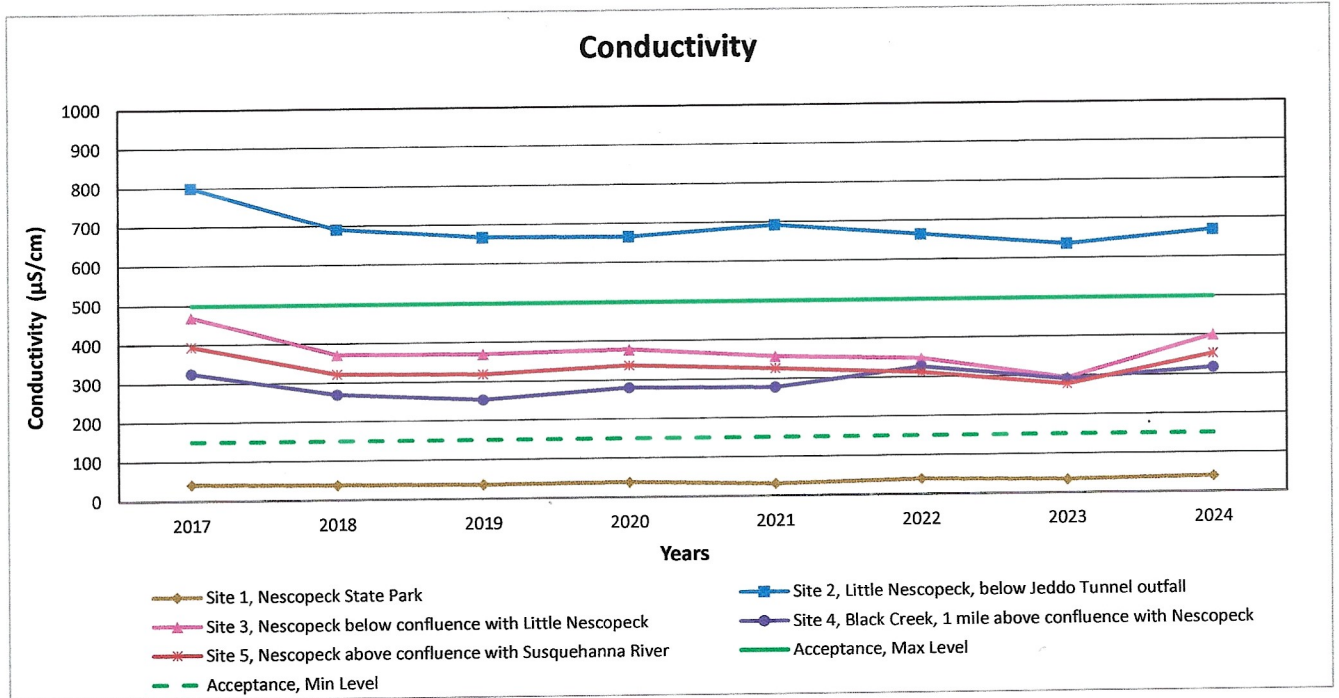
Nescopeck Creek Watershed

Water Quality Testing (yearly averages)



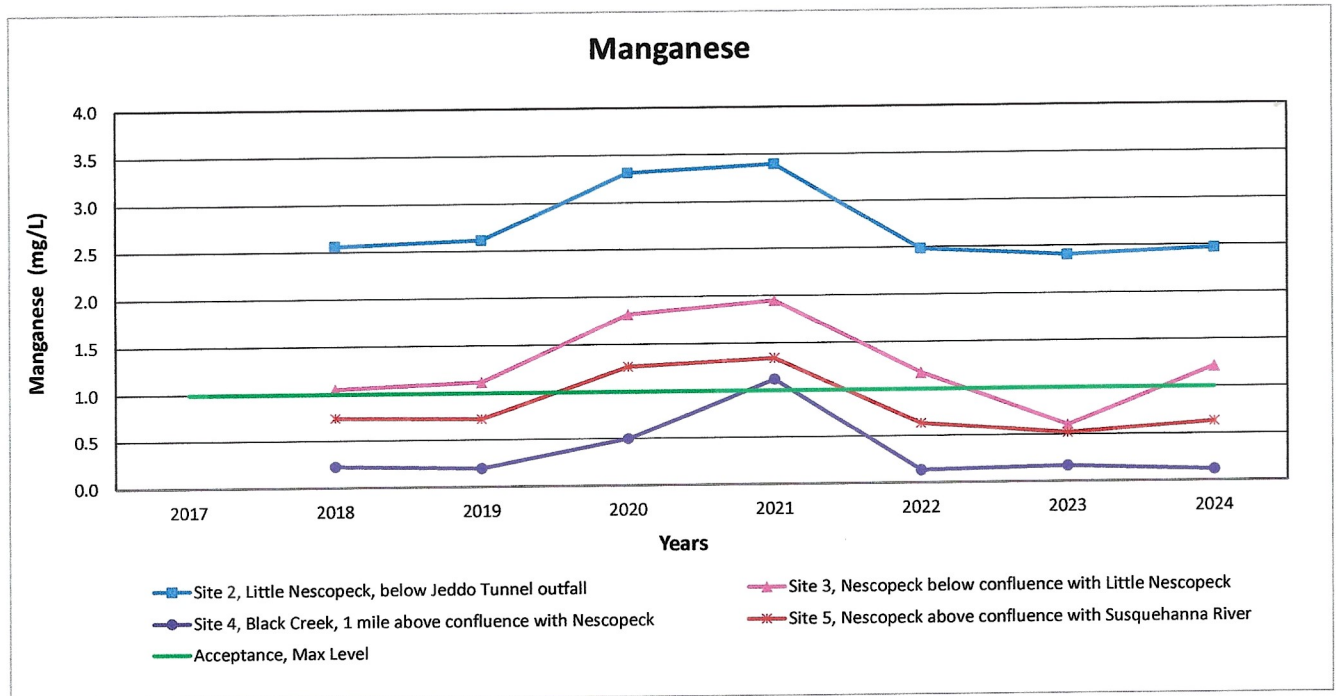
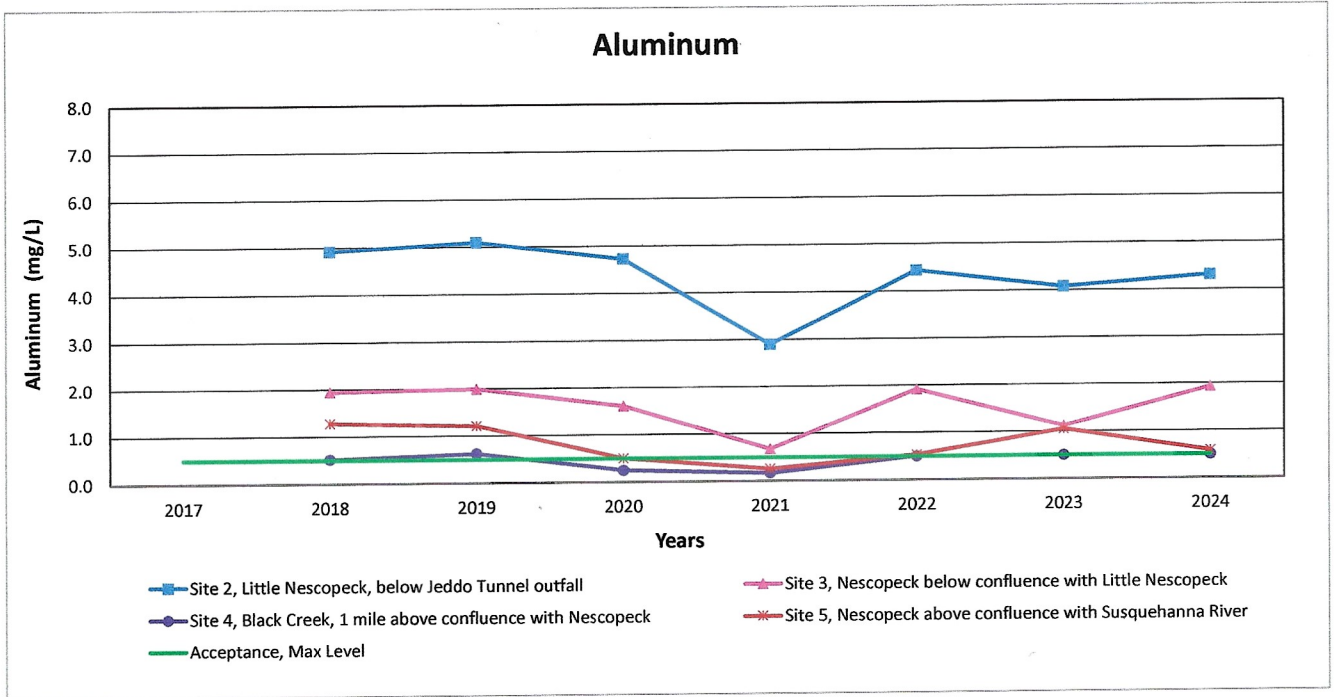
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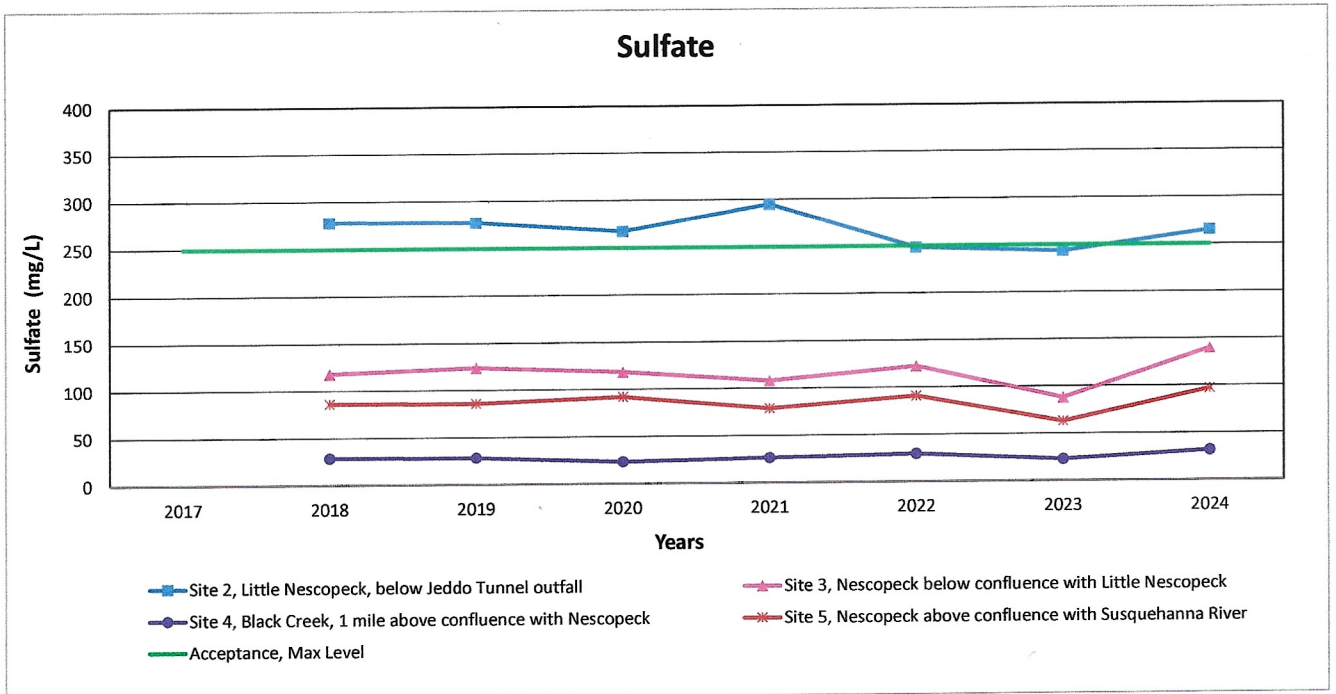
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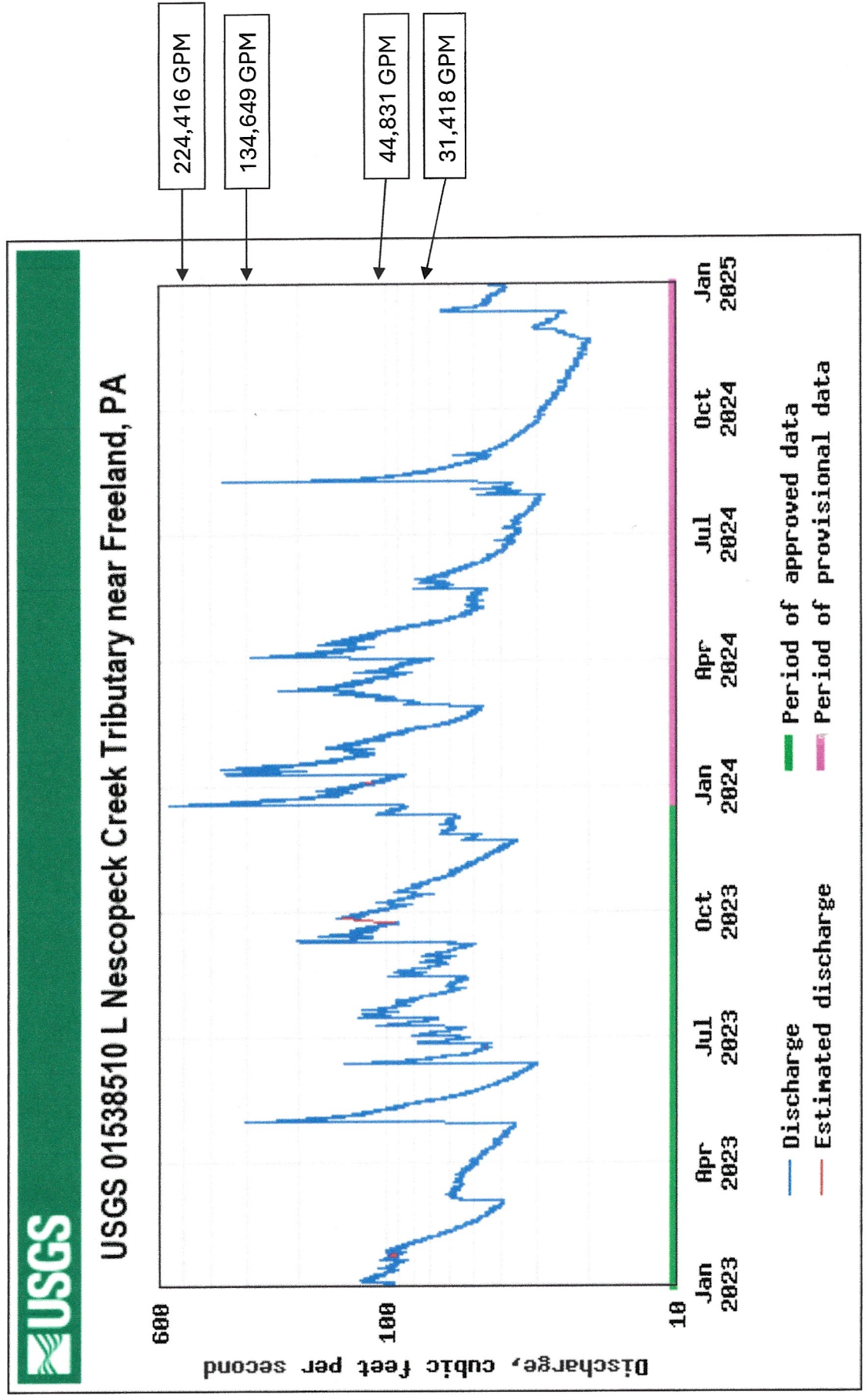
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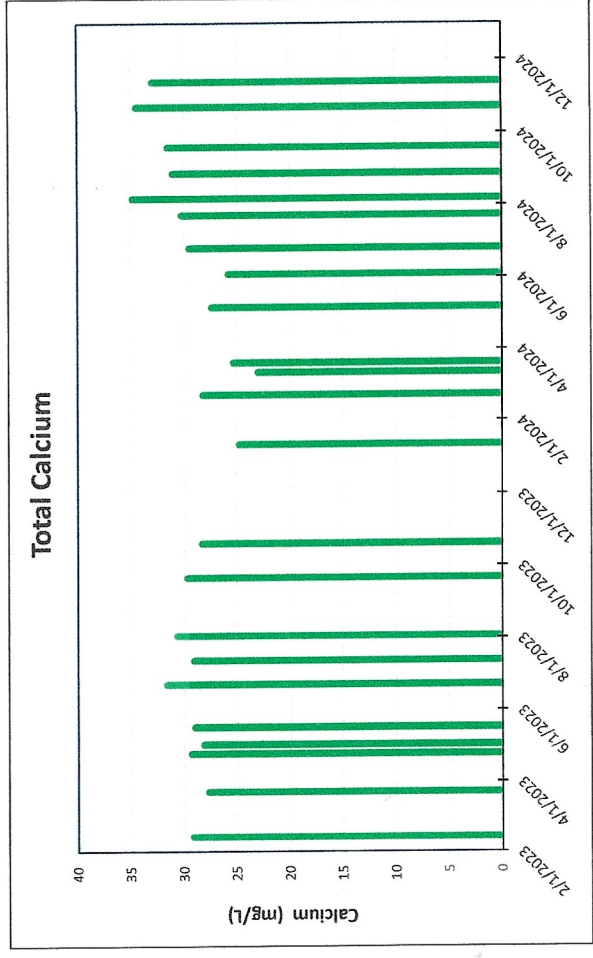
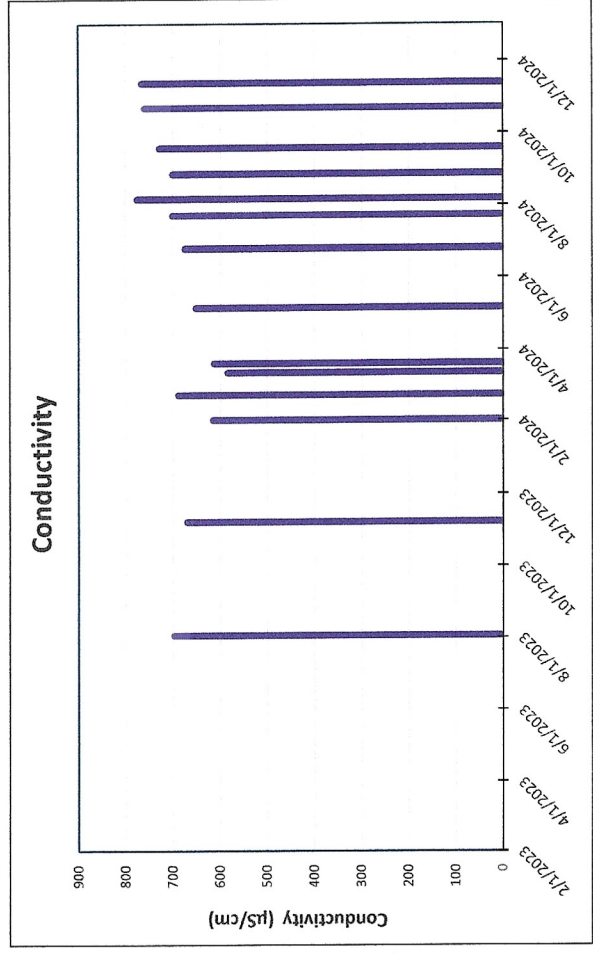
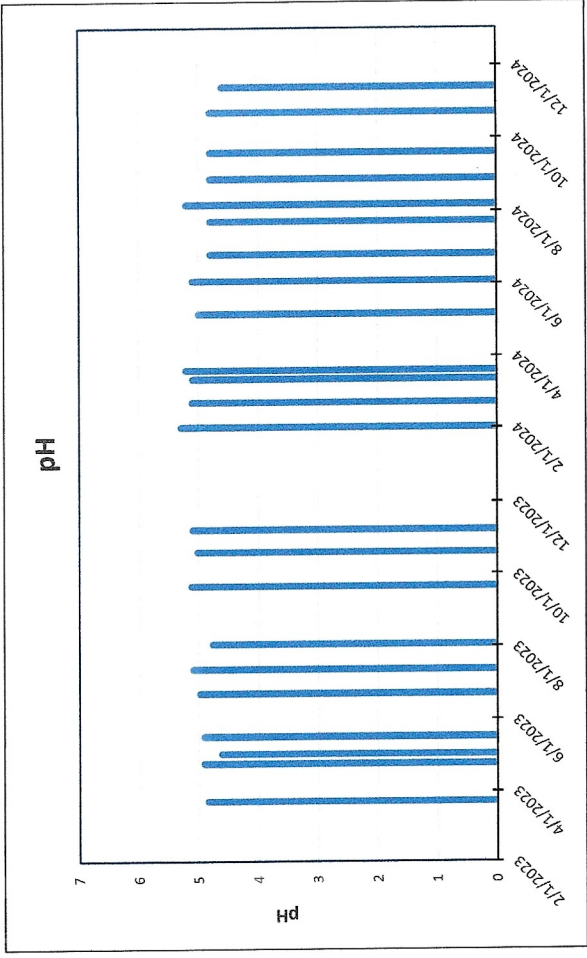
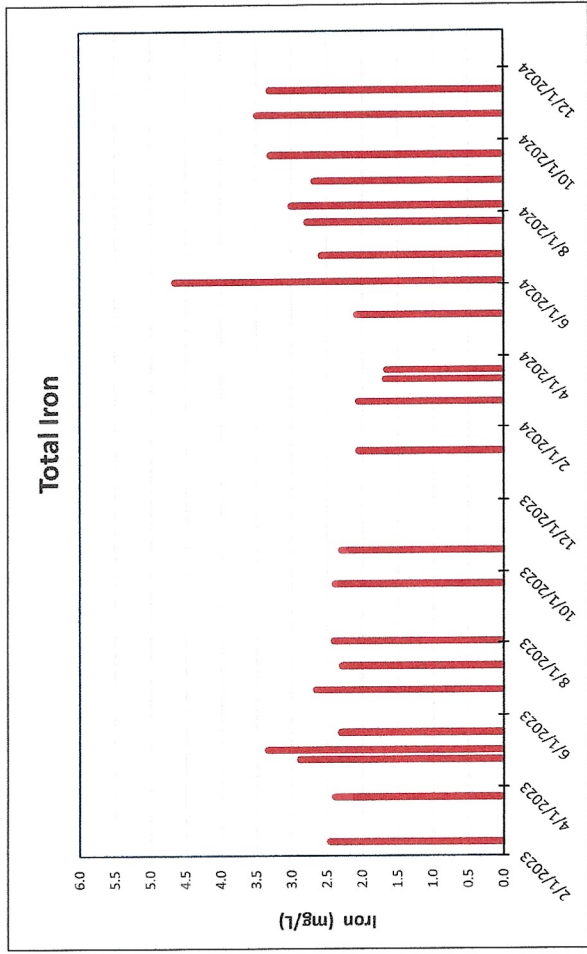
Jeddo Tunnel Discharge

Working with PA DEP, USGS replaced an old destroyed gaging station located at the Jeddo Tunnel exit in the fall of 2022. Real-time flow data is now available simply by accessing the USGS website at: <https://waterdata.usgs.gov/monitoring-location/01538510>

Alongside the USGS graph we have added the GPM (gallons per minute) unit for those that think in terms of GPM.

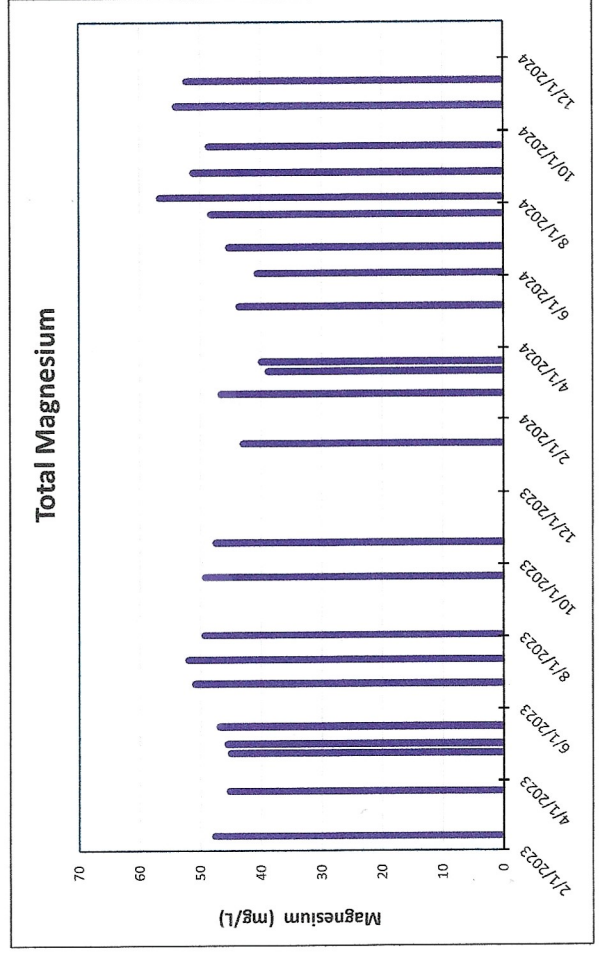
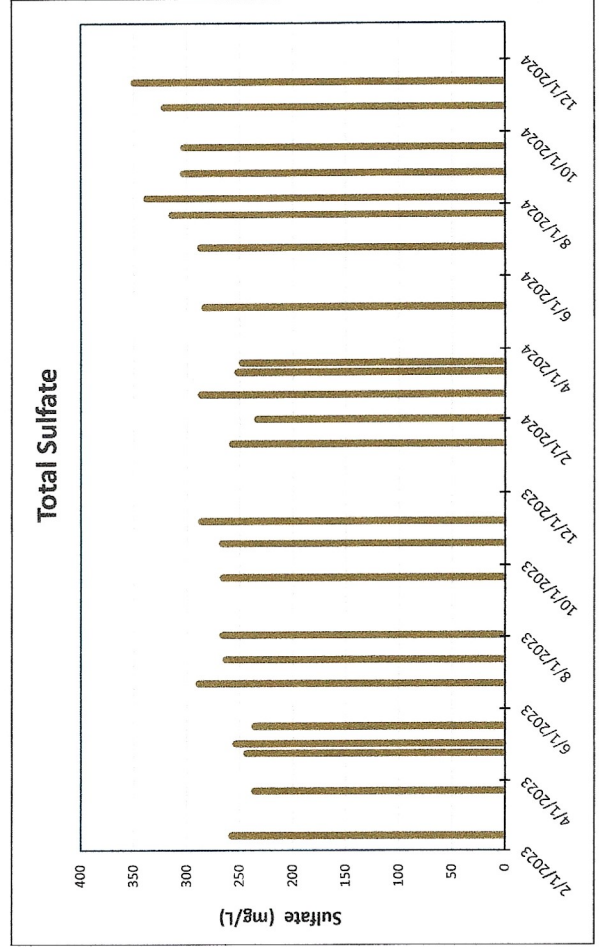
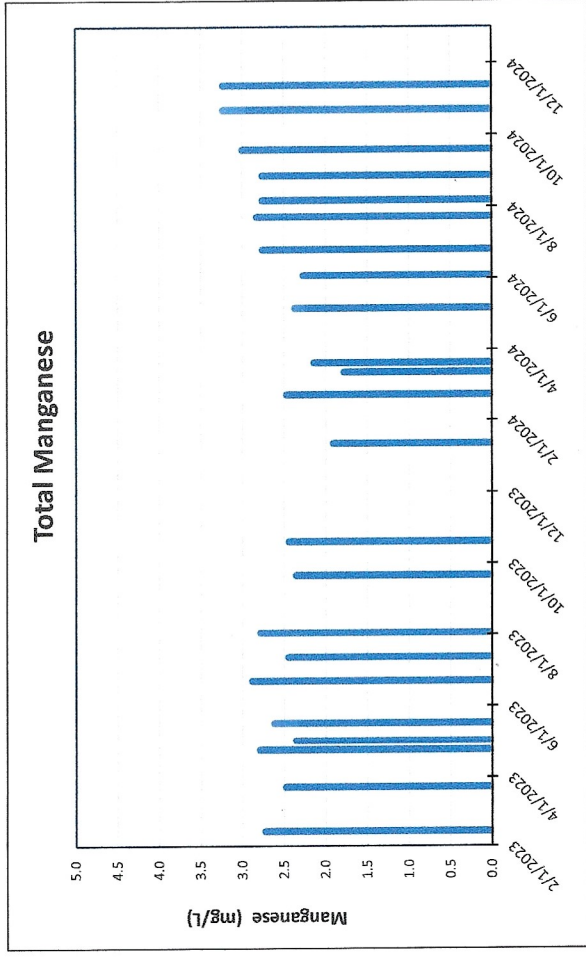
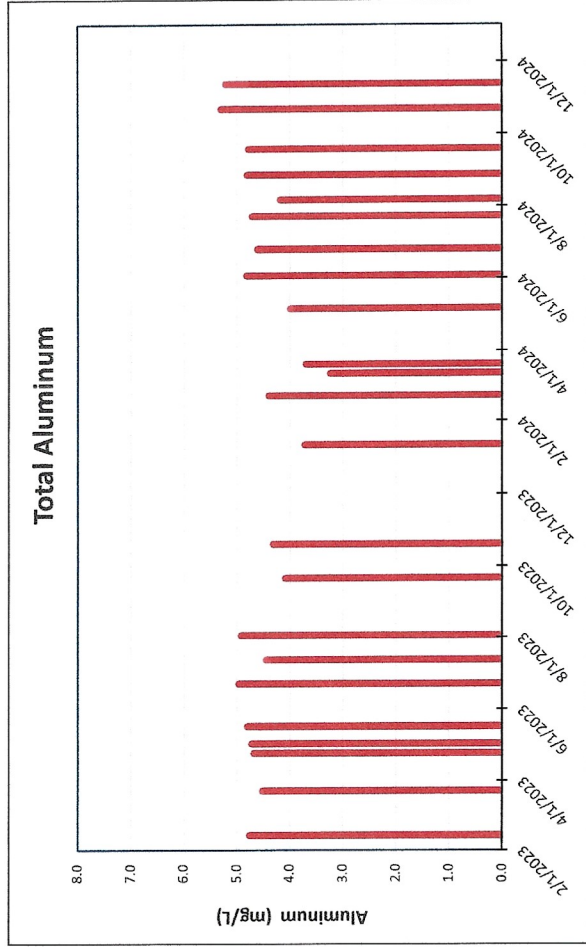


Jeddo Tunnel Drainage PA DEP WQ DATA



Jeddo Tunnel Drainage

PA DEP WQ DATA



SUMMARY

We hope you have found this report to be useful and informative. It reflects our current testing program, but we will be enhancing the program as our capabilities increase.

We would be happy to conduct a public presentation for the benefit of your citizens and other interested parties if you feel it might prove useful. We welcome any comments, questions or suggestions. In addition, we are always looking for volunteers to join our testing team; training and support are provided.

Although the focus of this report is our water quality testing, we would be happy to partner with you on any watershed-related activities.

**PLEASE NOTE THAT TEST RESULTS CONTAINED
IN THIS REPORT ARE INTENDED TO BE USED FOR
INFORMATIONAL PURPOSES ONLY AND ARE NOT
APPROPRIATE FOR INDUSTRIAL, MEDICAL, LEGAL
OR COMMERCIAL APPLICATIONS**

CONTACT INFORMATION

**Friends of the Nescopeck
PO Box 912
Conyngham, PA 18219**

nescopeckfriends@yahoo.com

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